SACRAMENTO AREA COUNCIL OF GOVERNMENTS

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE METROPOLITAN TRANSPORTATION PLAN/ SUSTAINABLE COMMUNITIES STRATEGY FOR 2035

STATE CLEARINGHOUSE # 2011012081

Prepared by:
Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, California 95814
November 2011

Sacramento Area Council of Governments, November 2011. *Draft Environmental Impact Report for the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035*
State Clearinghouse #2011012081

NOTICE OF PUBLIC HEARINGS FOR SACOG DRAFT MTP/SCS AND AVAILABILITY OF, AND PUBLIC COMMENT PERIOD FOR, THE ASSOCIATED DRAFT ENVIRONMENTAL IMPACT REPORT

The Sacramento Area Council of Governments (SACOG) will hold four public hearings for the Draft Metropolitan Transportation Plan/Sustainable Community Strategies for 2035 (MTP/SCS) and associated Draft Environmental Impact Report (DEIR). The hearings will be held at 6:30 p.m. on the following dates and at the following locations: 12/6/11, Roseville Civic Center, 311 Vernon St., Roseville; 12/8/11, Woodland Community Center, 2001 East St., Woodland; 12/14/11, Folsom Community Center, 52 Natoma St., Folsom; and 1/4/12, SACOG, 1415 L St. #300, Sacramento.

As the lead agency pursuant to the California Environmental Quality Act, SACOG announces the completion and availability of a DEIR for the Draft MTP/SCS. The public comment period for the DEIR opens on November 21, 2011, and concludes at 5 p.m., January 9, 2012.

The Draft MTP/SCS and the associated DEIR cover the area within the counties of Sacramento, Yolo, Yuba, Sutter, Placer and El Dorado (excluding the Lake Tahoe basin). The Draft MTP/SCS, prepared in coordination with cities, counties, and other public agencies in the SACOG region, is a long-range transportation plan and sustainable communities strategy to serve existing and projected residents and workers within the Sacramento region through the year 2035. The Draft MTP/SCS accommodates another 871,000 residents, 362,000 new jobs, and 303,000 new homes with a transportation investment strategy of $35 billion. SACOG is required under federal and state law to update the MTP/SCS every four years.

The DEIR identifies significant effects in the following areas: aesthetics; agriculture and forestry resources; air quality; biological resources; cultural and paleontological resources; energy and global climate change; geology, seismicity, soils and mineral resources; hazards and hazardous materials; hydrology and water quality; land use and planning; noise; population and housing; public services and recreation; transportation; and utilities and service systems.

The California Environmental Quality Act requires this notice to disclose whether any listed toxic sites are present at the project site. Some areas within the Draft MTP/SCS are contained on the lists compiled pursuant to California Government Code sections 65962.5(a)(4) and (c)(1-3). Since this is a regional, programmatic DEIR, subsequent project-level environmental documents will be required to disclose the presence of toxic sites for the individual projects.

Please comment in writing to SACOG, 1415 L St. #300, Sacramento CA, 95814, Attention: EIR Comments, or offer testimony in person during a public hearing. Contact AJ Tendick with any questions at 916-321-9000 or atendick@sacog.org.

The Draft MTP/SCS and DEIR are available for public review at the SACOG office beginning November 21, 2011, during normal business hours, online at www.sacog.org, and at the following library locations:

- Arcade, 2443 Marconi Avenue, Sacramento
- Arden-Dimick, 891 Watt Avenue, Sacramento
- Carmichael, 5605 Marconi Avenue, Sacramento
- Central, 828 I Street, Sacramento
- Colonial Heights, 4799 Stockton Boulevard, Sacramento
- Belle Cooledge, 5600 South Land Park Drive, Sacramento
- Courtland, 170 Primasing Avenue, Courtland
- Del Paso Heights, 920 Grand Avenue, Sacramento
- Elk Grove, 8900 Elk Grove Boulevard, Elk Grove
- Fair Oaks, 11601 Fair Oaks Boulevard, Fair Oaks
- Franklin, 10055 Franklin High Road, Elk Grove
- Galt – Marian O. Lawrence, 1000 Caroline Avenue, Galt
- Isleton, 412 Union Street, Isleton
- Ella K. McClatchy, 2112 22nd Street, Sacramento
- McKinley, 601 Alhambra Boulevard, Sacramento
- Martin Luther King, Jr., 7340 24th Street Bypass, Sacramento
- North Natomas, 4660 Via Ingoglia, Sacramento
- North Sacramento – Hagginwood, 2109 Del Paso Boulevard, Sacramento
- Orangevale, 8820 Greenback Lane, Suite L, Orangevale
- Rancho Cordova, 9845 Folsom Boulevard, Sacramento
- Rio Linda, 902 Oak Lane, Rio Linda
- Robbie Waters Pocket-Greenhaven, 7335 Gloria Drive, Sacramento
- South Natomas, 2901 Truxel Road, Sacramento
- Southgate, 6132 66th Avenue, Sacramento
- Sylvan Oaks, 6700 Auburn Boulevard, Citrus Heights
- Valley Hi-North Laguna, 7400 Imagination Parkway, Sacramento
- Walnut Grove, 14177 Market Street, Walnut Grove
- El Dorado County Library, 345 Fair Lane, Placerville
- Placer County Library, 350 Nevada Street, Auburn
- Sutter County Library, 750 Forbes Avenue, Yuba City
- Yolo County Library, 226 Buckeye Street, Woodland
- Yuba County Library, 303 Second Street, Marysville

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EXECUTIVE SUMMARY

PROJECT UNDER REVIEW

This Draft EIR evaluates the environmental impacts related to the adoption and implementation of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) for the Sacramento Area Council of Governments (SACOG) region.

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system. Preparation of the MTP is one of SACOG's primary statutory responsibilities under federal and state law. An MTP, also referred to in other regions as a Regional Transportation Plan (RTP) or Long-Range Transportation Plan (LRTP), is the mechanism used in California by both Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) to conduct long-range (at least 20-year) planning in their regions. SACOG must adopt an MTP and update it every four years, or more frequently, if the region is to receive federal or state transportation dollars for public transit, street/road, bicycle, and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region as informed by the Sacramento Region Blueprint (Blueprint).

Since adoption of the 2008 MTP, California adopted the Sustainable Communities and Climate Protection Act (Senate Bill 375, or SB 375), which requires MPOs to include a Sustainable Communities Strategy (SCS) element in their MTP updates. The SCS is aligned in purpose with the Sacramento region's smart land use Blueprint and the MTP is intended to implement the Blueprint, therefore the name of the plan is the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for 2035.

The plan area for the proposed MTP/SCS includes the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties, exclusive of the Tahoe Basin. Located in the north San Joaquin Valley in Central California, the plan area encompasses 3,863,373 acres (6,037 square miles). The plan area contains 721,872 acres of developed land (as of 2008). To accommodate a projected increase of approximately 871,000 people, 303,000 new housing units and 361,000 new employees in the region through the year 2035, the proposed MTP/SCS projects the development of an additional 53,266 acres of land.

The MTP/SCS includes a set of capital and operational improvements to the regional transportation system including road, bicycle, pedestrian, and transit projects. The plan also includes maintenance and rehabilitation activities to preserve the existing and expanded transportation system through 2035. Funding to support the transportation investments in the proposed MTP/SCS comes from a number of federal, state, and local sources, each with specific purposes and restrictions. In total, SACOG forecasts $35.2 billion in revenues ($49.8 billion escalated) over the planning period. Compared to the 2008 MTP, the revenues supporting the proposed MTP/SCS reflect a roughly 13 percent reduction in total budget.

The transportation projects contained in the proposed MTP/SCS are matched to the available revenues for the planning period. The general level, type, and extent of investments covered by the plan are described in more detail below.

- $11.5 billion ($16.4 billion YOE[1]) goes to road and highway maintenance and rehabilitation, including routine maintenance, major reconstructions, and various safety improvements.

- $11.3 billion ($15.9 billion YOE) goes to transit investments, including rail extensions and a 95 percent increase in bus service hours. An estimated $4.2 billion ($7.2 billion YOE) in capital investments support the additional $10.1 billion ($17.4 billion YOE) needed to operate these transit services.

- $7.4 billion ($10.5 billion YOE) goes to road and highway capital improvements, including intersection improvements, safety projects, signal timing, road widening in growth areas, and new connections for local access.

- $2.8 billion ($4.0 billion YOE) goes to bicycle and pedestrian improvements, including bicycle trails, sidewalks, ADA retrofits, and supporting facilities. In addition, an estimated 16 percent of the road capital projects have a bicycle or pedestrian feature that is not included separately in the bicycle and pedestrian improvement allocation.

- $2.2 billion ($3.1 billion YOE) for other types of improvements important to achieving regional goals, including project development and analysis, community design incentives, travel demand management (including the regional rideshare program), clean air, open space, technology deployment, and enhancement programs.

The proposed MTP/SCS is organized into the following chapters:

Chapter 1 – Introduction: Building a Sustainable System describes the need and purpose of the MTP/SCS, including regulatory and economic conditions that have changed from the 2008 plan.

Chapter 2 –Planning Process describes the major phases of the planning process, with particular attention to the public engagement process. Public engagement included two series of focus group meetings, a county-scale public workshop series, and numerous stakeholder and local agency meetings.

Chapter 3 – Summary of Growth and Land Use Forecast is a new element to the plan that highlights the land use aspects of the Sustainable Communities Strategy.

Chapter 4 – Summary of Budgets and Investments summarizes the plan's $35.2 billion of transportation revenues and expenditures by program category and constitutes the transportation aspects of the Sustainable Communities Strategy.

[1] Year of Expenditure (YOE). This concept is explained in more detail in Chapter 2, Project Description.

Chapter 5 – Plan Performance describes the transportation performance of the proposed MTP/SCS in three parts: Chapter 5A provides an overview of performance and the land use-transportation connection intrinsic to the development of the proposed MTP/SCS; Chapter 5B describes the performance of the proposed MTP/SCS in terms of vehicle miles traveled and roadway congestion; Chapter 5C describes the transit and non-motorized travel performance of the proposed MTP/SCS.

Chapter 6 – Policies and Supportive Strategies contains the policies and strategies that support implementation of the proposed MTP/SCS.

Chapter 7 – Environmental Sustainability describes how environmental resources were considered in the development of the proposed MTP/SCS. It also describes the plan's effect on a number of environmental issues: natural resource data and analysis from the Rural-Urban Connections Strategy study considered in the creation of the land use forecast and assessment of the plan's impact on natural resources, the plan's effects on air quality and health issues, and the greenhouse gas performance of the proposed MTP/SCS – including the means by which the plan achieves its SB 375 greenhouse gas (GHG) emissions reduction targets.

Chapter 8 – Equity and Choice provides an environmental justice analysis of the proposed MTP/SCS transportation investments as required by federal and state law, as well as a broader transportation accessibility analysis of the plan.

Chapter 9 – Economic Vitality analyzes the changing commute patterns of the region over the planning period, including the types of projects that address commuting and congestion, and current efforts to support goods movement.

Chapter 10 – Financial Stewardship analyzes how the proposed MTP/SCS addresses the ongoing funding challenges to road maintenance and rehabilitation and transit capital and operations. It also describes the investment strategies that support road and transit operations and maintenance including: transportation demand management and transportation system management (including Intelligent Transportation Systems) projects and programs, and projects that address road safety and emergency preparedness.

AREAS OF CONTROVERSY

CEQA Guidelines section 15123(b)(2) requires that an EIR contain a summary discussion of areas of controversy known to the lead agency (SACOG), including issues raised by agencies and the public. SACOG initiated the EIR scoping process on December 15, 2010, with an initial circulation of a Notice of Preparation (NOP) to public agencies and regional stakeholders considered likely to be interested in the project and its potential impact. The NOP was circulated again on January 31, 2011, through the State Clearinghouse (SCH No. 2011012081). SACOG conducted an MTP/SCS EIR public scoping workshop on February 2, 2011.

Comments were encouraged in person, via email, phone, facsimile, or U.S. Mail. Issues and areas of controversy raised during the NOP comment period are categorized below. A copy of the NOPs and letters received is provided in Appendix PD-1.

Project-Specific Concerns:

- Allocation of growth between/among community types
- Bicycle, pedestrian, and transit utilization
- Clarity of alternatives
- Definition of "no project" alternative
- Elimination of traffic lanes and road diets
- Expansion of roadways to six lanes
- Investment in bicycle and pedestrian facilities
- Investment in complete streets
- Land use assumptions
- Land use density and greenhouse gases
- Local land use and decision making authority
- Location of bus rapid transit (BRT) routes
- Multi-modal level of service
- Project financial feasibility
- Project tiering opportunities
- Regional vehicle fleet and greenhouse gases
- Transportation analysis and assumptions

Environmental Impact Area Concerns:

- Aesthetics and views
- Affordable housing
- Agricultural resources
- Air quality
- Bicycle and pedestrian safety
- Emergency access and evacuation
- Environmental justice populations
- Flood plains and flood risks
- Geology and soils
- Goods movement
- Greenhouse gas emissions and climate change
- Growth inducement
- Hydrology and water quality
- Indirect impacts to biological resources
- Indirect impacts to cultural and historical resources
- Mineral resources
- Noise
- Parks and open space

- Public health and safety
- Quality of life
- Senior, youth, and disabled populations

ISSUES TO BE RESOLVED

CEQA Guidelines section 15123(b)(3) requires that an EIR contain a discussion of issues to be resolved. Issues to be resolved in this EIR include choosing among alternatives to the MTP/SCS and how to mitigate significant environmental impacts identified in this EIR. When approving the MTP/SCS, the SACOG Board must decide whether the benefits of the project override those environmental impacts that cannot be feasibly avoided or substantially reduced. If so, the SACOG Board would adopt a Statement of Overriding Considerations.

SUMMARY OF REGULATORY/POLICY CONSISTENCY

Section 15125(d) of the CEQA Guidelines requires the EIR to discuss "any inconsistencies between the proposed project and applicable general plans and regional plans." This EIR analyzes adoption of a regional transportation plan; therefore consistency with lower level document like general plans and project plans are not applicable at this programmatic level. Consistency with applicable general plans will be considered as projects are carried forward for project-specific review. Implementing agencies will also be required to comply with any applicable consultation requirements such as those established by Government Code section 65402 in evaluating conformity with applicable general plans. Consistency with air quality attainment plans is addressed in Chapter 4 - Air Quality.

SUMMARY OF IMPACTS

This summary provides an overview of the analysis contained in Chapters 3 through 17 and 19 of this EIR including: impacts found not to be significant; impacts found to be significant; mitigation measures that would avoid or reduce significant impacts; and impacts found to be significant and unavoidable.

IMPACTS FOUND NOT TO BE SIGNIFICANT

Section 15128 of the CEQA Guidelines requires an EIR to contain a statement briefly indicating the reasons why various possibly significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. This EIR addresses the full scope of possible environmental impacts in detail. Please see Chapters 3 through 17, and 19. Pursuant to Section 15060(d) of the CEQA Guidelines, no Initial Study was prepared for this project.

IMPACTS FOUND TO BE SIGNIFICANT

Section 15382 of the CEQA Guidelines define a significant effect on the environment as a substantial, or potentially substantial, adverse change in any physical conditions within the area affected by the project. These physical areas include land, air, water, minerals, flora, fauna,

ambient noise, and objects of historic or aesthetic significance. Adoption and implementation of the MTP/SCS has been determined to result in significant effects in several impact areas as described in Chapters 3 through 17 and 19. The results of this analysis are summarized in Table ES.1, Summary Table, at the end of this chapter.

MITIGATION MEASURES THAT WOULD AVOID OR REDUCE SIGNIFICANT IMPACTS

Section 15370 of the CEQA Guidelines defines mitigation as: avoiding the impact, minimizing the impact, rectifying the impact, reducing or eliminating the impact, and/or compensating for the impact. Chapters 3 through 17, and 19 of this EIR identify mitigation measures that could be implemented to reduce or avoid identified impacts. Table ES.1 summarizes these measures.

IMPACTS FOUND TO BE SIGNIFICANT AND UNAVOIDABLE

Under CEQA, a significant and unavoidable effect of the project is one that would cause a substantial adverse effect on the environment and for which no mitigation is available to reduce the impact to a less than significant level if the project is approved. Chapters 3 through 17, and 19 of this EIR identify impacts that would remain significant (and would therefore be unavoidable) even after implementation of feasible mitigation measures, if any. Table ES.1 summarizes those impacts that would remain significant and unavoidable.

SUMMARY OF ALTERNATIVES

Chapter 18 contains a comparative analysis of the alternatives listed below. Table 18.3 in Chapter 18 provides a comparative summary of impacts of each of these alternatives.

Alternative 1: No project/Workshop Scenario 1
Alternative 2: Workshop Scenario 2
Alternative 3: Workshop Scenario 3

CUMULATIVE IMPACTS

The cumulative impact analysis is provided in Chapter 19 – Other CEQA Considerations. Table ES.1 summarizes cumulative impacts.

SUMMARY TABLE

The following table (Table ES.1, Summary Table) has been organized to correspond with environmental issues discussed in Chapters 3 through 17 and 19 of this EIR. The summary table is arranged as follows. Each row addresses a separate impact from Chapters 3 through 17, and 19. The first column provides the impact number and the full text of the impact statement. The impact number contains an alpha-coded prefix that indicates the topical area. For example AES is used for Aesthetics. Column two differentiates between land use impacts and transportation impacts.

The next nine columns reflect the conclusion of the impact analysis for each of the identified geographies. A coding system is utilized comprised of solid, half, and hollow circles to represent the following:

● = PS/SU (Potentially significant before mitigation; Significant and Unavoidable after mitigation)

◖ = PS/LS/SU (Potentially significant before mitigation; Less than significant after mitigation but identified as Significant and Unavoidable because SACOG cannot compel implementation)

○ = LS (Less than significant; no mitigation required)

The last column identifies each mitigation measure by number and summarizes the mitigation measures.

REG: Regional
CCC: Center and Corridor Communities
EC: Established Communities
DC: Developing Communities
RRC: Rural Residential Communities
LNID: Lands Not Identified for Development
PLA: Placer County TPA
SAC: Sacramento County TPA
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● Potentially Significant; Significant and Unavoidable after mitigation is adopted

Impact Statement		A.	B. Localized					C. Transit Priority Areas			Mitigation
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
AESTHETICS											
AES – 1a: Cast glare and light in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	◑	○	○	◑	◑	○	○	○	○	Mitigation Measure AES-1: Reduce sun glare resulting from implementation of new transportation projects. Mitigation Measure AES-2: Design structures to avoid or reduce impacts resulting from glare. Mitigation Measure AES-3: Design lighting to minimize light trespass and glare.
	Transpo.	◑	○	○	◑	◑	◑	○	○	○	
AES – 1b: Cast shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
AES – 2: Block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures), as seen from public viewing areas, including state-designated scenic highways.	Land Use	●	●	●	●	○	○	●	●	●	Mitigation Measure AES-4: Protect panoramic views and views of significant landscape features or landforms. Mitigation Measure AES-5: Design river crossings to minimize aesthetic and visual impacts and to protect scenic and panoramic views of significant landscape features and landforms to the greatest feasible extent.
	Transpo.	●	●	○	●	○	○	○	●	○	
AES – 3: Substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.	Land Use	●	○	○	●	○	○	○	○	○	Mitigation Measure AES-6: Design projects to be visually compatible with surrounding areas.
	Transpo.	●	○	○	●	○	○	○	○	○	

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		A.	**B. Localized**					**C. Transit Priority Areas**			
Impact Statement		**REG**	**CCC**	**EC**	**DC**	**RRC**	**LNID**	**PLA**	**SAC**	**YOL**	**Mitigation**
AES – 4a: Result in construction-related impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	**Mitigation Measure AES-7: Implement Mitigation Measure AES-3.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure AES-8: Reduce the visibility of construction-related activities**
AES – 4b: Result in construction-related impacts that would block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	**Mitigation Measure AES-9: Implement Mitigation Measure AES-8.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
AES – 4c: Result in construction-related impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	**Mitigation Measure AES-10: Implement Mitigation Measure AES-8.** **Mitigation Measure AES-11: Re-vegetate exposed earth surfaces.**
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	**Mitigation Measure AES-12: Minimize contrasts between the project and surrounding areas.** **Mitigation Measure AES-13: Replace and renew landscaping along roadway corridors and development sites.**

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Impact Statement		A.	B. Localized					C. Transit Priority Areas			Mitigation
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
AGRICULTURE AND FORESTRY RESOURCES											
AG-1: Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation, to non-agricultural use.	Land Use	●	●	●	●	●	○	○	●	●	Mitigation Measure AG-1: Mitigate for loss of farmland.
	Transpo.	●	●	●	●	●	●	○	●	●	
AG-2: Conflict with existing zoning or general plan land use designations for agricultural use, or with a Williamson Act Contract.	Land Use	●	●	●	●	●	○	○	●	●	Mitigation Measure AG-2: Implement Mitigation Measure AG-1.
	Transpo.	●	●	●	●	●	●	○	●	○	
AG – 3: Conflict with existing zoning or land use designation for, or cause rezoning of, forest land, timberland, or timberland zoned timberland production.	Land Use	●	○	○	○	●	○	○	○	○	Mitigation Measure AG-3: Mitigate for loss of forest land or timberland.
	Transpo.	●	○	○	○	●	○	○	○	○	
AG-4: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.	Land Use	●	○	●	●	○	○	○	○	○	Mitigation Measure AG-4: Inventory innovative ideas and best practices from the RUCS toolkit, USEPA and USDA Supporting Sustainable Rural Communities publication, and other sources and implement a locally appropriate strategy to manage growth issues at the rural-urban interface to support the long-term viability of agriculture in the SACOG region.
	Transpo.	●	○	●	●	○	●	○	○	○	

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AG-5: Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub.Resources Code § 12220(G)) or conversion of Forest Land to nonforest use.	Land Use	●	○	○	●	●	○	○	○	○	Mitigation Measure AG-5: Implement Mitigation Measure AG-3.
	Transpo.	●	○	○	●	●	○	○	○	○	
AG-6: Result in construction impacts that would convert prime farmland, unique farmland, or farmland of statewide importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.	Land Use	○	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure AG-6: Minimize construction-related impacts to agricultural and forestry resources. Mitigation Measure AG-7: Implement Mitigation Measure AES-3.
	Transpo.	○	◑	◑	◑	◑	◑	◑	◑	◑	
AIR QUALITY											
AIR–1: Conflict with or obstruct implementation of the applicable air quality plans.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
AIR-2: Be inconsistent or exceed applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure AIR – 1: Implementing agencies should require air quality modeling for individual land use and transportation projects to determine whether thresholds of significance for long-term operational criteria air pollutant emissions are exceeded and apply recommended applicable mitigation measures as defined by the applicable local air district.
	Transpo.	●	●	●	●	●	○	●	●	●	

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AIR–3: Expose sensitive receptors to substantial TAC concentrations.	Land Use	●	●	●	●	●	●	●	●	●	Mitigation Measure AIR – 2: Adhere to ARB Handbook siting guidance to the maximum extent possible.
	Transpo.	●	●	●	●	●	●	●	●	●	
AIR–4: Create objectionable odors affecting a substantial number of people.	Land Use	●	●	●	●	○	○	●	●	●	Mitigation Measure AIR-3: Implementing agencies should require assessment of new and existing odor sources for individual land use projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the applicable local air district and best practices.
	Transpo.	○	○	○	○	○	○	●	●	●	
AIR-5a: Be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term operational criteria air pollutant emissions.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measures AIR — 4: Implementing agencies should require project applicants to implement applicable, or equivalent, standard construction mitigation measures.
	Transpo.	◑	◑	◑	◑	◑	○	◑	◑	◑	
AIR-5b: Expose sensitive receptors to substantial TAC concentrations from construction.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measures AIR—5: Implement Mitigation Measure AIR-4.
	Transpo.	◑	◑	◑	◑	◑	○	◑	◑	◑	
AIR-5c: Create objectionable odors from construction affecting a substantial number of people.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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BIOLOGICAL RESOURCES											
BIO-1a: Potential Direct and Indirect Impacts on Special-Status Plant Species.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-1: Avoid, minimize, and mitigate impacts on special-status plant species.
	Transpo.	●	●	●	●	●	●	●	●	●	
BIO-1b: Potential Direct and Indirect Impacts on Special-status Wildlife Species.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-2: Avoid, minimize, and mitigate impacts on special-status wildlife species.
	Transpo.	●	●	●	●	●	●	○	●	●	
BIO-1c: Potential Direct and Indirect Impacts on Special-Status Fish Species.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-3: Avoid, minimize, and mitigate impacts on special-status fish species.
	Transpo.	●	●	●	●	●	●	○	●	●	
BIO-2a: Potential Loss and Disturbance of Riparian Habitat.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-4: Avoid, minimize, and mitigate impacts to riparian habitats.
	Transpo.	●	●	●	●	●	●	○	●	●	

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BIO-2b: Potential Loss or Alteration of Oak Woodlands.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-5: Avoid, minimize, and mitigate impacts to oak woodland habitats.
	Transpo.	●	●	●	●	●	●	○	○	●	
BIO-3: Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.	Land Use	●	●	●	●	●	○	○	●	●	Mitigation Measure BIO-6: Avoid, minimize, and mitigate impacts to wetland and other waters.
	Transpo.	●	●	●	●	●	●	○	●	●	
BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Land Use	●	●	●	●	●	○	○	○	●	Mitigation Measure BIO-7: Avoid, minimize, and mitigate impacts to wildlife corridors
	Transpo.	●	●	●	●	●	●	○	○	○	
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-8: Avoid, minimize, and mitigate for impacts on protected trees and other biological resources protected by local ordinances.
	Transpo.	●	●	●	●	●	●	●	●	●	
BIO-6: Conflict with the Provisions of an Adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or Other Approved Local, Regional, or State Habitat Conservation Plan.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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BIO-7: Construction Related Impacts to Biological Resources.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure BIO-9: Avoid and minimize, and mitigate for construction-related impacts.
	Transpo.	●	●	●	●	●	●	●	●	●	
CULTURAL AND PALEONTOLOGICAL RESOURCES											
CR-1: Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 as a result of the construction or ongoing operation.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure CR-1: Conduct historical resource studies and identify and implement project-specific mitigation.
	Transpo.	●	●	●	●	●	●	●	●	●	
CR-2: Cause a substantial adverse change in the significance of an historical or unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 as a result of construction or ongoing operations.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure CR-2: Conduct Archaeological Resource Studies and Identify and Implement Project-Specific Mitigation. Mitigation Measure CR-3: Reduce Visibility or Accessibility of Archaeological Resources.
	Transpo.	●	●	●	●	●	●	●	●	●	
CR-3: Directly or indirectly destroy a unique paleontological resource or site as a result of construction or ongoing operations.	Land Use	●	●	●	●	●	○	●	●	●	Mitigation Measure CR-4: Conduct project-specific paleontological resource studies and identify and implement mitigation
	Transpo.	●	●	●	●	●	●	●	●	●	
CR-4: Disturb any human remains, including those interred outside of formal cemeteries.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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CR-5: Eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines Section 15065a1).	Land Use	●	●	●	●	●	●	●	●	●	Mitigation Measure CR-5: Implement Mitigation Measures CR-1 through CR-4.
	Transpo.	●	●	●	●	●	●	●	●	●	
ENERGY AND GLOBAL CLIMATE CHANGE											
ENE-1: Conflict with the goal of decreasing overall per capita energy consumption.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
ENE-2: Conflict with the goal of decreasing reliance on natural gas and oil.	Land Use	○	○	○	◑	○	○	○	○	○	Mitigation Measure ENE-1: Require new development to comply with local GHG reduction plans that contain measures identified in the Scoping Plan.
	Transpo.	○	○	○	◑	◑	○	○	○	○	
ENE-3: Conflict with the goal of increasing reliance on renewable energy sources.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
ENE-4: Increase energy consumption from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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ENE-5: Substantially conflict with achievement of AB 32 Goals.	Land Use	○	○	○	○	◑	○	○	○	○	Mitigation Measure ENE-1: Require new development to comply with local GHG reduction plans that contain measures identified in the Scoping Plan. Mitigation Measure ENE-2: Local jurisdictions should work with other local, regional, and state agencies to implement GHG reduction and energy efficiency programs in rural areas.
	Transpo.	○	○	○	○	◑	○	○	○	○	
ENE-6: Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
ENE-7: Conflict with applicable local GHG reduction plans.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
ENE-8: Increase GHG emissions from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEOLOGY, SEISMICITY, SOILS AND MINERAL RESOURCES											
GEO–1a: Expose people or structures to substantial risk related to fault rupture.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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GEO–1b: Expose people or structures to substantial risk related to ground shaking.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEO–1c: Expose people or structures to substantial risk from seismic-related ground failure, including liquefaction.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEO–1d: Expose people or structures to substantial risk related to landslides.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEO–2: Result in substantial soil erosion or the loss of topsoil.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure GEO-1: Reduce soil erosion and loss of topsoil through erosion control mitigation and SWPPP.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
GEO–3: Located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEO–4: Result in development on expansive soil creating substantial risks to life or property.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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GEO–5: Have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems where sewers are not available for the disposal of waste water.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEO–6: Result in a substantial impact to geologic resources during construction.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure GEO-2: Implement Mitigation Measure GEO-1.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
GEO–7: Result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure GEO-3: Reduce the loss of availability of a designated mineral resource.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
GEO–8: Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
GEO-9: Result in a substantial impact to mineral resources during construction.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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HAZARDS AND HAZARDOUS MATERIALS											
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZ-2a: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZ-2b: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of asbestos into the environment.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure HAZ – 1: Implement dust mitigation plan applicable to activities with risk of disturbing areas known to contain NOA.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
HAZ-3: Emit hazardous emissions or cause handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZ–4: Result in development on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure HAZ - 2: Determine if project sites are included on a government list of hazardous materials sites pursuant to Government Code Section 65962.5.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	

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HAZ-5: For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZ–6: For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZ–7: Impede achievement of acceptable emergency service, including fire protection, police protection, and response times; or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Land Use	○	○	◑	◑	◑	○	○	○	○	Mitigation Measure HAZ – 3: Ensure adequate public services, emergency response times, and emergency plans are in place.
	Transpo.	○	○	◑	◑	◑	○	○	○	○	
HAZ-8: Expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HAZ-9: Result in construction impacts that would cause a hazard to the public or the environment.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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HYDROLOGY AND WATER QUALITY											
HYD- 1: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HYD- 2: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure HYD-1: Manage stormwater run-off and other surface drainage. Mitigation Measure HYD-2: Use best management practices to treat water quality. Mitigation Measure HYD-3: Implement Mitigation Measure GEO-1 (Reduce soil erosion and loss of topsoil through erosion control mitigation and SWPPP).
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
HYD- 3: Place housing within a 200-year flood hazard area (urban) or 100-year flood hazard area (rural) as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or place structures that would impede or redirect flood flows.	Land Use	◑	◑	◑	◑	○	○	○	◑	◑	Mitigation Measure HYD-4: Conduct hydrology studies for projects in floodplains.
	Transpo.	◑	◑	◑	◑	◑	◑	○	◑	◑	
HYD- 4: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HYD- 5: Exposure of more people and structures to seiche, tsunami or mudflow	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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HYD- 6: Exacerbate land subsidence associated with groundwater use	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure HYD-5: Implement Mitigation Measure PS-1. Mitigation Measure HYD-6: In areas of existing or potential future land subsidence due to groundwater pumping, establish cooperative regional relationships to define and manage sustainable yield.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
HYD- 7: Otherwise substantially degrade water quality	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
HYD- 8: Violate any water quality standards or waste discharge requirements resulting from construction activities	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
LAND USE AND PLANNING											
LU-1: Conflict with the land use requirements and objectives of Senate Bill 375.	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
NOISE											
NOI-1: Result in noise levels that exceed the community type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions.	Land Use	N/A	●	●	●	○	○	●	●	●	Mitigation Measure NOI-1: Employ measures to reduce noise from new land uses and transportation projects.
	Transpo.	N/A	●	●	●	●	○	●	●	●	

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Impact Statement		A.	B. Localized					C. Transit Priority Areas			Mitigation
		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	
NOI–2: Result in excessive vibration and groundborne noise.	Land Use	N/A	○	○	○	○	○	○	○	○	Mitigation Measure NOI-2: Employ vibration-reducing measures on new and expanded rail systems.
	Transpo.	N/A	◑	◑	◑	◑	○	◑	◑	◑	
NOI-3: Result in construction impacts that would increase noise levels above the community type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions; or result in excessive levels of vibration and groundborne noise.	Land Use	N/A	●	●	●	●	○	●	●	●	Mitigation Measure NOI-3: Reduce noise, vibration, and groundborne noise generated by construction activities.
	Transpo.	N/A	●	●	●	●	●	●	●	●	
POPULATION AND HOUSING											
POP-1 Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
PUBLIC SERVICES AND RECREATION											
PS–1: Impede achievement of acceptable school, library, social service, and parks and recreation facilities including capital capacity, equipment, and personnel.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure PS-1: Ensure adequate public services and utilities will be available to satisfy levels identified in local general plans or service master plans.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	

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PS–2: Result in the construction of new, or the expansion of existing, facilities to maintain adequate police, fire, emergency services, school, library, social services, and park and recreation services including capital capacity, equipment and personnel, and response times.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
TRANSPORTATION											
TRN-1: Cause an increase in vehicle miles traveled (VMT) per capita that exceeds the applicable baseline average.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
TRN-2: Cause an increase in VMT on congested roadways (C-VMT) per capita relative to the applicable baseline for the area, and cause an increase in C-VMT per capita that exceeds the baseline regional average.	Land Use	○	○	○	●	○	○	○	○	○	Mitigation Measure TRN –1: Implement transportation demand management and investment strategies to reduce congested vehicle miles traveled (C-VMT).
	Transpo.	○	○	○	●	○	○	○	○	○	
TRN-3: Cause combined bicycle, walk, and transit person trips per capita to be lower than the applicable baseline average, and cause a decline in the bicycle, walk, and transit person trips per capita that exceeds the baseline regional average.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
TRN-4: Cause a decrease in transit passenger boardings per vehicle service hour that results in transit passenger boardings that are lower than the baseline regional or local area average.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	

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TRN-5: Interfere with existing or planned pedestrian or bicycle facilities.	Land Use	○	○	○	○	○	○	○	○	○	
	Transpo.	○	○	○	○	○	○	○	○	○	
TRN-6: Disrupt the movement of agricultural products on rural roadways.	Land Use	○	○	○	●	●	○	○	○	○	Mitigation Measure TRN – 2: Strategies to support the movement of agricultural products on rural roadways near growth areas.
	Transpo.	○	○	○	●	●	○	○	○	○	
TRN-7: Result in construction activities that interfere with the ongoing operations of the regional or local area transportation system.	Land Use	○	●	●	●	●	●	●	●	●	Mitigation Measure TRN – 3: Apply best practice strategies to reduce the localized impact from construction activities on the transportation system.
	Transpo.	○	●	●	●	●	●	●	●	●	
UTILITIES AND SERVICE SYSTEMS											
USS–1: Result in an increased demand for surface or groundwater in excess of available supply.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure USS-1: Implement Mitigation Measure PS-1.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
USS-2: Exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.	Land Use	◑	◑	◑	◑	◑	○	◑	◑	◑	Mitigation Measure USS-2: Implement Mitigation Measure PS-1.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	

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USS–3: Result in the construction of additional utilities and service system infrastructure to maintain adequate sewer, wastewater treatment, fire flows, solid waste, power, and telecommunications systems.	Land Use	◑	◑	◑	◑	◑	◑	◑	◑	◑	Mitigation Measure USS-3: Perform Project-Level Environmental Review for New Wastewater Treatment Plants, Landfills, and Similar Large Utility Facilities.
	Transpo.	◑	◑	◑	◑	◑	◑	◑	◑	◑	
CUMULATIVE IMPACTS											
CUM-1: The contribution of the proposed MTP/SCS to cumulative aesthetic impacts in the form of night sky lighting and cumulative changes in the visual environment may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	◑	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-1: Implement Mitigation Measures in Chapter 3. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).
CUM-2: The contribution of the proposed MTP/SCS to cumulative loss of agricultural and forest land would be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-2: Implement Mitigation Measures in Chapter 4. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).
CUM-3: The contribution of the proposed MTP/SCS to cumulative air quality impacts in the region would be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-3: Implement Mitigation Measures in Chapter 5. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).

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Impact CUM-4: The contribution of the proposed MTP/SCS to cumulative impacts to biological resources may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-4: Implement Mitigation Measures in Chapter 6. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).
CUM-5: The contribution of the proposed MTP/SCS to cumulative impacts to cultural resources may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	◑	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-5: Implement Mitigation Measures in Chapter 7. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).
CUM-6: The contribution of the proposed MTP/SCS to cumulative energy consumption is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CUM-7: The contribution of the proposed MTP/SCS to cumulative GHG emissions and global climate change is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CUM-8: The contribution of the proposed MTP/SCS to cumulative impacts to geology, soils, seismicity, or mineral resources is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CUM-9: The contribution of the proposed MTP/SCS to cumulative impacts to hazards and hazardous materials is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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CUM-10: The contribution of the proposed MTP/SCS to cumulative impacts to hydrology and water quality in the form of off-site flooding, land subsidence from groundwater overdraft, and general degradation of water quality may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	◑	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-10: Implement Mitigation Measures in Chapter 11. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).
CUM-11: The contribution of the proposed MTP/SCS to cumulative land use and planning impacts is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CUM-12: The contribution of the proposed MTP/SCS to cumulative noise impacts may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-12: Implement Mitigation Measures in Chapter 13. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).
CUM-13: Implementation of the proposed MTP/SCS in conjunction with other planned development outside of the region would result in increases in population and housing. The potential cumulative environmental impacts of this are captured in other impact statements in this chapter. This change, in and of itself, is less than significant (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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CUM-14: The contribution of the proposed MTP/SCS to cumulative public service impacts in the form of state routes, freeways, and other roads under the jurisdiction of the CHP; rural wildland fire areas protected by CAL FIRE; and regional, state, and federal parks, open space, and recreational areas may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	◑	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-14: Implement Mitigation Measures in Chapter 15. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).
CUM-15: The contribution of the proposed MTP/SCS to cumulative transportation and traffic impacts is considered to be less than significant (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CUM-16: The contribution of the proposed MTP/SCS to cumulative water supply and infrastructure impacts may be cumulatively considerable. This is considered to be a potentially significant impact (PS).	Cum.	◑	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-16: Implement Mitigation Measures in Chapter 17. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).
CUM-17: The contribution of the proposed MTP/SCS to cumulative impacts to stormwater and associated infrastructure is considered to be a less than significant impact (LS). This is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CUM-18: The contribution of the proposed MTP/SCS to cumulative impacts to wastewater and associated infrastructure is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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		A.	B. Localized					C. Transit Priority Areas			
Impact Statement		REG	CCC	EC	DC	RRC	LNID	PLA	SAC	YOL	Mitigation
CUM-19: The contribution of the proposed MTP/SCS to cumulative impacts associated with solid waste management is considered to be potentially significant (PS).	Cum.	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mitigation Measure CUM-19: Implement Mitigation Measures in Chapter 17 will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).
CUM-20: The contribution of the proposed MTP/SCS to cumulative impacts related to natural gas, propane, electricity, or telecommunications services is considered to be a less than significant impact (LS).	Cum.	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

CHAPTER 1 - INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), this Program Environmental Impact Report (EIR) describes the environmental effects associated with adoption and implementation of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS). For this Draft EIR, "proposed MTP/SCS" means the Draft MTP/SCS released by the Sacramento Area Council of Governments (SACOG) Board of Directors on November 17, 2011, and available for review at www.sacog.org/2035. This Draft EIR has been prepared by SACOG pursuant to CEQA (Pub. Resources Code, § 21000 et seq.) and the State CEQA Guidelines (14 CCR § 15000 et seq.)

REGULATORY CONTEXT FOR THE MTP/SCS

SACOG is designated by the state and federal governments as the Metropolitan Planning Organization (MPO) for the Sacramento region and, as such, is responsible for developing a metropolitan transportation plan (MTP) and sustainable communities strategy (SCS) every four years in coordination with El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba counties, and the 22 cities within those counties, excluding the Tahoe Basin. The MTP/SCS incorporates county-wide transportation planning developed by the El Dorado County Transportation Commission and the Placer County Transportation Planning Agency under memoranda of understanding (MOUs) between those agencies and SACOG. Federal and state laws regarding the MTP/SCS are described below.

Federal Laws Regarding Metropolitan Transportation Plans

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU)

SAFETEA-LU of 2005 (23 U.S.C. § 507) governs the metropolitan transportation planning process which results in the Metropolitan Transportation Plan (23 U.S.C. §§ 134 – 135; Highways, 23 C.F.R. § 450; Environmental Protection, 40 C.F.R. § 93). Under this law, MPOs must conduct a metropolitan transportation planning process that is continuous, cooperative, and comprehensive, and that provides for consideration and implementation of projects, strategies, and services. SAFETEA-LU also requires the development of a transportation plan every four years, addressing no less than a 20-year planning horizon as of the effective date. SAFETEA-LU requires this transportation plan to address the following factors:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;

- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system.

The Federal Clean Air Act

The federal Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.) was passed in 1970 in response to growing concerns regarding the public health dangers of air pollution. The law was originally formulated in response to pollution generated by workplaces such as factories, and subsequently was amended to address vehicle-generated pollution with a focus on regulating the composition of gasoline. In 1990, a set of Clean Air Act Amendments were passed that recognized that the transportation system itself has an effect on travel behavior, and by extension, air quality. As part of the Amendments, new transportation projects were required to be in "conformity" with the Clean Air Act, meaning that transportation planning agencies such as SACOG must examine the long-term air quality impacts of their transportation system and ensure that it is compatible with the region's air quality goals. In doing so, regional agencies must work with state and local partner agencies to assess the impacts of growth on air pollution and decide how to manage growth.

California State Laws Regarding Regional Transportation Plans

SB 375 – The Sustainable Communities and Climate Protection Act of 2008

Since the adoption of the 2008 MTP, a new California law, the Sustainable Communities and Climate Protection Act , also known as Senate Bill 375 (Stats. 2008, ch. 728) (SB 375), was adopted. The bill focuses on aligning transportation, housing, and other land uses to achieve regional greenhouse gas (GHG) emission reduction targets established under the California Global Warming Solutions Act, also known as Assembly Bill 32 (Stats. 2005, ch. 488) (AB 32). While other efforts to reduce GHG emissions focus on alternative fuels and vehicle efficiency, SB 375 is intended to more effectively reduce emissions by coordinating land use and transportation planning at the regional level. SB 375 requires California MPOs to develop an SCS as part of the MTP, with the purposes of identifying policies and strategies to reduce per capita passenger vehicle-generated GHG emissions. In application, the SCS must identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population, including all economic segments of the population, of the region; identify areas within the region sufficient to house an eight-year projection of the regional housing need; identify a transportation network to service the regional transportation needs; gather and consider the best practically available scientific information regarding resources areas and farmland in the region; set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from

automobiles and light trucks to achieve the GHG emission reduction targets approved by the California Air Resources Board (ARB), if feasible; consider the state housing goals; and allow the regional transportation plan to comply with the federal Clean Air Act. (Gov. Code, § 65080, subd. (b)(F)(2)(B).) The process for developing an SCS must also follow public participation requirements outlined in SB 375. If the SCS does not achieve the GHG emission reduction targets set by ARB, an Alternative Planning Strategy (APS) must be developed to demonstrate how the targets could be achieved.

PURPOSE OF THIS DRAFT EIR

The purpose of an EIR is to identify a project's significant effects on the environment, identify alternatives to the project, and indicate the manner in which significant effects can be mitigated or avoided (Pub. Resources Code, § 21002.1(a)). Section 15382 of the State CEQA Guidelines defines a "significant effect on the environment" as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant. This Draft EIR analyzes the environmental effects of the proposed MTP/SCS and provides local decision-makers and the public with an objective analysis of the potential environmental consequences of implementing the proposed MTP/SCS. Mitigation has been recommended where feasible to reduce or avoid significant environmental impacts identified in the analysis; however, SACOG has no authority to enforce recommended mitigation measures on future lead agencies. For this reason, the mitigation measures listed in the preceding Executive Summary, and fully described in the following chapters, indicate the level of significance after mitigation of an impact, but also disclose the inability of SACOG to enforce such mitigation measures.

The State CEQA Guidelines section 15168 defines a program EIR as "…an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: 1) Geographically, 2) As logical parts in the chain of contemplated actions, 3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or 4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways." As a programmatic document, this Draft EIR presents a region-wide assessment of the impacts of the proposed MTP/SCS. Analysis of site-specific impacts of individual projects is not the intended use of a program EIR. Many specific projects are not currently defined to the level that would allow for such an analysis. Individual specific environmental analysis of each project will be undertaken as necessary by the appropriate implementing agency prior to each project being considered for approval.

This program Draft EIR serves as a first-tier environmental document under CEQA supporting second-tier environmental documents for:

- transportation projects developed during the engineering design process; and
- residential or mixed-use projects and transit priority projects consistent with the SCS.

Lead agencies implementing subsequent projects would undertake future environmental review for projects in the proposed MTP/SCS. These agencies would include the six counties and twenty-two cities within the plan area. Other project implementing agencies may include public transit providers**,** other public agencies such as air districts and the California Department of Transportation, Native American tribes, colleges and university transportation providers, and transportation management associations among others. All of these types of agencies, as well as the SACOG member agencies, would be able to prepare subsequent environmental documents that incorporate by reference the appropriate information from this program Draft EIR regarding secondary effects, cumulative impacts, broad alternatives, and other relevant factors. If the lead agency finds that implementation of a later activity would have no new effects and that no new mitigation measures would be required, that activity would require no additional CEQA review. Where subsequent environmental review is required, such review would focus on project-specific significant effects peculiar to the project, or its site, that have not been considered in this program Draft EIR.

SCOPE OF THIS DRAFT EIR

This Draft EIR analyzes the potential environmental impacts of the proposed MTP/SCS, in particular the long-term impacts of the plan's components. The Draft EIR also provides the basis for project-level CEQA compliance for implementation of future transportation projects and qualifying land use projects.

Each chapter of this Draft EIR provides an introduction, a regulatory and environmental setting, an explanation of the methodology and assumptions for the analysis, the criteria for determining significance of impacts, and the impacts and proposed mitigation measures. The following topics are analyzed in this Draft EIR:

- Aesthetics;
- Agricultural and Forestry Resources;
- Air Quality;
- Biological Resources;
- Cultural and Paleontological Resources;
- Energy and Global Climate Change;
- Geology, Soils and Seismicity;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Noise;
- Population and Housing;
- Public Services and Recreation;
- Transportation and Traffic;
- Utilities and Service Systems;
- Alternatives Analysis; and
- Other CEQA Considerations.

ORGANIZATION OF THIS DRAFT EIR

Report Structure

The content and format of this Draft EIR are designed to meet the requirements of CEQA and the State CEQA Guidelines. The Draft EIR is organized into the following chapters so that the reader can easily obtain information about the proposed MTP/SCS:

- The Executive Summary presents a summary of the proposed MTP/SCS and alternatives and a summary of the impacts and mitigation measures.
- Chapter 1 – Introduction, describes the overall purpose, scope and organization of this Draft EIR.
- Chapter 2 – Project Description, provides a description of the SACOG region, project background, project objectives, the components of the proposed MTP/SCS.
- Chapters 3 through 17 are each devoted to, and describe, the following topics for an environmental resource: existing conditions (setting); potential environmental impacts and their level of significance; and mitigation measures, if available, that would eliminate or reduce significant impacts.
- Chapter 18 – Alternatives Analysis, describes and evaluates alternatives to the proposed project.
- Chapter 19 – Other CEQA Considerations, provides an analysis of growth-inducing impacts, significant irreversible changes, and cumulative impacts.
- References - identifies the documents used (printed references) and individuals consulted (personal communications) during preparation of this Draft EIR.
- List of Preparers - Report Preparation, lists the individuals involved in preparing this Draft EIR.

Technical appendices are included at the end of the Draft EIR.

Level of Analysis

The proposed MTP/SCS is the first long-range transportation plan in the SACOG region to include an SCS. To assist the reader in understanding the new scope of SACOG's MTP (now MTP/SCS), potential impacts of the proposed MTP/SCS are analyzed first in terms of the land use components, then in terms of the transportation components of the plan, then, where applicable, in terms of the sum total of impacts from the combined land use and transportation components of the proposed MTP/SCS. This analytical structure is used to provide the reader information about all components of the proposed project. At the same time, the programmatic nature of this Draft EIR necessitates a general approach to the evaluation of existing conditions and potential impacts associated with implementation of the MTP/SCS. Quantitative analyses are provided where applicable and when information is available; in other cases, qualitative analyses are provided.

In addition to describing impacts of both the land use and transportation aspects of the project, this Draft EIR also conducts analyses at three geographic levels: Regional, Localized (Community Type), and Transit Priority Area, as appropriate to the environmental resource. Regional level analysis assesses the extent of the project's impacts on the entire SACOG region; Localized level analysis assesses the extent of the project's impact on each of five Community Types (defined fully in Chapter 2 – Project Description); Transit Priority Area analysis assesses the extent of the project's impact on each of three Transit Priority Areas (defined fully in Chapter 2 – Project Description). This analytical framework was used to provide greater detail on the potential environmental effects of this regional-scale project on smaller geographies. It was also employed to provide tiering opportunities for subsequent projects that qualify for SB 375 CEQA streamlining benefits.

Timeframe

The planning period of the proposed MTP/SCS spans a 27-year time period, from the year 2008 to 2035.

2008 Baseline

The CEQA Guidelines provide that the existing physical conditions at the time the Notice of Preparation ("NOP") is published will "normally" constitute the baseline. (Cal. Code Regs., tit. 14, § 15125 ("CEQA Guidelines").) The Supreme Court, in *Communities for a Better Environment v. South Coast Air Quality Management* (2010) 48 Cal.4th 310, 328, reaffirmed that: "[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline. Rather an agency enjoys the discretion to decide, in the first instance, exactly how the existing physical conditions without the project can most realistically be measured, subject to review, as with all CEQA factual determinations, for support by substantial evidence." The NOP for the MTP/SCS was issued January 31, 2011, thus this would "normally" constitute the baseline for purposes of environmental analysis. However, the use of a different baseline is appropriate where circumstances warrant and substantial evidence supports the agency's assumptions. (*Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278 [substantial evidence standard governs the determination of the environmental baseline]; see also *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 120 [when the "determination of a baseline condition requires choosing between…differing methodologies, it is the function of the lead agency to make those choices"].)

Recent judicial decisions have recognized three principles governing a lead agency's selection of the environmental baseline. First, "[a] baseline used in an EIR must reflect existing physical conditions; [second,] lead agencies do not have the discretion to adopt a baseline that uses conditions predicted to occur on a date subsequent to the certification of the EIR; and [third,] lead agencies do have the discretion to select a period or point in time for determining existing physical conditions other than the two points specified in subdivision (a) of Guidelines section 15125, so long as the period or point selected predates the certification of the EIR." (*Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48, 71, citing *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351,

1372-1380.) Additionally, where appropriate, the environmental baseline may consider environmental conditions over a range of time periods as an alternative to conditions based on a single snapshot in time. (*Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (2010) 190 Cal.App.4th 316, 336-338 [upholding use of historic average use as the baseline for water use]; see also *Fairview Neighbors v. County of Ventura* (1999) 70 Cal.App.4th 238, 242 [upholding use of historic traffic counts as the baseline level].) Therefore, a lead agency retains the discretion to select a period or point in time other than the date of publication of the NOP so long as it reflects existing physical conditions within the project area.

For this Draft EIR, each of the three levels of analysis (Regional, Localized, and Transit Priority Areas) assesses impacts in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that differs from existing conditions. Unless otherwise stated, "existing conditions" refers to conditions in the baseline 2008. The year 2008 was chosen as the baseline for this Draft EIR for the following reasons:

- SACOG's travel model requires comprehensive land use data, which are built upon baseline land use data. Baseline land use data are updated at parcel-level on a four-year cycle to coincide with each MTP/SCS update cycle. The housing unit, employee, and land use data used in the baseline land use data come from different sources and become available mid-year after the year selected as the MTP/SCS baseline (e.g., for the 2008 baseline, land use data representing 2008 conditions became available in mid-2009 from county assessors). Once data is acquired, it must be processed into a format compatible with SACOG's travel model. The resulting baseline data set is then vetted through local jurisdictions for accuracy. Edits are made to the baseline data set if local agencies provide corrections; the baseline data set is then recirculated for confirmation of accuracy. This detailed data assembly and vetting at a parcel level for the entire SACOG region is a labor intensive 18 to 24-month process. The baseline land use data set that represents 2008 conditions was created over two years and was completed in mid-2010. As a result, the 2008 land use data set was completed approximately six months before the NOP was issued and represents the most current data set compiled and fully vetted prior to release of the NOP. This 2008 data set was then used to develop alternative planning scenarios for consideration by the SACOG Board of Directors and for use in the extensive planning and public engagement process of the proposed MTP/SCS during late 2010.

- The most complete regional data on travel conditions is available for 2008. SACOG last assembled traffic counts taken by local agencies within their jurisdictions in 2008, and contracted for many counts in key locations not taken by local agencies. While subsequent year counts taken by local agencies may be available for some locations, 2008 constitutes the most comprehensive and consistent set of counts for the region. Additionally, vehicle miles traveled (VMT) estimates for the region are used in conjunction with traffic count data to establish traffic conditions. The VMT estimates are compiled from Highway Performance Monitoring System (HPMS) data, which have only been published for years up to 2009. No VMT estimates have yet been published for 2010 or 2011. Therefore, 2008 is the most current year for which both VMT and

traffic count data are available. Because it is important to have VMT and traffic count data for the same year to establish baseline conditions, 2008 is unique in that it is the most recent year for which comprehensive VMT and traffic count data are available.

- The U.S. Census Bureau American Community Survey's average five-year estimates, which provide the most complete coverage for many of the demographic data needed to support the baseline, have only been published for the period from 2005 through 2009 for the SACOG region. While detailed population data recently became available from the 2010 Decennial Census, data on household income and other key demographic statistics used in SACOG's travel model are not available for 2010 or 2011.

- Because the baseline must be an integrated set of land use, demographic, traffic count and VMT data, 2008 provides the most complete, integrated data portrait of the existing conditions in the region. In other words, 2008 is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region.

Interim Timeframes

The year 2035 is considered to be the horizon year of the proposed MTP/SCS. While the plan will be implemented gradually over the planning period, this Draft EIR does not analyze interim time frames because the four-year update cycle of the MTP/SCS already requires short-term adjustments to the plan. The one exception to this approach is in Chapter 8 – Energy and Global Climate Change, which examines impacts for the years 2020 and 2050, and in comparison to a baseline of 2005 to satisfy statutory requirements and state goals related to GHG emissions (Health & Saf. Code, § 38551(b)).

PUBLIC REVIEW AND PARTICIPATION PROCESS

SACOG is committed to effectively involving the public in the update of the MTP/SCS and therefore has conducted an extensive outreach process during the preparation of this Draft EIR to affected agencies and organizations interested in the proposed MTP/SCS. In accordance with the Public Participation Plan approved by the Board of Directors at the outset of the MTP/SCS planning process, SACOG has provided, and will continue to provide, opportunities for the public to participate in the development of the MTP/SCS.

Public involvement is a major component of the regional transportation planning process. In accordance with the public outreach requirements of SAFETEA-LU and SB 375, SACOG has provided opportunities for citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with reasonable opportunities to be involved in the metropolitan transportation planning processing with the development of the proposed MTP/SCS. SACOG conducted 26 focus groups for a diverse range of stakeholder and interest groups, nine general public workshops around the region, many more stakeholder meetings, and

monthly briefings at SACOG board and advisory committees. A full summary of this outreach process occurs in Chapter 2 – Project Description.

Comments on the MTP/SCS Draft EIR

SACOG initiated the EIR scoping process on December 15, 2010, with an initial circulation of a Notice of Preparation (NOP) to public agencies and persons considered likely to be interested in the project and its potential impacts. The NOP was circulated again on January 31, 2011, through the State Clearinghouse (SCH No. 2011012081). The NOP provided formal notification to all federal, state and local agencies involved with funding or approval of the project, and to other interested organizations and members of the public, of the preparation of this Draft EIR for the project. A copy of the NOP is provided in Appendix PD-1, as well as the written responses received. A public notice was published in newspapers of general circulation for both NOP comment periods. In addition, SACOG held a Scoping Meeting on February 2, 2011.

The Draft EIR for the Metropolitan Transportation Plan/Sustainable Communities Strategy 2035 is available for a 49-day public review, which is longer than the minimum 45-day review period required by CEQA. It was released as a companion document to the draft MTP/SCS, which the SACOG Board authorized public review at its November 17, 2011, meeting. A Notice of Availability (NOA) has been published in local newspapers and mailed to an extensive distribution list, and the Draft EIR has been posted on the SACOG website. SACOG has filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research, State Clearinghouse, indicating that this Draft EIR has been completed and is available for review and comment by the public. During this public review period, the Draft EIR, including the technical appendices, is available for review at the SACOG office, located at the address below. It is also available on the SACOG website at: www.sacog.org/2035 or at the following library locations:

- Arcade, 2443 Marconi Avenue, Sacramento
- Arden-Dimick, 891 Watt Avenue, Sacramento
- Carmichael, 5605 Marconi Avenue, Sacramento
- Central, 828 I Street, Sacramento
- Colonial Heights, 4799 Stockton Boulevard, Sacramento
- Belle Cooledge, 5600 South Land Park Drive, Sacramento
- Courtland, 170 Primasing Avenue, Courtland
- Del Paso Heights, 920 Grand Avenue, Sacramento
- Elk Grove, 8900 Elk Grove Boulevard, Elk Grove
- Fair Oaks, 11601 Fair Oaks Boulevard, Fair Oaks
- Franklin, 10055 Franklin High Road, Elk Grove
- Galt – Marian O. Lawrence, 1000 Caroline Avenue, Galt
- Isleton, 412 Union Street, Isleton
- Ella K. McClatchy, 2112 22nd Street, Sacramento

- McKinley, 601 Alhambra Boulevard, Sacramento
- Martin Luther King, Jr., 7340 24th Street Bypass, Sacramento
- North Natomas, 4660 Via Ingoglia, Sacramento
- North Sacramento – Hagginwood, 2109 Del Paso Boulevard, Sacramento
- Orangevale, 8820 Greenback Lane, Suite L, Orangevale
- Rancho Cordova, 9845 Folsom Boulevard, Sacramento
- Rio Linda, 902 Oak Lane, Rio Linda
- Robbie Waters Pocket-Greenhaven, 7335 Gloria Drive, Sacramento
- South Natomas, 2901 Truxel Road, Sacramento
- Southgate, 6132 66th Avenue, Sacramento
- Sylvan Oaks, 6700 Auburn Boulevard, Citrus Heights
- Valley Hi-North Laguna, 7400 Imagination Parkway, Sacramento
- Walnut Grove, 14177 Market Street, Walnut Grove
- El Dorado County Library, 345 Fair Lane, Placerville
- Placer County Library, 350 Nevada Street, Auburn
- Sutter County Library, 750 Forbes Avenue, Yuba City
- Yolo County Library, 226 Buckeye Street, Woodland
- Yuba County Library, 303 Second Street, Marysville

Public hearings on the Draft MTP/SCS and this Draft EIR are scheduled as follows:

- Tuesday, December 06, 2011, 6:30 p.m. – Roseville Civic Center
  311 Vernon Street, Roseville, CA 95678

- Thursday, December 08, 2011, 6:30 p.m. – Woodland Community Center
  2001 East Street, Woodland, CA 95776

- Wednesday, December 14, 2011, 6:30 p.m. – Folsom Community Center
  52 Natoma Street, Foslom, CA 95630

- Wednesday, January 04, 2012, 6:30 p.m. – SACOG Office
  1415 L Street, Suite 300, Sacramento, CA 95814

It is anticipated that the Final EIR will be considered for certification at the SACOG Board of Directors meeting on April 19, 2012.

Comments on the MTP/SCS 2035 Draft EIR may be made in writing before the end of the comment period (January 9, 2012). Oral comments at the public hearings will also be accepted, though it is important to note that these comments will be recorded in the form of summary minutes, not transcription. Commenters interested in entering their comments verbatim into the record must do so in a written form and they must be received by the close of the comment

period. Written comments should be mailed or emailed to the address provided below. Following the close of the public comment period, responses to the comments received on the Draft EIR will be prepared and published, and together with the Draft EIR, and any revisions thereto, will constitute the Final EIR. Comments on this Draft EIR are due to SACOG no later than 5:00 p.m., January 9, 2012, and can be delivered by any of the following methods:

By mail:
Sacramento Area Council of Governments
ATTN: EIR Comments
1415 L Street, Suite 300
Sacramento, CA 95814

By email:
eircomments@sacog.org
By fax:
(916) 321-9551
ATTN: EIR Comments

CHAPTER 2 - PROJECT DESCRIPTION

INTRODUCTION

The proposed project is the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS). The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system; preparing the MTP is one of SACOG's primary statutory responsibilities under federal and state law. An MTP, also referred to in other regions as a Regional Transportation Plan (RTP) or Long-Range Transportation Plan (LRTP), is the mechanism used in California by both Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) to conduct long-range (at least 20-year) planning in their regions. SACOG must adopt an MTP and update it every four years, or more frequently, if the region is to receive federal or state transportation dollars for public transit, streets/roads, and bicycle and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region informed by the Sacramento Region Blueprint (Blueprint). Since adoption of the 2008 MTP, California enacted the Sustainable Communities and Climate Protection Act, also known as Sen. Bill 375 (Stats. 2008, ch. 728) (SB 375), which requires MPOs to include a Sustainable Communities Strategy (SCS) element in their MTP updates. The SCS is aligned in purpose with the Blueprint, further integrating smart land use planning principles with an efficient and diverse transportation network.

This chapter describes the proposed MTP/SCS, which is being evaluated in this program EIR. The adoption and implementation of the proposed MTP/SCS, which updates the 2008 MTP, is considered the "proposed project." The project description that follows describes the proposed MTP/SCS for purposes of analyzing the project's potential to create environmental impacts (see Chapters 3 through 20 for environmental analyses). This chapter provides an overview of the project's regional location, project background, project objectives, and a detailed description of the proposed MTP/SCS.

PROJECT LOCATION AND STUDY AREA

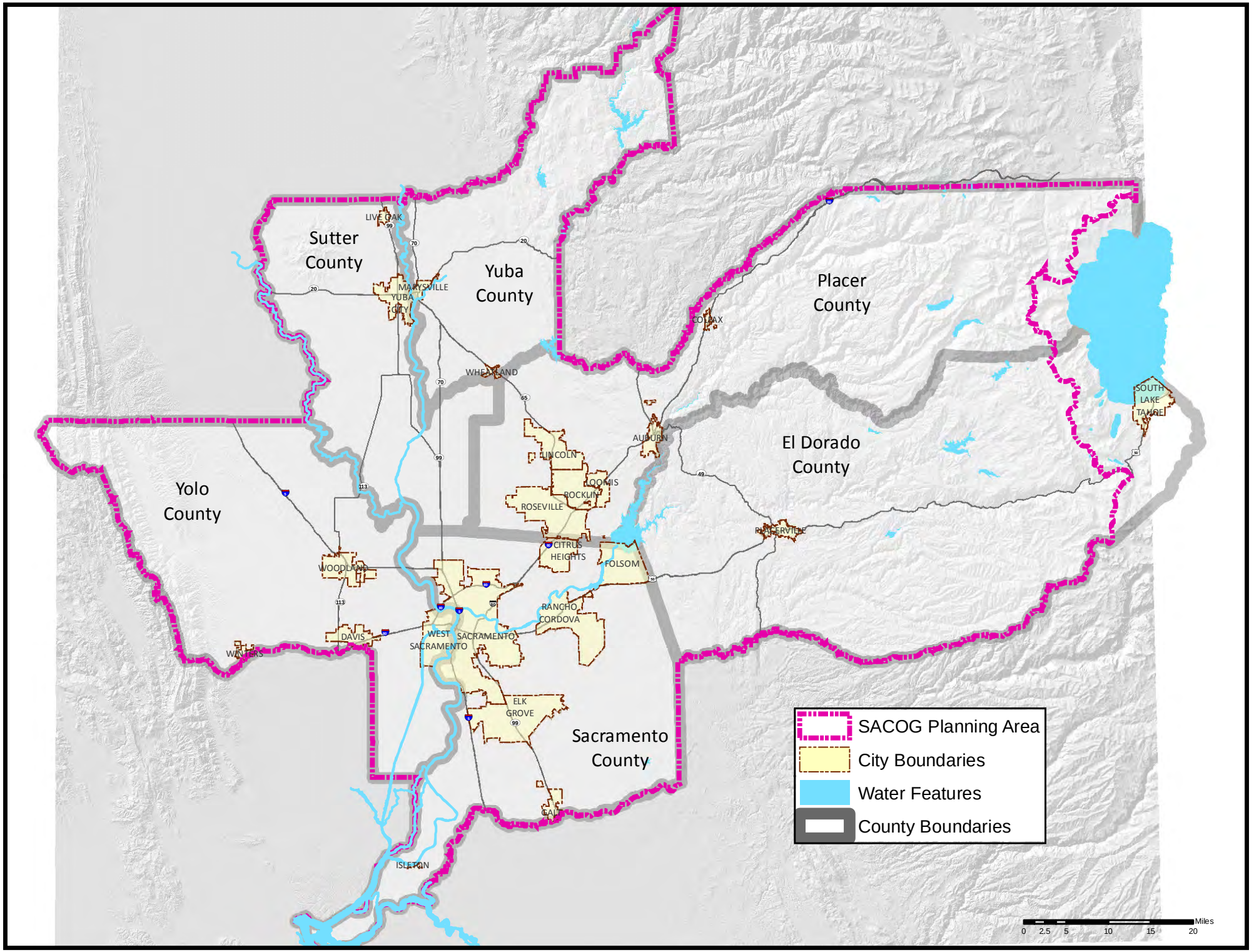
The plan area for the proposed MTP/SCS includes El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties, exclusive of the Tahoe Basin. This plan area is shown in Figure 2.1. Located in the north San Joaquin Valley in Central California, the plan area encompasses 3,863,373 acres (6,037 square miles) and is bounded by Colusa, Lake, Napa, and Solano counties to the west; Butte, Sierra, and Nevada counties to the north; the Lake Tahoe Basin, Plumas, and Alpine counties to the east; and Amador, San Joaquin, and Contra Costa counties to the south. The bulk of the plan area is located in the Sacramento Valley, a basin generally bounded by the Sierra Nevada mountain range to the east and the coastal ranges to the west. The eastern portion of the region – Placer County, El Dorado County, and Eastern Yuba County – is located in the Sierra Nevada mountains and foothills. The western portion of the region, in Yolo County, marks the eastern edge of the coastal mountain ranges. North to south, the plan area spans from the lower Sacramento Valley in northern Sutter and Yuba counties to the Sacramento River Delta in southern Sacramento County. In the valley portion of the plan area – Sacramento County, western Placer County, western Yuba County, Sutter County, and eastern Yolo County – the

topography is generally flat, with the exception of the Sutter Buttes mountain range in Sutter County.

Urban uses in the plan area are primarily concentrated in an urban core in northern and central Sacramento County, eastern Yolo County, southwestern Placer County, and western El Dorado County, with smaller urban areas separated from this core and each other by rural lands. Over 76 percent of the plan area is designated for agriculture, open space, or timber uses. The SACOG region includes 22 incorporated cities within its boundaries: Auburn, Citrus Heights, Colfax, Davis, Elk Grove, Folsom, Galt, Isleton, Lincoln, Live Oak, Loomis, Marysville, Placerville, Rancho Cordova, Rocklin, Roseville, Sacramento, West Sacramento, Wheatland, Winters, Woodland, and Yuba City. As of 2008, 69 percent of jobs, 60 percent of housing units, and 60 percent of the population of the MTP/SCS plan area were in incorporated cities, while 31 percent of jobs, 40 percent of housing units, and 40 percent of the population were in unincorporated areas. The 2010 census indicates that the current population within the six counties, excluding the Tahoe Basin, is 2,275,401, representing a nearly 20 percent increase in population since 2000 (1,901,964) (U.S. Census, 2010). In addition to the 22 incorporated cities and six counties, the plan area also includes lands owned by state and federal agencies and tribal trust lands of four Native American Tribes (Shingle Springs Band of Miwok Indians in El Dorado County, United Auburn Indian Community of the Auburn Rancheria in Placer County, Wilton Miwok Indians in Sacramento County, and Yocha Dehe Wintun Nation in Yolo County). SACOG projections indicate that population in the plan area is expected to grow by 871,000 people, an increase of 39 percent, from 2008 to 2035 (SACOG, 2011).

The existing transportation system within the MTP/SCS plan area supports a broad range of passenger and freight travel. The roadway system includes three interstate highways, several state highways, and numerous local roadways that serve various combinations of auto, truck, pedestrian, bicycle, and transit travel. On- and off-road infrastructure also includes over 1,400 miles of Class I and II bicycle trails and routes, and a public transit system that includes approximately 104 miles of light rail transit service and over 2,000 miles of regional and local bus routes. Other infrastructure includes a deep water shipping port, a major international airport, numerous general aviation airports, and freight and passenger rail service.

Figure 2.1 Sacramento Metropolitan Planning Area



PROJECT BACKGROUND

Regional Planning Context for the Proposed MTP/SCS

This section summarizes the planning context of the proposed MTP/SCS according to three major efforts: the Sacramento Region Blueprint, the 2008 MTP, and the Rural-Urban Connections Strategy.

Sacramento Region Blueprint

In 2002, SACOG adopted the Metropolitan Transportation Plan for 2025 (2002 MTP), a plan that involved three years of public involvement, a new set of goals and guiding principles, and major initiatives including new regional funding programs and expansion of public transit. The 2002 MTP Final Environmental Impact Report was certified in June 2002. The travel modeling for the 2002 MTP showed that despite spending an estimated $23 billion through the year 2025 for transportation projects throughout the six-county region, vehicular congestion throughout the Sacramento metropolitan area would increase by nearly 60 percent and vehicle miles traveled per household would increase by 20 percent.

In the interest of changing the trend of increasing traffic congestion and vehicle miles traveled (VMT), the SACOG Board initiated the Blueprint immediately after adopting the 2002 MTP. The goal of this regional transportation and land use study was to determine whether traffic congestion, air quality, and overall quality of life could be improved in the Sacramento region by changing the planned pattern of development. The planning process was designed to combine the best technical information available with a comprehensive, citizen and stakeholder engagement process to revise the region's planned future growth pattern. The Blueprint's three-year regional planning process was designed to produce a vision for the region that had sufficient technical grounding and political support to serve as the basis for the next MTP update.

After months of public workshops that engaged over 5,000 participants, a regional land use vision was developed. In December 2004, the SACOG Board of Directors adopted the Blueprint consisting of a conceptual map and seven Blueprint growth principles (Blueprint principles). Those principles are:

1. Housing Choice and Diversity;
2. Using Existing Assets;
3. Compact Development;
4. Natural Resources Conservation;
5. Design for Quality;
6. Mixed Use Developments; and
7. Provide Transportation Choices.

The resulting Blueprint growth strategy is the product of a three-year regional visioning process that engaged citizens, special interest groups, and elected officials from each of SACOG's member jurisdictions on how the region should accommodate the forecasted population and employment growth. As it does not have land use planning authority, SACOG has served in an advisory role for its member jurisdictions regarding implementation of the Blueprint. Since

adoption of the Blueprint, a number of jurisdictions in the region have begun implementing the Blueprint principles in their own planning efforts. The most notable local implementation efforts are general plan updates that incorporate the Blueprint principles into goals and policies; however, local governments also regularly evaluate proposed master plans and individual projects in the context of the Blueprint principles.

2008 MTP (Metropolitan Transportation Plan for 2035)

In 2005, SACOG commenced work on a new Metropolitan Transportation Plan for 2035 (the 2008 MTP), building upon the consensus achieved through the Blueprint process to develop a long-range regional transportation plan that supports the Blueprint. SACOG worked with its member jurisdictions to develop a growth forecast and accompanying land use forecast that reflects each of their Blueprint implementation efforts. The 2008 MTP land use forecast was substantially consistent with the Blueprint principles listed above, making it the first MTP for the Sacramento region to proactively link land use, air quality, and transportation needs. While the 2008 MTP was the first MTP significantly influenced by the Blueprint, it was not entirely consistent with the Blueprint in housing mix and development pattern.

Development of the 2008 MTP included an 18-month public priority-setting process to identify a list of transportation improvement projects to best meet the needs of the region as a whole. The development of the 2008 MTP used broad public outreach, combined with extensive input from elected officials, community groups and citizen planners, to consider a host of potential transportation investments. Over 150 presentations, 17 community workshops, and an Elected Officials Summit were held; the plan was adopted in 2008.

The 2008 MTP improved upon the performance of the pre-Blueprint, 2002 MTP. Some of the major performance improvements from the 2002 MTP included slowing the growth rate of congested VMT per capita from nearly 60 percent to 22 percent, increasing transit trips from 20 percent to 66 percent, and reversing a projected four percent decline to an 83 percent increase in non-motorized trips.

Rural-Urban Connections Strategy

The Rural-Urban Connections Strategy (RUCS) was launched at the conclusion of the 2008 MTP. RUCS aims to provide policy and technical approaches that enhance the economic vitality of the region's rural areas and address or avoid impacts to rural resources in the Sacramento region. In the same way that Blueprint is seen as an economic development and environmental sustainability strategy for urban areas, the RUCS project is an economic and environmental sustainability strategy for rural areas. The RUCS project is thus seen as an integral piece of a regional strategy for the region's economic and environmental sustainability and viability.

SACOG assembled working groups around five broad topic areas to identify rural challenges and opportunities. These five topic areas include: 1) land use and conservation, 2) agricultural infrastructure, 3) economic opportunities, 4) forest management, and 5) regulations. Working papers were developed with input from local agriculture, planning, economic development, and environmental representatives to help the region better understand the unique issues in rural areas. Stakeholder workshops were conducted to vet the research and findings on each of the

topics and to develop innovations that help address challenges and promote opportunities in the region's rural areas. At the same time, the SACOG Board participated in a series of visits to agricultural areas to learn about the opportunities and challenges facing the agricultural economy in different parts of the region.

Several tools and supporting data have been developed to support policy discussion and understand the influence of the rural and urban economies on each other. Many of the policy recommendations emerging from the RUCS project are integrated into the proposed MTP/SCS. Appendix E-2 of the proposed MTP/SCS provides a more in-depth review of both the work completed to date and on-going work.

The Regional Planning Process: Development of the Proposed MTP/SCS

This section summarizes the planning process for the development of the proposed MTP/SCS. The planning process began in 2009 and is divided into four major planning phases, each inclusive of public and stakeholder participation, jurisdiction coordination and consultation, and regular updates and direction from the SACOG Board. The four phases are:

1. Developing a New Regional Growth Forecast;
2. Applying the New Regional Growth Forecast to Develop the Land Use Forecast;
3. Integrating the Transportation System with Land Uses; and
4. Developing the Metropolitan Transportation Plan/Sustainable Communities Strategy.

Developing a New Regional Growth Forecast

A new regional growth forecast was adopted by the SACOG Board of Directors in June 2010 for the purposes of developing the proposed MTP/SCS. The new growth forecast reflected lower growth rates in population, housing, and employment growth; additionally, the proposed MTP/SCS forecasts less funding than the 2008 MTP. These lower economic growth rates required all participants in the planning process to consider how the region would continue to grow, but with less transportation funding, through the year 2035.

Applying the New Regional Growth Forecast to Develop the Land Use Forecast

With the new growth forecast as a framework, SACOG worked with member jurisdictions to forecast where growth would likely occur during the MTP/SCS planning period. SACOG consulted with local governments in the region as it considered a number of factors throughout this process: existing local, state, and federal policies and regulations; general plans; spheres of influence; community and specific plans; land division and development codes; natural resources constraints; and design guidelines. Early in the MTP/SCS development process, SACOG met with staff from each member jurisdiction to discuss the plan process, milestones, and coordination to incorporate the most recent local plans and policies into the regional land use assumptions.

This work with local jurisdiction staff led to the development of a draft land use forecast that allocated growth into four types of communities. The four Community Types are Center and Corridor Communities; Established Communities; Developing Communities; and Rural

Residential Communities. While forecasting growth within Community Types, the land use map also considers Lands Not Identified for Development in the MTP/SCS planning period. It is important to note that even though SACOG develops a land use map and recommendations for new growth, the decisions on when, where, and how to develop lie solely with the local jurisdictions. A full discussion of the Community Types occurs under "Description of the Proposed Project," below.

Integrating the Transportation System with Land Uses

The reduced growth forecasted for the proposed MTP/SCS necessitated a more limited package of transportation projects: certain projects from the 2008 MTP had to be planned for later years of the planning period, while others were scaled down in scope or size. Through extensive consultation with local agency staff, the transportation projects and programs list of the proposed MTP/SCS was refined and concentrated on those investments that could achieve high cost-effectiveness and strong performance benefits in spite of lower overall funding.

Developing the Proposed Metropolitan Transportation Plan/Sustainable Communities Strategy

Although SB 375 was only recently enacted, the coordinated land use and transportation planning envisioned by SB 375 are aligned with the land use and transportation principles of the Blueprint, as reflected in planning efforts since the Blueprint's adoption in 2004, including the coordination between the Blueprint and the 2008 MTP. Rather than initiating a new approach, the creation of the SCS serves to further integrate the Blueprint and the MTP by melding the land use and transportation planning principles of the two projects and tying the MTP's performance to GHG reduction targets through reduced automotive travel and increased walking, bicycling, and transit use based on Blueprint-influenced land use patterns. The MTP also has many performance goals that extend well beyond greenhouse gas emissions reduction.

The work of developing a regional growth forecast, applying that growth to regional land uses, and integrating the transportation system is a key part of complying with SB 375. The following process of scenario development and testing, public engagement, and development of a draft preferred scenario was the foundation for creating the proposed MTP/SCS.

MTP/SCS Scenario Development and Testing

The above-described methodology for creating the proposed MTP/SCS land use forecast and transportation system assumptions was applied to the development of three land use and transportation scenarios at the beginning of the MTP/SCS planning process. The SACOG Board directed staff to develop three MTP/SCS workshop scenarios, which are known as "Scenario 1," "Scenario 2," and "Scenario 3." The scenarios were developed to engage the public on investment priorities for the MTP/SCS, to test the performance benefits of varying land use and transportation packages, to serve as the basis of this EIR's alternatives analysis, and to meet SB 375 public outreach requirements for the SCS.

The three scenarios were also designed to allow for analysis of truly distinct alternatives within the bounds of the type of land development and transportation investments that could

realistically be expected to occur over the MTP/SCS planning period. All three scenarios were built from the same regional employment, population, and housing growth projections and a transportation budget that was approximately the same. The budget ranged from a low of $34.6 billion in Scenario 1 to a high of $36.1 billion in Scenario 3, reflecting a farebox recovery rate range that varied from 31 percent in Scenario 1 to 52 percent in Scenario 3 (Scenario 3 contained the highest share of transit-supportive land uses). All other revenue assumptions were constant across scenarios. Land use patterns were designed first; then, a transportation system was customized to support the land use pattern of each scenario.

Educational information presented at the workshops was designed to reinforce the point that land use and transportation planning are integrated disciplines (i.e., a land use scenario with high levels of transit-oriented development will not be constructed unless high levels of transit are provided as well). Land use and transportation variables varied in the following ways:

Land Use Variables:

- The amount of compact development, which is measured in terms of housing product mix (the mix of high and low density housing units) and amount of development occurring in existing developed versus undeveloped areas. Compact development has been shown to be more effectively served by transit, to support potentially higher rates of walking and biking, and to generate less vehicle travel.
- The amount of development in high-quality transit corridors, where residents are more likely to use available transit.
- The amount of complementary, mixed-use development, which supports shorter vehicle trip making and higher rates of non-motorized travel.

Transportation Variables:

- The location, intensity, and type of transit service, based on the extent of transit-supportive land uses in corridors. Higher density, mixed-use corridors provide greater opportunities for higher capacity transit, such as light rail and streetcars.
- The amount, location, and type of investment in complete streets projects, which serve multiple users in locations where land use generates a mix of travel modes.
- The extent and location of roadway and other projects to alleviate major bottlenecks and congestion points, and the extent to which investments were made to alleviate existing bottlenecks, compared to reserving investments for future bottlenecks.
- The level of investment in Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, that allow for greater optimization of existing transportation infrastructure. More compact and mixed-use development patterns can allow some shifts in investment priorities away from road extensions and expansions to improving the function of existing roads for multi-modal travel.

The land use components of the scenarios were designed in a progression from most dispersed development pattern to least dispersed development pattern; the corresponding transportation components followed a progression of most auto-oriented transportation system to most multi-modal transportation system. The scenarios are described according to this progression in Table 2.1.

Table 2.1
Description of MTP/SCS Land Use and Transportation Scenarios

Scenario Name	Land Use	Transportation
Workshop Scenario 1	• Smallest share of new compact housing[1] share (61%, same as 2008 MTP) • Smallest share of growth in Transit Priority Areas[2] (20% of new homes, 26% of new jobs) • Most dispersed development pattern /highest amount of developed acres	• Least amount of transit service, mostly in the form of shuttles, commuter bus, fixed route bus • Least amount of BRT, street car, and LRT • Highest amount of new roads and road expansions • Least amount of road maintenance and rehabilitation • Least amount of bicycle and pedestrian street and trail projects
Workshop Scenario 2	• Higher share of new compact housing[1] (68%, same as Blueprint growth strategy) • More growth in TPAs[2] • Less dispersed development pattern than Scenario 1/ fewer developed acres	• More transit service than Scenario 1 • More BRT, street car, and LRT than Scenario 1 • Less new road and road expansion than Scenario 1 • More road maintenance and rehabilitation than Scenario 1 • More bicycle and pedestrian street and trail projects
Workshop Scenario 3	• Highest share of new compact housing[1] share (75%) • Highest share of growth in TPAs[2] • Least dispersed development pattern/ fewest developed acres	• Highest amount of transit service • Highest amount of BRT, street car, and rail • Least amount of new roads and road expansions • Same road maintenance and rehabilitation as Scenario 2 • Most bicycle and pedestrian street and trail projects

[1] Compact housing is defined as small-lot single-family (8 to 25 dwelling units per acre) and attached residential (attached single-family or multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, rowhouses, halfplexes, etc. built at densities from 8 to over 50 dwelling units per acre.)
[2] Transit Priority Areas (TPAs) are defined as areas within one-half mile of a rail station stop or a high-quality transit corridor. A high-quality transit corridor has fixed-route bus service with service intervals of 15 minutes or less during peak commute hours.

Public Engagement Process

In preparation for the general-audience public workshops on the three MTP/SCS scenarios, SACOG conducted focus groups to solicit input on how to most effectively engage participants in public workshops and cultivate interest and ongoing participation from a wide range of interest groups. Specifically, the objectives of the focus groups were to: 1) introduce SACOG and its mission to stakeholders not familiar with the organization; 2) inform them about the role of the MTP/SCS and some of the new and existing issues the region is facing; 3) hear stakeholder feedback on different general directions that SACOG should explore for the MTP/SCS; and 4) create networking opportunities for groups that SACOG has not had direct contact with before. The focus groups included a presentation on regional transportation planning, technical modeling, assumptions and forecasting, funding forecasting and constraints, and federal and state statutes that frame the MTP/SCS. Information collected during these focus groups was summarized for Board committee and staff discussion during the summer and fall of 2010. Focus groups represented the following interest groups:

- Affordable Housing,
- Agriculture,
- Climate Action Planning,
- Land Development,
- Economic Development,
- Education,
- Environment,
- Equity, Public Health & Human Services,
- Faith-Based & Community-Based Organizations,
- Goods Movement & Freight,
- Redevelopment,
- Seniors/Aging,
- State & Federal Agencies,
- Water, and
- Yuba & Sutter Counties (all of the above interests, as represented in Yuba and Sutter counties, were invited to a special focus group to achieve geographic diversity among participants).

General-audience public workshops were conducted in October 2010. Workshop participants were presented with information on the three scenarios and then broken up into groups where they were asked to discuss benefits and drawbacks of each scenario at both the regional and county levels. At the end of the discussion, participants voted, both individually and as a group, to choose a preferred scenario for both the regional and county scales. The results showed a strong preference for Scenario 3, garnering 80 percent of group votes and 75 percent of individual votes. Sutter County and Placer County showed a preference for Scenario 2 for their counties. An additional eight focus groups with environmental justice populations were held after the public workshops, with transportation investment preferences expressed by participants that mirrored the preferences of the public workshop participants.

Input from the focus groups, public workshops, and environmental justice focus groups was summarized and presented to the Board of Directors immediately after each outreach effort so that the input could be considered by the Board throughout the planning process. Appendix G of the proposed MTP/SCS contains documentation of the public outreach process, including stakeholder/participant input, for the proposed MTP/SCS.

Development of a Draft Preferred Scenario

In December 2010, based on the results of the public workshops, the SACOG Board of Directors adopted a framework to create a Draft Preferred Scenario of transportation investments and land use assumptions generally based on a combination of MTP/SCS Workshop Scenarios 2 and 3. The Scenario Framework provided policy and process guidance to staff, local agencies, and stakeholders for creating a Draft Preferred Scenario. Following this Framework, the Draft Preferred Scenario was developed through further detailed work on land use and transportation assumptions using the scenario methodology described above, including multiple rounds of local and partner agency input and review of draft assumptions. The Draft Preferred Scenario became the basis of the proposed MTP/SCS.

Additional Public Engagement

Additional public engagement will occur after release of this Draft EIR in Winter 2011/2012. SACOG will hold three public hearings on the proposed MTP/SCS and this Draft EIR. Notice of these meetings will be published per the notification process outlined in the SACOG Public Participation Plan and as required by law. SACOG will also hold informational meetings for the region's elected officials (members of boards of supervisors and city councils). The purpose of the meetings will be to present and discuss the draft proposed MTP/SCS, including key land use and planning assumptions, and to solicit and consider their comments. Notices of these meetings will be sent to the clerk of the boards of supervisors and city councils in the 28 jurisdictions in the SACOG region. These additional outreach efforts fulfill SB 375 public outreach requirements for a draft SCS.

PROJECT OBJECTIVES

SACOG's mission is to "provide leadership and a dynamic, collaborative public forum for achieving an efficient regional transportation system, innovative and integrated regional planning, and a high quality of life within the greater Sacramento region." SACOG's purpose in proposing the MTP/SCS is to provide a strategy to approach the many challenges faced by the Sacramento region as the population grows and the region expands over the next few decades. The proposed MTP/SCS seeks to guide the Sacramento region toward a more sustainable future through better integration of smart land use decisions with a well-managed transportation system, as envisioned by the Blueprint and the proposed project. The intent of the proposed MTP/SCS is to accommodate the expected population growth and accompanying demand for transportation in the region through a multi-modal approach based on the following objectives:

Objectives Related to Land Use and Environmental Sustainability:

1. Support local land use authority with data, tools, incentives, and programs that reinforce the region's voluntary implementation of the Blueprint;
2. Support housing choice and diversity for all segments of the population that respond to changing economics and demographics in the region;
3. Support improved jobs-housing balance in subareas of the region and complete mixed-use communities;

4. Minimize direct and indirect land use and transportation impacts on agriculture and natural resources;
5. Meet regional air quality plans and goals;
6. Meet federal and state requirements for regional transportation plans, including SB 375 and AB 32;
7. Achieve the greenhouse gas reduction targets assigned to SACOG by the California Air Resources Board; and
8. Activate the CEQA streamlining benefits of SB 375.

Objectives Related to Financial Stewardship:

1. Support transportation investments that provide high performance benefits for all community types in the region;
2. Improve the condition of the existing transportation system through the maintenance of transportation corridors that can support various modes of travel;
3. Deliver cost-effective results from investments in each transportation mode and is feasible to construct and maintain;
4. Satisfy financial constraint requirements, such that all revenues reasonable to assume are used and matched to eligible projects; and
5. Deliver more productive and cost-effective public transit services.

Objectives Related to the Existing & Planned Transportation System:

1. Support transportation choice and diversity for all segments of the population through a balanced transportation system where investments in various modes complement each other and support the diversity of travel demand in various community types;
2. Reduce both VMT and congested VMT;
3. Broaden mobility options, as measured by an increase in the transit, bicycle and pedestrian travel mode share;
4. Connect workers to jobs across the region, as measured by reducing congestion levels and increasing the mode share of non-automobile travel options;
5. Support the economic vitality of the region through efficient goods movement that includes minimizing disruptions to the movement of agricultural products on rural roadways;
6. Support safety and emergency preparedness, as demonstrated by land use and transportation changes that include capital investments in disaster-prone areas, transit services, and improved system maintenance.

DESCRIPTION OF THE PROPOSED PROJECT

This section describes the contents of the proposed MTP/SCS, including the land use forecast to accommodate forecasted population and employment growth, the transportation system proposed to accommodate the growth pattern, and the supporting policies and strategies to implement the plan. The proposed MTP/SCS is organized into the following chapters:

Chapter 1 – Introduction: Building a Sustainable System describes the need and purpose of the proposed MTP/SCS, including regulatory and economic conditions that have changed from the 2008 MTP.

Chapter 2 –Planning Process describes the major phases of the planning process, with particular attention to the public engagement process. Public engagement included two series of focus group meetings, a county-scale public workshop series, and numerous stakeholder and local agency meetings.

Chapter 3 – Summary of Growth and Land Use Forecast is a new element to the plan that highlights the land use aspects of the Sustainable Communities Strategy.

Chapter 4 – Summary of Budgets and Investments summarizes the plan's $35.2 billion of transportation revenues and expenditures by program category.

Chapter 5 – Trends and Performance describes the transportation performance of the proposed MTP/SCS in three parts: ***Chapter 5A*** provides an overview of performance and the land use-transportation connection intrinsic to the development of the proposed MTP/SCS; ***Chapter 5B*** describes the performance of the proposed MTP/SCS in terms of vehicle miles traveled and roadway congestion; ***Chapter 5C*** describes the transit and non-motorized travel performance of the proposed MTP/SCS. Many of the travel metrics of this chapter are applied in Chapter 16 – Transportation of this DEIR.

Chapter 6 – Policies and Supportive Strategies contains the policies and strategies that support implementation of the proposed MTP/SCS.

Chapter 7 – Environmental Sustainability describes how environmental resources were considered in the development of the proposed MTP/SCS. It also describes the plan's effect on a number of environmental issues: natural resource data and analysis from the RUCS study considered in the creation of the land use forecast and assessment of the plan's impact on natural resources, the plan's effects on air quality and health issues, and the greenhouse gas performance of the proposed MTP/SCS – including the means by which the plan achieves its SB 375 GHG targets. The impacts described in Chapter 7 are also analyzed in the Agriculture and Forestry Resources, Air Quality, Biological Resources, Energy and Global Climate Change, and Hydrology and Water Quality chapters (Chapters 4, 5, 6, 8, and 11) of this DEIR.

Chapter 8 – Equity and Choice provides an environmental justice analysis of the proposed MTP/SCS transportation investments as required by federal and state law, as well as a broader transportation accessibility analysis of the plan.

Chapter 9 – Economic Vitality analyzes the changing commute patterns of the region over the planning period, including the types of projects that address commuting and congestion, and current efforts to support goods movement.

Chapter 10 – Financial Stewardship analyzes how the proposed MTP/SCS addresses the ongoing funding challenges to road maintenance and rehabilitation, and transit capital and operations. It also describes the investment strategies that support road and transit operations and maintenance including: transportation demand management and transportation system management (including Intelligent Transportation Systems) projects and programs, and projects that address road safety and emergency preparedness.

In summary, Chapters 1 and 2 provide introduction and background to the development of the plan, Chapters 3, 4, and 6 provide action-oriented pieces of the proposed MTP/SCS, and Chapters 5, 7, 8, 9, and 10 provide analysis of the plan's land use forecast, transportation investments, and policies on various transportation and environmental issues.

The following describes the action-oriented portions of the plan, which compose the project for the purposes of this environmental analysis (MTP/SCS Land Use Forecast, MTP/SCS Transportation System, and MTP/SCS Policies and Strategies).

MTP/SCS Land Use Forecast

This section summarizes the land use forecast of the proposed MTP/SCS and is divided into three parts. The first part, "2035 Regional Growth Forecast," describes the regional forecast of population, employment, and housing. The second part, "Allocating the Regional Growth Forecast," describes how that regional forecast is translated into a land use forecast. The third part, "Details of the Forecasted Land Use Pattern," describes the actual land use forecast of the proposed MTP/SCS.

2035 Regional Growth Forecast

SACOG typically updates its growth projections on the four-year MTP update cycle. The Center for Continuing Study of the California Economy (CCSCE) develops the growth projections for SACOG, including projections of future employment (by major employment sector), population, and household growth at the regional scale. The CCSCE's regional growth projection method follows three major steps: 1) employment projections based on projections of U.S. and California job growth and the competitive position of the Sacramento region to capture a share of the state and national job growth; 2) population projections based on projected job growth, accounting for foreign immigration and domestic migration into the region; and 3) household projections based on projected population growth. This forecasting methodology for population is similar to the California Department of Finance (DOF) methodology, except that DOF projections do not forecast employment or households. This draft information is summarized for, and reviewed by, the SACOG Board and staff, member cities and counties, and stakeholders, and is ultimately approved by the SACOG Board. Once the projections are approved by the SACOG Board, they become the growth forecast that is utilized for planning purposes in the proposed MTP/SCS.

The 2035 growth forecast indicates that population in the plan area is expected to grow by 871,000 people, an increase of about 39 percent, between 2008 and 2035. As shown in Table 2.2 below, this forecast is lower than the nearly 1.3 million people forecasted in the 2008 MTP, which had the same 2035 planning horizon, but had a baseline year of 2005. As a result of the lower population forecast, the housing and employment forecast for the region is also lower than the forecast in the previous plan, resulting in the need to accommodate approximately 361,000 new employees and 303,000 new housing units between 2008 and 2035.

Table 2.2
Comparison of 2008 MTP and Proposed MTP/SCS Regional Growth Forecasts

	2008 MTP (Forecast Period 2005-2035)			Proposed MTP/SCS (Forecast Period 2008-2035)		
Year	**Employees**	**Population**	**Households**	**Employees**	**Population**	**Households**
2005	1,000,900	2,057,200	768,000	N/A	N/A	N/A
2008	N/A	N/A	N/A	966,316	2,215,044	819,300
2020	1,287,400	2,733,500	1,019,000	1,068,839	2,519,947	967,000
2035	1,546,200	3,348,600	1,258,000	1,327,424	3,086,213	1,114,500

Source: SACOG and CCSCE, 2004; SACOG and CCSCE, 2011.

A decline in domestic in-migration is the principal cause of the lower population projections, although the recent recession also contributes to declining population growth in the early years. The U.S. economy is projected to grow at a slower rate, California is projected to get a smaller share of U.S. job and population growth, and the region's economy is expected to recover at a slower rate than some other areas of the state, with state budget deficits restraining job growth in the public sector over the next decade. The SACOG region is still expected to outpace the state and nation in job growth in the latter part of the planning period; however, the region is expected to have a smaller job growth advantage than was anticipated in the 2008 MTP. Appendix D of the proposed MTP/SCS has more detail on the differences between this current set of projections and the projections used in the 2008 MTP.

Due primarily to lower population growth projected in the plan area, the proposed MTP/SCS has a reduced budget for transportation investments than the 2008 MTP. Slower growth rates are projected for all revenue sources, but the slower growth is most pronounced for local revenues that are closely associated with economic activity and growth. The reduced budget for the proposed MTP/SCS necessitates a more strategic and limited package of transportation projects. Through consultation with local agency staff and technical analysis, a focused effort was made to identify transportation investments that achieve high cost-effectiveness and strong performance benefits, in spite of lower overall funding levels.

Allocating the Regional Growth Forecast

The regional growth forecast is for the region as a whole and is not disaggregated to political jurisdictions or any other geographic subarea. However, SACOG must allocate the growth forecast to project the land use pattern that is most likely to occur over the planning horizon of the plan.

Using the regional growth forecast of employment and housing, SACOG prepared an estimated growth pattern for the region, which is the land use forecast of the proposed MTP/SCS. This land use forecast is the result of two processes: a public engagement process that included SACOG Board direction following the aforementioned public workshops, and a more technical process that included coordination with local agency planning departments and stakeholders, and consideration of market and policy/regulatory factors.

These many factors were used to forecast a land use growth pattern that represents where throughout the region the projected amount of employment and housing will occur during the MTP/SCS planning period. This process is governed by federal requirements related to regional transportation plans and the Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.), including Highways (23 C.F.R. § 450) and Environmental Protection (40 C.F.R. § 93), which require that land use, population, and employment model assumptions are based upon the best available information, and that there is a reasonable relationship between the expected land use and the envisioned transportation system. In the current planning cycle, this process is also affected by SB 375, and specifically by its requirement to develop an SCS.

A number of factors are considered in developing the land use forecast. Local general plans, spheres of influence, community and specific plans, land division and development codes, and design guidelines are considered, as they guide the type and intensity of future land uses. State and federal policies and regulations are also considered, most notably (but not limited to) those relating to development in floodplains and other natural hazard areas (e.g., fire), federal Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) and Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq.) permit requirements, Transportation Control Measures in air quality plans under the federal Clean Air Act, and state housing requirements.

Local, state, and federal policies and regulations have a strong influence on the estimated growth pattern, although they are not the final determinant in SACOG's growth allocation process for the following reasons. First, the sum of all those policies and regulations never yields a growth pattern exactly consistent with the projected amount of employment and housing growth for the entire region during the planning period. Second, the nature of planning and plan updates is ever-changing and, as a result, the time horizons of local general plans seldom exactly match the time horizon of the MTP. Finally, local plans and regulations are likely to change many times throughout the planning horizon of the MTP; assuming such plans are, in effect, unchangeable for the entire 20 plus years of the proposed MTP/SCS is not likely to be accurate.

Many other factors are therefore documented, analyzed, and considered in creating the growth forecast. These may include an estimate of the direction and magnitude of future changes to the policy and regulatory environment. If a major local general plan update is in process, but not yet adopted, SACOG may consider the probable substance of the updated plan in addition to the currently adopted plan. Practical considerations affecting the cost and timing of providing infrastructure (e.g., water, sewer, transportation) are analyzed. Market and economic considerations are also analyzed, such as consumers' interest in different types of housing and developers'/builders' ability to deliver that housing at affordable prices. Future demographic trends identified in the regional growth forecast (i.e., percentage of households with children,

older heads of households, etc.) are an important part of this analysis. Appendix E-3 of the proposed MTP/SCS provides further detail on the land use forecasting process for the plan.

Details of the Forecasted Land Use Pattern

This third part of the "Summary of Land Use Forecast" section describes the land use forecast of the proposed MTP/SCS by three geographic areas. The first geographic description, "Existing and Forecasted Land Uses in the Region," provides a regional overview of existing and forecasted land uses, including a map of the general land use pattern of the proposed MTP/SCS. The second description provides an overview by Community Type. "Community Type" is a new geography in this plan update, used to develop and evaluate the land use forecast of the proposed MTP/SCS. As such, the Community Types are first described in "Community Type Framework," then followed by a description of the land use forecast by this geography in "Distribution of Land Uses by Community Type." The third description of the proposed MTP/SCS land use forecast is provided by Transit Priority Area (TPA). Like Community Type, TPA is a new geography in this plan update used to develop and evaluate the land use forecast of the proposed MTP/SCS. As such, the TPAs are first described in "Transit Priority Area Framework," then followed by a description of the land use forecast by this geography in "Distribution of Land Uses by Transit Priority Area."

Existing and Forecasted Land Uses in the Region

In each MTP update cycle, SACOG prepares a land use forecast to accommodate the regional growth forecast of population, employment, and housing demand. The proposed MTP/SCS includes a forecast of the amount of growth that will occur in the study area over a 27-year planning period (2008-2035). The regional growth forecast is based on economic and demographic projections through the year 2035, adopted and pending land use plans and policies, market and economic considerations, and other state and federal policies and regulations that can affect the location and pace of growth. In the proposed plan, it also serves as the land use pattern of the SCS.

The plan area contained 721,872 acres of developed land in 2008. To accommodate a projected increase of approximately 871,000 people, 303,000 new housing units and 361,000 new employees in the region through the year 2035, the proposed MTP/SCS projects the development of an additional 53,266 acres of land. In other words, to accommodate a 39 percent increase in population, the regional urban footprint will expand by seven percent between 2008 and 2035. This new development land represents 1.4 percent of the acreage of the region. Table 2.3 provides a list of existing developed acres and forecasted developed acres by county.

The distribution of new development acres in the proposed MTP/SCS reflects an urban and suburban focused development pattern. Of the plan area's 53,266 new developed acres, 70 percent are within Placer and Sacramento counties, which are the most urbanized counties in the region in both 2008 and 2035. Although El Dorado County has a relatively large share of existing developed acres, due to its predominantly rural residential land use pattern, its share of new development acres is significantly lower than other counties. The growth footprint in Yolo, Yuba, and Sutter counties is comparably smaller than other counties, as shown in Table 2.3.

As shown in Tables 2.4 and 2.5, the majority of regional housing and employment growth, approximately 77 percent, is allocated to Placer and Sacramento counties. Yolo County receives the next highest amount of growth, followed by El Dorado, Sutter, and Yuba counties. In all cases, this results in improved jobs-to-housing ratios. This is illustrated in Table 2.6, which shows starting and ending jobs-to-housing ratios for each county during the MTP/SCS planning period. In regional land use and transportation planning, "improved" jobs-to-housing ratio is defined as a ratio that moves toward the regional average.

The regional average ratio for the Sacramento region in 2008 was 1.2 jobs per household. As described above, SACOG's regional projections methodology identifies the total employment projected to occur in the region and the population that will occur in conjunction with that employment growth, taking into account net migration into the region, population growth within the region, and household formation. The new households are converted into housing unit demand.

Community Types Framework

The Community Types Framework was used in the land use allocation process of the proposed MTP/SCS. Local land use plans (adopted and proposed general plans, specific plans, master plans, corridor plans, etc.) were divided into one of five "Community Types" based on the location and land use composition of the plans. Appendix E-3 of the proposed MTP/SCS describes the correspondence of Community Types to the local land use plans that factored into the proposed MTP/SCS land use forecast. These "Community Types" were also used to describe the variations in land use patterns between the three public workshop scenarios (Scenarios 1, 2, and 3) that formed the basis of the land use forecast for the proposed MTP/SCS. Figure 2.2 illustrates these Community Types, which are also defined as follows:

Table 2.3
Summary of Expected Developed Acres by County

County (Incorporated and Unincorporated Areas)	Existing Developed Acres (2008)		Additional Developed Acres (2008-2035)		All Developed Acres (2035)		All Acres (Developed and Undeveloped)	
	Acres	Percent Distribution	Acres	Percent Distribution	Acres	Percent Distribution	All Acres	Additional Development as Percent of All Acres
El Dorado	199,088	27.6%	6,421	12.1%	205,509	26.5%	994,645	0.6%
Placer	137,007	19.0%	13,663	25.7%	150,670	19.4%	850,658	1.6%
Sacramento	220,480	30.5%	23,732	44.6%	244,212	31.5%	600,680	4.0%
Sutter	28,163	3.9%	2,829	5.3%	30,992	4.0%	372,240	0.8%
Yolo	40,952	5.7%	3,631	6.8%	44,583	5.8%	640,228	0.6%
Yuba	96,181	13.3%	2,989	5.6%	99,170	12.8%	404,923	0.7%
Region Total	721,872	100.0%	53,266	100.0%	775,138	100.0%	3,863,373	1.4%

Source: SACOG MTP/SCS Land Use Forecast for 2035, June 2011.

Table 2.4
Summary of Expected Housing Growth by County (Dwelling Units)

County (Incorporated and Unincorporated Areas)	2008		2008-2035		2035	
	2008 Dwelling Units[1]	Percent of Total	New Dwelling Units[1]	Percent of Total	2035 Dwelling Units[1]	Percent of Total
El Dorado	61,791	7.0%	12,822	4.2%	74,613	6.3%
Placer	136,709	15.4%	56,086	18.5%	192,792	16.2%
Sacramento	554,360	62.6%	179,810	59.3%	734,169	61.8%
Sutter	33,707	3.8%	12,278	4.1%	45,985	3.9%
Yolo	72,391	8.2%	30,592	10.1%	102,982	8.7%
Yuba	26,133	3.0%	11,538	3.8%	37,670	3.2%
Region Total	885,090	100.0%	303,124	100.0%	1,188,213	100.0%

Source: SACOG MTP/SCS Land Use Forecast for 2035, June 2011.

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 2.5
Summary of Expected Employment Growth by County (Employees)

	2008		2008-2035		2035	
County (Incorporated and Unincorporated Areas)	**2008 Employees[1]**	**Percent of Total**	**New Employees[1]**	**Percent of Total**	**2035 Employees[1]**	**Percent of Total**
El Dorado	44,764	4.6%	17,645	4.9%	62,409	4.7%
Placer	141,658	14.7%	68,055	18.8%	209,714	15.8%
Sacramento	622,579	64.4%	211,467	58.6%	834,047	62.8%
Sutter	31,751	3.3%	12,624	3.5%	44,376	3.3%
Yolo	102,379	10.6%	38,643	10.7%	141,022	10.6%
Yuba	23,177	2.4%	12,681	3.5%	35,858	2.7%
Region Total	966,309	100.0%	361,117	100.0%	1,327,426	100.0%

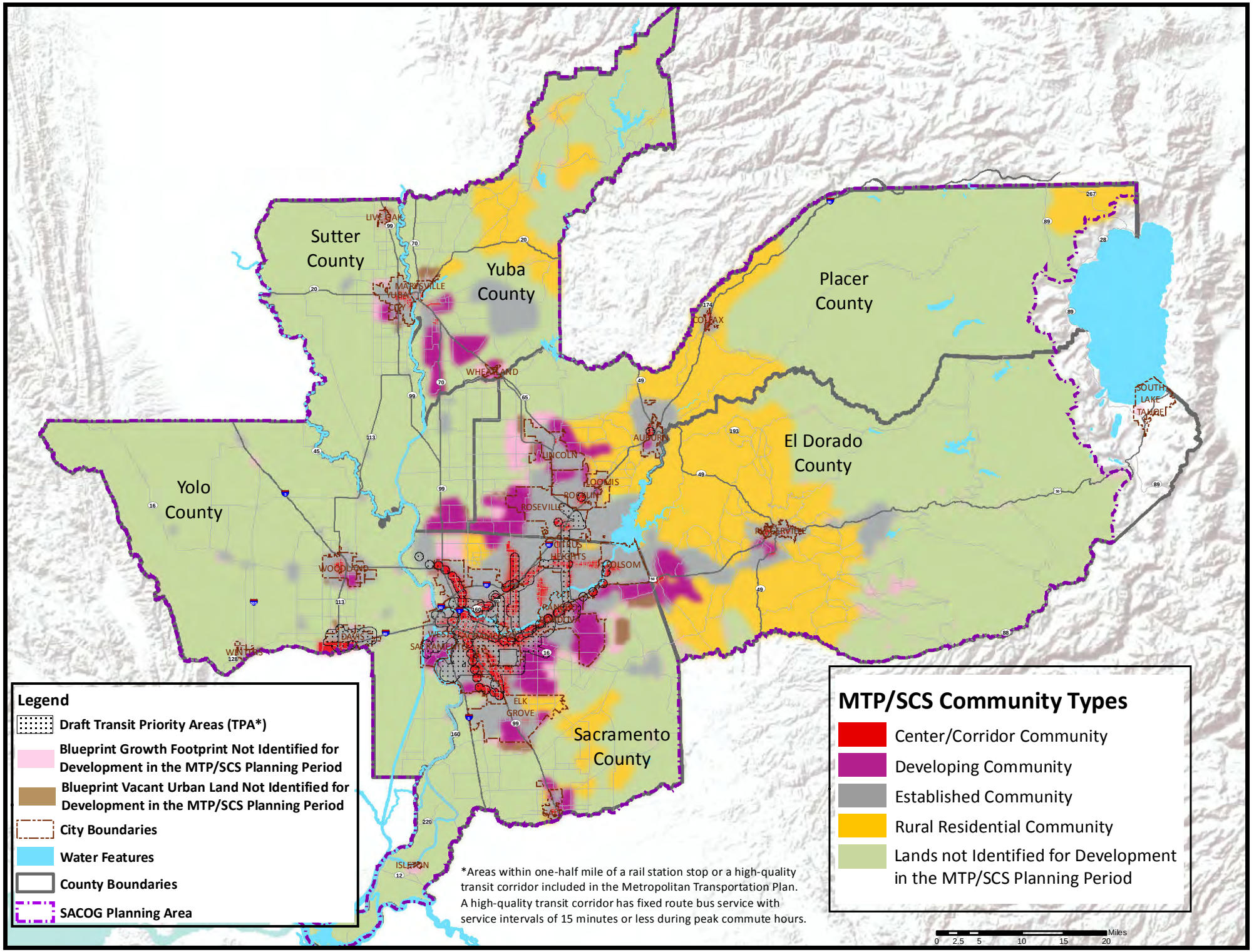
Source: SACOG MTP/SCS Land Use Forecast for 2035, June 2011.
[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 2.6
Jobs to Housing Ratios by County[1]

	2008 Total	2008-2035 Growth	2035 Total
County (Incorporated and Unincorporated Areas)	**Jobs / Household**	**Jobs / Household**	**Jobs / Household**
El Dorado	0.8	1.4	0.9
Placer	1.1	1.2	1.2
Sacramento	1.2	1.2	1.2
Sutter	1.0	1.1	1.0
Yolo	1.4	1.2	1.4
Yuba	1.0	1.2	1.0
Region Total	1.2	1.2	1.2

Source: SACOG MTP/SCS Land Use Forecast for 2035, June 2011.
[1]Table illustrates how jobs-housing ratios changeover the planning period. The 2008-2035 growth column shows the ratio of new jobs to new households added to each county to result in the jobs-housing ratio at the end of the planning period.

Figure 2.2 MTP/SCS with Blueprint Footprint Reference with TPA



Center and Corridor Communities

Land uses in Center and Corridor Communities are typically higher density and more mixed than surrounding land uses. Center and Corridor Communities are identified in local plans as historic downtowns, main streets, commercial corridors, rail station areas, central business districts, town centers, or other high density destinations. They typically have more compact development patterns, a greater mix of uses, and a wider variety of transportation infrastructure compared to the rest of the region. Some have frequent transit service, either bus or rail, and all have pedestrian and bicycling infrastructure that is more supportive of walking and bicycling than other Community Types.

Established Communities

Established Communities are typically the areas adjacent to, or surrounding, Center and Corridor Communities. Local land use plans aim to maintain the existing character and land use pattern in these areas. Land uses in Established Communities are typically made up of existing low- to medium-density residential neighborhoods, office and industrial parks, or commercial strip centers. Depending on the density of existing land uses, some Established Communities have bus service; others may have commuter bus service or very little service. The majority of the region's roads are in Established Communities in 2008 and in 2035.

Developing Communities

Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development; they are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans and may be residential-only, employment-only, or a mix of residential and employment uses. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely, though many Developing Communities are designed with dedicated pedestrian and bicycle facilities.

Rural Residential Communities

Rural Residential Communities are typically located outside of urbanized areas and designated in local land use plans for rural residential development. Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. Travel occurs almost exclusively by automobile, and transit service is minimal or nonexistent.

Lands Not Identified for Development in the MTP/SCS Planning Period

These areas of the region are not expected to develop to urban levels during the MTP/SCS planning period. Today, these areas are dominated by commercial agriculture, forestry, resource conservation, mining, flood protection, or a combination of these uses. Some of these areas have long-term plans and policies to preserve or maintain the existing "non-urban" uses; however,

some are covered under adopted or proposed plans that allow urban development and/or are included in the adopted Blueprint vision for future growth. When it was adopted by the SACOG Board in 2004, the regional Blueprint was projected to meet growth needs through 2050. Under today's slower regional growth rate projections, there is likely capacity in the Blueprint beyond 2050.

Though the proposed MTP/SCS does not forecast any development in these areas by 2035, it is possible that some housing and employment growth associated with agriculture, forestry, mining, and other rural uses could occur in these areas within that timeframe. This is particularly true in the areas that have long-term plans and policies to sustain the current rural uses. It is especially difficult to estimate where this growth will go on a parcel basis because employment in these areas is often seasonal and dispersed over a large geography, and because residential uses are often a secondary or an accessory use to agriculture and/or the other rural uses listed above.

Distribution of Land Uses by Community Types

This section describes the land use pattern of the proposed MTP/SCS by the five Community Types previously described. Tables 2.7, 2.8, and 2.9 will be referenced in each Community Type discussion.

Table 2.7

Summary of Expected Housing and Employment Growth by Community Type (Dwelling Units and Employees)

	2008				2008-2035				2035			
Community Type	Dwelling Units[1]	Percent of Total	Employees[1]	Percent of Total	New Dwelling Units[1]	Percent of Total	New Employees[1]	Percent of Total	Dwelling Units[1]	Percent of Total	Employees[1]	Percent of Total
Center and Corridor Communities	103,479	11.7%	355,678	36.8%	91,748	30.3%	104,104	28.8%	195,227	16.4%	459,783	34.6%
Established Communities	684,161	77.3%	564,999	58.5%	79,445	26.2%	187,491	51.9%	763,606	64.3%	752,490	56.7%
Developing Communities	25,719	2.9%	16,488	1.7%	126,629	41.8%	65,466	18.1%	152,348	12.8%	81,953	6.2%
Rural Residential Communities	71,733	8.1%	29,144	3.0%	5,300	1.7%	4,056	1.1%	77,033	6.5%	33,200	2.5%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	885,092	100.0%	966,309	100.0%	303,122	100.0%	361,117	100.0%	1,188,213	100.0%	1,327,426	100.0%

Source: SACOG Proposed MTP/SCS Land Use Forecast for 2035, June 2011.

[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

[2]The proposed MTP/SCS does not forecast or model growth in the "Lands Not Identified for Development in the MTP/SCS Planning Period" Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.) As a result, existing developed acres in the "Lands Not Identified for Development in the MTP/SCS Planning Period "Community Type was included in "Established" and "Rural Residential" Community Type totals.

Table 2.8

Summary of Expected Developed Acres by Community Type

	Existing Developed Acres (2008)		Additional Developed Acres (2008-2035)		All Developed Acres (2035)		All Acres (Developed and Undeveloped)	
Community Type	Acres[1]	Percent Distribution Among Community Types	Acres[1]	Percent Distribution Among Community Types	Acres[1]	Percent Distribution Among Community Types	All Acres[1]	New Developed Acres as Percent of All Acres
Center and Corridor Communities	25,539	3.5%	4,446	8.3%	29,985	3.9%	36,213	12.3%
Established Communities	266,419	36.9%	19,756	37.1%	286,175	36.9%	373,588	5.3%
Developing Communities	23,476	3.3%	23,994	45.0%	47,469	6.1%	103,081	23.3%
Rural Residential Communities	406,437	56.3%	5,070	9.5%	411,507	53.1%	712,339	0.7%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	2,638,152	n/a[2]
Region Total	721,872	100.0%	53,266	100.0%	775,138	100.0%	3,863,373	1.4%

Source: SACOG MTP/SCS Land Use Forecast for 2035, June 2011.

[1] Totals may not match due to rounding.

[2]The proposed MTP/SCS does not forecast or model growth in the "Lands Not Identified for Development in the MTP/SCS Planning Period" Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.) As a result, existing developed acres in the "Lands Not Identified for Development in the MTP/SCS Planning Period" Community Type was included in "Established" and "Rural Residential" Community Type totals.

Table 2.9
Summary of New Housing Product Distribution by Community Type (Percent)

Community Type	Rural Residential[1]	Large-Lot Single-Family[2]	Small-Lot Single Family[3]	Attached[4]	Total[5]
Center and Corridor Communities	0%	3%	14%	83%	100%
Established Communities	1%	30%	38%	32%	100%
Developing Communities	1%	44%	33%	22%	100%
Rural Residential Communities	38%	52%	9%	1%	100%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	1%	28%	28%	43%	100%

Source: SACOG MTP/SCS Land Use Forecast for 2035, June 2011.

[1]Rural Residential: single-family detached homes built at densities less than 1 dwelling unit per acre.

[2]Large-Lot Single-Family: single-family detached homes built at densities between 1 and 8 dwelling units per acre.

[3]Small-Lot Single-Family: single-family detached homes built at densities between 8 and 25 dwelling units per acre.

[4]Attached Residential: Single-family or multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, row houses, halfplexes, etc. built at densities from 8 to over 50 dwelling units per acre.

[5] Totals may not match due to rounding.

[6]The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.) As a result, existing developed acres in the Lands Not Identified for Development in the MTP/SCS Planning Period Community Type was included in Established and Rural Residential Community Type totals.

Center and Corridor Communities

The proposed MTP/SCS allocates 30 percent of the projected housing demand and 29 percent of employment demand to Center and Corridor Communities. This represents 8.3 percent of the new development land in the proposed MTP/SCS. Table 2.7 shows the number of dwelling units and employees in Center and Corridor Communities compared to other Community Types and Table 2.8 shows the acreage of new development by Community Type. Center and Corridor Communities were the most employment-oriented Community Type in the region in 2008 (3.4 employees per dwelling unit). The proposed MTP/SCS has an 89 percent increase in housing in Center and Corridor Communities to reuse vacant or underutilized land that is in close proximity to services and employment opportunities, take advantage of existing transportation infrastructure (light rail and bus service where they are present), and create more types of housing products for the projected population in central locations. As shown in Table 2.9, new housing in Center and Corridor Communities is predominantly attached product, due to higher residential densities proposed or allowed in these areas by local jurisdictions.

Established Communities

The proposed MTP/SCS forecasts 26 percent of the projected housing demand and 52 percent of employment demand to Established Communities. This represents 37 percent of the new development land in the proposed MTP/SCS. Table 2.7 shows the number of dwelling units and employees in Established Communities compared to other Community Types and Table 2.8 shows the acreage of new development by Community Type. Established Communities contain the existing residential neighborhoods, office parks, industrial parks, and shopping centers of the region. The modest rate of housing growth in Established Communities is due in part to their substantially "built out" condition, but also because much of the potential housing demand in these areas that might otherwise be realized through amended plans and codes to allow higher densities is channeled to the Center and Corridor Communities. Employment growth in Established Communities is higher than housing growth because the proposed MTP/SCS projects improved employment-to-housing ratios in communities with a low employment base today, and continued build out of existing office and industrial parks in regional jobs centers. New housing in Established Communities is fairly balanced between large-lot single-family, small-lot single-family and attached products, as shown in Table 2.9.

Developing Communities

The proposed MTP/SCS forecasts 42 percent of the new housing and 18 percent of new employment will occur in Developing Communities. This represents 45 percent of the new development land in the proposed MTP/SCS. Table 2.7 shows the number of dwelling units and employees in Developing Communities compared to other Community Types, and Table 2.8 shows the acreage of new development by Community Type. Unlike Established Communities, which experience high employment growth relative to housing growth, Developing Communities experience high housing growth relative to employment growth. This is due to two factors: 1) most Developing Communities in the proposed MTP/SCS are not expected to fully build out by the horizon year of the plan and, therefore, a critical mass of housing will not yet be present to support planned employment growth; 2) most Developing Communities are located around regional jobs centers in southwest Placer County, southeastern Sacramento County, and urbanized Yolo County, and are intended to provide nearby housing for those jobs centers. New housing in Developing Communities is predominantly large-lot single-family and small-lot single-family product, although attached products comprise a substantial share as well, as shown in Table 2.9.

Rural Residential Communities

The proposed MTP/SCS forecasts that 1.7 percent of the new housing and 1.1 percent of new employment will occur in Rural Residential Communities. This represents 9.5 percent of the new development land in the proposed MTP/SCS. Table 2.7 shows the number of dwelling units and employees in Rural Residential Communities compared to other Community Types and Table 2.8 shows the acreage of new development by Community Type. Due to the rural and residential focus of Rural Residential Communities, employment growth is minimal. The majority of growth in Rural Residential Communities is located in the foothills of El Dorado, Placer, and

Yuba counties. New housing in Rural Residential Communities is almost entirely rural residential and large-lot single-family housing product, as shown in Table 2.9.

Lands Not Identified for Development in the MTP/SCS Planning Period

The proposed MTP/SCS does not forecast growth in these areas. The unique nature of agricultural, forestry, mining, and other rural economic activity – that it is seasonal and dispersed over a large geography at any given time of the day, week, or year – makes the associated employment difficult to forecast spatially. Similarly, housing growth in this Community Type is difficult to forecast spatially because it is often a secondary or an accessory use to agriculture and/or other rural uses. Though the proposed MTP/SCS does not forecast any development in these areas by 2035, it is possible that some housing and employment growth associated with agriculture, forestry, mining, and other rural uses could occur in these areas within that timeframe. This is particularly true in the areas that have long-term plans and policies to sustain the current rural uses.

Transit Priority Area Framework

A subset of the proposed MTP/SCS housing and employment growth falls within what SACOG refers to as Transit Priority Areas (TPAs). TPAs are areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor included in the proposed MTP/SCS. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, § 21155). Figure 2.2 illustrates the relationship of the TPAs to Community Types. In both the proposed MTP/SCS and this DEIR, TPAs are considered an overlay geography and do not necessarily correspond directly to Community Types.

As stated previously, one of the objectives of the proposed MTP/SCS is to activate the CEQA streamlining benefits of SB 375, in order to encourage implementation of the proposed MTP/SCS land use and transportation pattern and all the resulting performance benefits of that development pattern. The goal, therefore, in identifying TPAs in the proposed MTP/SCS is to facilitate the use of SB 375 CEQA streamlining benefits available to qualifying residential and mixed-use projects.

The housing and employment land use forecast assumptions for the TPAs in the proposed MTP/SCS were first based on an assessment of existing and proposed local land use plans, which identified those existing or proposed rail station areas and transportation corridors where local governments allow new housing and employment uses at development densities high enough to support high-quality transit. Local market conditions and national housing and employment market trends also factored into the land use forecast assumptions. Some existing transportation corridors with relatively lower growth were also allocated high-quality transit service because of their location between major growth areas or because of existing transit needs that cannot be served at current funding levels but are expected to be served as the region grows in population and revenues for transit funding.

Once the land use forecast assumptions were completed, high-quality transit service was assigned to transportation corridors. Five factors have been shown to influence the transit

ridership and productivity of different types of transit service in transit corridors: 1) density of development, with higher density supporting higher frequency and capacity transit services; 2) the mix of uses, with better mix of uses allowing transit to be used for non-work and non-peak period trips; 3) the income demographics of residents, with lower income residents more likely to utilize transit service; 4) the prevalence of paid parking, with higher levels of paid parking generating more transit ridership; and 5) block size and street pattern, with smaller block sizes and finer street networks supporting higher levels of walk access to and from transit. These factors were used in an iterative process to develop the transit service assumptions that yielded the TPA geography. Appendices C-4 and E-3 of the proposed MTP/SCS include full discussions of the land use and transportation forecasting methodologies.

Distribution of Land Uses by Transit Priority Areas

Blueprint principles call for diverse housing options, in the form of housing products not currently widely available, in places where transit service can be efficiently provided. In 2008, 14 percent of housing units and 27 percent of employees were within areas that meet the definition of Transit Priority Areas. In support of the Blueprint principles, a primary goal of the proposed MTP/SCS is to increase the number of people – both residents and employees – who have access to high-quality transit. By 2035, the proposed MTP/SCS forecasts 38 percent of new dwelling units and 39 percent of new employees within TPAs, and brings high-quality transit service to an additional 157,216 existing dwelling units and 240,013 existing employees.

This section describes the land use pattern of the proposed MTP/SCS by the TPAs, which are divided by county. Tables 2.10, 2.11, and 2.12 will be referenced in each TPA discussion. Figure 2.3 illustrates the TPAs of the proposed MTP/SCS, which together cover 84,402 acres.

Table 2.10

Summary of Expected Housing and Employment within Transit Priority Areas[1] (Dwelling Units, Employees)

	2008 Transit Priority Areas[1]		2035 Transit Priority Areas[1]					
Transit Priority Areas (TPAs)[1]	Existing Dwelling Units[2]	Existing Employees[2]	Existing Dwelling Units[2]	Existing Employees[2]	New Dwelling Units[2]	New Employees[2]	All Dwelling Units[2]	All Employees[2]
Placer TPAs	2,788	5,843	9,553	37,226	2,561	10,150	14,902	53,219
Sacramento TPAs	107,069	230,081	125,729	182,471	92,124	107,520	324,922	520,072
Yolo TPAs	16,837	25,738	21,934	20,316	19,781	22,004	58,552	68,058
All TPAs	**126,694**	**261,662**	**157,216**	**240,013**	**114,466**	**139,674**	**398,376**	**641,349**

[1]Transit Priority Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, § 21155).

Table 2.11

Summary of Expected Development by Transit Priority Area (Acres)

	Existing Developed Acres (2008)		Additional Developed Acres (2008-2035)		Add Developed Acres (2035)		All Acres (Developed and Undeveloped)	
Transit Priority Areas (TPAs)[1]	Acres	Percent Distribution	Acres	Percent Distribution	Acres	Percent Distribution	All Acres	New Development as Percent of All Acres
Placer TPAs	3,488	5.7%	315	4.7%	3,803	4.7%	4,961	6.3%
Sacramento TPAs	49,652	80.9%	5,158	76.7%	54,810	76.7%	65,822	7.8%
Yolo TPAs	8,205	13.4%	1,250	18.6%	9,455	18.6%	13,619	9.2%
All TPAs	61,345	100.0%	6,723	100.0%	68,068	100.0%	84,402	8.0%

[1] Transit Priority Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, § 21155).

Table 2.12

Summary of Expected Housing Product Distribution by County (Percent)

Transit Priority Areas (TPAs)[1]	Rural Residential[2]	Large-Lot Single-Family[3]	Small-Lot Single- Family[4]	Attached[5]
Placer TPAs	0%	11%	11%	78%
Sacramento TPAs	0%	4%	21%	75%
Yolo TPAs	0%	5%	16%	79%
All TPAs	0%	4%	20%	76%

[1]Transit Priority Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, § 21155).

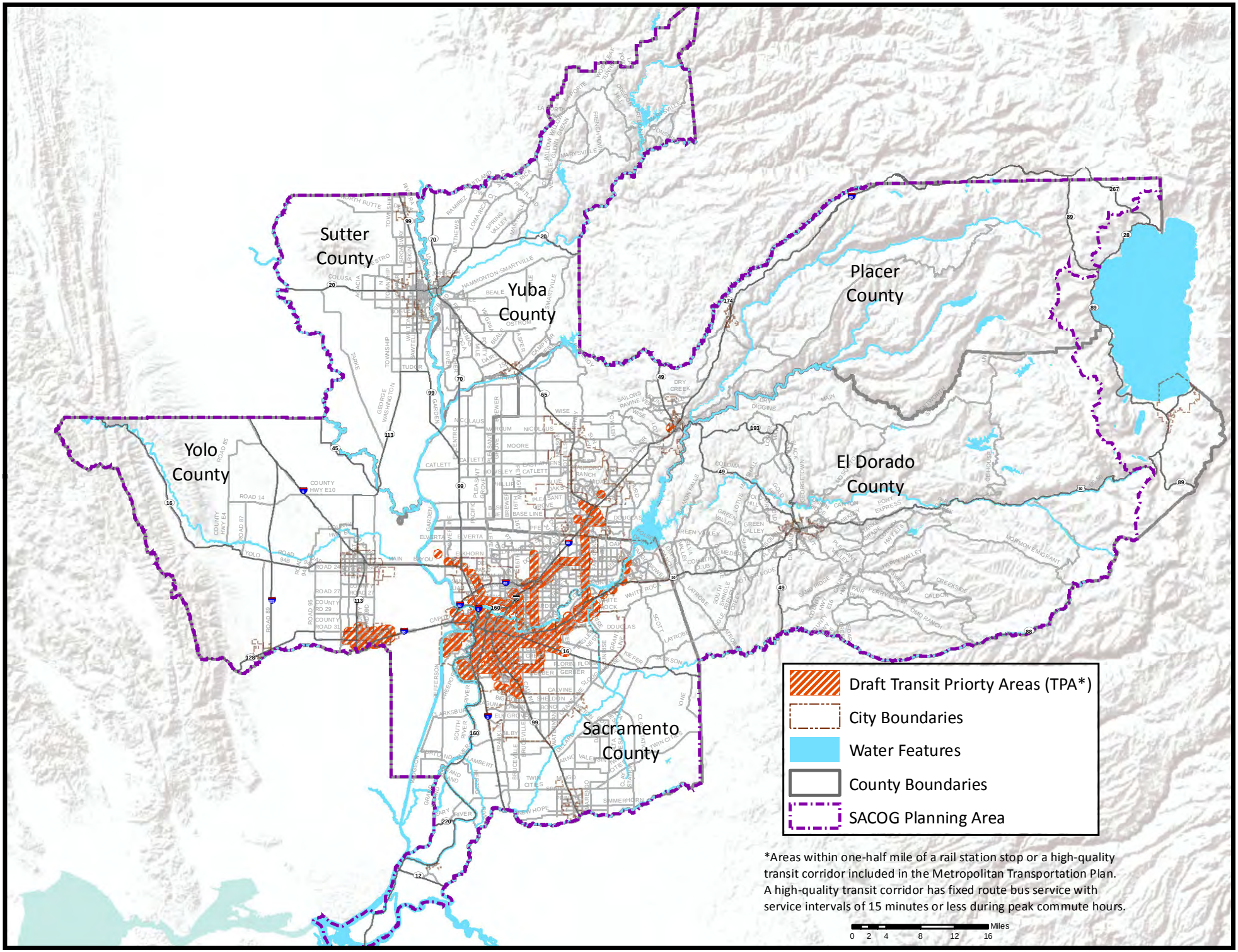
[2]Rural Residential: single-family detached homes built at densities less than 1 dwelling unit per acre.

[3]Large-Lot Single-Family: single-family detached homes built at densities between 1 and 8 dwelling units per acre.

[4]Small-Lot Single-Family: single-family detached homes built at densities between 8 and 25 dwelling units per acre.

[5]Attached Residential: Single-family or multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, rowhouses, halfplexes, etc. built at densities from 8 to over 50 dwelling units per acre.

Figure 2.3 Transit Priority Areas (TPA*)



Placer Transit Priority Areas

The Placer TPAs cover Capital Corridor train station areas in the cities of Roseville, Rocklin and Auburn, as well as high-quality bus routes in the city of Roseville. The proposed MTP/SCS allocates 0.8 percent of projected regional housing demand and 2.8 percent of projected regional employment demand to the Placer TPAs. This new development occupies 315 acres, or 6.3 percent of the total land area within the Placer TPAs and 0.5 percent of the new development land in the proposed MTP/SCS. Table 2.10 shows the number of dwelling units and employees in the Placer TPAs compared to other TPAs; Table 2.11 shows the size, in acres, of the Placer TPAs and acres of new development. New development in the Placer TPAs is predominantly employment, due primarily to the concentration of transit service in the Roseville employment centers along the Interstate 80 corridor. New housing in the Placer TPAs averages 23 dwelling units per net acre; of these new dwelling units, 78 percent are in attached housing product types as shown in Table 2.12.

Sacramento Transit Priority Areas

The Sacramento TPAs cover several types of transit routes: light rail station areas within cities of Folsom, Rancho Cordova, Sacramento, and unincorporated Sacramento County; a Capital Corridor train station area in the City of Sacramento; a street car corridor in the central/downtown area of the City of Sacramento, and numerous bus and bus rapid transit routes in the cities of Citrus Heights, Rancho Cordova, Sacramento, and unincorporated Sacramento County. The proposed MTP/SCS allocates 30 percent of projected regional housing and employment demand to the Sacramento TPAs. This new development occupies 5,158 acres, or 7.8 percent of the total land area within the Sacramento TPAs and 9.6 percent of the new development land in the proposed MTP/SCS. Table 2.10 shows the number of dwelling units and employees in the Sacramento TPAs compared to other TPAs; Table 2.11 shows the size, in acres, of the Sacramento TPAs and acres of new development. New development in the Sacramento TPAs is fairly balanced between housing and employment growth due in part to the extensive geographic coverage of the TPAs, which cover regional job centers (e.g., downtown Sacramento and Rancho Cordova) as well as residential areas and commercial areas. In Sacramento County in particular, most of the cities and the unincorporated county have initiated commercial corridor plans intended to allow significantly more residential development than allowed under past land use plans. New housing in the Sacramento TPAs averages 31 dwelling units per net acre; of these new dwelling units, 75 percent are in attached housing product types as shown in Table 2.12.

Yolo Transit Priority Areas

The Yolo TPAs covers a Capital Corridor train station in the City of Davis, a street car corridor in the central area of West Sacramento, and numerous bus and bus rapid transit routes in the cities of Davis and West Sacramento. The proposed MTP/SCS projects 6.5 percent of new housing and six percent of new employment to the Yolo TPAs. This new development occupies 1,250 acres, or 9.2 percent of the total land area within the Yolo TPAs and 2.3 percent of the new development land in the proposed MTP/SCS. Table 2.10 shows the number of dwelling units and employees in the Yolo TPAs compared to other TPAs; Table 2.11 shows the size, in acres, of the

Yolo TPAs and acres of new development. New development in the Yolo TPAs is fairly balanced between housing and employment growth due in part to the extensive geographic coverage of the TPAs, which include regional job centers (e.g., central West Sacramento and UC Davis) as well as residential areas and commercial areas. New housing in the Yolo TPAs averages 29 dwelling units per net acre; of these new dwelling units, 79 percent are in attached housing product types as shown in Table 2.12.

MTP/SCS Transportation System

The MTP includes a set of capital and operational improvements to the regional transportation system, including road, bicycle, pedestrian, and transit projects. The plan also includes maintenance and rehabilitation activities to preserve the existing and expanded transportation system through 2035.

This section summarizes the transportation system of the proposed MTP/SCS. It is divided into three parts. The first part, "Developing a Transportation System for the Regional Growth Pattern," describes process for creating the transportation budgets and investments. The second part, "MTP/SCS Financial Assumptions," describes the forecast and source of future transportation revenues. The third part, "MTP/SCS Distribution of Expenditures," describes the actual investments of the proposed MTP/SCS by five major categories of transportation investments in the plan (Maintenance and Rehabilitation, Public Transit Service, Road and Highway, Bicycle and Pedestrian, and Programs and Planning).

Developing a Transportation System for the Regional Growth Pattern

The policy priorities for the transportation funds covered by the proposed MTP/SCS influence the projected future growth pattern. Through the last two MTP updates, the overall policy priorities for SACOG funds and the establishment of specific programs reflect a commitment to support the Blueprint principles. During this period of increasing SACOG Board support for linking Blueprint principles to the MTP, a trend towards performance-based outcomes that link integrated land use and transportation decisions has become increasingly evident in federal and state transportation policies and investment priorities. Through its MTP and short-term funding decisions for transportation projects, SACOG emphasizes investments that reduce vehicle miles traveled; increase transit, pedestrian and bike, and high-occupancy vehicle mode shares; and reduce congestion at key bottlenecks. These transportation infrastructure investments will have some influence on shaping the future growth pattern.

At the onset of the MTP/SCS planning process, SACOG coordinated with state and local agencies to develop a comprehensive package of projects intended to meet the current and future transportation needs of the plan area. Through SACOG Board direction, public workshops, technical analyses, and further coordination with local and state agencies, the alternatives were further refined into a final set of projects tailored to fit projected land uses, demographic changes, and travel needs in the region through 2035.

MTP/SCS Financial Assumptions

Funding to support the transportation investments in the proposed MTP/SCS comes from a number of federal, state, and local sources, each with specific purposes and restrictions. In total, SACOG forecasts $35.2 billion in revenues ($49.8 billion escalated) for the plan period. On average, this comes out to approximately $1.4 billion ($2.0 billion escalated) per year.[1] Compared to the 2008 MTP, the revenues supporting the proposed MTP/SCS reflect a roughly 13 percent reduction in total budget. Even after the region recovers from the recent recession, SACOG projects the population of the region will grow more slowly over the planning period, resulting in nearly 300,000 fewer people by 2035 than previously estimated. This smaller population results in a five percent per capita decrease in revenues.

Federal and state laws require that the proposed MTP/SCS constrain its budget by assuming only revenues that can reasonably be expected over the planning period. Therefore, the revenue assumptions contained in the plan assume that current sources of revenue in the region will continue into the future at rates of growth consistent with historical trends and projected future economic conditions. The following provides a summary of MTP/SCS revenues by federal, state, and local sources. Appendix B-1 of the proposed MTP/SCS provides a more detailed description of budget and investment assumptions.

Federal Revenues

Federal revenues in the proposed MTP/SCS total $3.8 billion ($5.4 billion escalated), or 11 percent of the total budget. Federal programs typically support one-time capital investments over ongoing investments for road maintenance and transit operations. However, some federal funds are available to support major road rehabilitation projects such as reconstruction and replacement of decaying bridges, as well as transit preventative maintenance aimed at extending the life of transit facilities or vehicles. Federal funding sources come in the form of Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) programs:

Federal Transit Administration Programs

- Section 5307 Urbanized Area Formula
- Section 5309 New Starts
- Section 5309 Fixed Guideway Modernization
- Section 5309 Bus Allocation
- Section 5310 Elderly and Disabled
- Section 5316 Job Access and Reverse Commute (JARC)
- Section 5317 New Freedom

[1] The plan period for financial assumptions runs from 2010 to 2035; 2010 is the financial base year of the corresponding Metropolitan Transportation Improvement Program.

Federal Highway Administration Programs

- Regional Surface Transportation Program (RSTP)
- Congestion Mitigation and Air Quality Program (CMAQ)
- Other federal programs including High Priority Projects and other appropriations

State and Local Revenues

State funds in the proposed MTP/SCS total $8.7 billion ($12.2 billion escalated), or 25 percent of the total budget. California Department of Transportation (Caltrans) maintenance and capital investments for the state highway system and intercity rail services operated within the region comprise 75 percent of the state revenues in the proposed MTP/SCS. State assistance for local projects is similar to federal programs in the support of one-time capital investments. One notable exception is State Transit Assistance (STA), which can be used to support local transit operations. However, in the region, STA typically makes up less than ten percent of annual transit operating budgets.

Local funds in the proposed MTP/SCS total $22.7 billion ($32.2 billion escalated), or 64 percent of the total budget. Local revenues are the primary financial support for the basic maintenance and operation of the region's road and transit system (over 95 percent of local road maintenance and rehabilitation and over 75 percent of transit operations). The principal sources of local revenues are sales and fuel taxes, developer fees and contributions, local general funds, and transit fares. On average, local revenues also cover 65 to 90 percent of major capital improvements on local road systems and frequently pay for 100 percent of relatively minor improvements.

State, Regional, and Local Programs

- State Transportation Improvement Program (STIP), comprising the Regional Transportation Improvement Program (RTIP) and the Interregional Transportation Improvement Program (ITIP)
- Proposition 1B Bond Funds, approved by voters in 2006, which includes Corridor Mobility Improvement Account (CMIA), Trade Corridors Improvement Fund (TCIF), and Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA) funds
- Transportation Development Act (TDA) and State Transit Assistance (STA) funds
- Proceeds from the Sacramento County Measure A half-cent transportation sales tax and future Measure B half-cent transportation sales tax equivalent
- Fares from the sale of transit tickets and passes
- Subventions to local agencies from the state Highway Users Tax Account
- Allocations from local general funds, fee programs, and other local sources

- Contributions from developers for the construction of transportation infrastructure in and around new developments
- Other discretionary grants and programs administered by the state including Safe Routes to Schools, Bicycle Transportation Account, Blueprint Planning Grants, etc.

MTP/SCS Distribution of Expenditures

The proposed MTP/SCS will make investments totaling $35.2 billion (in current dollars) to improve the regional transportation system. Table 2.13 summarizes the general categories of investment included in the proposed MTP/SCS through the year 2035. These are expressed in current dollars, as well as year-of-expenditure dollars. SAFETEA-LU requires that all cost estimates be escalated to year-of-expenditure (YOE) values, to reflect both the likely decrease in purchasing power of today's dollar and the increase in costs for maintaining and building the transportation system over the planning period.

Table 2.13
Summary of Proposed MTP/SCS Investments

		Total Budget- 2011 through 2035 (in billions)
	Program Category	**MTP/ SCS**
1	**Maintenance & Rehabilitation (Current Year $*)**	**$11.5**
	Year of Expenditure $	*$16.4*
	Maintain Caltrans highways & freeways Maintain local streets& roads Safety investments as part of rehabilitation projects	
2	**Road Capital & Operations Projects (Current Year $*)**	**$7.4**
	Year of Expenditure $	*$10.5*
	New & widened roads, river crossings, interchanges, etc. ($5.9 billion, 30% lower than 2008 MTP total) Safety projects Technology and operational improvements	
3	**Transit (Current Year $*)**	**$11.3**
	Year of Expenditure $	*$15.9*
	Bus and rail operations and maintenance (70 percent of total expenditures) Strategic bus & rail infrastructure expansion ADA paratransit services	
4	**Bike/Pedestrian (Current Year $*)**	**$2.8**
	Year of Expenditure $	*$4.0*
	Bicycle facilities Pedestrian improvements ADA retrofits	
5	**Programs, Planning, Enhancements (Current Year $*)**	**$2.2**
	Year of Expenditure $	*$3.1*
	Project analysis and development Community Design Program Air quality programs TDM & traveler information Landscaping & transportation enhancements	
	Grand Totals (Current Year $*)	**$35.2**
	Year of Expenditure $	*$49.8*

*See Appendix B-1 of the proposed MTP/SCS for documentation of how costs and revenues are calculated and noted throughout this plan in order to meet SAFETEA-LU financial reporting requirements.

The transportation projects contained in the proposed MTP/SCS are matched to the available revenues for the planning period. The general level, type, and extent of investments covered by the plan are described in more detail below.

- $11.5 billion ($16.4 billion YOE) goes to road and highway maintenance and rehabilitation, including routine maintenance, major reconstructions, and various safety improvements.
- $11.3 billion ($15.9 billion YOE) goes to transit investments, including rail extensions and a 95 percent increase in bus service hours. An estimated $4.2 billion ($7.2 billion YOE) in capital investments support the additional $10.1 billion ($17.4 billion YOE) needed to operate these transit services.
- $7.4 billion ($10.5 billion YOE) goes to road and highway capital improvements, including intersection improvements, safety projects, signal timing, road widening in growth areas, and new connections for local access. Of this amount, $6.2 billion ($8.8 billion YOE) goes to local roads, $1.2 billion ($1.7 billion YOE) goes the state highways, and $600 million (over $850 million YOE) goes to bridges.
- $2.8 billion ($4.0 billion YOE) goes to bicycle and pedestrian improvements, including bicycle trails, sidewalks, ADA retrofits, and supporting facilities. In addition, an estimated 16 percent of the road capital projects have a bicycle or pedestrian feature that is not included separately in the bicycle and pedestrian improvement allocation.
- $2.2 billion ($3.1 billion YOE) for other types of improvements important to achieving regional goals, including project development and analysis, community design incentives, travel demand management (including the regional rideshare program), clean air, open space, technology deployment, and enhancement programs.

Table 2.14 summarizes the transportation changes by travel mode between 2008 and 2035, while Table 2.15 provides a summary of illustrative transportation projects in the proposed MTP/SCS. Appendix A-1 of the proposed MTP/SCS includes the full listing of transportation projects.

Table 2.14
Summary of Proposed MTP/SCS Transportation System Changes by Travel Mode

	2008		2035	
	Total	Percent Change	Total	Percent Change
General Purpose Freeways Lane Miles	1,462	NA	1,522	4%
Freeway HOV Lane Miles	64	NA	182	184%
Freeway Auxiliary Lane Miles	196	NA	262	34%
Arterial/Expressway Lane Miles[1]	3,609	NA	5,095	41%
Collector and Local Street Lane Miles[2]	22,000	NA	28,000	27%
Bicycle/Pedestrian Class I Miles [3]	397	NA	793	100%
Bicycle Class II Miles [4]	1,059	NA	1,781	68%
Transit Total Daily VSH [5]	4,074	NA	8,062	98%
Bus Route Miles [6]	3,816	NA	6,702	76%
Rail Route Miles [6]	258	NA	458	78%

[1] "Arterial / Expressway Streets" include all surface streets with functional class minor arterial or higher, including arterial streets, expressways, rural highways, etc. 2008 quantities from HPMS; 2035 quantities estimates from SACOG regional travel demand model networks.

[2] "Collector and Local Streets" are below minor arterial in functional class. 2008 quantities from HPMS; 2035 quantities based on applying per-capita rates to population growth by community area type.

[3] Bicycle route mileage based on SACOG GIS centerline file quantities for 2008, and estimates of growth in mileage based on adopted bikeway master plans.

[4] "VSH" = vehicle service hours. One vehicle service hour = one transit vehicle operating for normal revenue service for one hour. All quantities estimated from SACOG regional travel demand model networks.

[5] "Bus Route Miles" and "Rail Route Miles" are a measure of service coverage, not service intensity. Example: a one mile stretch of road with one bus per hour = one bus route mile; the same one mile stretch of road with 20 buses per hour = one bus route mile.

Table 2.15
Table of Illustrative Projects

NEW RAIL	
Rail	• Blue Line extension from Meadowview to Cosumnes River College • Capitol Corridor connecting Placer County, Sacramento, and Yolo Counties to the Bay Area • Green Line extension from Downtown Sacramento to Natomas Town Center • Downtown Sacramento to West Sacramento streetcar starter, with Midtown loop extensions • Rancho Cordova Town Center Loop Streetcar • High Speed Rail – Altamont connection to points south, terminating at Sacramento Valley station
NEW BUS	
Local & Express Buses, Neighborhood Shuttles	• Increase bus service with 15 minute or better service from 14% in 2008 to 45%
Bus Rapid Transit (BRT)/ Hi Bus	• Nine BRT lines with 15-30-minute service connecting Roseville, eastern Sac County, Citrus Heights, northern Sac County, Natomas, Rancho Cordova, South Sac, Elk Grove, Downtown • Various street & operational improvements coordinated with complete streets corridor enhancements to enhance bus transit
NEW BIKE/PEDESTRIAN	
Bike Lanes, Complete Streets & Recreational Trails	• Increase of 7% per capita in travel mode expenditure from 2008 MTP. Emphasis on complete street connections within and between cities and to transit and school facilities
NEW ROADS	
US 50 El Dorado	• Carpool lane extension, Bass Lake Rd to Cameron Park Dr. • Carpool lane extension, Cameron Park Dr to Greenstone Rd. • New auxiliary lanes on US50 with connected parallel roads between El Dorado Hills and Shingle Springs • 4-lane Green Valley Road, Folsom to El Dorado Hills
US 50 Sacramento	• New carpool lanes, Sunrise Boulevard to Watt Ave • New carpool lanes, Watt Ave to downtown Sacramento • Modified interchange operational improvements at US50 & SR99, US50 & I-5 • New auxiliary lanes, various locations in Sacramento, Rancho Cordova, and Folsom

NEW ROADS	
I-80 & I-5 Yolo/North Sacramento	• New auxiliary lanes from Del Paso Rd. to Hwy. 99 • I-5/SR 113 interchange Phase II and full project development for Phase III • I-5/State Route 99 interchange improvements • New carpool lanes on I-80 and U.S. 50 connecting Davis to Downtown Sacramento, with new bike bridge across the Yolo Causeway • New carpool lanes on I-5 and I-80 to downtown Sacramento
I-80 Sacramento	• Carpool lane extension, Watt/Longview west to I-5 • Business 80/Capital City freeway operational improvements • Roseville Road widened to 4 lanes, from Watt Ave to Placer County Line, with ext. onto SR 160
I-80 Placer	• Carpool lane extension + 2 new auxiliary lanes, Sac. County line to SR65 • I-80/SR 65 interchange – partial interchange rebuild
SR 65	• Lincoln Bypass, 2 & 4 lane expressway • Operational improvements in Marysville through area where SR 20, 65, and 70 come together • Wheatland Parkway: right-of-way preservation and project development efforts – post 2035 construction • Project development for carpool lanes I-80 to Blue Oaks
Placer Parkway	• New 4-lane divided facility from SR 65 to Watt Ave; Interchange at SR 65 Whitney Ranch; at grade crossings at Fiddyment, Foothills, and Watt
SR 99/70, Sacramento, Sutter & Yuba	• Operational improvements between I-5 and Placer Parkway - intersection improvements only
I-5 South, Sacramento	• New carpool lanes, downtown Sacramento to Elk Grove Boulevard
SR 99, Sacramento	• New auxiliary lanes, Elk Grove Blvd. to Laguna Blvd
Elk Grove-Rancho Cordova-El Dorado Connector	• Kammerer at 4 lanes from I-5 to Bruceville, 6 lanes from Bruceville to 99. Grant Line at 4 lanes between 99 and White Rock with right-of-way preserved. White Rock at 4 lanes from Grant Line to US 50 in El Dorado County
BRIDGES	
New River Crossings	• 5th St. Feather River bridge rebuilt/widened to 4 lanes • 10th St. Feather River bridge widened to 6 lanes • New north and south Sacramento River Crossings– alignments under review • New all-modal river crossing between Downtown and Natomas

1 – Road & Highway Maintenance & Rehabilitation

The plan area covers over 22,000 lane miles of existing or new collector and local streets, over 5,300 lane miles of freeway, high-occupancy vehicle (HOV), auxiliary, expressway, and arterials, and numerous small and large bridges that must be kept in a good state of repair for the transportation system to operate efficiently.

The maintenance and rehabilitation budget spends $11.5 billion ($16.4 billion YOE) to preserve, maintain, and rehabilitate the region's roads, highways, bridges, trails, sidewalks, and other bicycle and pedestrian facilities. Despite a four percent decline in absolute funding levels, maintenance and rehabilitation funding increases by four percent per capita from the 2008 MTP

funding levels. Of the overall total, an estimated five percent, or nearly $600 million, is spent on bicycle and pedestrian facilities as part of maintenance and rehabilitation projects.

Nearly 57 percent of the maintenance and rehabilitation budget is related to city and county maintenance of local streets and facilities. In current dollars, the proposed MTP/SCS sustains average investments between $200 and $300 million per year through 2035 for local roads, bridge, bicycle, and pedestrian facilities. The state-maintained highway system consumes the remaining 43 percent, with Caltrans maintaining the region's highway system with around $200 million annually from state funding sources.

Types of maintenance and rehabilitation projects include:

- Routine and preventive maintenance projects intended to extend the life of roads and highways, including sealing cracks, repairing pavement, cleaning and repairing drains, fixing signals, and sweeping streets;
- More extensive repair, rehabilitation and reconstruction of roadways, including sealing pavement, repaving, reconstructing subgrade and drainage, and reconfiguring intersections;
- Bicycle, pedestrian, safety and aesthetic improvements, such as striping, curb ramps, sidewalk gap closures, rail crossings, and landscaping as part of larger rehabilitation projects;
- Replacement, rehabilitation, painting, scour countermeasures, and bridge approach barrier and railing replacements on local and state-owned bridges; and
- In addition to the direct investments assumed for the bicycle and pedestrian budget, discussed below, an estimated 20 to 30 percent of the roadway investments in the project list include bicycle and pedestrian components such as striping and signage, sidewalk gap closures, ADA retrofits, and intersection improvements.

New "complete streets" projects take the place of many of the reduced or deferred road capacity projects discussed below. While in the past, the planning, design, construction, and operation of a street widening or new street might have focused on vehicular capacity and flow only, complete streets projects balance the needs of all potential users of a street. Based on these criteria, an estimated 33 percent of projects in the proposed MTP/SCS qualify as complete streets, representing a significant increase from the 2008 MTP. In addition to the plan's increased investment in complete streets along urban corridors, there is also an increase in investment in complete corridor treatments in rural communities, where closing a shoulder gap or improving a county road intersection can significantly improve the safety of travel for all modes.

2 – Public Transit Investment

The proposed MTP/SCS provides $11.3 billion ($15.9 billion YOE) in transit capital and operating investments. Most of this investment, two-thirds of the total, is consumed by the cost of operating and maintaining the transit system. Intercity rail operations take up about seven percent of the transit budget, or roughly $800 million, and are covered by state funding outside the control of regional operators. The balance pays for capital expenses such as purchasing new

buses and rail vehicles, infrastructure associated with adding routes and stations to the bus and rail system, building new storage and maintenance facilities, and improvements to help buses move more quickly through traffic. The State funds capital improvements on the intercity rail system through the interregional share of State Transportation Improvement Program (STIP) funds. Despite a shift of more than $2 billion in flexible funds from road to transit purposes in the proposed MTP/SCS, the slower regional growth and volatility of dedicated transit revenues result in an investment level that is ten percent per capita below the 2008 MTP levels.

Increased operational efficiencies are a key aspect of the proposed MTP/SCS in addressing the transit operations funding challenge. The proposed MTP/SCS provides more cost-effective service than the 2008 MTP by directing high-frequency service of 15 minutes or better in areas with more compact and mixed uses. The result is a 27 percent increase in transit productivity over levels in the 2008 MTP. Because of higher productivity, there is a significantly higher percentage of operating costs covered by fares – rising from 24 percent of operating costs in 2009 to 38 percent of operating costs by 2035.

The proposed MTP/SCS provides increased transit coverage across the region, but focuses on corridors with land uses that support productive transit services. The number of miles covered by bus transit routes in the proposed MTP/SCS increases 19 percent between 2008 and 2035 from 2,290 to 2,727 miles. Rail transit increases its coverage by 54 percent from 104 to 160 route miles. Total daily vehicle service hours increase by 98 percent from 4,074 to 8,062 hours. The types of transit offered in the plan vary by areas of the region. Investments include increasing the amount of service on existing routes, introducing new services, and adding high-capacity rail to high-demand corridors. Figures 2.4 and 2.5 illustrate the transit network and services in 2008 and included in the proposed MTP/SCS by the year 2035.

Types of transit projects in the proposed MTP/SCS include:

- Increased transit options in local areas to better match transit type to the density of development and related demand for service. Options range from increasing the amount of service on existing fixed route and express bus lines, to introducing new services including Bus Rapid Transit lines and neighborhood shuttles.
- More frequent transit service with greater regional coverage, with 15-minute or less service on many corridors. The plan calls for 53 percent of all transit services (bus and rail) to operate 15-minute or better service by 2035, versus 24 percent of services today.
- Expansion of ADA paratransit services to keep up with the fast-growing senior population. The proposed MTP/SCS also calls for paratransit vans to be replaced regularly and equipped with technologies that optimize trip planning, as well as use of quality vehicles.
- More replacement buses, running on alternative fuels.

- Strategic expansion of regional and local rail where it can be cost-effective given surrounding housing and employment densities. New local rail expansions include light rail to Cosumnes River College and the Sacramento International Airport and the introduction of streetcars in Rancho Cordova and between downtown Sacramento and West Sacramento.
- Additional service on the existing Capitol Corridor interregional rail line, provided by Caltrans/Amtrak through a Joint Powers Authority.
- Additional service on the existing San Joaquin intercity rail line, operated by Amtrak and funded by Caltrans.
- Operational improvements to improve rail service frequencies.
- Renovation and reconfiguration of the Sacramento Amtrak station (also called the Sacramento Valley Station) as a central intermodal facility for bus and rail connections. Project elements include moving and renovating of the old Southern Pacific depot and building new sidewalks, a parking garage, and improved freeway ramps.
- Increased transit security (patrols, lighting, etc.) and rubbish collection to enhance the attractiveness of transit travel.

3 – Road, Highway, and Bridge Capital and Operations Investments

The proposed MTP/SCS spends $7.4 billion ($10.5 billion YOE) on road, highway, and bridge operational and capacity projects. The budget is notably different from earlier MTPs in its emphasis on operational improvements to improve system productivity over capacity projects. As compared to the 2008 MTP, road capacity investments decline by 30 percent, while the overall decline in funding for this category is 20 percent. More than two-thirds of the total road and highway investment pays for operational or capacity improvements to existing facilities, while the remainder of the budget includes a mix of new road and highway investments to serve infill and new growth areas. Figures 2.6 and 2.7 illustrate the local roads, highways, and bridges in 2008 and improvements to these systems by 2035.

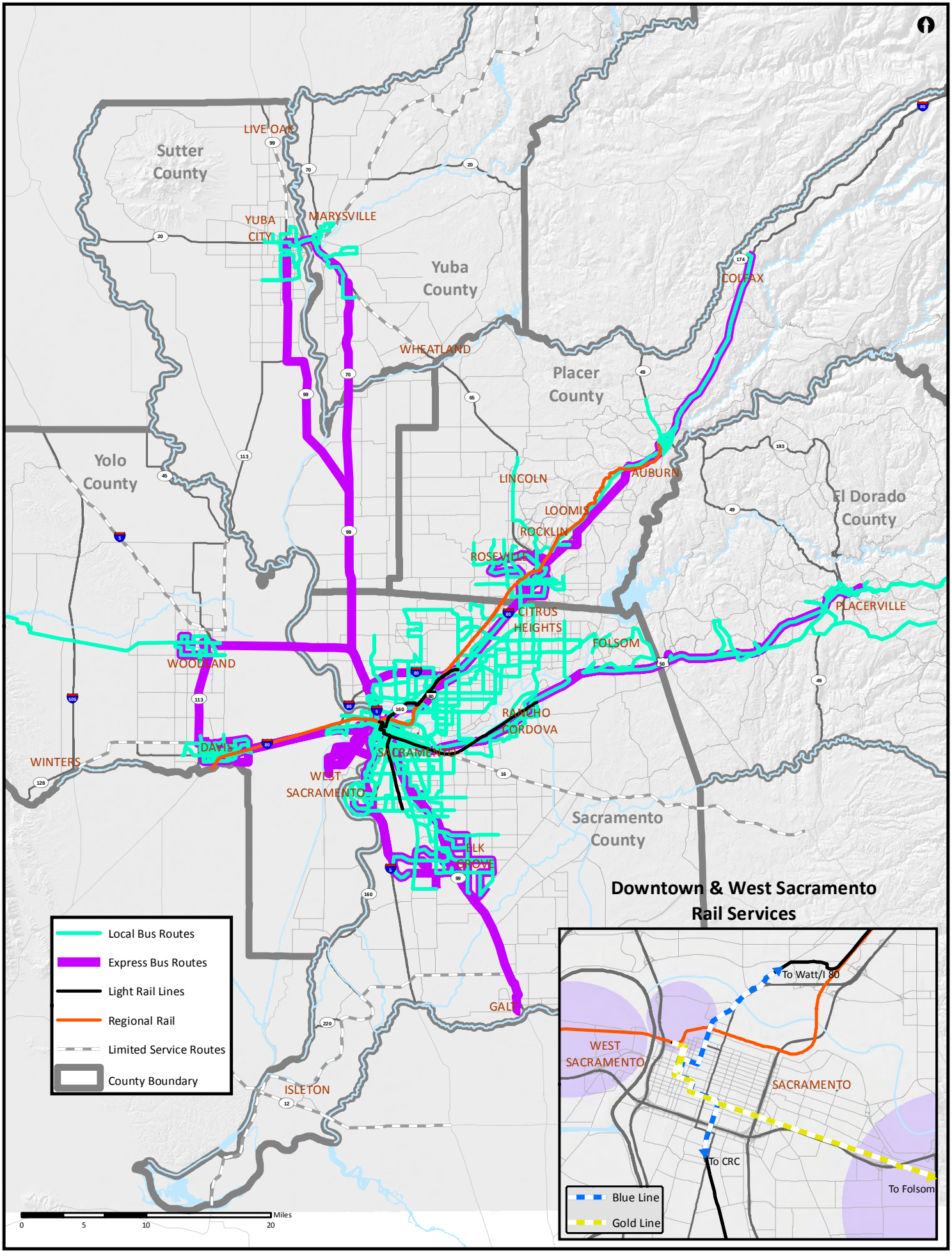


Figure 2.4 2008 Transit Network

Source :SACOG June 2011

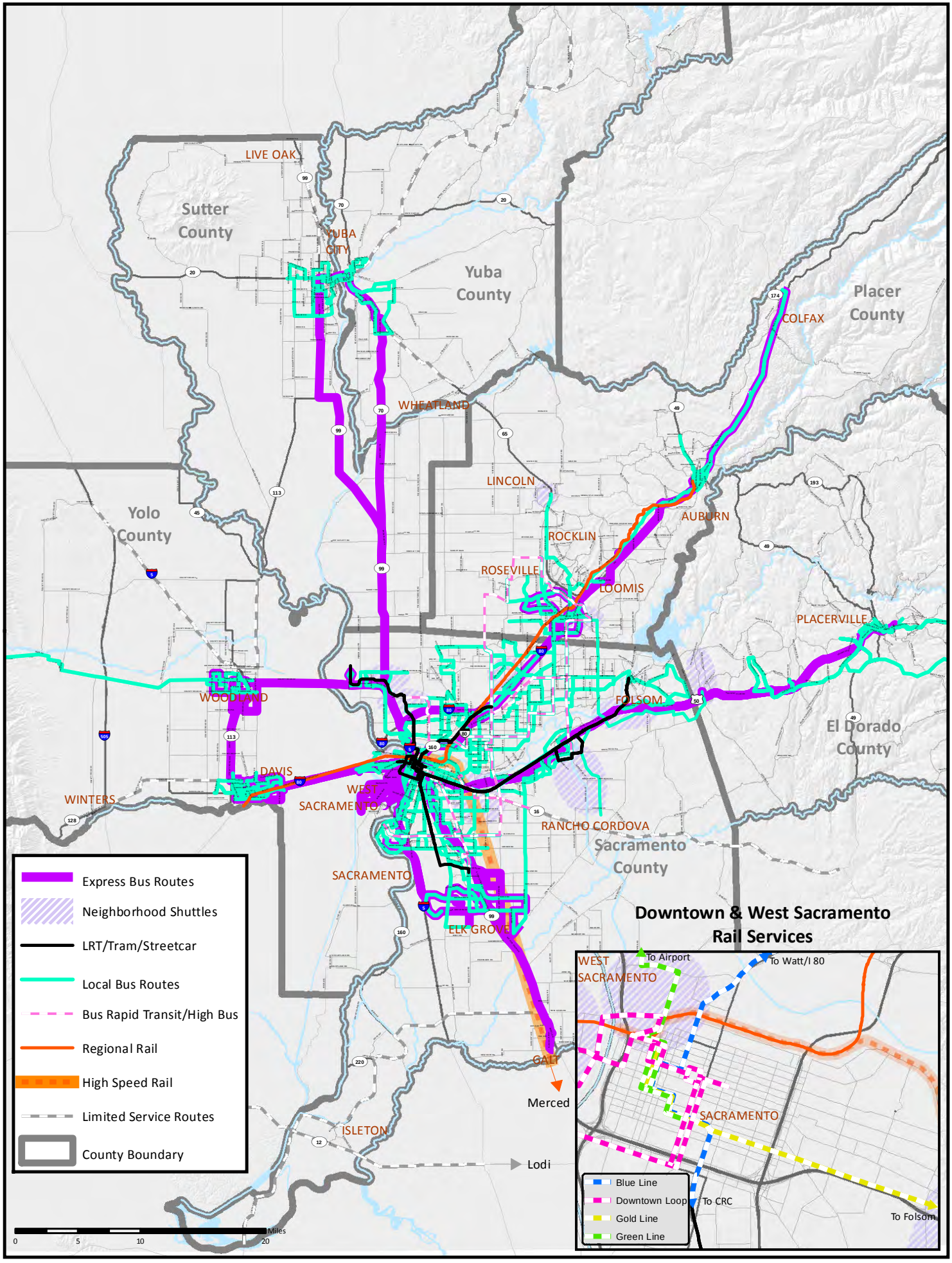


Figure 2.5 2035 Transit Network

Source :SACOG June 2011

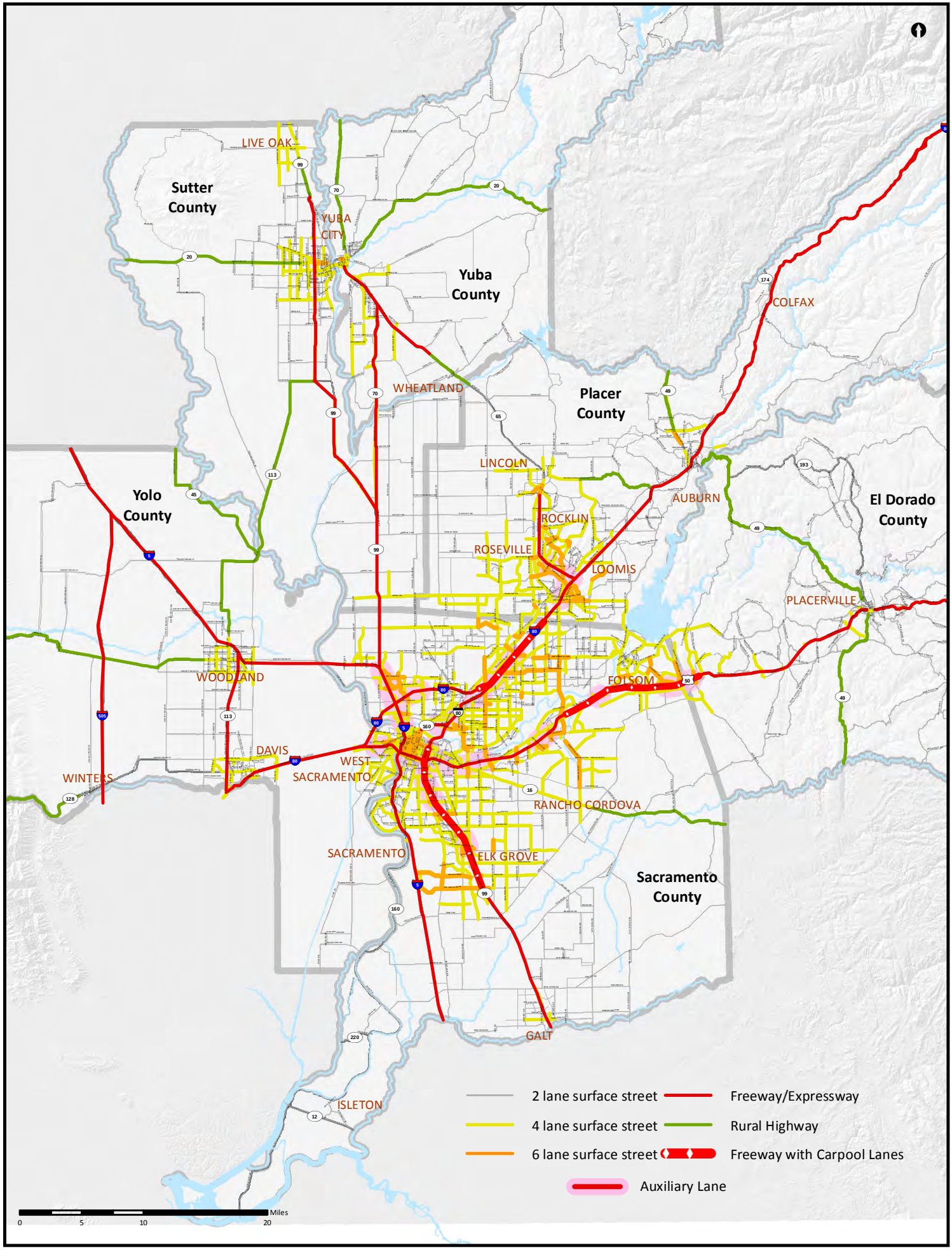


Figure 2.6 2008 Local Road and Highway Network

Source :SACOG May 2011

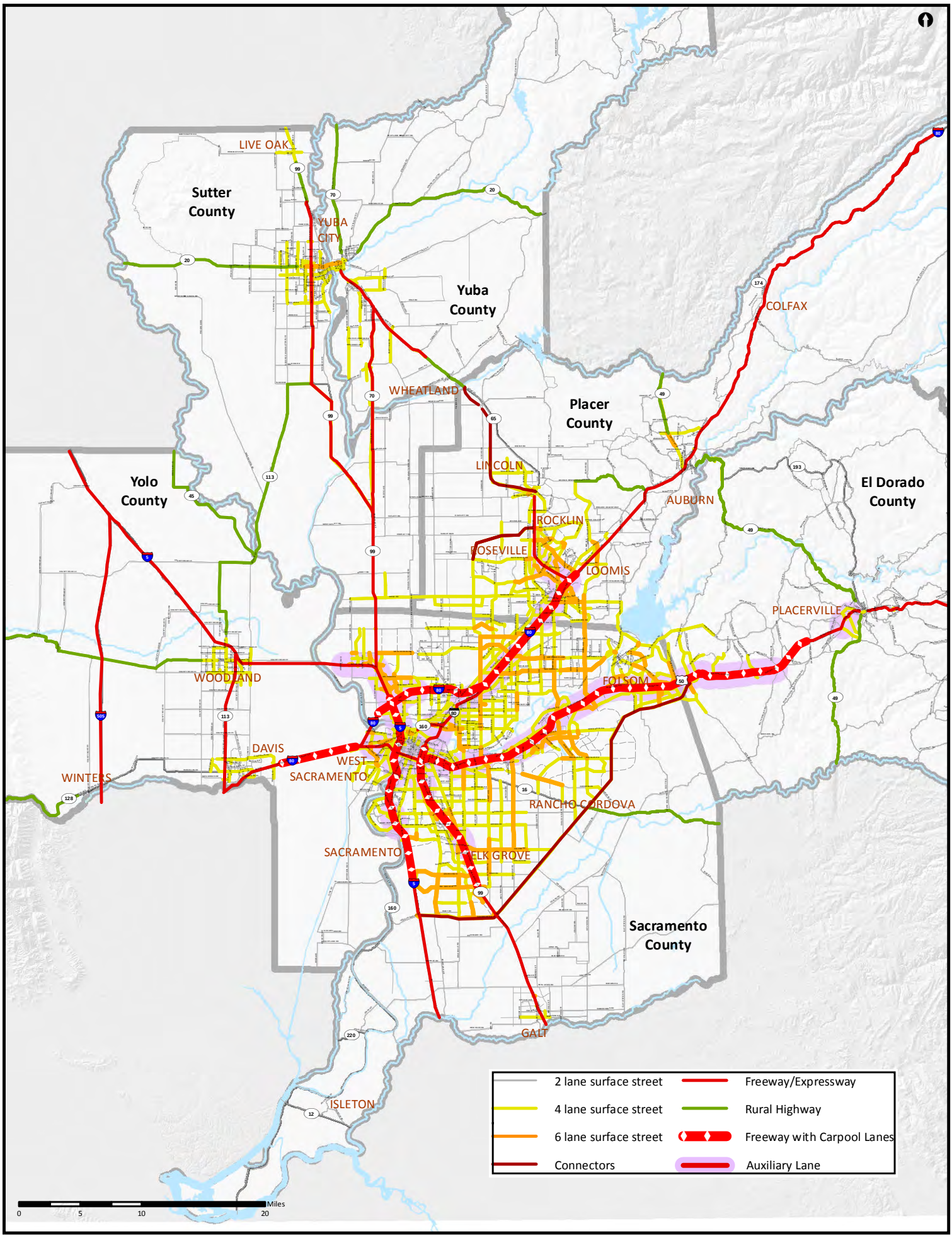


Figure 2.7 2035 Local Road and Highway Network

Source :SACOG May 2011

Local Road Investments
Of the $7.4 billion total in road, highway, and bridge capital projects, the proposed MTP/SCS invests $6.2 billion ($8.8 billion YOE) in local roads to accommodate projected growth. Eighty-nine percent of new lane miles in the plan are on surface streets, not freeways. The proposed MTP/SCS roadway investments emphasize access to infill development areas, congestion relief, support for bus and rail transit, and improved bicycle and pedestrian access. Local road investments increase capacity for local passenger travel, creating a benefit to goods movement on highways.

Examples of local road investments in the proposed MTP/SCS include:

- Road operational improvements for urban and suburban areas. The plan includes near-term and longer-term projects, including interchange and intersection bottleneck relief, street improvements to support improved transit access, and investments to support BRT corridors and improve access to transit-oriented developments. The focus areas for these investments are Center and Corridor and Established Communities.
- Road operational improvements for rural and small communities. Improving roadway safety along farm-to-market routes and corridors along the urban/rural edge is a focus for investments. Operational improvements include closing shoulder gaps, improving rural road intersections, and safer crossings within communities divided by highways or railroads.
- New and expanded urban arterial roadways to meet community and regional travel needs. These roadway improvements primarily serve emerging activity centers, including Rancho Cordova, Folsom, West Sacramento, and southern Placer County that shoulder a significant share of projected employment and housing growth by the 2035 horizon year. These expansions include complete streets features in order also to support transit and bicycle/pedestrian travel.
- Street safety measures, such as left-turn lanes at intersections, improved lighting and signage, special paving, and median strips, particularly where there are high numbers of automobile or pedestrian accidents. Safety investments are also made at rail grade-crossings and urban interchanges.

State Highway Investments
The proposed MTP/SCS invests $1.2 billion ($1.7 billion YOE) that will primarily be carried out by Caltrans. Investments focus on operational improvements and strategic new carpool and auxiliary lanes in many interior areas of the freeway system. Collectively, these investments serve travel between activity centers and accommodate trucks for inter-regional goods movement. Fixing bottlenecks along trucking corridors is important, as each truck represents the traffic-generating equivalent of two to four automobiles in stop-and-go traffic.

Added freeway lane miles account for only three percent of the total in new roadway capacity. Of this increase in freeway lane miles, over 75 percent are carpool lanes, auxiliary lanes, new ramps, or widened ramps. Most of the carpool, auxiliary, and transition lane additions occur in the urbanized part of the region and are directed at closing gaps that relieve congestion along

major commute corridors during peak commute periods and to serve suburban job centers where it will take time to build up employment densities to the point that transit becomes a serious option for commuting.

Example state highway projects include:

- Carpool lanes between Davis and West Sacramento on I-80/U.S. 50 in Yolo County; as far north as the I-80 interchange on I-5 in Sacramento County; and as far east as Greenstone Road on U.S. 50 in El Dorado County. Some auxiliary lanes are included beyond those these areas, where they are cost-effective and provide good performance.
- Operational improvements for congested or unsafe interchanges, including freeway-to-freeway interchanges along U.S. 50 and I-80 and at primary freeway-to-arterial corridors, including Watt Avenue and U.S. 50, and Elkhorn Boulevard and Route 99.
- Guardrails and improved shoulders along critical sections of freeways and highways.
- Special paving (e.g., diamond grooving, reflectors, skid-reducing material) and lighting along specific road segments to improve safety.
- Incident management investments, including changeable message signs for traffic alerts and increased freeway service patrols.

Bridge and River Crossing Investments

This subset of road and highway investments includes over $600 million (over $850 million YOE) in investments for the development of more road, transit, bicycle, and pedestrian capacity on the region's bridges. Three-quarters of this budget pays for major crossings of the American, Sacramento, and Feather Rivers, with the remainder going towards minor capacity expansions on small crossings of creeks and tributaries.

Example bridge projects include:

- Improved river access across the American and Sacramento Rivers into downtown Sacramento – New river crossings across the lower American River from Sacramento to South Natomas, and across the Sacramento River from West Sacramento to Sacramento to provide access into downtown Sacramento where there will be a large increase in jobs and residents by 2035.
- Feather River crossings at Yuba City – Improvements to the 5th Street and 10th Street bridges, with redesigned approaches and distribution on both ends, to link Yuba City and Marysville more effectively and avoid the high cost of a third bridge.
- One-to-two and two-to-four lane widenings on a number of small creek crossings.
- Bicycle and pedestrian retrofits on existing and new bridges.

4 – Bicycle and Pedestrian Investments

In addition to "complete street" investments described earlier, the proposed MTP/SCS includes $2.8 billion ($4.0 billion YOE) in direct investments for bicycle and pedestrian facilities. This total is within one percent of the budget total from the 2008 MTP, but represents a per capita increase of seven percent.

Types of bicycle and pedestrian projects in the proposed MTP/SCS:

- Sidewalk network extensions in neighborhoods, with segments widened where needed.
- Pedestrian bridges and pedestrian intersection improvements that include ADA-compatible ramps, bulb-outs, and special crossing signals.
- Bike lanes on more neighborhood and major streets.
- Multi-use bike/pedestrian trails (off-street, grade-separated) that offer residents the opportunity to make utilitarian and leisure trips separated from vehicular traffic.
- Bike facilities (racks, lockers, restrooms) at major transit stops/hubs (light rail, BRT, etc.) and at key activity centers (downtown Sacramento, shopping malls, large office complexes, etc.)

Projects reflecting the range of bicycle and pedestrian investments in the proposed MTP/SCS are listed in the *Regional Bicycle, Pedestrian, and Trails Master Plan* (Master Plan). This document is the framework and listing of projects supporting a regional pedestrian and bikeway network and is incorporated by reference. The Master Plan provides a summary of planned bicycle and pedestrian infrastructure projects in each jurisdiction, and among multiple jurisdictions. The goal is to develop a connected system of facilities that provide safe and convenient bicycle and pedestrian travel throughout the region. The development of the regional network is oriented towards utilitarian trips and emphasizes connectivity to current facilities and connections to transit systems and key destinations. Figures 2.8 and 2.9 illustrate the extent of class I and class II bicycle facilities throughout the plan area.

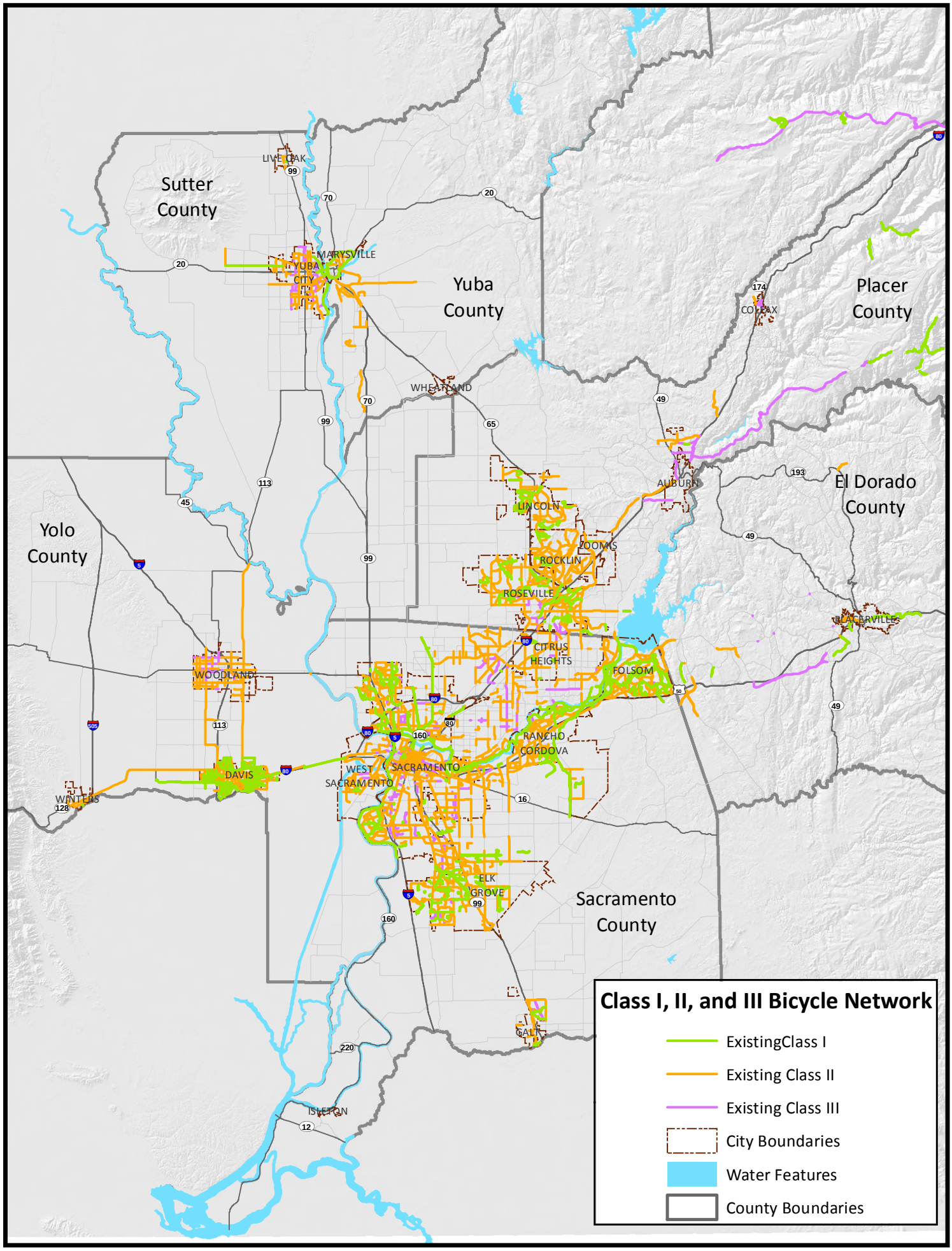


Figure 2.8 2008 Class I,II and III Bicycle Network

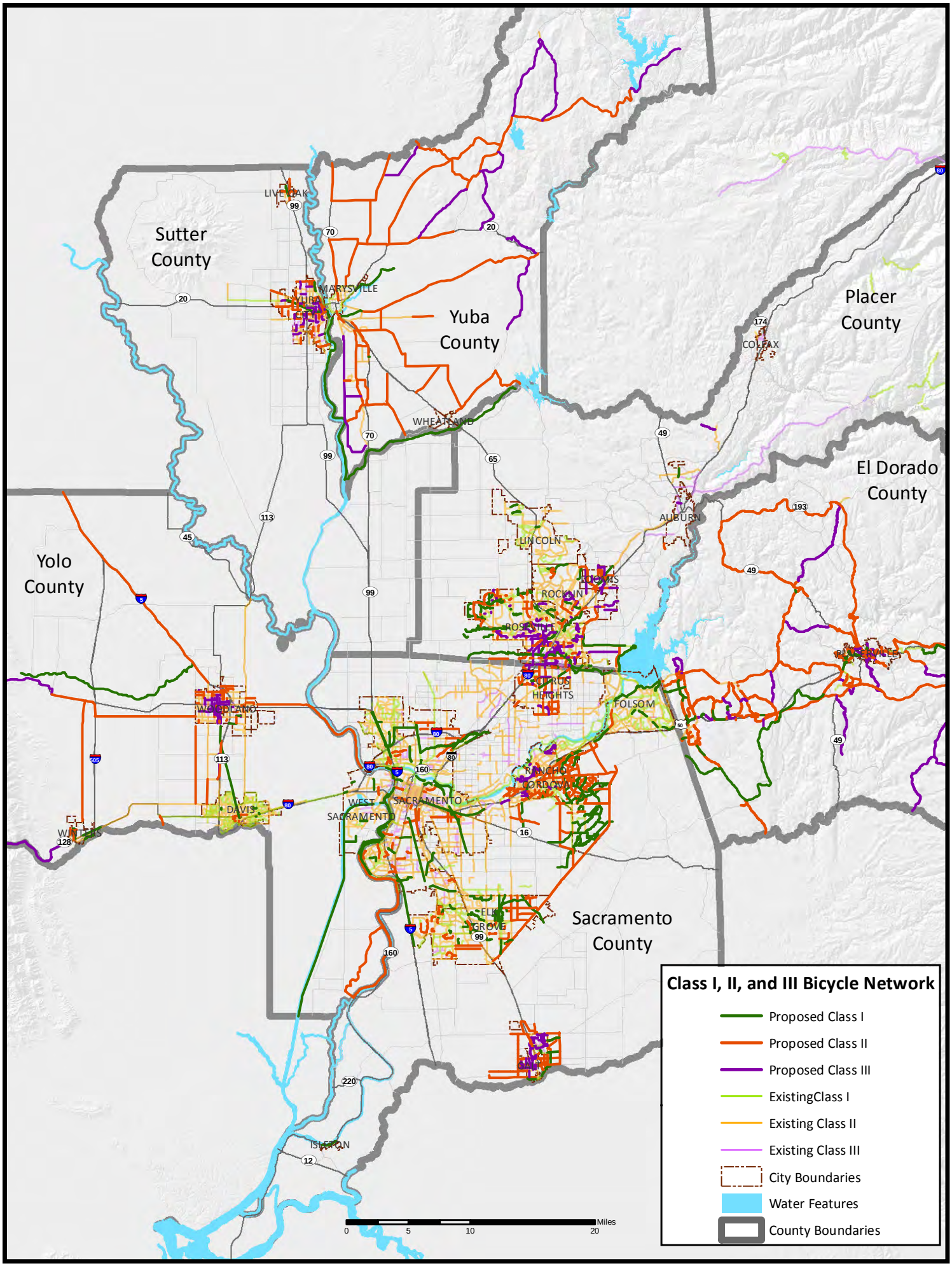


Figure 2.9 2035 Class I,II, and II Bicycle Network

5 – Programs, Planning, and Operations

The proposed MTP/SCS includes $2.2 billion ($3.1 billion YOE) in funding for supplementary programs, planning, and operational efforts, reflecting a decline of eight percent from 2008 MTP levels, but maintaining the same per-capita expenditure.

Example programs and planning and operations projects include:

- *Community Design:* Seed funding to encourage smart-growth development projects. The program has been expanded to allow greater regional coverage and support for projects from the planning phase through implementation.
- *Air Quality Improvement Programs:* Funding includes extension of the Sacramento Emergency Clean Air and Transportation (SECAT) grant program for replacing or retrofitting diesel engines and trucks, and Spare the Air programs to reduce vehicle miles traveled on bad air days.
- *Intelligent Transportation Systems (ITS):* Funding reserved for implementation of the regional ITS Strategic Deployment Plan, which includes automated message signs, crosswalk signals with pedestrian countdown timers, real-time transit message signs, and transit signal priority for buses. These investments also include Smart Corridors, including Sunrise and Hazel avenues in Sacramento, where near-term ITS strategies are planned by local agencies, and expansion of Traffic Operations Centers.
- *Travel Demand Management (TDM):* Goals for this funding program include 100 percent of employers served by a Transportation Management Association; a larger rideshare database so that searches average more ride matches; financial incentives for taking alternative modes or telecommuting to work; personalized trip-planning available to the public; expanded promotional campaigns including Bike Commute Month and the Vanpool Subsidy Program; and demonstration projects (such as car-sharing, instant ride matching, and TDM plans for large development and construction projects).
- *511 Traveler Information:* This existing phone and web-based service will continue to expand as a more highly developed and user-friendly source of detailed travel information. Goals for the future include real-time web-based traffic information, voice interactivity, and a public transit trip planner. The web version will include useful maps for alternative modes (transit system networks, bike routes, etc.). A related project is improved highway advisory radio on weather conditions, road closures, or construction on key highways.
- *Community Enhancements:* Funding for investments, including soundwalls, traffic calming, and streetscaping features, which can make a corridor or intersection more attractive while also improving its safety and operation. Traffic-calming investments include street narrowing, alignment changes, roundabouts, sidewalk bulbouts, refuge islands at intersections, pavement treatments, and angled parking. Streetscape investments include landscaped buffers between streets and sidewalks, landscaped median islands, lighting, signage, and street furniture.

- *Project Development Support:* Funding for projects outside of the planning period of the proposed MTP/SCS to begin early stages of development, including project design, preliminary engineering, environmental clearance, and right-of-way acquisition. Due to limited revenues in the financially constrained proposed MTP/SCS, these projects are not anticipated to have sufficient funding to complete construction during the planning period. This category also includes funding for detailed studies on a wide range of subjects including rail transit opportunities, a regional open space strategy, complete streets design guidelines, and implementation of the Rural-Urban Connections Strategy.

MTP/SCS Policies and Supportive Strategies

The policy element of the proposed MTP/SCS is required to address the transportation issues of the region, identify and quantify needs expressed within both short- and long-rage planning horizons, and maintain internal consistency with other MTP/SCS elements (Gov. Code, § 65080(b)). For the 2008 MTP, the SACOG Board adopted 31 policies and many supportive strategies to implement the plan. Since this proposed MTP/SCS is an update to the 2008 MTP, the policies and strategies of the prior plan are largely transferable to the proposed MTP/SCS. For this plan, targeted modifications were made to update the policies and strategies, including the addition of policies and/or strategies to reflect new projects, research, and conditions since the 2008 MTP, such as the national recession and Rural-Urban Connections Strategy. Targeted modifications were also made to further SACOG's efforts to integrate land use and transportation planning, to ensure the consistency of the proposed MTP/CS with SB 375, and to facilitate use of its CEQA streamlining benefits for qualifying residential and mixed-use residential projects. Policies and strategies are separated into four interrelated categories:

Land Use & Environmental Sustainability

These policies and strategies support implementation of the proposed MTP/SCS land use pattern through incentives, tool development, and coordination that supports Blueprint-style development patterns, rural and urban sustainability efforts, greenhouse gas reduction efforts, resource conservation, and clean air efforts.

Finance

Federal and state funds that SACOG controls are mainly intended for capital expansion. Policies and strategies in this section guide financial management and priorities for SACOG and local agencies for those funds that SACOG controls. Policies and strategies support SACOG's prioritization of regional-scale projects and related regional priorities that are hard to fund locally.

System Maintenance and Operations

These policies and strategies express regional expectations about maintenance and operations of the existing road and transit transportation system. They acknowledge and support preservation of the existing system.

System Expansion

These policies and strategies lay out SACOG's investment priorities for regional funds – to support regional programs, regional-scale system expansion, compact urban land uses, and equitable expenditures over time – and guide decisions about system expansions.

INTENDED USES OF THIS EIR

In compliance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), this report describes the environmental consequences of the proposed MTP/SCS. This EIR is designed to fully inform the SACOG Board of Directors, in addition to other responsible agencies, persons, and the general public of the potential environmental effects of the proposed project and identified alternatives.

SACOG is the Lead Agency for environmental review of this EIR. A Notice of Preparation (NOP) was submitted to appropriate agencies to identify any issues of concern prior to preparation of the EIR. The NOP was first circulated on December 13, 2010, and recirculated through the State Clearinghouse on January 31, 2011, to public agencies and persons considered likely to be interested in the project and its potential impacts. A public notice was also published in newspapers of general circulation for both comment periods. In addition, SACOG held a Scoping Meeting on February 2, 2011. The NOP was available for public review on SACOG's website (www.sacog.org). A copy of the NOP and all written comments are provided in Appendix PD-1 of this EIR.

Agencies Expected to Use the EIR

As described in the Future Environmental Review section below, other public agencies may use this EIR in their decision-making regarding these projects. These agencies include local governments within the plan area, state agencies, regional transportation planning agencies within the plan area, public transit providers**,** air districts, Native American tribes, colleges and university transportation providers, and transportation management associations, among others.

List of Permits or Other Approvals Required to Implement the Project

The MTP/SCS requires a conformity determination under the federal Clean Air Act section 176(c). The Federal Highway Administration and the Federal Transit Administration make the final determination of conformity determination.

List of Environmental Review and Consultation Requirements

Federal consultation requirements include: 1) a process involving the MPO, state and local air quality planning agencies, state and local transportation agencies, the U.S. Environmental Protection Agency, and the U.S. Department of Transportation; and 2) a proactive public involvement process that provides opportunity for public review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by the agency.

SB 375 requires consultation with: stakeholders, including affordable housing advocates, transportation advocates, neighborhood and community groups, environmental advocates, homebuilder representatives, broad-based business organization, landowners, commercial property interests, homeowners associations, congestion management agencies, transportation agencies, local agency formation commission, and members of city councils and boards of supervisors.

FUTURE ENVIRONMENTAL REVIEW

This program EIR serves as a first-tier environmental document under CEQA and will support second-tier environmental documents for:

- transportation projects developed during the engineering design process; and
- residential or mixed-use projects and transit priority projects consistent with the SCS.

Lead agencies implementing subsequent projects would undertake future environmental review for projects in the proposed MTP/SCS. These agencies would include the six counties and 22 cities within the plan area. Other project implementing agencies may include public transit providers**,** other public agencies such as air districts, Native American tribes, colleges and university transportation providers, the California Department of Transportation (Calrtans), and transportation management associations, among others. All of these types of agencies, as well as the SACOG member agencies, would be able to prepare subsequent environmental documents that could incorporate, by reference, the appropriate information from this program EIR, including secondary effects, cumulative impacts, broad alternatives, and other relevant factors. Subsequent environmental documents would focus on site-specific issues that have not been considered in this program EIR. If an activity were later found to have effects that were not examined in this program EIR, additional CEQA review would be required. If the lead agency finds that implementation of a later activity would have no new effects and that no new mitigation measures would be required, that activity would require no additional CEQA review.

As a program EIR, the preparation of this document does not relieve subsequent lead agencies from the responsibility of complying with the requirements of CEQA. As previously mentioned, individual projects are required to prepare a more precise, project-level analysis to fulfill CEQA requirements. The lead agency responsible for reviewing these future projects shall determine the level of CEQA review needed. The level of analysis needed, and the scope of that analysis, will depend on the specifics of the particular project.

CEQA Streamlining for Land Use Projects Consistent with the SCS

SB 375 provides several CEQA reform provisions. These include streamlined review and analysis of residential or mixed-use projects consistent with the SCS; modified review and analysis, through an expedited Sustainable Communities Environmental Assessment (SCEA), for Transit Priority Projects (TPPs) that are consistent with the SCS; and a complete CEQA exemption for TPPs that are consistent with the SCS and meet a specific list of other requirements. In each of these cases, this MTP/SCS EIR will serve as a first-tier environmental document under CEQA. The CEQA reform provisions are described as follows:

Streamlined Review for Residential or Mixed-Use Projects Consistent with the SCS

Under the provisions of SB 375, an environmental impact report prepared for a residential or mixed-use residential project that is consistent with the general land use designation, density, building intensity, and applicable policies specified for the project area in either an SCS or APS for which the California Air Resources Board has accepted an MPO's determination that the SCS or APS would, if implemented, achieve its greenhouse gas emissions reduction target, "is not required" to discuss growth inducing impacts, or any project specific or cumulative impacts from cars and light-duty truck trips on global warming, or on the regional transportation network (Pub. Res. Code, § 21159.28, subd. (a); Gov. Code, § 65080, subd. (b)(2)(I).). In addition, an EIR prepared for a residential or mixed-use project that qualifies for the streamlining provisions is not required to reference, describe, or discuss a reduced residential density alternative to address the effects of car and light-duty truck trips generated by the project as part of its alternatives analysis (Pub. Res. Code, § 21159.28, subd. (b).). Table 2.16 lists the qualifications for Residential or Mixed-Use Residential projects and the corresponding CEQA streamlining benefits.

Streamlined Review for Transit Priority Projects Consistent with the SCS

A Transit Priority Project (TPP) is a new type of project created by SB 375. Public Resources Code section 21155 sets forth the requirements for a project to qualify as a TPP. As with Residential or Mixed-Use Residential Projects, a TPP must be consistent with the general use designations, density, building intensity, and applicable policies specified for the project area in either a SCS or APS for which CARB has accepted an MPO's determination that the SCS or APS would, if implemented, achieve the greenhouse gas emission reduction targets (Pub. Res. Code, § 21155, subd. (a).). In addition, a TPP must meet the following requirements: (1) the project must contain at least 50 percent residential use based on total building square footage; (2) the project must have a minimum net density of 20 dwelling units per acre; and (3) the project must be located within one-half mile of a major transit stop or high quality transit corridor included in the regional transportation plan (Pub. Res. Code, § 21155, subd. (b).).

Once an agency has determined that a project is a TPP, the project may be reviewed through a Sustainable Communities Environmental Assessment (SCEA). (Pub. Res. Code, § 21155.2, subd. (b).) The standard of review for the SCEA is the "substantial evidence" standard, which is deferential to the agency. Thus, once an SCEA is deemed appropriate, the burden of proof for a legal challenge to the agency's analysis is presumed to be adequate and the burden of proof is on a petitioner/plaintiff to demonstrate otherwise.

If a TPP must be reviewed by an EIR, the TPP EIR is not required to discuss growth-inducing impacts, any project specific or cumulative impacts from cars and light-duty truck trips on global climate change, or on the regional transportation network. In addition, the EIR is not required to reference, describe, or discuss a reduced residential density alternative to address the effects of car and light-duty truck trips generated by the project as part of its alternatives analysis. Table 2.16 lists the qualifications for TPPs and the corresponding CEQA streamlining benefits.

CEQA Exemption for Sustainable Communities Projects Consistent with the SCS

A TPP that meets additional requirements may qualify as a sustainable communities project, a category of project that is eligible for CEQA exemption. These additional requirements, as well as the requirements for residential and mixed-use residential and TPP projects, are listed in Table 2.16.

Table 2.16
SB 375 CEQA Benefits

Project Designation	Qualifications	Streamlining Benefits
Mixed Use Residential Project	• At least 75% of total building square footage for residential use • Consistent with the use designation, density, building intensity, and applicable policies for the project area of an SCS or APS accepted by CARB OR • A Transit Priority Project as defined below	• Environmental documents are not required to reference, describe or discuss: 1) growth-inducing impacts, 2) impacts from car and light-duty truck trips on global warming or regional transportation network, 3) reduced-density alternative to project.
Transit Priority Project	• At least 50% of total building square footage for residential use OR • If 26-50% of total building square footage is non-residential, a minimum FAR of 0.75 • Minimum net density of 20 du/acre • Within 0.5 miles of major transit stop or high-quality transit corridor included in the regional transportation plan (No parcel more than 25% further, and less than 10% of units or no more than 100 units further than 0.5 miles) • Consistent with the use designation, density, building intensity, and applicable policies of an SCS or APS	Benefits described above PLUS: • Option to review under a "Sustainable Communities Environmental Assessment" o An Initial Study is prepared identifying significant or potentially significant impacts. o Where the lead agency determines that cumulative impacts have been addressed and mitigated in SCS/APS, they will not be "considerable." o Off-site alternatives do not need to be addressed. o Deferential review standard – the burden of proof for legal challenge is on the petitioner/plaintiff.
Sustainable Communities Project	• Everything for Transit Priority Project PLUS: • Served by existing utilities • Does not contain wetlands or riparian areas • Does not have significant value as a wildlife habitat and does not harm any protected species • Not on the Cortese List • Not on developed open space • No impacts to historic resources • No risks from hazardous substances • No wildfire, seismic, flood, public health risk • 15% more energy-efficient than CA requirements and 25% more water-efficient than average for community • No more than 8 acres • No more than 200 units • No building greater than 75,000 square feet • No net loss of affordable housing • Compatible with surrounding industrial uses • Within ½-mile of rail/ferry or ¼-mile of high-quality bus line • Meets minimum affordable housing requirements as prescribed in SB 375 OR in-lieu fee paid OR 5 acres of open space per 1,000 residents provided	Exempt from CEQA

CHAPTER 3 — AESTHETICS

INTRODUCTION

This chapter describes existing aesthetic conditions (environmental and regulatory) and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the aesthetic environment within the MTP/SCS plan area. This chapter evaluates potential impacts on visual resources that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

One comment regarding visual resources, submitted by Rick Bettis, was received during circulation of the Notice of Preparation (NOP). The comment letter requested that particular emphasis be given to the potential impacts of and mitigation measures for projects crossing or adjacent to important scenic resources such as the American River Parkway. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

SETTING

Environmental Setting

The *aesthetic value* of an area is a measure of its *visual character* and *quality*, combined with the viewer response to the area (Federal Highway Administration, 1983). Visual character relates to the natural and built landscape features and the relationships that exist within the landscape. Form, line, color, and texture are the basic components used to describe visual character. Visual quality is the overall impression that an individual viewer retains after driving though, walking though, or flying over an area.

While aesthetic value is subjective, it is typically included as a criterion for evaluating those elements that contribute to the quality that distinguishes an area. Most communities identify scenic resources as an important asset, although what is considered "scenic" may vary according to its environmental setting.

Scenic resources can include natural open spaces, topographic formations, landscapes, and man-made features. Scenic resources can be maintained and enhanced in such a way as to continue promoting a positive image in the future. Many people associate natural landforms and landscapes with scenic resources, such as woodlands, lakes, rivers, streams, mountains, habitat, and agricultural lands. Scenic resources can also include urban open spaces and the built environment. Examples of these would include urban parks, trails, and nature centers, archaeological and historical resources, and man-made structures like buildings and bridges with unique architectural features. Tall buildings may also provide excellent views of scenic resources beyond the urban core. Typically, jurisdictions identify *designated scenic resources*, or some similar classification system, to identify priority scenic resources. These designated scenic resources are the focus of this chapter.

It is useful to think of scenic resources in terms of "typical views" seen throughout the MTP/SCS plan area because scenic resources are rarely encountered in isolation. A typical view may include several types of scenic resources, including both natural and man-made elements. The typical views seen in the MTP/SCS plan area are outlined in the following paragraphs.

It is important to distinguish between public and private views. Private views are views seen from privately-owned land and are typically viewed by individual viewers, including views from private residences. Public views are experienced by the collective public. These include views of significant landscape features such as the Tower Bridge or the Sutter Buttes, as seen from public viewing spaces, not privately-owned properties. California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) case law has established that only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah (1991) 2 Cal. App. 4th 720 [3 Cal. Rptr.2d 488]* the court determined that "we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]:* '[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general'" (California Environmental Quality Act, 2011). Therefore, for this analysis, only public views will be considered when analyzing the visual impacts of implementing the proposed MTP/SCS.

Typical Views of the MTP/SCS Plan Area's Visual Resources

Aesthetically significant features occur in a diverse array of environments within the MTP/SCS plan area, ranging in character from urban centers to rural agricultural lands to natural woodlands. The extraordinary range of visual features is afforded by the mixture of climate, topography, and flora and fauna found in the natural environment, and the diversity of style, composition, and distribution of the built environment.

A *viewshed* is defined as all of the surface area within the field of view of an observer that is visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration, 1983). The term is commonly used to describe the *extent* of a scenic resource. The extent of a viewshed can be limited by a number of intervening elements, including trees and other vegetation, built structures, or topography such as hills and mountains. Because of the scale of the MTP/SCS plan area, generalized landscape units, instead of specific viewsheds, were assessed.

The bulk of the MTP/SCS plan area is located in the Sacramento Valley, a basin bounded by the Sierra Nevada Range to the east and the Coastal Ranges to the west. Topography in the Sacramento Valley is generally flat, with relief anywhere from slightly below sea level near the Sacramento-San Joaquin River Delta to over 2,150 feet above sea level at the Sutter Buttes. The network of rivers that drain the Sierra Nevada ranges and Central Valley are a key aesthetic component of the natural landscape.

The MTP/SCS plan area is characterized by several urban centers that continue to see population and urban growth. The visual quality of these urban growth areas is enhanced by

man-made elements. Examples of the visually significant built environment may include bridges or overpasses, architecturally appealing buildings or groups of buildings, landscaped freeways, and a location where an historic event occurred. Transportation facilities also influence the visual quality of the region. In urban areas, roadway rights-of-way comprise 20 to 30 percent of total land area. Even for people not using the transportation system at a particular time, or who never use certain modes of travel, transportation systems are usually a dominant element of the visual environment.

Viewsheds and visual quality are affected by air quality and, more specifically, visibility. In the Sacramento metropolitan area, high pollutant emissions—combined with poor natural ventilation in the air basin—result in degraded visibility. Of particular note are photochemical smog and airborne particulates, finely divided solids or liquids such as soot, dust, aerosols, and mists that absorb sunlight, produce haze, and reduce visibility.

Agricultural Land and Pasture

Agricultural lands are a dominant visual landscape in the region, with over 76 percent of the land area in the SACOG region designated for agriculture, open space, or timber uses. Agriculture is an important industry for the region, but unlike most industrial uses, agricultural lands contribute to the scenic value of the region and offer a break from the urban landscape by providing an open space visual resource, characterized by no form, line, color, or textural features. The main agricultural uses in the region include row crops, field crops, orchards, vineyards, dairies, and grazing land. Adding additional character to the visual landscape are agricultural buildings, including barns, processing facilities, storage areas, and farm housing.

Downtown Sacramento Skyline and Historic Downtowns

The city of Sacramento skyline is distinguished by high-rise office towers ranging from 15-30 stories. Sacramento's downtown skyline is visible from miles around the city, including from eastbound I-80 on the Sacramento-Yolo Causeway, from westbound I-80 above the city of Roseville, from northbound I-5 between Elk Grove and Sacramento, from westbound Highway 50 (U.S. 50), and from southbound I-5 and Highway 99 (State Route (SR) 99) north of the downtown area. Distinctive features of the skyline include the Wells Fargo Center, the California Environmental Protection Agency (EPA) building, the Robert T. Matsui Federal Courthouse, and, by night, the blue light of the Esquire Plaza.

The downtown Sacramento skyline, which is dominated by highly reflective glass buildings, can produce a significant amount of *glare*. Glare results when a light source directly in the field of vision is brighter than the eye can comfortably accept. Squinting or turning away from a light source is an indication of glare. The presence of a bright light in an otherwise dark setting may be distracting or annoying, referred to as *discomfort glare*, or it may diminish the ability to see other objects in the darkened environment, referred to as *disability glare*.

The downtown area is also brighter than the outlying residential areas due to the amount of artificial light associated with exterior building lights, street lights, roadways, and parking area lights. Ambient light levels or illumination is measured in *foot-candles*. The unit is defined as

the amount of illumination the inside surface of a 1-foot radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere. Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments; however, these lights have the potential to produce light that falls beyond the intended area, referred to as *light trespass*. Light trespass can adversely affect light sensitive uses, such as residential neighborhoods at nighttime.

Tall buildings, such as those found in downtown areas, can cast shadows on surrounding land uses. Density increases the prevalence of shadow. In some instances shadow can be beneficial, providing shade during hot, summer days. However, shadow can also cause discomfort and public hazard when it occurs sporadically, in conjunction with glare and light.

Many jurisdictions in the MTP/SCS plan area have distinctive downtown "Main Street" districts that preserve important historical sites and protect the visual character of the area. Downtown Placerville and Historic Downtown Folsom are two of the most well-known examples, though this landscape type can be found in nearly all jurisdictions in the region.

Landmarks

In addition to the linear infrastructure systems, there are also discrete man-made elements within the landscape that serve as *landmarks* that inform city character. The term landmark here is used to refer to something (e.g., monument, building, other structure) that is easily recognizable. Through their scale and/or distinctive design, landmarks become reference points within the city that provide structure and orientation, and contribute to the design character of the surrounding area and create a unique sense of place. The State Capitol and Tower Bridge are two landmarks.

Mountain Views

Most of the MTP/SCS plan area resides in the Central Valley, characterized by flat, open expanses with uninterrupted views of open space. However, mountains surround the MTP/SCS plan area on the eastern and western borders. The Sierra Nevada Range makes up the eastern boundary of the MTP/SCS plan area, covering vast areas of eastern Placer and El Dorado counties. The South Coast Ranges make up the western border of the MTP/SCS plan area. Both mountain ranges are visible from many parts of the region due to the low altitude and flat nature of the Central Valley.

Among the most unique topographic features within the MTP/SCS plan area are the Sutter Buttes. Approximately 75 square miles in size, the Buttes are remnants of eroded volcanic lava domes. Rising 2,000 feet above the valley floor, the Buttes create a dramatic viewshed when juxtaposed to the vast open farmland in the surrounding area.

Open Space, Habitat, and Protected Lands

Open space provides visual relief from urbanized areas, including views for residents, motorists, and pedestrians. Open space is comprised of both *designated open space* and *"de facto" open space*. Designated open space is land that has been left undeveloped by design. Such land uses

could include national, state, and local parks and recreation areas, nature preserves, protected habitat, and conservation easements. Other land is deemed open space not by design, but because the land is not involved in a productive use, or in the case of agricultural lands, the land is consumed by a productive use that contributes to the visual quality of the land.

Preserves, parks, and forests make up most of the designated open space in the region. These areas are maintained by a combination of local jurisdictions, state agencies, federal agencies, and private foundations. Much of the forested land in Placer and El Dorado counties falls under federal protection. Open space provides wildlife habitat and can also provide opportunities for other facilities and services such as passive recreation, pedestrian and bike access, storm drainage, floodwater conveyance, utility infrastructure, and land use buffering.

Residential and Commercial Neighborhoods

Scattered throughout the MTP/SCS plan area in every county and city are residential and commercial landscapes featuring single-family neighborhoods, low-rise multi-family complexes, low-rise office parks, and low-scale shopping areas. The areas where homes dominate the viewshed are generally areas with more green space, less artificial light (meaning darker nighttime views), and less glare due to the limited amount of reflective materials. The retail centers generally consist of large concrete buildings located adjacent to the street frontage as well as set back with large, sparsely landscaped surface parking areas. These retail centers have a significant amount of artificial lighting both in the parking lots and on the storefronts and signs. Many of the storefronts consist primarily of glass that can create glare.

Transportation Network

Many views of the MTP/SCS plan area are from the Interstate and U.S. freeway routes that intersect the city. The freeways themselves are also a visual component of the city landscape. I-5 and SR 99 are the two main north/south routes. I-5 is a major truck route within the State of California and runs through the downtown area, adjacent to the Sacramento River. SR 99 is a four- to six-lane highway extending south from Business 80 (Capital City Freeway) to South Sacramento, Elk Grove, and the Central Valley. I-80, U.S. 50, and Capital City Freeway are the main east/west routes through the region. I-80 extends from the San Francisco Bay area, through West Sacramento and Sacramento and over the Sierra Nevadas. U.S. 50 extends from downtown Sacramento to the Tahoe Basin. Capital City Freeway extends northeast from downtown Sacramento through Sacramento County, connecting to I-80 just east of Watt Avenue.

Streets in the MTP/SCS plan area range from multi-lane, signalized roads to narrow tree-lined streets in residential neighborhoods. Roadways include minor arterials, collector streets that connect residential uses to major street systems, local streets that serve the interior of a neighborhood, and alleys that provide delivery access to businesses located along the transportation system. Many streets have sidewalks and bicycle facilities included in the transportation right-of-way.

Rural areas tend to have narrower roads that cater to agricultural and goods movement traffic. Some rural roads in town centers or residential areas may have sidewalks and bicycle facilities,

though widened shoulders are the more common pedestrian and bicyclist treatments. In more remote rural areas, the transportation system may contain gravel or dirt roads.

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. The program is administered by Caltrans and regulated at the local level. The program consists of laws, incentives, and guidelines that are intended to protect the scenic, historic, and recreational resources within designated *scenic highway corridors*. A scenic highway corridor is defined by Caltrans as the area of land generally adjacent to and visible from the highway (California Department of Transportation, 2011). It is usually limited by topography and/or jurisdictional boundaries.

Table 3.1 and Figure 3.1 show state-designated or state-eligible scenic highways in the MTP/SCS plan area. These designations represent recognition of the high scenic and visual qualities of these corridors. Specific design guidelines are required and the state-designated corridors must be reviewed when improvements are proposed to determine if the highway will remain eligible for designation as a scenic corridor. The requirements for designation as a state scenic highway are explained more fully in the "State Regulations" section below.

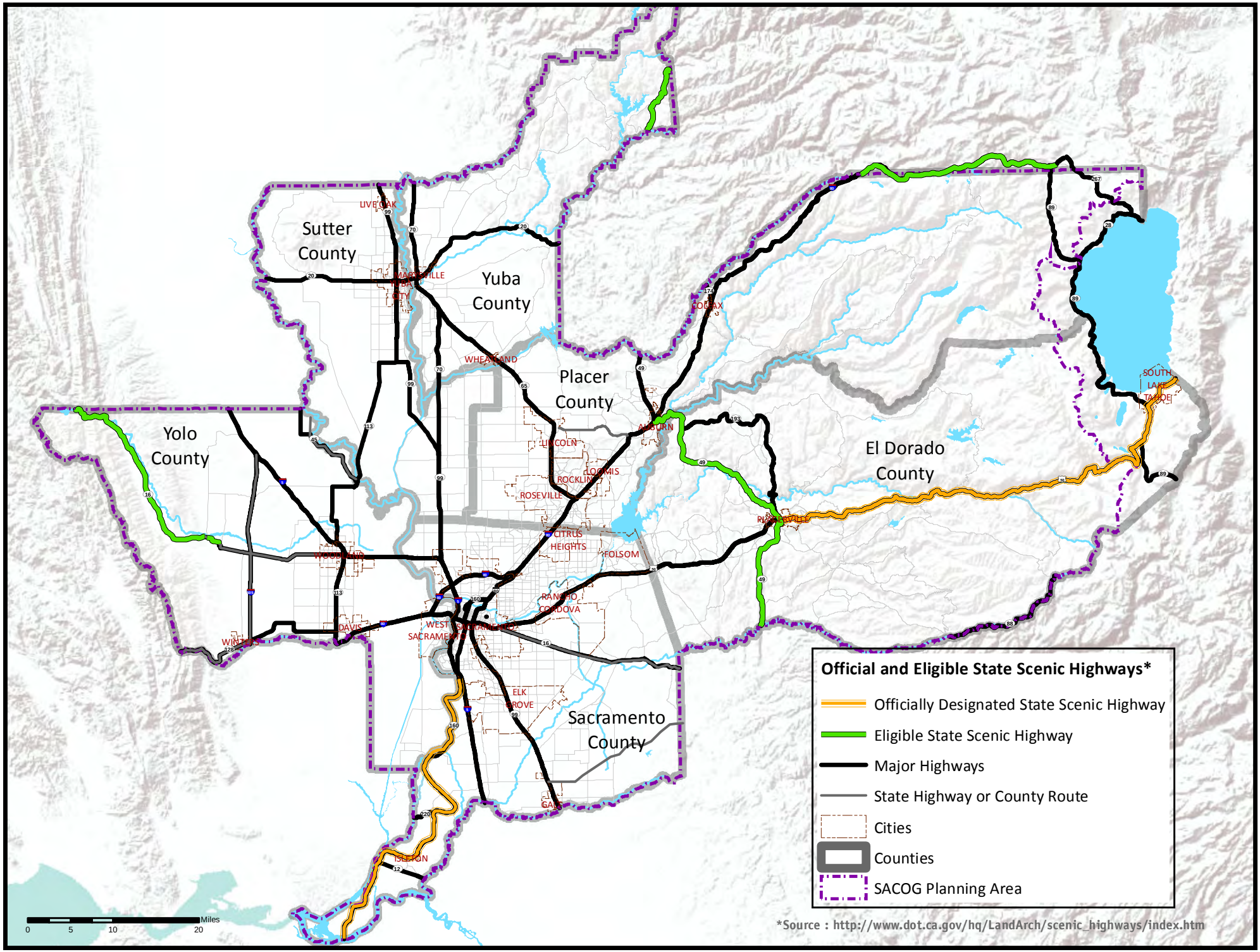
Table 3.1
Official and Eligible State Scenic Highways

County	Highway	Location	Designation
El Dorado	State Route 49 U.S. 50	Countywide East of Placerville to SR89	Eligible State Scenic Highway Official State Scenic Highway
Placer	State Route 49 Interstate 80	Countywide SR 20 to Truckee	Eligible State Scenic Highway (all)
Sacramento	State Route 160	Along the Sacramento River	Official State Scenic Highway
Sutter	None	None	None
Yolo	State Route 16	Portions between north border of County to west of Interstate 505	Eligible State Scenic Highway
Yuba	State Route 49	From the Yuba County Line to the Yuba Summit.	Eligible State Scenic Highway

Source: California Department of Transportation, 2011

In addition to roadways and freeways, rail lines also contribute to the region's urban form. The region has two types of rail systems, light rail and heavy rail, and each has different implications for urban form and community character. The primary function of the heavy gauge rail system is to transport freight cargo, but there is also some regional passenger rail via Amtrak. Given their cargo function, the heavy rail lines tend to be located adjacent to industrial and warehouse type uses whose design character is utilitarian and scaled for train and truck traffic and large-scale storage and manufacturing operations; but heavy rail lines can also be found in urbanized core areas throughout the region.

Figure 3.1 MTP/SCS Plan Area Official and Eligible State Scenic Highways



Light rail systems, on the other hand, are for public transit and are intended to attract people and to serve populated destinations. The rails and trains are designed to be more integral to the urban fabric, as in the downtown area where light rail lines are located in the center of active urban streets. Thus, unlike the heavy rail lines that create edges and barriers within the community, light rail lines can function as magnets or focal features around which development and people can congregate. The high-density, mixed-use development in the downtown area is indicative of light rail's potential to influence urban form and character, while the outlying stations still tend to be stand-alone elements that are not fully integrated with, nor have significantly influenced, the surrounding development patterns.

Although at a much smaller scale, air traffic also contributes to the urban form. Small planes, metal airplane hangars, and surface parking lots are visible from roadways surrounding the MTP/SCS plan area's airports. A majority of airport buildings, including the hangers, are warehouse-like buildings with metal siding. The airstrips are paved and there is artificial lighting throughout the night providing sky glow over the airports.

Refer to Chapter 16 – Transportation for a more thorough discussion of the region's transportation network.

Trees and Forested Lands

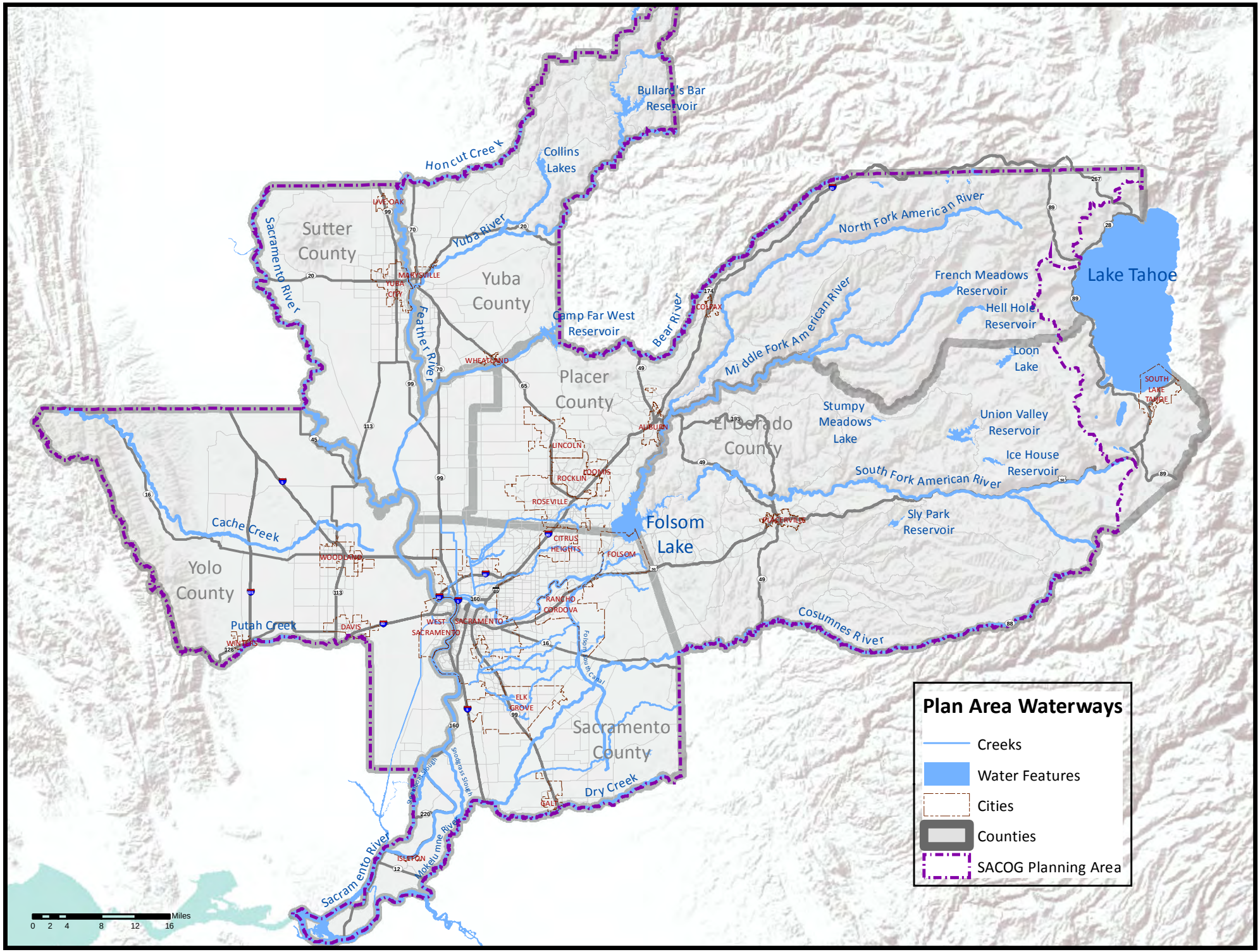
The MTP/SCS plan area is home to many native tree types, such as valley oak, blue oak, interior live oak, cottonwood, sycamore, and willow. Eastern Placer and El Dorado counties are almost completely forested, as is the northern tip of Yuba County. The MTP/SCS plan area also includes numerous non-native species, which are generally used for ornamental value, shade production, resistance to particular pests, or proven adaptation to the urban environment. These trees also provide a visual break from the uniformity of urban development and can usually be found in housing developments, neighborhoods, and along local streets.

Waterways

The MTP/SCS plan area is home to a number of rivers, lakes, creeks, and man-made waterways. These include the American and Feather Rivers, both of which converge on the Sacramento River, the state's largest and longest river, for eventual outlet into the San Francisco Bay.

The American River Parkway borders the American River on both the northern and southern sides. The Parkway is one of Sacramento County's most visited and distinctive natural visual features and provides several scenic based activities (i.e., picnic sites, guided natural and historic tours, bird watching, and hiking). Portions of the American River are protected under the Wild and Scenic Rivers Act, including the stretch from the confluence with the Sacramento River to the Nimbus Dam. Other protected river segments lie outside the MTP/SCS plan area (United States Fish and Wildlife Service, 2011). See the "Federal Regulations" section below for more information about the program.

Figure 3.2 MTP/SCS Plan Area Waterways



Other major rivers in the MTP/SCS plan area include: Bear River in southern Yuba County and northern Placer County; Cache Creek, entering Yolo County from the northwest and roughly paralleling SR 16; Cosumnes River in southern El Dorado and Sacramento counties; Feather River creating the eastern border of Sutter County and western border of Yuba County; Honcut Creek, a tributary of the Feather River; Mokelumne River in the Delta region of Sacramento County; Putah Creek, forming the boundary between Yolo and Solano counties; Rubicon River in Placer County; and Yuba River in central Yuba County. The MTP/SCS plan area also includes a number of small creeks and lakes. Figure 3.2 shows waterways in the MTP/SCS plan area.

In addition to the region's natural waterways, several manmade waterways contribute to the visual landscape. Folsom Lake, a reservoir formed by Folsom Dam and constructed in 1955 to control the American River, is one such example. Located at the base of the Sierra foothills, the lake and recreation area offers opportunities for hiking, biking, running, camping, picnicking, horseback riding, water-skiing, and boating. The Sacramento Deep Water Ship Channel, a canal from the Port of Sacramento to the Sacramento River, is another example of a man-made waterway. It was completed by the United States Army Corps of Engineers in 1963.

Regulatory Setting

Federal Regulations

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (23 U.S.C. § 507) includes numerous provisions for improvements and changes to the implementation of transportation enhancement activities, which are funded by a 10 percent set aside of Surface Transportation Program funds that are earmarked for transportation enhancement projects. SAFETEA-LU includes a list of qualifying transportation enhancement activities which include several items supportive of visual quality enhancement such as acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, landscaping or other scenic beautification, and control and removal of outdoor advertising, among others. Transportation enhancement activities are not required to have a direct link to surface transportation, and they are sufficiently qualified if they merely relate to surface transportation.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271-1287), as set forth herein, consists of Public Law 90-542 (October 2, 1968) and amendments thereto. The Act established a method for providing federal protection for certain of the country's remaining free-flowing rivers, preserving them and their immediate environments for the use and enjoyment of present and future generations. Eligible rivers can be designated as Wild River Areas, Scenic River Areas, or Recreational River Areas. Recreational River Areas are "those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past." The Wild

and Scenic Rivers Act, under Section 10, includes management direction for designated rivers. Section 10(a) states the following:

> *...each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its aesthetic, scenic, historic, archaeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.*

United States Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act (DOT Act) of 1966 (49 U.S.C. § 303) was enacted to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration that involve the use-or interference with use-of the following types of land:

- public park lands;
- recreation areas;
- wildlife and waterfowl refuges; and
- publicly- or privately-owned historic properties of federal, state, or local significance.

This evaluation, called the Section 4(f) statement, must be sufficiently detailed to permit the U.S. Secretary of Transportation to determine that:

- there is no feasible and prudent alternative to the use of such land;
- the program includes all possible planning to minimize harm to any park, recreation area, wildlife and waterfowl refuge, or historic site that would result from the use of such lands; or that
- if there is a feasible and prudent alternative, a proposed project using Section 4(f) lands cannot be approved by the Secretary; or if there is no feasible and prudent alternative, the proposed project must include all possible planning to minimize harm to the affected lands.

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments.

In August 2005, Section 4(f) was amended to simplify the process for approval of projects that have only minimal impacts on lands affected by Section 4(f). Under the new provisions, the U.S.

Secretary of Transportation may find such a minimal impact if consultation with the State Historic Preservation Officer (SHPO) results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In this instance, analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete.

State Regulations

California Department of Transportation (Caltrans) Scenic Highway Program

The California Scenic Highway Program was created by the State legislature in 1963 to preserve and protect scenic highway corridors from change that would reduce the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

State goals for scenic highways include the following:

1. preserve and enhance the unique visual, biological, and ecological resources of the Scenic Highway Corridor;
2. prevent and eliminate (when reasonably possible) conditions that detract from or compromise the quality of the aesthetic resources of the Scenic Highway Corridor;
3. encourage the development and maintenance of park and recreational facilities that contribute to the aesthetic quality of the Scenic Highway Corridor;
4. encourage preservation of historical landmarks adjacent to the Scenic Highway Corridor; and
5. encourage community civic groups to create programs that increase community interest in the visual assets of the Scenic Highway Corridor and facilitate the implementation of such programs.

To be included in the program, the highways proposed for designation must meet Caltrans' eligibility requirements and have visual merit. After it is determined that a proposed highway satisfies the qualifications for Scenic Highway designation, the local jurisdiction, with support of its citizens, must adopt a program to protect the scenic corridor. The five legislatively required standards for scenic highways are:

1. regulation of land use and density (i.e., density classifications and types of allowable land uses);
2. detailed land and site planning (i.e., permit or design review authority and regulations for the review of proposed developments);
3. prohibition of off-site outdoor advertising and control of on-site outdoor advertising;

4. careful attention to and control of earthmoving and landscaping (i.e., grading ordinances, grading permit requirements, design review authority, landscaping and vegetation requirement); and
5. the design and appearance of structures and equipment (i.e., placement of utility structures, microwave receptors, etc).

The status of a state scenic highway changes from eligible to officially-designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification that the highway has been designated as a scenic highway.

Caltrans Adopt-a-Highway Program

To improve and maintain the visual quality of California highways, Caltrans administers the Adopt-a-Highway program, which was established in 1989. The program provides an avenue for individuals, organizations, or businesses to help maintain sections of roadside within California's State Highway System. Groups have the option to participate as volunteers or to hire a maintenance service provider to perform the work on their behalf. Adoptions usually span a two-mile stretch of roadside, and permits are issued for five-year periods. Since 1989, more than 120,000 California residents have kept 15,000 shoulder miles of state roadways clean by engaging in litter removal, tree and flower planting, graffiti removal, and vegetation removal.

Open Space Easement Act of 1974

Cities and counties can use open space easements as a mechanism to preserve scenic resources, if they have adopted open-space plans, as provided by the Open Space Easement Act of 1974 (Gov. Code, §§ 51070.-51097). According to this Act, a city or county may acquire or approve an open-space easement through a variety of means, including use of public money.

California Code of Regulations Title 24 Part 6

The California Energy Code (Cal. Code Regs., tit. 24 § 6) creates standards in an effort to reduce energy consumption. The type of luminaries and the allowable wattage of certain outdoor lighting applications are regulated.

Local Regulations

City of Sacramento Capitol View Protection Ordinance

On February 18, 1992, the Sacramento City Council adopted the Capitol View Protection Ordinance (Ordinance No. 92-008). The Ordinance establishes building height limits, setback requirements, and parking alternatives within a portion of the Central Business District surrounding Capitol Park (City of Sacramento, 1992).

Sutter Buttes Overlay Zone Ordinance

The Sutter Buttes Overlay Zone (Chapter 15, Zoning, Sections 1500-6010 through 1500-6040) reinforces and is coterminous with the Sutter Buttes Overlay. The intent of the zone is to preserve the cultural, historic, geologic, and visual values of the Sutter Buttes. Structures within the Overlay Zone that are visible from public roads or adjacent residences are subject to development and siting standards that address landscaping, screening, grading, tree removal, roof areas and materials, building colors, roads and driveways, lighting, and other factors, and require approval of a zoning clearance. Specific development and siting standards are included in the ordinance for ridgelines (i.e., the crest of a ridge formed by a hillside/drainage divide), on hillsides (i.e., area either between a ridgeline and a valley floor or between ridgelines), and on the valley floor (i.e., consists of nearly level to gently sloping areas on alluvial fans).

General Plans

Most local planning policies to preserve and enhance the visual quality and aesthetic resources of urban and natural areas are established in a jurisdiction's general plan. The value attributed to a visual resource is based on the characteristics and distinctiveness of the resource and the number of persons who view it. Vistas of undisturbed natural areas, unique or unusual features forming an important or dominant portion of a viewshed, and distant vistas offering relief from less attractive nearby features are frequently considered to be scenic resources. In some instances, a case-by-case determination of scenic value may be needed, but often there is agreement within the relevant community about which features are valued as scenic resources, and these values are reflected in the policies included in the general plan.

Local general plans may include policies to:

- enhance the rural landscape,
- protect the rural night sky,
- preserve landmarks and icons,
- incorporate scenic elements into development,
- limit off-site advertising in scenic areas,
- place utilities underground,
- enhance the scenic quality of rural roads,
- promote sustainable design,
- reflect human-scale architecture,
- maintain and protect diverse established neighborhoods,
- promote mixed-use neighborhood centers,
- preserve natural waterways,
- maintain parks, forests, and other open space,
- encourage architectural design that creates a unique sense of place,
- preserve and create iconic buildings,

- provide appropriate transitions between land uses,
- encourage walking and biking,
- minimize obtrusive lighting, and
- avoid the creation of incompatible glare.

SACOG 2008 Metropolitan Transportation Plan

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system and one of SACOG's primary statutory responsibilities. Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars for public transit, streets/roads, bicycles, and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region built on the Sacramento Region Blueprint.

The 2008 MTP sets principles and policies and proposes specific strategies relating to the aesthetic environment. Specifically, the 2008 MTP encourages local governments to direct greenfield development to areas immediately adjacent to the existing urban edge through the provision of information, incentives and pursuit of regulatory reform for cities and counties, thereby minimizing impacts to the aesthetic environment at the urban edge. Further, the 2008 MTP called for SACOG to develop a Rural-Urban Connections Strategy for ensuring good rural-urban connections and promoting the economic vitality of rural lands while also protecting open space resources to expand and support the implementation of the Blueprint growth strategy and the 2008 MTP.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact the aesthetic environment. For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, refer to Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions"

in the proposed MTP/SCS refers to conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

For descriptions of the aesthetic environment, 2011 was used as the baseline. The year 2011 was chosen as the base in order to reflect the conditions at the release of the NOP for this environmental impact report, in accordance with CEQA guidelines. The economic downturn has slowed regional growth and development over the past three years. Because of this, the overall aesthetic environment has not changed significantly from 2008. Therefore, there is no demonstrative difference in comparing 2011 aesthetic conditions to 2008 population, housing, employment, and transportation conditions.

The land use analysis assesses the amount of growth (population, housing, and employment) projected for the region, in each Community Type, and in the TPAs by 2035 and how that growth might impact the aesthetic environment. Although the proposed project sites within the MTP/SCS plan area were not physically surveyed, a brief description of the types of typical views found within the region are discussed above. These typical views are used in the impacts analysis rather than site-specific views, which are more appropriately considered in the context of future environmental documents prepared for specific transportation and/or development projects.

The proposed MTP/SCS contains $35.2 billion (in current year dollars) worth of roadway and transit investments by 2035. Of that amount, maintenance and rehabilitation projects will receive $11.5 billion; public transit will receive $11.3 billion; roadway and highway projects will receive $7.4 billion; pedestrian and bicycle projects will receive $2.8 billion; and programs and planning will receive $2.2 billion. Different project types will have different effects on the aesthetic environment. This analysis examines categories of transportation investments in assessing the likely impacts of implementing the proposed MTP/SCS.

For transit projects, this analysis looks at the number of *daily vehicle service hours* and *daily vehicle route miles* of transit service added to the transit network. Daily vehicle service hours are the number of hours of service a transit vehicle (bus, light rail car, etc.) provides on a daily basis. For example, a transit service that has 10 buses, where each bus runs 10 hours per day, would provide 100 daily vehicle service hours (10 buses x 10 hours each). If that same transit service added five streetcars that operated 10 hours per day, it would add 50 daily vehicle service hours (five vehicles x 10 hours each) for a total of 150 daily vehicle service hours (100 bus hours plus 50 streetcar hours). Daily vehicle route miles are a measure of service coverage, not service intensity. For example, a one-mile stretch of road with one bus per hour is equal to one bus route mile; the same one-mile stretch of road with 20 buses per hour still equals only one vehicle route mile. All else equal, an increase in route miles will *always* include a corresponding increase in vehicle service hours. However, an increase in vehicle service hours may or may not include additional route miles.

It is important to clarify the infrastructure needs of increases in vehicle service hours and vehicle route miles. Additional vehicle service hours require more transit vehicles but do not add

infrastructure to the transit network. Additional route miles require new infrastructure (stations, bus stops, light rail/streetcar tracks) in addition to the transit vehicles themselves.

Generally, with regard to aesthetic impacts, the greater the change from existing conditions, the more noticeable the change to the aesthetic environment. For example, the construction of a new roadway generally has a greater impact on scenic resources than the widening of an existing one. Likewise, greenfield development usually has a greater impact on the surrounding area than infill development that occurs where similar views already exist. Therefore, the general approach in this impacts analysis is to determine how implementation of the proposed MTP/SCS could potentially change the aesthetic environment from existing conditions and whether that change will have a positive or negative effect on the region, the five Community Types, and the three TPAs.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.
2. Block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.
3. Substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.
4. Result in construction impacts that would increase glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site of place for a sustained period of time; block panoramic views or views of significant landscape features or landforms as seen from public viewing areas, including state-designated scenic highways; or substantially degrade the existing visual character or quality of the site and its surroundings including established neighborhoods.

Impacts and Mitigation Measures

Impact AES-1a: Cast glare and light in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, about 361,000 jobs, and about 303,000 housing units. Implementation of the proposed MTP/SCS will convert

approximately 53,000 acres of undeveloped land, which represents a 7 percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. Growth in and of itself does not necessarily translate into adverse outcomes for the aesthetic environment. It is the siting and design of new development, in relation to existing development, that determines if the aesthetic environment will experience positive or negative impacts.

New development could add additional sources of glare and light to the region. However, in portions of the region that are already built out, such increases would not cause a public hazard or substantially degrade the visual character or quality of the area because existing sources of glare and light are already a dominant feature of the landscape. In less developed areas of the region, where existing sources of glare and light are not as prevalent, new housing and employment developments could create new sources of glare and light that add a significant amount of glare and light in an area. This is especially true in areas of the region where development might affect views of the night sky. Additional sources of light would generally be limited to the uses for which they are intended. In addition, many jurisdictions have general plan policies relating to the protection of night skies and the prevention of obtrusive lighting.

At the regional level, implementation of the proposed MTP/SCS will result in development beyond the existing urban footprint that could create additional sources of glare and light associated with lighting of structures and surrounding grounds. However, because the proposed MTP/SCS contains over 53,000 acres of new development, the increased amount of glare and light could result in a public hazard or substantially degrade the existing visual/aesthetic character or quality of an area.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

On the transportation side, the proposed MTP/SCS will invest $7.4 billion current year dollars on road and highway capital and operational projects. More than two-thirds of the total road and highway investment will pay for improvements to existing facilities such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, high-occupancy vehicle (HOV) lanes, and auxiliary and transition lanes. The remainder of the budget will pay for new road and highway facilities such as roads serving new development or high-growth areas, new interchanges, road extensions, and new river crossings to connect development across the region's major rivers.

Investments to existing roadways and highways will not significantly increase the amount of glare and light in an area, as these improvements will take place on existing facilities that have existing sources of glare and light. The marginal increases in glare and light from additional vehicle headlights, new reflective signage, new streetlights, new intersection control devices, and other improvements are less than significant when considered at the regional level.

Investments in new transportation facilities could increase the amount of glare and light in an area if additional vehicles and additional street lights, intersection control devices, reflective signage, and reflective roadway materials increase the total amount of illumination in an area in such a way as to cause a public hazard or degrade the existing visual character or quality. During the daytime, additional vehicles could increase the amount of glare in an area, and at night additional vehicle headlights could increase the amount of light in an area where previously no sources of transportation glare and light existed. New transportation investments will be aligned with planned developments, which will help to reduce aesthetic impacts; however, these projects could potentially introduce glare and light to areas where previously no sources of glare and light existed.

Implementation of the proposed MTP/SCS will result in the construction of 396 additional miles of Class I bicycle facilities and 722 miles of Class II bicycle lanes. Class I bicycle facilities are multi-use paths, built on a separate right-of-way, exclusively for bicycle, pedestrian, and other designated uses. These types of projects do not often affect levels of glare and light. There is some possibility that these types of projects could install safety lights that may slightly increase the amount of light in an area, but such increases would be minimal and provide safety enhancements that would not constitute a public hazard or degrade the visual character of the area. Class II bicycle lanes are built within the automobile right-of-way. These types of projects may require additional striping or other distinguishing treatments. Depending on the materials used, such treatments may increase the amount of glare and light slightly. However, because these improvements are to be built within existing or future transportation rights-of-way, the roadways will already have existing sources of glare and light. The increases in glare and light from new Class II bicycle lanes will be minimal.

The proposed MTP/SCS includes 3,989 new daily vehicle service hours for all modes of transit, 437 new bus and shuttle route miles, and 56 new light rail and streetcar route miles. Adding additional bus and shuttle service will increase the number of transit vehicles on the transportation network at a given time and increase the area where buses can be seen on the transportation network. This could result in increased glare due to more reflective surfaces on the roads. However, the increased transit service could potentially reduce the number of single-occupant vehicles on the transportation system, thereby reducing overall glare on the transportation network. With the exception of a handful of rural transit routes, most areas served by transit are urbanized; bus transit runs on existing or future transportation rights-of-way, which contain existing sources of glare and light. The incremental increase in glare and light from additional bus and shuttle service is not expected to differ dramatically from existing conditions.

As for light rail, increasing the number of route miles could increase the amount of glare and light in certain areas, especially where new stations are constructed. The proposed alignments for the South Line and Green Line light rail extensions are along urbanized corridors, with the exception of a couple of optional stations near the Sacramento International Airport. The streetcar lines will be built in urbanized areas. The incremental increase in the amount of glare and light generated from increases in streetcar and light rail route miles are not expected to differ significantly from existing conditions.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

B. Localized Impacts

Center and Corridor Communities
By 2035, Center and Corridor Communities are expected to see approximately 92,000 new housing units, and about 104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and 8 percent of acres developed. This indicates that Center and Corridor Communities will grow more compactly than existing conditions.

Development in Center and Corridor Communities could add new sources of glare and light. The compact, infill development planned in the proposed MTP/SCS generally creates higher levels of glare and light than less compact development because there are such a variety of uses in close proximity to one another. However, these areas also tend to be built out already with existing sources of glare and light. The net increase in glare and light added from new, more compact development will be marginal and would not pose a public hazard or substantially degrade the existing visual/aesthetic character or quality of an area, since glare and light are already a dominant feature of the landscape.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Center and Corridor Communities will see a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because Center and Corridor Communities are already urbanized, the incremental increases in glare and light associated with implementation of these transportation projects are considered less than significant when compared with existing sources of glare and light.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Established Communities
Like Center and Corridor Communities, Established Communities already have a significant amount of glare and light from urban uses, but these areas are generally not as dense as Center and Corridor Communities. Housing units in Established Communities will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will pretty much maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by almost 20,000 for

regional shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

In terms of glare and light, the type of growth outlined in the previous paragraph could add to existing glare and light in the Community Type, but will likely not increase the overall glare and light in a significant way compared to existing conditions. As with Center and Corridor Communities, glare and light are already dominant features of the landscape, and the increase is not likely to cause a public hazard or degrade the visual character or quality of an area.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

As with Center and Corridor Communities, Established Communities will see a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because Established Communities already contain a significant amount of glare and light associated with urban development within this Community Type, implementation of these transportation projects will not increase the amount of glare and light in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the Community Type.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Developing Communities

Developing Communities already contain some glare and light from urban uses, but such development is intermittent, often branching out from Established Communities. Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000 new housing units (a 492 percent increase over 2008), and about 65,000 new jobs (a 397 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rate of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

In terms of glare and light, the type of growth outlined in the previous paragraph could add to existing glare and light in the Community Type. Implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that the additional sources of glare and light will noticeably change the aesthetic environment. Unlike Center and Corridor Communities and Established Communities, where glare and light are already dominant features of the landscape, increased glare and light in Developing Communities could cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the Community Type.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

Implementation of the proposed MTP/SCS will result in the construction of transportation improvement projects that could increase the amount of glare and light in the area. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction of new transportation projects or the implementation of new transit service will result in noticeable increases in glare and light that could cause a public hazard or substantially degrade the existing visual/aesthetic quality or character of the Community Type.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. Housing units are expected to increase by approximately 5,300 units (7 percent) and jobs are expected to increase by about 4,000 (12 percent). This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

Increased light and glare in Rural Residential Communities is anticipated to result in greater impacts to night skies than in other Community Types. In urbanized areas, existing sources of glare and light already obscure views of the night sky, but in Rural Residential Communities this is generally not the case. Currently, Rural Residential Communities span more than 712,000 acres in the region, with approximately 412,000 developed acres (58 percent).

Although Rural Residential Communities have been allocated the least amount of growth of the Community Types, implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that the additional sources of glare and

light will noticeably change the aesthetic environment. Unlike Center and Corridor Communities and Established Communities, where glare and light are already dominant features of the landscape, increased glare and light in Rural Residential Communities could cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the Community Type, especially with regard to views of the night sky.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service. Implementation of the proposed MTP/SCS could result in new sources of glare and light, such as headlights from increased vehicle traffic and new streetlights and lighted road signs. New transportation investments will be aligned with planned developments, which will help to reduce aesthetic impacts; however, these projects could potentially introduce glare and light to areas where previously no sources of glare and light existed, which could be considered a degradation of the visual environment.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

The proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. New transportation investments will be aligned with planned developments, which will help to reduce aesthetic impacts; however, these projects could potentially introduce glare and light to areas where previously no sources of glare and light existed, which could be considered a degradation of the visual environment.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-1a. Mitigation Measures AES-1, AES-2, and AES-3 are described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and about 10,000 new jobs by 2035. This development will occur on about 315 acres.

In terms of glare and light, the type of growth outlined in the previous paragraph could add to existing glare and light in the Placer County TPAs, but will not increase glare and light in a significant way compared to existing conditions. Individual projects may impact the amount of glare and light in an area, depending on the exact siting and timing of the development, but because the Placer County TPAs are already urbanized, the net increases in glare and light will not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento.

Because the Placer County TPAs already have a significant amount of glare and light from existing transportation infrastructure, and because the improvements planned are relatively modest compared to existing conditions, the incremental increases in glare and light associated with implementation of the proposed MTP/SCS will not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Sacramento County Transit Priority Areas
The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres.

In terms of glare and light the type of growth outlined in the previous paragraph could add to existing glare and light in the TPAs, but will likely not increase glare and light in a significant way compared to existing conditions. Individual projects may impact the amount of glare and light in an area, depending on the exact siting and timing of the development, but because the Sacramento County TPAs are already urbanized, the net increases in glare and light will not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service.

Implementation of the proposed MTP/SCS could cause increases in glare and light. However, because the Sacramento County TPAs already have a significant amount of glare and light from existing transportation infrastructure, the net increases in glare and light associated with implementation of the proposed MTP/SCS will likely not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Yolo County Transit Priority Areas
The Yolo County TPAs include the majority of the cities of West Sacramento and Davis. The Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres.

In terms of glare and light, the type of growth outlined in the previous paragraph could add to existing glare and light in the TPAs, but will likely not increase glare and light in a significant way compared to existing conditions. Individual projects may impact the amount of glare and light in an area, depending on the exact siting and timing of the development, but because the Yolo County TPAs are already urbanized, the net increases in glare and light will likely not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on glare and light related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, new streetcar service in West Sacramento, and increased express service to downtown Sacramento.

Because the Yolo County TPAs already have a significant amount of glare and light from existing transportation infrastructure, and because the improvements planned are relatively modest compared to existing conditions, the incremental increases in glare and light associated with implementation of the proposed MTP/SCS will not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the area.

Therefore, the impacts on glare and light related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-1a. No mitigation is required.

Mitigation Measure AES-1: Reduce sun glare resulting from implementation of new transportation projects.

The implementing agency should minimize and control glare from transportation projects through the adoption of project design features that reduce glare. These features include:

- plant trees along transportation corridors to reduce glare from the sun;
- create tree wells in existing sidewalks;
- add trees in new curb extensions and traffic circles;
- add trees to public parks and greenways;
    - tree species should provide significant shade cover when mature
    - utilities should be installed underground along these routes wherever feasible to allow trees to grow and provide shade without need for severe pruning
- landscape off-street parking areas, loading areas, and service areas; and

Mitigation Measure AES-2: Design structures to avoid or reduce impacts resulting from glare.

The implementing agency should minimize and control glare from land use and transportation projects through the adoption of project design features that reduce glare. These features include:

- limiting the use of reflective materials, such as metal;
- using non-reflective material, such as paint, vegetative screening, matte finish coatings, and masonry;
- screening parking areas by using vegetation or trees;
- using low-reflective glass; and
- complying with applicable general plan policies or local controls related to glare.

Mitigation Measure AES-3: Design lighting to minimize light trespass and glare.

The implementing agency should impose lighting standards that ensure that minimum safety and security needs are addressed and minimize light trespass and glare. These standards include the following:

- minimize incidental spillover of light onto adjacent private properties and undeveloped open space;
- direct luminaries away from habitat and open space areas adjacent to the project site;
- install luminaries that provide good color rendering and natural light qualities; and
- minimize the potential for back scatter into the nighttime sky and for incidental spillover of light onto adjacent private properties and undeveloped open space.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, Impact AES-1a would be reduced to less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

Impact AES-1b: Cast shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by about 871,000 people, approximately 361,000 jobs, and about 303,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a 7 percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. Growth in and of itself does not necessarily translate into adverse outcomes for the aesthetic environment. It is the siting and design of new development, in relation to existing development, that determines if the aesthetic environment will experience positive or negative impacts.

New development could increase the amount of shadow in an area, especially in areas that will develop more compactly. Compact development is likely to create more shadows than other types of development as a result of the height and spacing of buildings. However, shadow is not necessarily a negative impact of compact development. Shadow has beneficial cooling effects that can be particularly welcome in the Sacramento region where summer temperatures can exceed 100 degrees. Additionally, shadow can mitigate the effects of glare. In city centers and central business district areas, buildings are often constructed with reflective materials that can create glare. A common mitigation measure is to plant trees to reduce the impacts of glare. In the same way that trees cast a shadow to prevent glare, shadows from tall buildings also reduce glare and light.

Developed areas already have a significant amount of shadow from existing uses. Within these areas, the marginal increases in shadow from new infill development will not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of the region. In developing areas of the region, new development could result in increases in the amount of shadow. However, because buildings in these areas will not be as compact or tall as in developed areas of the region, the increases in shadow will not cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

On the transportation side, the proposed MTP/SCS will invest $7.4 billion current year dollars on road and highway capital and operational projects. More than two-thirds of the total road and highway investment will pay for improvements to existing facilities such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, HOV lanes, auxiliary and transition lanes, and other improvements. The remainder of the budget will pay for new road and highway facilities, such as roads serving new development or high-growth areas, new interchanges, road extensions, and new river crossings to connect development across the region's major rivers.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in the region. However, because these types of projects occur in areas where a significant amount of shadow already exists, the impacts at the regional scale will be less than significant, as the typical views of the region will remain unchanged. Other transportation projects, such as road widenings and routine maintenance, will affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Implementation of the proposed MTP/SCS will result in the construction of 396 additional miles of Class I bicycle facilities and 722 miles of Class II bicycle lanes. Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such

projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph.

The proposed MTP/SCS includes 3,989 new daily vehicle service hours for all modes of transit, 437 new bus and shuttle route miles, and 56 new light rail and streetcar route miles. Increasing the frequency of transit service will not increase the amount of shadow in an area, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are expected to see approximately 92,000 new housing units and about104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 24 percent of regional population growth, 30 percent of housing unit growth, 29 percent of employment growth, and 8 percent of acres developed. This indicates that Center and Corridor Communities will grow more compactly than existing conditions.

Because Center and Corridor Communities are built out, they already have a significant amount of shadow. Shadow is a likely result of compact development because of the size and proximity of buildings. Infill development in Center and Corridor Communities could increase the amount of shadow in these areas, but such increases would not cause a public hazard or substantially degrade the existing visual character. As discussed in the regional analysis, shadow has numerous benefits in dense, downtown areas, which counteracts the effects of glare and light created by reflective surfaces of buildings. Shadow also provides shade for pedestrians and cyclists.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Center and Corridor Communities will see a variety of transportation improvements by 2035 including new freeway HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in Center and Corridor Communities. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure will not cause a public hazard or substantially degrade the visual character of the area. Other transportation projects, such as road widenings and routine maintenance, will affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service will not increase the amount of shadow in Center and Corridor Communities, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Established Communities

Like Center and Corridor Communities, Established Communities already have a significant amount of shadow from urban uses, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. Housing units in Established Communities will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will pretty much maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by approximately 20,000 for regional shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

In terms of shadow, the type of growth outlined in the previous paragraph could add to existing shadow in the Community Type, but will not increase the overall shadow in a significant way or

cause a public hazard. This Community Type will see more compact development as a result of implementation of the proposed MTP/SCS, which could increase the amount of shadow in the Community Type, as discussed above in the Center and Corridor Community analysis. Established Communities already have a significant amount of shadow from existing uses. The relatively modest growth expected in this Community Type will not likely increase the amount of shadow in such a way was to cause a public hazard or substantially degrade the existing visual character of the Community Type.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

As with Center and Corridor Communities, Established Communities will see a variety of transportation improvements by 2035 including new freeway HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in Established Communities. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure will not cause a public hazard or substantially degrade the existing visual character of the area. Other transportation projects, such as road widenings and routine maintenance, could affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service will not increase the amount of shadow in Established Communities, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Developing Communities
Developing Communities already contain some shadow from urban uses, but often times such development is intermittent, branching out from Established Communities. Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000, new housing units (a 492 percent increase over 2008), and about 65,000 new jobs (a 397 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rate of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

In terms of shadow, the type of growth outlined in the previous paragraph could add to existing shadow in the area. Implementation of the proposed MTP/SCS will result in the conversion of previously undeveloped land to urban uses in such as to cause increases in the amount of shadow in the Community Type. Because this Community Type is not very dense or compact, the shadow created from development will likely be confined to the individual properties and will not create substantial shadow in public spaces or cause a public hazard.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Implementation of the proposed MTP/SCS will result in the construction of transportation improvement projects that could increase the amount of shadow in the area. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the proposed MTP/SCS.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in Developing Communities. However, because Developing Communities are not as dense or compact as other Community Types, the shadow created from such transportation projects is unlikely to affect surrounding land uses in such a way as to cause a public hazard or substantially degrade the existing visual character. Other transportation projects, such as road widenings and routine maintenance, will affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Developing Communities will begin to see transit service implemented as the population grows to levels that can sustain transit service. Increasing the service area of transit by adding additional bus routes could increase the amount of shadow in an area, as new routes would require bus stops and shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. Housing units are expected to increase by approximately 5,300 (7 percent) and jobs are expected to increase by about 4,000 (12 percent). This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

In terms of shadow, the type of growth outlined in the previous paragraph will likely not increase the overall amount of shadow in this Community Type. Development that does occur will be similar to development that already exists. The low-density makeup of Rural Residential Communities generally prevents shadow from spilling onto surrounding uses in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality or the area.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Because of the low-density makeup of Rural Residential Communities, shadow created from implementation of the proposed MTP/SCS will be isolated to the project sites and will be less than significant at the Community Type level.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

The proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. New transportation investments will be aligned with planned developments, which will help to reduce aesthetic impacts. Because of the low-density makeup of these areas and the limited number of projects being implemented, shadow created from implementation of the proposed MTP/SCS will be isolated to the project sites and will be less than significant at the Community Type level.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and about 10,000 new jobs by 2035. This development will occur on about 315 acres.

Because the Placer County TPAs are built out, they already have a significant amount of shadow. Shadow is a likely result of compact development because of the size and proximity of buildings. Infill development in the Placer County TPAs could increase the amount of shadow in these areas, but such increases would not cause a public hazard or substantially degrade the existing visual character. As discussed in the regional analysis, shadow has numerous benefits in dense, downtown areas. Shadow counteracts the effects of glare and light created by reflective

surfaces of buildings. Shadow also provides shade for pedestrians and cyclists, which is particularly welcome in the Sacramento region, where summer temperatures are often in excess of 100 degrees.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in the Placer County TPAs. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure will be less than significant when compared to existing levels. Other transportation projects, such as road widenings and routine maintenance, could affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service will not increase the amount of shadow in the Placer County TPAs, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres.

Because the Sacramento County TPAs are built out, they already have a significant amount of shadow. Shadow is a likely result of compact development because of the size and proximity of buildings. Infill development in the Sacramento County TPAs could increase the amount of shadow in these areas, but such increases would be cause a public hazard or substantially degrade the existing visual character. As discussed in the regional analysis, shadow has numerous benefits in dense, downtown areas. Shadow counteracts the effects of glare and light created by reflective surfaces of buildings. Shadow also provides shade for pedestrians and cyclists, which is particularly welcome in the Sacramento region, where summer temperatures are often in excess of 100 degrees.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in the Sacramento County TPAs. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure will be less than significant when compared to existing levels. Other transportation projects, such as road widenings and routine maintenance, could affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service will not increase the amount of shadow in the Sacramento County TPAs, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing

new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Yolo County Transit Priority Areas

The Yolo County TPAs include the majority of the cities of West Sacramento and Davis. Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres.

Because the Yolo County TPAs are built out, they already have a significant amount of shadow. Shadow is a likely result of compact development because of the size and proximity of buildings. Infill development in the Yolo County TPAs could increase the amount of shadow in these areas, but such increases would not cause a public hazard or substantially degrade the existing visual character. As discussed in the regional analysis, shadow has numerous benefits in dense, downtown areas. Shadow counteracts the effects of glare and light created by reflective surfaces of buildings. Shadow also provides shade for pedestrians and cyclists, which is particularly welcome in the Sacramento region, where summer temperatures are often in excess of 100 degrees.

Therefore, the impacts on shadow related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Some transportation projects, such as freeway improvements, overpasses, and bridge infrastructure, could increase the amount of shadow in the Yolo County TPAs. However, because these projects occur in areas where there is already a significant amount of shadow from existing uses, the marginal increases from transportation infrastructure will be less than significant when compared to existing levels. Other transportation projects, such as road widenings and routine maintenance, could affect shadow levels during construction (construction impacts are discussed in Impact AES-4a) but will not create new shadow upon completion because the improvements are made at ground level to existing infrastructure.

Bicycle paths built at ground level will not increase the amount of shadow in the region. Bicycle and pedestrian bridges or overpasses have the potential to increase the amount of shadow in the area. Typically, such projects are included with a roadway project and are thus covered under the impacts discussion in the previous paragraph. As with roadway projects, the limited number of bicycle or pedestrian bridge projects makes their impact on shadow less than significant.

Increasing the frequency of transit service will not increase the amount of shadow in the Yolo County TPAs, as such increases only demand more transit vehicles, not transit infrastructure. However, increasing the service area of transit by adding additional bus routes or rail lines could increase the amount of shadow in an area, as new routes would require light rail stations, bus stops, and bus shelters. This would be seen as a positive impact because providing shade is one of the main reasons transit operators provide shelters for passengers. Constructing new transit facilities like bus maintenance facilities and administration buildings could also increase the amount of shadow in the region. These facilities are typically located away from incompatible land uses, where shadows are confined to the transit property.

Therefore, the impacts on shadow related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-1b. No mitigation is required.

Impact AES-2: Block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures), as seen from public viewing areas, including state-designated scenic highways.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, about 361,000 jobs, and approximately 303,000 housing units. Implementation of the proposed MTP/SCS will convert about 53,000 acres of undeveloped land, which represents a 7 percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. Growth in and of itself does not necessarily translate into adverse outcomes for the aesthetic environment. It is the siting and design of new development, in relation to existing development, that determines if the aesthetic environment will experience positive or negative impacts.

Denser or more compact development in some parts of the region may block panoramic views or views of significant landscape features or landforms as seen from individual properties. However, these private views are protected only to the extent that local land use policies and/or regulations address this matter and the projects of the MTP/SCS would be subject to these same regulations. As explained in the settings section above, this impact is concerned with public views as seen from public viewing areas. Most jurisdictions have specific general plan policies to protect important scenic vistas and views of other scenic resources. The valuation of features as "scenic" is subjective, but there is often agreement within the community about which features are valued and protected as scenic resources. Some scenic resources, such as the American River or State Capitol, enjoy additional protections. Portions of the American River are protected under the Wild and Scenic Rivers Act, which protects the "aesthetic, scenic, historic, archaeologic, and scientific features" of the River. Views of the State Capitol are protected by the Capitol View Protection Ordinance of the City of Sacramento.

Development near state-designated scenic highway corridors is unlikely to experience developmental changes that would block panoramic views or views of significant landscape features or landforms, largely due to Corridor Protection Programs that safeguard scenic corridors from encroaching development. The following text from the Caltrans Scenic Highway Program website illustrates the protections provided by a Corridor Protection Program.

> *When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. Scenic corridors consist of land that is visible from the highway right of way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. The city or county must also adopt ordinances, zoning and/or planning policies to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. They should be written in sufficient detail to avoid broad discretionary interpretation and demonstrate a concise strategy to effectively maintain the scenic character of the corridor. These ordinances and/or policies make up the Corridor Protection Program (California Department of Transportation, 2011).*

In addition to Caltrans' regulations, many local jurisdictions have their own general plan policies relating to the protection of visual resources. These policies may limit the amount or type of development in designated scenic corridors or require special design guidelines when developing in certain areas. However, because panoramic views are protected differently among the various jurisdictions in the MTP/SCS plan areas, it is possible that implementation of the proposed MTP/SCS will block panoramic views or views of significant landscape features or landforms.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

On the transportation side, the proposed MTP/SCS will invest $7.4 billion current year dollars on road and highway capital and operational projects. More than two-thirds of the total road and highway investment will pay for improvements to existing facilities such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, HOV lanes, auxiliary and transition lanes, and other improvements. The remainder of the budget will pay for new road and highway facilities such as roads serving new development or high-growth areas, new interchanges, road extensions, and new river crossings to connect development across the region's major rivers. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles.

In urbanized areas, where the majority of proposed MTP/SCS roadway investments will occur, roadway improvements will not have an impact on panoramic views at the regional level. Roadway infrastructure is already a dominant feature of the urban landscape, and improvements to existing facilities will not result in a significantly altered viewshed. There may be localized exceptions, which are discussed at the Community Type and TPA level. In developing areas, where transportation infrastructure is less prevalent, implementation of the proposed MTP/SCS

could open up new views of scenic resources by allowing travelers to gain new vantage points of scenic vistas and landscape features, but it could also block panoramic views by constructing new transportation infrastructure in areas that were previously undeveloped. Bicycle improvements, especially Class I bicycle paths, may create new views of scenic resources previously unavailable.

Transit improvements will include 3,989 new daily vehicle service hours, 437 new bus route miles, and 56 new light rail route miles. Additional vehicle service hours of existing bus service or the addition of new bus service would not block panoramic views because the buses operate on existing infrastructure. Light rail projects, unlike bus routes, add permanent infrastructure to the landscape, which could block panoramic views, depending on the siting and design of rail projects. Similar to roadway projects, light rail projects could also open up new views by allowing travelers to view scenic resources from a different vantage point.

The proposed MTP/SCS contains two projects on state-designated scenic highways. One project is a bridge replacement and the other involves the installation of intelligent transportation systems (ITS) infrastructure. These projects will likely block panoramic views or views of significant landforms during the construction phase (construction impacts are discussed in Impact AES-4b). However, because these projects are not substantially changing the existing transportation infrastructure, they are unlikely to have significant impacts on the surrounding views.

Therefore, the impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

B. Localized Impacts

Center and Corridor Communities

Center and Corridor Communities are typically made up of high concentrations of employment and commercial uses mixed with some residential and recreational uses. Because many Center and Corridor Communities are made up of historic downtowns, central business districts, commercial corridors, or town centers, these areas also tend to have a plentitude of scenic resources ranging from rivers and lakes to historic buildings, landmarks, and unique architectural elements.

By 2035 Center and Corridor Communities are expected to see approximately 92,000 new housing units and about 104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 24 percent of regional population growth, 30 percent of housing unit growth, 29 percent of employment growth, and 8 percent of acres developed. This indicates that Center and Corridor Communities will grow more compactly than existing conditions.

Because Center and Corridor Communities are already built out, development will be infill development, increasing the density in downtowns, central business districts, and main streets throughout the MTP/SCS plan area. On the one hand, the fact that Center and Corridor

Communities are already urbanized means that future development will blend in with existing commercial and residential development and will not likely change the typical views found in these areas. On the other hand, increasing the density in urbanized areas means that buildings will need to grow up, not out. This could block panoramic views or views of significant landscape features. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic resources and contribute to the area's overall aesthetic value introducing new architectural elements or otherwise improving the area's visual character. As discussed in the regional analysis above, important landscape features, landforms, and landmarks (such as the State Capitol) are protected by local policies and ordinances. Developments implemented as a result of the proposed MTP/SCS would need to comply with these local policies. However, because not all panoramic views are protected by local policies, implementation of the proposed MTP/SCS could block panoramic views or views of significant landscape features or landforms.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Center and Corridor Communities will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities that would not substantially alter the aesthetic environment or block panoramic views of the region. Transportation infrastructure is already a dominant feature of the landscape in Center and Corridor Communities. Making improvements to that infrastructure is unlikely to alter views significantly from existing conditions.

However, there are specific projects that could have significant impacts on panoramic views in Centers and Corridor Communities. These projects involve crossings over the American River, the only river within the MTP/SCS plan area protected by the Wild and Scenic Rivers Act. In general, projects that cross rivers have more potential to block panoramic views that other types of transportation projects because they occur above-grade, whereas most other transportation projects occur at-grade. There are three transportation projects that cross the American River. The first American River crossing will add HOV lanes to I-5 from the I-5/I-80 interchange to downtown Sacramento. The second will construct a multi-modal river crossing over the American River, connecting downtown Sacramento with South Natomas. The third is a bicycle/pedestrian bridge at Sutter Landing Park. Projects that cross the American River could potentially block panoramic views or views of the river seen from public viewing areas. However, a river crossing could also open up new views of the river. These projects have not yet undergone environmental review, but it is likely that they will impact panoramic views.

Another consideration is the construction of soundwalls, which could block ground-level panoramic views. Soundwalls are often constructed as a mitigation measure for noise impacts related to freeway and other major roadway improvement projects. They also can mitigate for toxic air contaminants and provide additional project security. In some cases, well-designed

decorative soundwalls can improve the aesthetic environment of a freeway or major roadway by adding an element of visual interest to the surrounding transportation infrastructure.

Transit projects will consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. Most of these projects will make improvements to existing service that operates on existing rights-of-way. Such improvements will not block panoramic views or views of significant landscape features.

There are no planned transportation improvement projects on state-designated scenic highway corridors in Center and Corridor Communities.

The impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AES-2. Mitigation Measures AES-4 and AES-5 are described below.

Established Communities

Like Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. Established Communities will see their housing units increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will essentially maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by approximately 20,000 for regional 2035 shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Because Established Communities are already built out, development will mostly be infill that will blend in with existing development. Established Communities tend to be less dense than Center and Corridor Communities but significantly denser than Developing Communities. As with Center and Corridor Communities, density can impact panoramic views in both positive and negative ways. On the one hand, more compact development may involve taller structures that block panoramic views and views of significant landscapes or landforms. On the other hand, taller structures may enable new or better views of existing scenic resources and may add new visual character and quality to the area through architectural design.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Established Communities will experience transportation improvements similar to those found in Center and Corridor Communities. Transportation improvements may include new HOV lanes,

auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities that would not substantially alter the aesthetic environment or block panoramic views of the region. Transportation infrastructure is already a dominant feature of the landscape in Established Communities. Making improvements to that infrastructure is unlikely to block views, and new roads may actually create new panoramic views by allowing travelers to gain new vantage points from which to view scenic resources.

Another consideration is the construction of soundwalls, which could block ground-level panoramic views. Soundwalls are often constructed as a mitigation measure for noise impacts related to freeway and other major roadway improvement projects. They also can mitigate for toxic air contaminants and provide additional project security. In some cases, well-designed decorative soundwalls can improve the aesthetic environment of a freeway or major roadway by adding an element of visual interest to the surrounding transportation infrastructure.

Transit projects will consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. These projects will make improvements to existing service that operates on existing rights-of-way. Such improvements will not block panoramic views or views of significant landscape features.

Two transportation improvements are slated to be completed on state-designated scenic highway corridors within Established Communities. One project, near Pollock Pines in El Dorado County, will replace a bridge at the U.S. 50/Sly Park Road undercrossing. Because this project is making improvements to an existing structure, completion of this project will not block panoramic views or views of significant landscape features or landforms. The other project involves various ITS improvements along U.S. 50 in El Dorado County. ITS projects rarely involve extensive amounts of infrastructure of the kind that would block panoramic views. Thus, this project would also not block panoramic views or views of significant landscape features or landforms.

Therefore, the impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-2. No mitigation is required.

Developing Communities

Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000, new housing units (a 492 percent increase over 2008), and about 65,000 new jobs (a 397 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rates of any of the Community Types and will see substantial increases in their proportional share of population, housing units, and to a lesser extent employment.

In terms of panoramic views and views of significant landscapes or landforms, the growth described in the previous paragraph may block panoramic views or views of significant landscapes or landforms. Developing Communities have some existing development on the fringes of Established Communities, but for the most part, they are presently undeveloped. Implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way that panoramic views and views of significant landscapes or landforms are likely to be affected.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Implementation of the proposed MTP/SCS will result in the construction of various transportation improvement projects throughout Developing Communities. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction of new transportation projects or the implementation of new transit service could possibly block panoramic views or views of significant landscapes or landforms. Another consideration is the construction of soundwalls, which could block ground-level panoramic views. Soundwalls are often constructed as a mitigation measure for noise impacts related to freeway and other major roadway improvement projects. They also can mitigate for toxic air contaminants and provide additional project security. In some cases, well-designed decorative soundwalls can improve the aesthetic environment of a freeway or major roadway by adding an element of visual interest to the surrounding transportation infrastructure.

One transportation improvement is slated to be completed on a state-designated scenic highway corridor within a Developing Community. The project involves various ITS improvements along U.S. 50 in El Dorado County. ITS projects rarely involve extensive amounts of infrastructure of the kind that would block panoramic views, and in this case the project will occur along an existing roadway. Thus, this project would not block panoramic views or views of significant landscape features or landforms.

The impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. Housing units are expected to increase by about approximately 5,300 (7 percent) and jobs are expected to increase by about 4,000 (12 percent). This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

Rural Residential Communities are surrounded by open space, forested lands, and agricultural lands. They have a variety of panoramic views capturing many different types of typical views. Currently, Rural Residential Communities span more than 712,000 acres in the region, with approximately 412,000 developed acres (58 percent). Implementation of the proposed MTP/SCS will result in the development of an additional 5,000 acres, a one percent increase in the amount of developed land. Because this growth is modest, it is unlikely that panoramic views or views of significant landscape features or landforms will be changed substantially from existing conditions. View from individual properties may be blocked, but because of the low-density makeup of Rural Residential Communities, it is unlikely that public views will be significantly altered from existing conditions.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-2. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service. Although these projects will add a new visual element to the landscape, the limited number of projects anticipated will not likely block panoramic views or views of significant landscape features or landforms, as these types of transportation projects typically occur at-grade.

One transportation improvement is slated to be completed on a state-designated scenic highway corridor within a Rural Residential Community. The project involves various ITS improvements along U.S. 50 in El Dorado County. ITS projects rarely involve extensive amounts of infrastructure of the kind that would block panoramic views, and in this case the project will occur along an existing roadway. Thus, this project would not block panoramic views or views of significant landscape features or landforms.

Therefore, the impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-2. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-2. No mitigation is required.

The proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. New transportation investments will be aligned with planned developments, which will help to reduce aesthetic impacts. Because of the low-density makeup of these areas and the limited number of projects being implemented, implementation of the proposed MTP/SCS will not likely block panoramic views or vies of significant landscape features, as these types of transportation projects typically occur at-grade.

There are no transportation projects slated to be completed on state-designated scenic highway corridors within Lands Not Identified for Development.

Therefore, the impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-2. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and about 10,000 new jobs by 2035. This development will occur on about 315 acres.

In terms of panoramic views, the type of growth outlined in the previous paragraph could block panoramic views or views of significant landscape features or landforms. As in Center and Corridor Communities and Established Communities, the Placer County TPAs are already urbanized. New development would likely take the form of higher-density infill development. On the one hand, the fact that the Placer County TPAs are already urbanized means that future development will blend in with existing commercial and residential development and will not likely change the typical views found in these areas. On the other hand, increasing the density in urbanized areas means that buildings will need to grow up, not out. This could block panoramic views or views of significant landscape features. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic resources and contribute to the

area's overall aesthetic value introducing new architectural elements or otherwise improving the area's visual character.

Therefore, the impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. Because most of these transportation improvements will be modifications to existing infrastructure, it is unlikely that implementation of the proposed MTP/SCS will block panoramic views or views of significant landscape features or landforms.

There are no planned transportation improvement projects on state-designated scenic highway corridors in the Placer County TPAs.

Therefore, the impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-2. No mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres.

In terms of panoramic views, the type of growth outlined in the previous paragraph could block panoramic views or views of significant landscape features or landforms. As in Center and Corridor Communities and Established Communities, the Sacramento County TPAs are already urbanized. New development would likely take the form of higher-density infill development. On the one hand, the fact that the Sacramento County TPAs are already urbanized means that future development will blend in with existing commercial and residential development and will not likely change the typical views found in these areas. On the other hand, increasing the density in urbanized areas means that buildings will need to grow up, not out. This could block panoramic views or views of significant landscape features. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic resources and contribute to the area's overall aesthetic value introducing new architectural elements or otherwise improving the area's visual character.

The impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. Because most of these transportation improvements will be modifications to existing infrastructure, it is unlikely that implementation of the proposed MTP/SCS will block panoramic views or views of significant landscape features or landforms.

However, there are specific projects that could have significant impacts on panoramic views in the Sacramento County TPAs. These projects involve crossings over the American River, the only river within the MTP/SCS plan area protected by the Wild and Scenic Rivers Act. In general, projects that cross rivers have more potential to block panoramic views that other types of transportation projects because they occur above-grade, whereas most other transportation projects occur at-grade. There are three transportation projects that cross the American River. The first, American River crossing will add HOV lanes to I-5 from the I-5/I-80 interchange to downtown Sacramento. The second, will construct a multi-modal river crossing over the American River, connecting downtown Sacramento with South Natomas. The third, is a bicycle/pedestrian bridge at Sutter Landing Park. Projects that cross the American River could potentially block panoramic views or views of the river seen from public viewing areas. However, a river crossing could also open up new views of the river. These projects have not yet undergone environmental review, but it is likely that they will have some impact on panoramic views.

There are no planned transportation improvement projects on state-designated scenic highway corridors in the Sacramento County TPAs.

The impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact AES-2. Mitigation Measures AES-4 and AES-5 are described below.

Yolo County Transit Priority Area

The Yolo County TPAs include the majority of the cities of West Sacramento and Davis. Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres.

In terms of panoramic views, the type of growth outlined in the previous paragraph could block panoramic views or views of significant landscape features or landforms. As in Center and Corridor Communities and Established Communities, the Yolo County TPAs are already urbanized. New development would likely take the form of higher-density infill development. On the one hand, the fact that the Yolo County TPAs are already urbanized means that future development will blend in with existing commercial and residential development and will not likely change the typical views found in these areas. On the other hand, increasing the density in urbanized areas means that buildings will need to grow up, not out. This could block panoramic views or views of significant landscape features. At the same time, constructing taller buildings at higher densities could provide new views of existing scenic resources and contribute to the

area's overall aesthetic value introducing new architectural elements or otherwise improving the area's visual character.

The impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered potentially significant (PS) for Impact AES-2. Mitigation Measure AES-4 is described below.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. Because most of these transportation improvements will be modifications to existing infrastructure, it is unlikely that implementation of the proposed MTP/SCS will block panoramic views or views of significant landscape features or landforms.

There are no planned transportation improvement projects on state-designated scenic highway corridors in Yolo County TPAs.

Therefore, the impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-2. No mitigation is required.

Mitigation Measure AES-4: Protect panoramic views and views of significant landscape features or landforms.

The implementing agency should protect panoramic views and views of significant landscape features or landforms by taking the following (or equivalent) actions:

- require that the scale and massing of new development in higher-density areas provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights;
- ensure building heights stepped back from sensitive adjoining uses to maintain appropriate transitions in scale and to protect scenic views;
- avoid electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines along scenic roadways and routes, to the maximum feasible extent;
- prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways; and
- comply with other local general plan policies and local control related to the protection of panoramic or scenic views or views of significant landscape features or landforms.

Mitigation Measure AES-5: Design river crossings to minimize aesthetic and visual impacts and to protect scenic and panoramic views of significant landscape features and landforms to the greatest feasible extent.

The implementing agency should design river crossings to protect the important elements of scenic vistas, including panoramic views and views of significant landscape features or landforms. Such design elements could include:

- designing the facility with aesthetics and dimensions which are architecturally pleasing and contextually appropriate for the adjacent neighborhoods;
- designing the facility to not exceed or expand the capacity of the approach roadway; and
- prohibiting design features that obscure, detract from, or negatively affect the quality of views from public viewing areas.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on panoramic views but not to a less than significant level. This is true in terms of general panoramic views and views of specific resources, such as the American River, where river crossings that occur above-grade have the potential to impact views. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact AES-3: Substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, about 361,000 jobs, and approximately 303,000 housing units. Implementation of the proposed MTP/SCS will convert about 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. Growth in and of itself does not necessarily translate into adverse outcomes for the aesthetic environment. It is the siting and design of new development, in relation to existing development, that determines if the aesthetic environment will experience positive or negative impacts.

Infill development is beneficial at the regional scale, as it occurs in areas already designated for and receiving growth and precludes growth in undeveloped and/or agricultural and rural areas. Such infill development does not change the existing visual character or quality at the regional level but rather adds to it while preserving the undeveloped character and quality in the agricultural and rural areas. Development in less developed areas in the region is likely to introduce new typical views to areas that were previously undeveloped. Depending on the

design and siting of new developments, these new views could potentially be seen as a degradation of the visual character or quality of the region.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-3. Mitigation Measure AES-6 is described below.

On the transportation side, the proposed MTP/SCS will invest $7.4 billion current year dollars on road and highway capital and operational projects. More than two-thirds of the total road and highway investment will pay for improvements to existing facilities such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, HOV lanes, auxiliary and transition lanes, and other improvements. The remainder of the budget will pay for new road and highway facilities such as roads serving new development or high-growth areas, new interchanges, road extensions, and new river crossings to connect development across the region's major rivers.

More than two-thirds of road and highway investment will occur in areas where transportation infrastructure is already a dominant feature of the landscape. Such transportation projects will not likely degrade the existing visual character of the region because transportation infrastructure is already a dominant feature of the landscape in those areas. In less developed areas of the region, adding new transportation infrastructure will add an element of urban character to previously undeveloped lands. Depending on the design and siting of transportation projects, this could be considered a degradation of the visual character or quality of an area.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-3. Mitigation Measure AES-6 is described below.

B. Localized Impacts

Center and Corridor Communities

Center and Corridor Communities are typically made up of high concentrations of employment and commercial uses mixed with some residential and recreational uses. Because many Center and Corridor Communities are made up of historic downtowns, central business districts, commercial corridors, or town centers, typical views in these areas tend to include transportation infrastructure, man-made elements, landmarks, and some natural elements as well.

By 2035 Center and Corridor Communities are expected to see approximately 92,000 new housing units and about 104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 24 percent of regional population growth, 30 percent of housing unit growth, 29 percent of employment growth, and 8 percent of acres developed. This indicates that Center and Corridor Communities will grow more compactly than existing conditions.

Because Center and Corridor Communities are already built out, development will mostly be infill development, increasing the density in downtowns, central business districts, and main

streets throughout the MTP/SCS plan area. These areas are already denser and more compact than other Community Types in the region, and while increasing the density will have some impact of the visual character and quality of these areas, the typical views in these areas will not be altered substantially. Center and Corridor Communities will still have views of transportation infrastructure, commercial buildings, residential neighborhoods, landmarks, and other features typical in historic downtowns, central business districts, commercial corridors, and town centers, including localized views of natural scenic resources.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Center and Corridor Communities will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities that would not substantially degrade the existing visual character or quality of the area. Transportation infrastructure is already a dominant feature of the landscape in Center and Corridor Communities. Making improvements to that infrastructure is unlikely to alter existing typical views significantly.

Transit projects will consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. Most of these projects will make improvements to existing service that operates on existing rights-of-way, where transit infrastructure is a dominant feature of the landscape. The two notable exceptions are light rail extensions and new streetcar service. Streetcar service may actually enhance the visual character or quality of the project area, as it will add an element of nostalgic charm and create a visual transportation element unique to the urbanized environment. Similarly, new light rail lines may also add a unique visual element to Center and Corridor Communities. At the very least, these projects will not degrade the existing visual character or quality of the Center and Corridor Communities, as these projects would blend in with and complement surrounding urban land uses.

By 2035, implementation of the proposed MTP/SCS would result in land use changes and changes to the transportation network that could change the visual character or quality of Center and Corridor Communities. Increased density and new transit infrastructure will add man-made "urban" elements to the landscape. However, because these areas are already urbanized, it is unlikely that such projects would substantially degrade the existing visual character or quality of Center and Corridor Communities.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Established Communities

Like Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. Housing units will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will pretty much maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by approximately 20,000 for regional shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Because Established Communities are already built out, the growth that these communities see will result in higher densities than existing conditions. These areas are already quite dense compared to other Community Types in the region, and while increasing the density could have some impact on the visual character and quality of these areas, the typical views in these areas will not be altered substantially. Established Communities will still primarily have views of transportation infrastructure, commercial buildings, residential neighborhoods, and other features typical in urbanized areas, including localized views of natural scenic resources.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Established Communities will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Most of the roadway, bicycle, and pedestrian infrastructure projects are improvements to existing facilities that would not substantially degrade the existing visual character or quality of the area. Transportation infrastructure is already a dominant feature of the landscape in Established Communities. Making improvements to that infrastructure is unlikely to alter typical views significantly from existing conditions.

Transit projects will consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. Most of these projects will make improvements to existing service that operates on existing rights-of-way, where transit infrastructure is a dominant feature of the landscape. The two notable exceptions are light rail extensions and new streetcar service. Streetcar service may actually enhance the visual character or quality of the project area, as it will add an element of nostalgic charm and create a visual transportation element unique to the urbanized environment. Similarly, new light rail lines may also add a unique visual element to Center and Corridor Communities. At the very least, these projects will not degrade the existing visual character or quality of the Established Communities, as these projects would blend in with and complement surrounding urban land uses.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Developing Communities

Developing Communities already contain some developed areas, but such development is intermittent, often branching out from Established Communities. Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000, new housing units (a 492 percent increase over 2008), and about 65,000 new jobs (a 397 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rates of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

Currently, typical views in Developing Communities include some urbanized features like low-density office and commercial development and some transportation infrastructure, but views in this Community Type are still largely dominated by residential uses, and often look out over vacant land and open space. The type of development described in the previous paragraph could dramatically change typical views in this Community Type by adding a visual element of urban character to an existing rural or open space. New employment centers and housing units will not necessarily be built at the same density as Established Communities or Center and Corridor Communities, but development in Developing Communities will add an element of density and urbanized growth not commonly seen in existing developments. Therefore, implementation of the proposed MTP/SCS could result in the conversion of previously undeveloped land to urban uses in such a way as to substantially degrade the existing visual character or quality of the Community Type and its surroundings.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-3. Mitigation Measure AES-6 is described below.

Implementation of the proposed MTP/SCS will result in the construction of various transportation improvement projects throughout Developing Communities. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the proposed MTP/SCS.

Because Developing Communities do not have as much existing transportation infrastructure as other Community Types, the construction of new transportation projects or the implementation of new transit service will add views of transportation infrastructure to new areas that could degrade the visual character or quality of the Community Type and its surroundings.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AES-3. Mitigation Measure AES-6 is described below.

Rural Residential Communities

Rural Residential Communities are low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. Housing units are expected to increase by approximately 5,300 (seven percent) and jobs are expected to increase by about 4,000 (12 percent). This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

Rural Residential Communities are surrounded by open space, forested lands, and agricultural lands. Their typical views include mostly natural elements with some views of residential and low-scale commercial areas and the transportation infrastructure serving those land uses. Implementation of the proposed MTP/SCS will result in growth and development in Rural Residential Communities. However, because this growth is anticipated to be modest and in the same pattern as existing development, it is unlikely that implementation of the proposed MTP/SCS will result in substantial degradation of existing visual character or quality in this Community Type.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service. As with new development, these transportation projects are anticipated to follow the same pattern as existing transportation infrastructure. Most of these projects will make improvements to existing infrastructure, but even the projects that add completely new roadways will not be substantially different from other transportation infrastructure visible throughout this Community Type.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-3. No mitigation is required.

The proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. New transportation investments will be aligned with planned developments, which will help to reduce aesthetic impacts. Because of the low-density makeup of these areas and the limited number of projects being implemented, implementation of the proposed MTP/SCS will not degrade the visual character or quality of the Community Type, as the projects will occur will be spread out over the entire region.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-3. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and about 10,000 new jobs by 2035. This development will occur on about 315 acres.

In terms of visual character or quality, the type of growth outlined in the previous paragraph will likely not change the visual character or quality in the Placer County TPAs. The TPAs already contain mostly urban uses and are relatively compact. The addition of a few thousand new housing units and jobs may increase the density of these areas with infill development, but not in such a way as to differ significantly from existing conditions.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route

buses, but the majority of transit service increases will be commuter service to downtown Sacramento.

Because the Placer County TPAs already have a significant amount of transportation infrastructure, implementation of the proposed MTP/SCS will not substantially degrade the existing visual character or quality of the area.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres.

In terms of visual character or quality, the type of growth outlined in the previous paragraph will likely not change the visual character or quality in the Sacramento County TPAs. The TPAs are already urbanized and contain very compact development. The additional housing units and jobs will increase the amount of infill development in the areas and increase the density in certain areas as well. However, these changes are considered minor because new development will blend in with existing development and not substantially degrade the existing visual character or quality of the area.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. Most of these projects will make improvements to existing infrastructure in existing rights-of-way.

Because the Sacramento County TPAs already have a significant amount of transportation infrastructure, implementation of the proposed MTP/SCS will not substantially degrade the existing visual character or quality of the area.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Yolo County Transit Priority Areas

The Yolo County TPAs include the majority of the cities of West Sacramento and Davis. The Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres.

In terms of visual character or quality, the type of growth outlined in the previous paragraph will likely not change the visual character or quality of the Yolo County TPAs. The TPAs already contain mostly urban uses and are relatively compact. The additional housing units and jobs will increase the amount of infill development in the areas and increase the density in certain areas as well. However, these changes are considered minor because new development will blend in with existing development and not substantially degrade the existing visual character or quality of the area.

Therefore, the impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, new streetcar service in West Sacramento, and increased express service to downtown Sacramento.

Because the Yolo County TPAs already have a significant amount of transportation infrastructure, implementation of the proposed MTP/SCS will not substantially degrade the existing visual character or quality of the area.

Therefore, the impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AES-3. No mitigation is required.

Mitigation Measure AES-6: Design projects to be visually compatible with surrounding areas.

The implementing agency should design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and developments. Strategies to achieve compatibility include:

- avoiding large cuts and fills when the visual environment (natural or urban) would be substantially disrupted;
- siting or designing projects to minimize their intrusion into important viewsheds;
- using contour grading to match surrounding terrain;
- developing transportation systems to be compatible with the surrounding environments (e.g., colors and materials of construction material; scale of improvements);

- avoiding the use of non-native landscaping; if exotic vegetation is used, it should be used as screening and landscaping that blends in and complements the natural landscape;
- protecting or replacing trees in the project area;
- using grading that blends with the adjacent landforms and topography;
- landscaping new slopes and embankments with compatible grasses, shrubs, and trees to soften cuts and edges; and
- designing new structures to be compatible in scale, mass, character, and architecture with existing structures.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, it is not anticipated that it will reduce Impact AES-3 to a less-than-significant level in all cases where visual resources are impacted. Additionally, SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact AES-3 remains significant and unavoidable (SU).

Impact AES-4a: Result in construction-related impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, about 361,000 jobs, and approximately 303,000 housing units. Implementation of the proposed MTP/SCS will convert about 53,000 acres of undeveloped land in the process, which represents a seven percent increase in the amount of developed land over existing conditions. This development will be spread out over the 25 year life of the plan.

Short-term visual impacts could occur during construction of projects included in the proposed MTP/SCS. Construction-related activities will require the use of construction equipment, construction materials, construction signage, and construction vehicles, which could increase the amount of glare, light, or shadow in the region. After the development is completed, all construction equipment, leftover materials, vehicles, and other reflective items are removed from the site. Any impacts associated with the structure itself, once completed, are covered in Impacts AES-1 through AES-3.

Therefore, the construction-related impacts on glare, light, and shadow related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4a. Mitigation Measures AES-7 and AES-8 are described below.

On the transportation side, the proposed MTP/SCS will invest $35.2 billion current year dollars on roadway, highway, bicycle, pedestrian, and transit improvements. Typical projects include road widenings, freeway HOV lanes, freeway auxiliary lanes, turn pockets, intelligent

transportation infrastructure projects, roadway maintenance projects, interchange improvements, new road and interchanges, Class I, II, and III bicycle facilities, bicycle and pedestrian bridges, complete streets projects, increased frequency on transit, new transit routes, new streetcar and light rail lines, transit facilities, and transit operational improvements.

Short-term visual impacts could occur during construction of projects included in the proposed MTP/SCS. Construction-related activities will require the use of construction equipment, construction materials, construction signage, and construction vehicles, which could increase the amount of glare, light, or shadow in the region.

Therefore, the construction-related impacts on glare, light, and shadow related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4a. Mitigation Measures AES-7 and AES-8 are described below.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in construction-related impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

Therefore, the construction-related impacts on glare, light, and shadow related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AES-4a. Mitigation Measures AES-7 and AES-8 are described below.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in land-use-related construction impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

Therefore, the construction-related impacts on glare, light, and shadow related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-4a. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in construction-related impacts that would cast glare,

light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

Therefore, the construction-related impacts on glare, light, and shadow related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-4a. Mitigation Measures AES-7 and AES-8 are described below.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to result in construction-related impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.

Therefore, the construction-related impacts on glare, light, and shadow related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs are considered potentially significant (PS) for Impact AES-4a. Mitigation Measures AES-7 and AES-8 are described below.

Mitigation Measure AES-7: Implement Mitigation Measure AES-3.

Mitigation Measure AES-8: Reduce the visibility of construction-related activities.

The implementing agency should reduce the visibility of construction-related activities by taking the following (or equivalent) actions:

- restrict construction activities to permitted hours in accordance with local jurisdiction regulations;
- locate materials and stationary equipment such as generators, compressors, rock crushers, cement mixers, etc. as far from sensitive receptors as possible;
- locate materials and stationary equipment in such a way as to prevent glare, light, or shadow from impacting surrounding uses and minimize blockage of scenic resources; and
- reduce the visibility of construction staging areas by fencing or screening these areas with low-contrast materials consistent with the surrounding environment.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, Impact AES-4a would be reduced to less than significant (LS). However, because SACOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact AES-4a remains significant and unavoidable (SU).

Impact AES-4b: Result in construction-related impacts that would block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, about 361,000 jobs, and approximately 303,000 housing units. Implementation of the proposed MTP/SCS will convert about 53,000 acres of undeveloped land in the process, which represents a seven percent increase in the amount of developed land over existing conditions. This development will be spread out over the 25 year life of the plan.

Short-term visual impacts could occur during construction of projects included in the proposed MTP/SCS. Construction-related activities will require the use of construction equipment, materials, signage, fencing, barriers, vehicles, etc. that could block panoramic views or views of significant landscape features or landforms. After the development is completed, all construction equipment, leftover materials, vehicles, and other temporary fencing and walls, are removed from the site. Any impacts associated with the structure itself, once completed, are covered in Impacts AES-1 through AES-3.

Therefore, the construction-related impacts on panoramic views related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4b. Mitigation Measure AES-9 is described below.

On the transportation side, the proposed MTP/SCS will invest $35.2 billion current year dollars on roadway, highway, bicycle, pedestrian, and transit improvements. Typical projects include road widenings, freeway HOV lanes, freeway auxiliary lanes, turn pockets, intelligent transportation infrastructure projects, roadway maintenance projects, interchange improvements, new road and interchanges, Class I, II, and III bicycle facilities, bicycle and pedestrian bridges, complete streets projects, increased frequency on transit, new transit routes, new streetcar and light rail lines, transit facilities, and transit operational improvements.

The proposed MTP/SCS contains two projects on state-designated scenic highways. One project is a bridge replacement and the other involves the installation of intelligent transportation systems (ITS) infrastructure.

Short-term visual impacts could occur during construction of projects included in the proposed MTP/SCS. Construction-related activities will require the use of construction equipment, materials, signage, fencing, barriers, vehicles, etc. that could block panoramic views or views of significant landscape features or landforms.

Therefore, the construction-related impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4b. Mitigation Measure AES-9 is described below.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in construction-related impacts that would block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.

Therefore, the construction-related impacts on panoramic views related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AES-4b. Mitigation Measure AES-9 is described below.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in land-use-related construction impacts that would block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.

Therefore, the construction-related impacts on panoramic views related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-4b. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in construction-related impacts that would block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.

Therefore, the construction-related impacts on panoramic views related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-4b. Mitigation Measure AES-9 is described below.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to result in construction-related impacts that would block panoramic views or

views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.

Therefore, the construction-related impacts on panoramic views related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs are considered potentially significant (PS) for Impact AES-4b. Mitigation Measure AES-9 is described below.

Mitigation Measure AES-9: Implement Mitigation Measure AES-8

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact AES-4b would be reduced to less than significant (LS). However, because SACOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact AES-4b remains significant and unavoidable (SU).

Impact AES-4c: Result in construction-related impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, about 361,000 jobs, and approximately 303,000 housing units. Implementation of the proposed MTP/SCS will convert about 53,000 acres of undeveloped land in the process, which represents a seven percent increase in the amount of developed land over existing conditions. This development will be spread out over the 25 year life of the plan.

Short-term visual impacts could occur during construction of projects included in the proposed MTP/SCS. Construction of new developments could result in view blockage by construction equipment and scaffolding, removal of landscaping, temporary route changes, temporary signage, exposed excavation and slope faces with contrasting soil colors, temporary fencing and walls, construction staging areas, etc. Most of these impacts are considered temporary as the associated impacts are limited to the time during which the development is being constructed. After construction is complete, scaffolding, fencing, temporary walls, construction equipment, leftover materials, construction signage, and other related job-site items are removed. However, if landscaping is not restored and slopes are not revegetated after construction, the visual character or quality of the site could be permanently altered.

Therefore, the construction-related impacts on visual character related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4c. Mitigation Measures AES-10, AES-11, AES-12, and AES-13 are described below.

On the transportation side, the proposed MTP/SCS will invest $35.2 billion current year dollars on roadway, highway, bicycle, pedestrian, and transit improvements. Typical projects include

road widenings, freeway HOV lanes, freeway auxiliary lanes, turn pockets, intelligent transportation infrastructure projects, roadway maintenance projects, interchange improvements, new road and interchanges, Class I, II, and III bicycle facilities, bicycle and pedestrian bridges, complete streets projects, increased frequency on transit, new transit routes, new streetcar and light rail lines, transit facilities, and transit operational improvements.

Short-term visual impacts could occur during construction of projects included in the proposed MTP/SCS. Construction of new transportation infrastructure could result in view blockage by construction equipment and scaffolding, removal of landscaping, temporary route changes, temporary signage, exposed excavation and slope faces with contrasting soil colors, temporary fencing and walls, construction staging areas, etc. Most of these impacts are considered temporary as the associated impacts are limited to the time during which the development is being constructed. After construction is complete, scaffolding, fencing, temporary walls, construction equipment, leftover materials, construction signage, and other related job-site items are removed. However, if landscaping is not restored and slopes are not revegetated after construction, the visual character or quality of the site could be permanently altered.

Therefore, the construction-related impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AES-4c. Mitigation Measures AES-10, AES-11, AES-12, and AES-13 are described below.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in construction-related impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.

Therefore, the construction-related impacts on visual character related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact AES-4c. Mitigation Measures AES-10, AES-11, AES-12, and AES-13 are described below.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in land-use-related construction impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.

Therefore, the construction-related impacts on visual character related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AES-4c. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in construction-related impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.

Therefore, construction-related impacts on visual character related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AES-4c. Mitigation Measures AES-10, AES-11, AES-12, and AES-13 are described below.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to result in construction-related impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.

Therefore, the construction-related impacts on visual character related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs are considered potentially significant (PS) for Impact AES-4c. Mitigation Measures AES-10, AES-11, AES-12, and AES-13 are described below.

Mitigation Measure AES-10: Implement Mitigation Measure AES-8

Mitigation Measure AES-11: Re-vegetate exposed earth surfaces.

The implementing agency should minimize short-term visual impacts of construction by re-vegetating slopes and exposed earth surfaces at the earliest opportunity.

Mitigation Measure AES-12: Minimize contrasts between the project and surrounding areas.

The implementing agency should ensure that projects use natural landscaping to minimize contrasts between the projects and surrounding areas. Wherever possible, the implementing agency should develop interchanges and transit lines at the grade of the surrounding land to limit view blockage. Project designs should contour the edges of major cut-and-fill slopes to provide a more natural-looking finished profile.

Mitigation Measure AES-13: Replace and renew landscaping along roadway corridors and development sites.

The implementing agency should replace and renew landscaping to the greatest extent possible along corridors with transportation improvements and at development sites. The implementing agency should plan landscaping in new corridors and developments to respect existing natural and man-made features and to complement the dominant landscaping of surrounding areas.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, Impact AES-4c would be reduced to less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact AES-4c remains significant and unavoidable (SU).

CHAPTER 4 – AGRICULTURE AND FORESTRY RESOURCES

INTRODUCTION

This chapter describes existing conditions (environmental and regulatory) for agriculture and forestry resources and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect agriculture and forestry resources within the MTP/SCS plan area. This chapter evaluates potential impacts on agriculture and forestry resources that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

This chapter provides a basic summary of the extent, distribution, use, quality, and productivity of agriculture and forest lands in the region. This information is informed by two years of research for SACOG's Rural-Urban Connections Strategy (RUCS), literature, maps and data published by the Natural Resources Conservation Service (NRCS), the California Department of Conservation (DOC), and county agricultural commissioners. Soil quality and conditions are analyzed in Chapter 9 **–** Geology, Seismicity, Soils and Mineral Resources. Agricultural and forestry resources are also discussed in the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035. Refer to Chapter 3 – Summary of Growth and Land Use Forecast, Chapter 7 – Environmental Sustainability, and Appendix E – Land Use and Environmental Technical Documents in the draft plan.

One comment regarding agriculture resources, submitted by Rick Bettis, was received during circulation of the Notice of Preparation (NOP). The comment letter requested that the potential loss of agricultural resources due to growth inducement be considered. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

SETTING

Environmental Setting

The SACOG region has a long history of agricultural and forestry activity due to its location, encompassing part of the fertile Central Valley of California and the forested foothills of the Sierra Nevada Mountain Range. There are nearly 1.7 million acres of land in agricultural production and 1.6 million acres of forests in the region, together comprising 70 percent of the proposed MTP/SCS plan area (see below for breakdowns of agricultural and forest land by county). The region's agricultural value fluctuates with commodity markets, but since 2008, international commodity markets have been strong, supporting a farmgate value of more than $1.6 billion (SACOG, 2011). The farmgate value is the value of the commodity when it is harvested. The region has also seen strong growth in market demand for locally grown food. Further, the agricultural industry generates economic activity beyond just the farmgate value of commodities. For example, tens of thousands of people in the region earn a living working in the agricultural industry, and the industry also supports a robust agri-tourism economy. Many of those jobs are in support services such as agricultural suppliers and processors, but also attorneys, accountants, insurance sales, etc. It is estimated that total economic activity generated by agricultural operations in the region (also known as a multiplier effect) is approximately $3.3 billion (SACOG, 2011).

The following paragraphs describe agriculture and forestry resources in each county in the region.

El Dorado County

In El Dorado County, agricultural lands, including pasture and grazing lands, account for 24 percent of the land area, with 237,749 total acres in production. In 2010, the county had a gross crop value of $34 million, excluding timber. The overall contribution of agriculture to the county's economy (through employment, sales, tourism, and other related activities) totaled approximately $360 million in 2010 (El Dorado County Department of Agriculture, 2011). Lands on the west slope of the county are considered the most valuable for agriculture because of the area's gentler slopes and richer soils. Historically, grazing of cattle and other livestock was the primary economic contributor in El Dorado County. Recently, production of fruit (including wine grapes) and nuts has become a major contributor to the county's agricultural economy.

Forest lands, including hardwood, conifer, and mixed forests, account for 633,000 acres of the land in the county (excludes Tahoe Basin). Of this acreage, approximately 411,000 acres are publicly-owned (SACOG, 2010). Timber production is economically important in the county. In 2010, the gross value of timber production in the county was $1.2 million, a decline from $1.8 million in 2009 (El Dorado County Department of Agriculture, 2011).

Placer County

There are approximately 171,916 acres of land in agricultural production, including pasture and grazing lands in Placer County, accounting for 20 percent of the land in the county (excludes Tahoe Basin). The county's primary agricultural products are fruit and nut crops, timber, rice, flowers, cattle, poultry, and sheep. In 2010, the total gross value for agricultural products was roughly $66 million (Placer County Department of Agriculture, 2011). As in El Dorado County, Placer County's western lands are the most valuable for agriculture because of the flat to gently sloped topography and richer soils. Very recently, the county has seen an increase in rice production. The increased acreage coupled with strong yields and high prices has resulted in rice becoming the number one crop in the county in recent years, including 2010. Cattle and calf operations and many of the fruit and nut crops are also top commodities in the county. Prior to the current recession, nursery products and timber led the county's crop values. Both commodities have been declining steadily in recent years (Placer County Department of Agriculture, 2011).

There are 445,000 acres of forest land in the county, of which 272,000 acres are under public ownership. The Bureau of Land Management controls the largest amount of public lands within Placer County (SACOG, 2010). The US Forest Service and the Bureau of Reclamation control smaller amounts of land in central Placer County. Timber harvesting had a gross value of $4,659,958 in 2010 (Placer County Department of Agriculture, 2011).

Sacramento County

Although it is the most urbanized county in the region, Sacramento County has a long history of agricultural activity. As of 2010, there were 205,283 acres of land in agricultural production including pasture or grazing lands, comprising 34 percent of the county. The majority of agricultural lands and activities are located in the south and east county areas, including the Sacramento River Delta region. In 2010 the county grossed approximately $356 million in agricultural products. Top producing crops in the county include wine grapes, milk, Barlett pears, and nursery products. Over the last few years, wine grapes have continually increased in acres in production, while the other top commodities have experienced a steady decline in production (Sacramento County Department of Agriculture & Weights and Measures, 2011).

Sacramento County has no forest lands.

Sutter County

Agriculture is the primary industry of Sutter County. Including pasture or grazing lands, agricultural land accounts for 333,133 acres, or 89 percent of the county's land area (Sutter County Department of Agriculture, 2011). The County's valley floor location between two major rivers has created, over geological time, a broad area of deep, rich agricultural soils with abundant surface and subsurface water. Together with an inland climate that provides for a long growing season, these factors have led to a productive agricultural environment. In 2010, agricultural production grossed over $520 million, with rice, fruit, and nut crops being the leading commodities. In particular, almonds, walnuts, prunes, peaches, and processing tomatoes have all experienced an increase in acres in production and/or higher values (Sutter County Department of Agriculture, 2011).

Sutter County has no forest lands.

Yolo County

Like Sutter County, Yolo County's flat valley topography and rich agricultural soils have made agriculture the primary economic development driver of the county. As of 2010 there were 460,677 acres in production, comprising 72 percent of total land in the county. The 2010 gross valuation of agricultural products was more than $443 million. Tomatoes have long been the county's leading commodity. Rice, alfalfa, wheat, nuts, cattle operations, and organic fruits and vegetables have historically been, and continue to be, among the top crops. Wine grapes have recently seen a dramatic increase in production within the county (Yolo County Department of Agriculture, 2011).

Yolo County has no forest land.

Yuba County

Although Yuba County experienced rapid development for several years prior to the current recession, agriculture remains a prominent land use in the county, with 271,978 acres, or 67 percent, of the county in agricultural production, including grazing and pasture lands. The gross value for agriculture in Yuba County in 2010 was over $195 million and contributed $793 million to the overall local economy. Rice has been, and continues to be, the county's leading crop. Similar to other parts of the region, fruit and nut crops continue to increase in production and value (Yuba County Department of Agriculture, 2011).

There are about 95,000 acres of forest land in the county, primarily in the northeastern portion. Of these, about 40,000 acres are under public ownership, mainly by the US Bureau of Land Management (SACOG, 2010). The gross value of timber production in 2010 was approximately $3 million and has been rising steadily since 2008 (Yuba County Department of Agriculture, 2011).

Regulatory Setting

Federal Regulations

Farmland Protection Policy Act of 1981 (FPPA)

The Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 4201, et seq.) is administered by the Natural Resource Conservation Service (NRCS). The NRCS maps soils and farmland to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. The NRCS determines impacts to farmland that could occur due to a proposed project. The determination is made through coordination between the federal agency proposing or supporting the project and the NRCS. The NRCS makes a determination, using set thresholds, as to whether additional project-specific mitigation is required. The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that—to the extent possible—federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Federal Forest Legacy Program

The Forest Legacy Program (FLP) (16 U.S.C. § 2103c) was part of the 1990 Federal Farm Bill. The purpose of the FLP is to protect environmentally-important forestland under private ownership from conversion to non-forest uses, such as residential or commercial development. The FLP promotes the use of voluntary conservation easements on these properties. Landowners who wish to participate may sell or transfer particular rights, such as the right to develop the property or to allow public access, while retaining ownership of the property and the right to use

it in any way consistent with the terms of the easement. The agency or organization holding the easement is responsible for managing the rights it acquires and for monitoring compliance by the landowner. Forest management activities, including timber harvesting, hunting, fishing, and hiking are encouraged, provided they are consistent with the program's purpose.

State Regulations

Farmland Mapping and Monitoring Program (FMMP)

In 1982, the State of California created the Farmland Mapping and Monitoring Program (FMMP) within the Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The FMMP is a non-regulatory program that provides consistent and impartial analysis of agricultural land use and land use changes throughout California for use by decision-makers in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources. The FMMP produces Important Farmland Maps, which are a hybrid of resource quality (soils) and land use information. Information from the FMMP was used to identify agricultural resources within the SACOG region. The FMMP is the primary system by which the extent, distribution, and quality of farmland is evaluated and monitored. Maps of Important Farmland are prepared periodically (approximately every two years) by the FMMP for most of the state's agricultural regions, based on soil survey information and land inventory and monitoring criteria developed by the NRCS.

The classification system employed by FMMP consists of eight mapping categories: five categories of agricultural lands and three categories of nonagricultural lands. The characteristics of these eight categories are summarized below.

- **Prime Farmland.** Prime farmlands are lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed water supply that is dependable and of adequate quality during the growing season. It must also have been used for the production of irrigated crops at some time during the four years before the mapping data were collected.
- **Farmland of Statewide Importance.** Farmland of statewide importance are lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to prime farmland but with minor shortcomings, such as steeper slopes or less ability to hold and store moisture.
- **Unique Farmland.** Unique farmlands are lands with lesser quality soils used for the production of California's leading agricultural cash crops. These lands are usually irrigated but may include nonirrigated orchards or vineyards as found in some of the state's climatic zones.
- **Farmland of Local Importance.** Farmlands of local importance are important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

- **Grazing Land.** Grazing lands are lands on which the existing vegetation is suited to the grazing of livestock.
- **Urban and Built-Up Land.** This category describes land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a ten-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land.** This category encompasses land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres.
- **Water.** This category describes perennial bodies of water with an extent of at least 40 acres.

Figure 4.1 depicts areas devoted to prime farmland, unique farmland, farmland of statewide importance, and farmland of local importance (California Department of Conservation, 2011). Most of the land located west of the Sierra Nevada foothills and east of the Capay Valley is classified as "Important Farmland" (i.e., either prime farmland, farmland of statewide importance, unique farmland, or farmland of local importance). Western Yolo County, the eastern third of Sacramento County, the Sutter Buttes region in Sutter County, and the foothill regions of El Dorado, Placer, and Yuba counties are predominantly classified as grazing land.

An acreage summary by FMMP mapping category for MTP/SCS plan area land is presented in Table 4.1. The table shows that Important Farmland is concentrated in the counties of Sacramento, Sutter and Yolo, due to the fertile soils and flat topography of these valley counties. Although El Dorado, Placer, and Yuba counties contain less Important Farmland, these counties contain significant grazing and "Other" land. More than 62 percent of the region is classified as farmland and only 11 percent is currently urbanized. According to the California Farmland Conversion Report 2006-2008, 19,435 acres of agricultural land were converted to other uses during the two-year span (California Department of Conservation, 2011). Urban development pressures affect agricultural lands throughout the region due to high population and employment growth. Agriculture conversion pressure is greatest at the edge of existing urban development.

The California Land Conservation Act (Williamson Act)

The California Land Conservation Act (Williamson Act) of 1965 (Gov. Code, § 51200-51207) was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands. The Williamson Act program permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space uses for at least ten years. Lands covered by Williamson Act contracts are assessed on the basis of their agricultural value instead of their potential market value under

nonagricultural uses. In return for the preferential tax rate, the landowner is required to contractually agree to not develop the land for a period of at least ten years.

Williamson Act contracts are renewed annually for ten years unless a party to the contract files for non-renewal. The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a nine-year phase-out of the contract. During the phase-out period, the land remains restricted to agricultural and open-space uses, but property taxes gradually return to levels associated with the market value of the land. At the end of the nine-year non-renewal process, the contract expires and the owner's uses of the land are restricted only by applicable local zoning.

Figure 4.1 - MTP/SCS Plan Area Significant Agricultural Lands

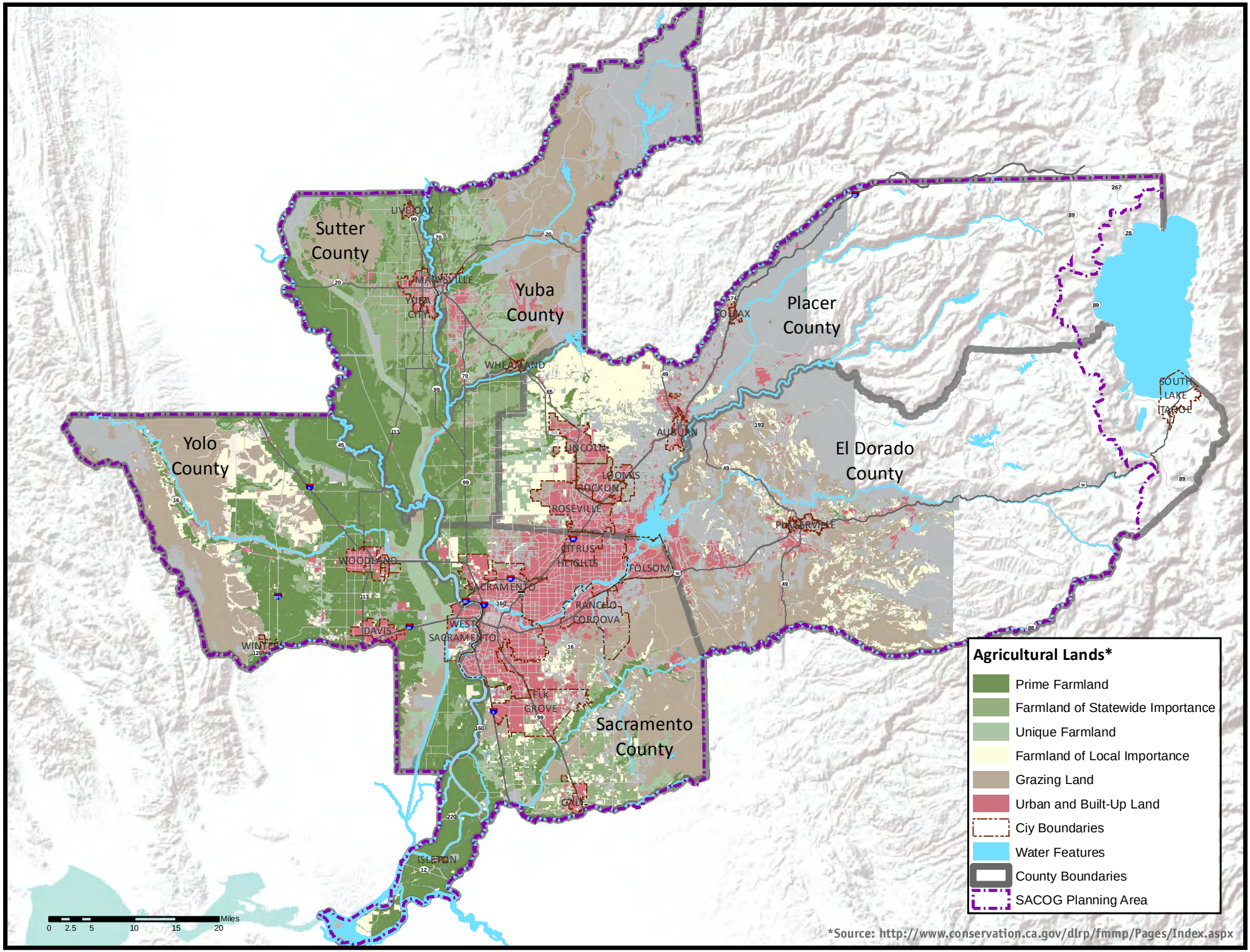


Table 4.1
Acreage Summary by FMMP Mapping Category for Lands in the proposed MTP/SCS Plan Area

County	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	Region
Farmland Category:	(in acres)						
Prime Farmland	770	7,921	104,282	165,319	255,074	41,325	574,690
Farmland of Statewide Importance	922	4,868	49,436	106,565	16,789	10,973	189,552
Unique Farmland	3,765	20,188	15,432	19,079	45,727	32,586	136,778
Farmland of Local Importance	59,669	100,832	43,819	0	60,323	0	264,651
Grazing Land	194,324	24,398	156,559	52,532	157,880	141,597	727,290
All Farmland	**259,450**	**158,207**	**369,529**	**343,498**	**535,793**	**226,485**	**1,892,961**
Urban and Built-Up Land	32,165	58,623	177,915	13,226	30,194	13,667	325,789
Other Land	237,414	188,997	70,763	30,608	79,127	164,821	771,730
Water	6,881	4,559	17,558	2,037	7,581	6,653	45,268
Non-Farmland	**276,460**	**252,178**	**266,236**	**45,870**	**116,902**	**185,141**	**1,142,788**
Total Area Surveyed[1]	**535,910**	**410,386**	**635,765**	**389,368**	**652,695**	**411,626**	**3,035,749**

[1] Approximately one million acres of land within the MTP/SCS plan area in eastern Placer and El Dorado counties were not surveyed. The survey area excludes most of the Sierra Nevada, as well as desert and forested parts of California that are less likely to have productive farmland. Some of these locations may be added in the future, while most areas identified as "Local, State, and Federal Owned Land" will not be added. Some small areas of public land are included in the survey area, generally as "Other Land." See California Farmland Conversion Report 2006-2008, pg. 5 (California Department of Conservation, 2011).
Source: California Department of Conservation, 2011. California Farmland Conversion Report 2006-2008.

The Williamson Act defines *compatible use* of contracted lands as any use determined by the county or city administering the preserve to be compatible with the agricultural, recreational, or open-space use of land within the preserve and subject to contract (Gov. Code, § 51202[e]). However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code section 51231, 51238, or 51238.1.

Table 4.2 shows the amount of agricultural lands under Williamson Act contract in each of the counties in the SACOG region.

As of 2009, the SACOG region contained a total of 740,025 acres of land contracted under the Williamson Act. Of those acres, 400,860 acres were prime farmland and 339,165 acres were nonprime. About 57 percent of both prime and nonprime lands under contract are located in Yolo County. Just under one quarter of all contract lands are located in Sacramento County, with the remainder in El Dorado, Placer, and Sutter counties. Yuba County does not participate in the program. Figure 4.2 shows the location of Williamson Act lands in the SACOG region.

Table 4.2
Williamson Act Lands within the SACOG Region as of 2009

County	Acres of Williamson Act Lands			Percent of Total Land Acres in Williamson Act Contracts
	Prime	Nonprime	Total	
El Dorado	2,315	31,800	34,115	5%
Placer	15,470	26,169	41,639	6%
Sacramento	87,617	93,554	181,171	24%
Sutter	51,408	13,165	64,573	9%
Yolo	244,050	174,477	418,527	57%
Yuba[1]	0	0	0	0%
SACOG Region	400,860	339,165	740,025	100%

[1] Yuba County does not participate in the Williamson Act program.
Source: California Department of Conservation, 2010. The California Land Conservation (Williamson) Act Status Report 2010.

Though state subventions to backfill lost property tax revenue have been eliminated, the program is still embraced by participating counties in the region and remains an important part of their farmland conservation strategies. That said, a landowner may cancel or non-renew a Williamson Act contract at any point. As of 2009, 36,024 acres were in non-renewal (California Department of Conservation, 2010).

California Forest Legacy Act of 2007

Similar to the Federal Forest Legacy Program, the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) is a program of the California Department of Forestry and Fire Protection (CAL FIRE) to promote conservation easements in environmentally-sensitive forest areas. Money to fund the Program shall be obtained from gifts, donations, federal grants and loans, other appropriate funding sources, and from the sale of bonds pursuant to Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act (The Villaraigosa-Kelley Act) of 2000 (Pub. Resources Code, div. 5, ch. 1.692).

This act defines “forest land” as “land that can support ten-percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits” (California Department of Forestry and Fire Protection, 2011).

The Right to Farm Act of 1981

The Right to Farm Act of 1981 (Civ. Code, § 3482.5) is designed to protect commercial agricultural operations from nuisance complaints that may arise when an agricultural operation is conducting business in a "manner consistent with proper and accepted customs." The code specifies that established operations that have been in business for three or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of new land use.

California Farmland Conservancy Program Act

The California Farmland Conservancy Program Act of 2010 (Pub. Resources Code, § 10200 et seq.), also known as Sen. Bill No. 1142 (Stats. 2010, ch. 323) (SB 1142), established the California Farmland Conservancy Program (CFCP), which provides grants for agricultural conservation easements. An agricultural conservation easement aims to maintain agricultural land in active production by removing the development pressures from the land. Such an easement prohibits practices that would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect even when the land changes ownership. Agricultural conservation easements are created specifically to support agriculture and prevent development on the subject parcels. While other benefits may accrue because the land is not developed (scenic and habitat values, for example), the primary use of the land is agricultural. Easements funded by the CFCP must be of a size and nature suitable for viable commercial agriculture.

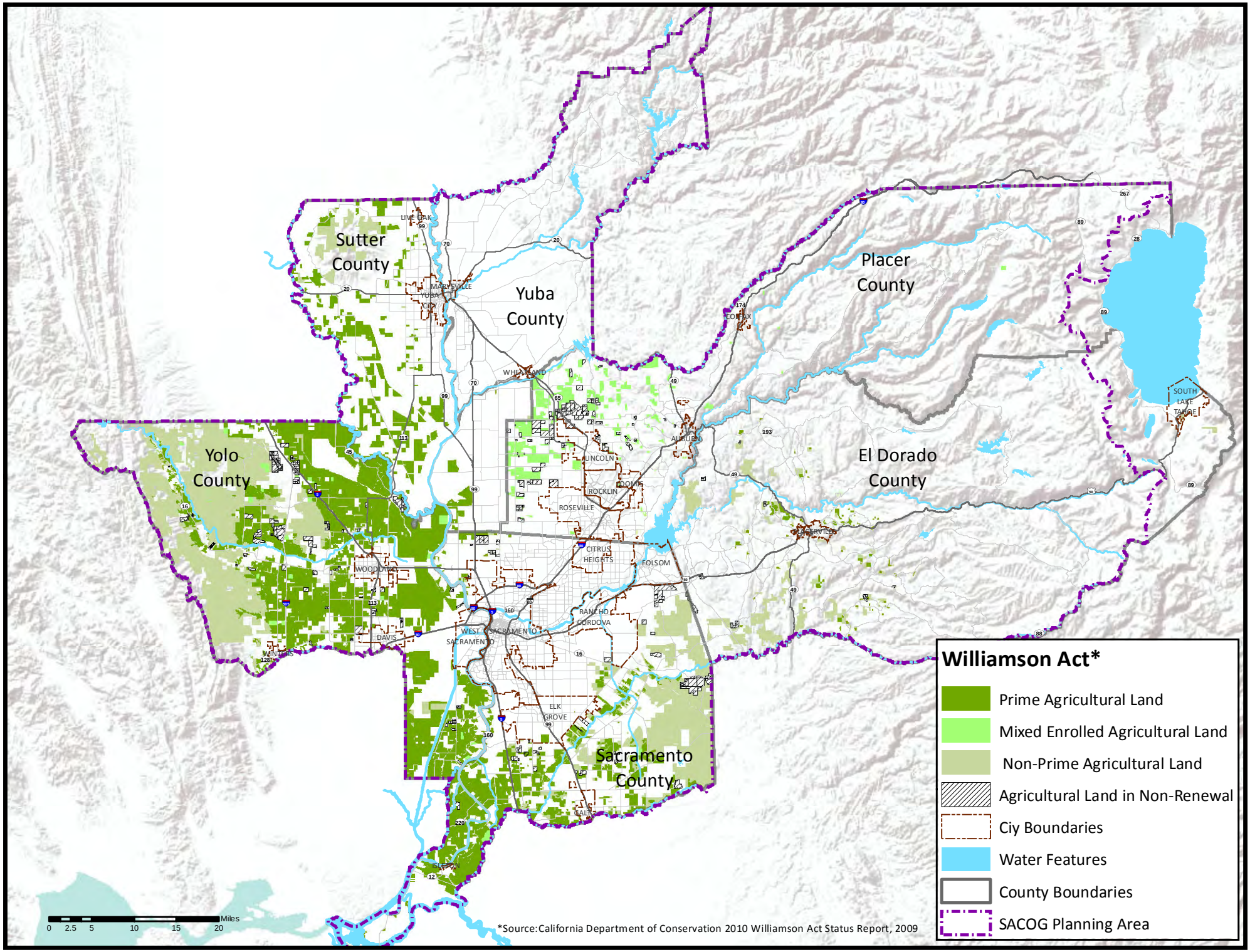
Open Space Subvention Act

The Open Space Subvention Act (OSSA) of 1972 (Gov. Code, § 16140 et seq.) was enacted on January 1, 1972 to provide for the partial replacement of local property tax revenue foregone as a result of participation in the Williamson Act and other enforceable open space restriction programs. Participating local governments receive annual payment on the basis of the quantity (number of acres), quality (soil type and agricultural productivity), and, for Farmland Security Zone contracts, location (proximity to a city) of land enrolled under eligible, enforceable open space restrictions.

The Farm and Ranch Land Protection Program

The Farm and Ranch Land Program provides matching funds to help purchase development rights to keep productive farm and ranchland in agricultural uses. Working through existing programs, USDA partners with state, tribal, or local governments and nongovernmental organizations to acquire conservation easements or other interests in land from landowners. USDA provides up to 50 percent of the fair market easement value of the conservation easement. To qualify, farmland must be part of a pending offer from a state, tribe, or local farmland protection program; be privately owned; have a conservation plan for highly erodible land; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and agricultural support services; and have surrounding parcels of land that can support long-term agricultural production. The USDA Natural Resources Conservation Service manages the program.

Figure 4.2 MTP/SCS Plan Area Williamson Act Lands



The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act (Cortese-Knox-Hertzberg Act) of 2000 (Gov. Code, § 56000 et seq.) established procedures for local government changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. This act requires that development or use of land for other than open space shall be guided away from existing prime agricultural lands in open space use toward areas containing nonprime agricultural lands, unless that action would not promote that planned, orderly, efficient development of an area.

Delta Protection Commission

The Delta Protection Act of 1992 (Pub. Resources Code, § 29760 et seq.) recognized the Sacramento-San Joaquin Delta as a natural resource of statewide, national and international significance, containing irreplaceable resources. It created the policy to recognize, preserve and protect those resources, and established the Delta Protection Commission. The Delta Protection Commission was charged with creating the Land Use and Resources Management Plan for the Primary Zone, which was adopted in 1995. The management plan provides direction for local jurisdictions in the Delta region on land use decisions. Local jurisdictions with lands in the primary zone have amended their general plans to incorporate the management plan (Sacramento County, 2010; Yolo County, 2009). In 2010, the Delta Protection Commission amended the management plan to reflect changes since adoption, such as newly identified endangered species, effects of climate change, flood control issues, increased recreational use, water quality changes, habitat loss, road and utility construction, and urbanization. The amendment adds specific overview, goals, and policies subsections and a glossary of terms to address components of the Delta system, such as: natural resources, utilities, infrastructure, land use, agriculture, water, recreation, and levees.

Delta Stewardship Council

In November 2009, the California Legislature enacted Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) of 2009 (Wat. Code, § 10610 et seq.), also known as Sen. Bill No. 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC). The DSC is made up of seven members that are advised by a 10-member board of scientists. The DSC is charged with developing and adopting a Delta Plan by January 1, 2012. The DSC is tasked with addressing the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. According to the Delta Reform Act, the coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The DSC will regulate covered actions, as statutorily defined, to address the coequal goals.

The proposed MTP/SCS and plans, programs, projects or activities within the secondary zone of the Delta that SACOG determines are consistent with the proposed MTP/SCS are not subject to regulation as covered actions (Wat. Code, § 85057.5). The DSC will review and provide timely advice to local agencies and SACOG regarding the consistency of local planning documents and

the proposed MTP/SCS with the Delta Plan, including the ecosystem restoration needs of the Delta and reviewing whether the lands set aside for natural resources protection are sufficient to meet the Delta's ecosystem needs. If the DSC concludes that the draft SCS is inconsistent with the Delta Plan, they must provide written notice of the claimed inconsistency to the metropolitan planning organization no later than 30 days prior to the adoption of the final regional transportation plan. If the DSC provides timely notice of a claimed inconsistency, SACOG shall include a detailed response to the council's notice in the final MTP/SCS for 2035 (Wat. Code, § 85212).

Delta Vision Blue Ribbon Task Force

California Executive Order S-17-06 created the Delta Vision Blue Ribbon Task Force and directed it to develop a vision statement for sustainable management of the Delta and a management plan for the long-term restoration and maintenance of identified functions and values that are determined to be important to the environmental quality of the Delta and the economic and social well-being of the people of California. In 2009, the task force released its vision, which includes 12 recommendations:

1. Delta ecosystem and a reliable water supply for California are the primary, co-equal goals for sustainable management of the Delta.
2. The California Delta is a unique and valued area, warranting recognition and special legal status from the State of California.
3. The Delta ecosystem must function as an integral part of a healthy estuary.
4. California's water supply is limited and must be managed with significantly more efficiency to be adequate for its future population, growing economy and vital environment.
5. The foundation for policy making about California water resources must be the long-standing constitutional principles of "reasonable use" and "public trust;" these principles are particularly important and applicable to the Delta.
6. The goals of conservation, efficiency and sustainable use must drive California water policies.
7. A revitalized Delta ecosystem will require reduced diversions, or changes in patterns and timing of those diversions, upstream, within the Delta and exported from the Delta at critical times.
8. New facilities for conveyance and storage, and better linkage between the two, are needed to better manage California's water resources the estuary and exports.
9. Major investments in the California Delta and the statewide water management system must be consistent with, and integrate specific policies in this vision. In particular, these strategic investments must strengthen selected levees, improve floodplain management and improve water circulation and quality.

10. The current boundaries and governance system of the Delta must be changed. It is essential to have an independent body with authority to achieve the co-equal goals of ecosystem revitalization and adequate water supply for California while also recognizing the importance of the Delta as a unique and valued area. This body must have secure funding and the ability to approve spending, planning and water export levels.
11. Discouraging inappropriate urbanization of the Delta is critical both to preserve the Delta's unique character and to ensure adequate public safety.
12. Institutions and policies for the Delta should be designed for resiliency and adaptation

Z'berg-Nejedly Forest Practice Act of 1973

The Z'berg-Nejedly Forest Practice Act (Forest Practice Act) of 1973 (Pub. Resource Code, div. 4, ch. 8) established a nine member Board of Forestry whose mandate is to assure the best economic and environmental practices in timber production in California. The Board requires that a Registered Professional Forester (RPF) prepare a Timber Harvest Plan (THP) before harvesting timber on most non-federal forestland. The goal of the THP is to assure that the continual productivity of timberlands is sustained and enhanced by the timber harvesting that takes place on the site, and that related resources are protected to the extent feasible, including watersheds, fisheries, wildlife, recreation, aesthetics, and employment in the region.

Timberland Production Zones

Under the Z'berg-Warren-Keene-Collier Forest Taxation Reform Act of 1976 (Gov. Code, §§ 51110-51119.5), counties must provide for the zoning of land used for growing and harvesting timber as Timberland Preserve Zones (TPZ). A TPZ is a ten-year restriction on the use of timberland, similar to the Williamson Act for agricultural lands. Land use under a TPZ is restricted to growing and harvesting timber or to compatible uses. In return, taxation of timberland under a TPZ will be based only on such restrictions in use.

California Timberland Productivity Act of 1982

The California Timberland Productivity Act (CTPA) of 1982 (Gov. Code, §§ 51100-51104) describes the powers and duties of local government in protecting timberlands. The law is designed to maintain an optimum amount of timberland, ensuring its current and continued availability by establishing Timberland Preserve Zones (TPZ) on all qualifying timberland, which restrict land use to growing and harvesting timber and other compatible uses. The Act discourages premature or unnecessary conversion of timberland to urban or other uses and expansion of urban services into timberland, and encourages investment in timberlands based on reasonable expectation of harvest. The CTPA also provides that timber operations conducted in accordance with California forest practice rules shall not be restricted or prohibited due to land uses in or around the location of the timber operations.

Local Regulations

General Plans

The most comprehensive land use planning for the SACOG region is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plan contains goals and policies concerning topics that are mandated by state law or which the jurisdiction has chosen to include, such as land use, conservation and open space, natural resources, parks and recreation, and agricultural elements.

Community and Specific Plans

A city or county may also provide land use planning by Developing Community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan.

Zoning

The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan, except in charter cities, such as Auburn, Colfax, Folsom, Marysville, Roseville, and Sacramento.

Public Ownership, Purchase of Development Rights, and Open Space Acquisition

Local governments and special districts, either on their own or working with land trusts and conservancies, can acquire fee title to agricultural and open space lands or purchase development rights to preserve rural and agricultural areas, watersheds, or critical habitat, or to create public parks and recreational areas.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

The footprints of new land use and transportation projects anticipated in the proposed MTP/SCS were overlaid with various farmland and forestry data. Transportation projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping various farmland and forestry data. Although only road widenings, new roads, new or expanded interchanges, and new rail transit infrastructure were spatially analyzed this way, the analysis is very conservative because many of transportation projects, such as road widenings will not use the entire buffer area. Class II (bike lanes) and Class III (bike routes) bicycle projects are included in the roadway buffer analysis because such projects are part of the roadway right-of-way. A buffer analysis was not performed for Class I (separate, multi-use trails) projects. Because Class I trails are much narrower than roadways, performing a buffer

analysis is difficult, as even small shifts in alignment can result in varying outcomes. However, a majority of new Class I trails in the proposed MTP/SCS run parallel to new, expanded, or existing roadways or along waterways and levees. Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects that was used to calculate potential impacts on agricultural lands. Additionally, because the 100-foot buffer assumption is conservative, and will result in a greater estimate of impacted acreage than is likely to occur, the amount of agricultural lands impacted by Class I trails that are not otherwise captured by the 100-foot buffer for new or expanded roadway and light rail projects is covered by the analysis.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS Planning Period. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's transit priority areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, see Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For descriptions of the agriculture and forestry environment, 2008 was also used as the baseline in most instances. Five data sources were used to analyze the agriculture and forestry environment. First, the California Department of Conservation's Farmland Monitoring and Mapping Program (FMMP) data were used to analyze impacts to agricultural resources. These data classify agricultural resources into a number of categories. For purposes of this analysis Prime Farmland, Unique Farmland, and Farmland of Statewide Importance were considered. FMMP data are updated every two years and uses a minimum mapping unit of ten acres. The most recent complete and regionally consistent set of data published by the FMMP is for the years 2006-2008. Because these data do not account for planned uses and the data are from 2006-2008, it is likely there is some amount of recent development that is currently constructed or under construction today that are being analyzed as impacts to farmland, though farmland is no longer the current existing use.

Second, the California Department of Conservation's Williamson Act data were used to analyze agriculture impacts. These data include any lands that are currently enrolled under a California Land Conservation Act contract in 2009. This analysis does not include lands that are in a non-renewal status.

Third, general plan data from all six counties were used to analyze lands designated for agriculture and forest uses. These data were collected in 2008 and reflects the currently adopted general plans in El Dorado (2004), Placer (2005), Sacramento (1993), Sutter (1996), Yolo (2009), and Yuba (2011). Note that Sacramento County is currently completing a general plan update; however draft land use data were unavailable at the time of this analysis. Sutter County adopted an updated general plan in 2011; however, data from the 1996 plan were used, as more recent data were not available at the time of this analysis.

Fourth, zoning data from all 28 cities and counties were collected in 2010 and used in this analysis to measure impacts to agriculture and forest zoned uses. Lastly, land cover data from the California Department of Forestry and Fire Protection's Land Cover Mapping and Monitoring Program were used to analyze forest lands. These data are produced using remote sensing and aerial imagery to create a dataset that includes tree size and tree canopy with a minimum map unit of 2.5 acres. Because the Land Cover Mapping and Monitoring data are remote sensing data created to estimate all tree canopy, in some cases, particularly in urban areas, it is likely these are not actual "forest" areas. No screening for tree canopy density was done in this analysis; however, the data were geographically screened so that only forests that actually exist today were used. These areas include the Rural Residential Communities and the Lands Not Identified for Development in El Dorado County, Placer County, and Yuba County.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Convert prime farmland, unique farmland, or farmland of statewide importance (farmland), as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
2. Conflict with existing zoning or land use designation for agricultural use, or a Williamson Act contract.
3. Conflict with existing zoning or land use designation for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220(G)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104(G)).
4. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use.
5. Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) or conversion of Forest Land into nonforest use.

6. Result in construction impacts that would convert prime farmland, unique farmland, or farmland of statewide importance to non-agricultural uses; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.

Impacts and Mitigation Measures

Impact AG-1: Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation, to non-agricultural use.

A. Regional Impacts

As of 2008, the SACOG region contained 574,690 acres of prime farmland, 136,778 acres of unique farmland, and 189,552 acres of farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (see Table 4.1 and Figure 4.1 above). The potential overlap of the proposed MTP/SCS land use and transportation projects with FMMP designated farmland is shown below in Table 4.3.

Table 4.3
Proposed MTP/SCS Land Use and Transportation Overlap with Farmland Mapping and Monitoring Program (FMMP) Farmland

Community Type	Acres of Impact			
	Prime Farmland	Unique Farmland	Farmland of Statewide Importance	Total Acres of Impact
Land Use Growth Footprint				
Center and Corridor Communities	601	83	68	752
Established Communities	1,232	172	1,332	2,736
Developing Communities	1,582	660	2,594	4,836
Rural Residential Communities	7	44	44	96
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0	0
Transportation Projects				
Center and Corridor Communities	74	3	12	88
Established Communities	150	11	82	243
Developing Communities	146	45	232	423
Rural Residential Communities	0	1	30	31
Lands Not Identified for Development in the MTP/SCS Planning Period	361	66	274	700
Regional Totals				
Land Use Growth Footprint Total	**3,422**	**959**	**4,039**	**8,420**
Transportation Projects Total	**730**	**125**	**629**	**1,484**
Land Use and Transportation Combined Total	**4,152**	**1,084**	**4,668**	**9,904**

Note: Numbers may not total due to rounding.
Source: California Department of Conservation, 2011

The land use growth footprint of the proposed MTP/SCS has the potential to impact 3,422 acres of prime farmland, 959 acres of unique farmland, and 4,039 acres of farmland of statewide importance for a total potential impact of 8,420 acres.

Transportation projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping Important Farmland. This analysis indicated that 730 acres of prime farmland, 125 acres of unique farmland, and 629 acres of farmland of statewide importance could potentially be impacted by proposed MTP/SCS transportation projects, for a total impact of 1,484 acres.

Together, land use changes and transportation projects have the potential to impact 4,152 acres of prime farmland, 1,084 acres of unique farmland, and 4,668 acres of farmland of statewide importance for a combined potential impact to 9,904 acres of FMMP designated farmland. The 9,904 acres of FMMP designated farmland that may be impacted represents approximately 19 percent of the total 53,266 acres of new development land anticipated under the proposed MTP/SCS. In total, this area represents approximately one percent of all FMMP designated farmland in the region.

Therefore, while these impacts appear relatively small from a regional perspective, due to the importance of the region's agricultural resources, the impacts on FMMP designated farmland related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

B. Localized Impacts

Center and Corridor Communities
Within Center and Corridor Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 601 acres of prime farmland, 83 acres of unique farmland, and 68 acres of farmland of statewide importance for a total potential impact of 752 acres.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 74 acres of prime farmland, three acres of unique farmland, and 12 acres of farmland of statewide importance for a total potential impact of 88 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Established Communities
Within Established Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 1,232 acres of prime farmland, 172 acres of unique farmland, and 1,332 acres of farmland of statewide importance for a total potential impact of 2,736 acres.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 150 acres of prime farmland, 11 acres of unique farmland, and 82 acres of farmland of statewide importance for a total potential impact of 243 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Developing Communities
Within Developing Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 1,582 acres of prime farmland, 660 acres of unique farmland, and 2,594 acres of farmland of statewide importance for a total potential impact of 4,836 acres.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 146 acres of prime farmland, 45 acres of unique farmland, and 232 acres of farmland of statewide importance for a total potential impact of 423 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Rural Residential Communities
Within Rural Residential Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact seven acres of prime farmland, 44 acres of unique farmland, and 44 acres of farmland of statewide importance for a total potential impact of 96 acres.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact one acre of unique farmland and 30 acres of farmland of statewide importance for a total potential impact of 31 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035. Because the growth in these areas will support agricultural uses, such development will not result in the conversion of FMMP designated lands to other uses.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-1. No mitigation is required.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 361 acres of prime farmland, 66 acres of unique farmland, and 274 acres of farmland of statewide importance for a total potential impact of 700 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

C. Transit Priority Area Impacts

Impacts to prime farmland, unique farmland, and farmland of statewide importance, as defined by the FMMP, within Transit Priority Areas are given in Table 4.4.

Table 4.4
Proposed MTP/SCS Land Use and Transportation Overlap with Farmland Mapping and Monitoring Program (FMMP) Farmland in Transit Priority Areas

	Acres of Impact			
Transit Priority Area	**Prime Farmland**	**Unique Farmland**	**Farmland of Statewide Importance**	**Total Farmland**
Land Use Growth Footprint				
Placer County TPAs	0	0	0	0
Sacramento County TPAs	428	92	258	778
Yolo County TPAs	112	2	0	114
Transportation Projects				
Placer County TPAs	0	0	0	0
Sacramento County TPAs	71	9	22	103
Yolo County TPAs	34	0	0	34
Regional Totals				
Land Use Growth Footprint Total	**540**	**94**	**258**	**892**
Transportation Projects Total	**105**	**9**	**22**	**137**
Land Use and Transportation Combined Total	**645**	**103**	**280**	**1,029**

Note: Numbers may not total due to rounding.
Source: California Department of Conservation, 2011

Placer County Transit Priority Areas

The land use growth footprint does not overlap with farmlands in the Placer County TPAs.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-1. No mitigation is required.

The new transportation project buffer area does not overlap with farmlands in the Placer County TPAs.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-1. No mitigation is required.

Sacramento County Transit Priority Areas
Within Sacramento County TPAs, the land use growth footprint of the proposed MTP/SCS has the potential to impact 428 acres of prime farmland, 92 acres of unique farmland, and 258 acres of farmland of statewide importance for a total potential impact of 778 acres.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 71 acres of prime farmland, nine acres of unique farmland, and 22 acres of farmland of statewide importance for a total potential impact of 103 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Yolo County Transit Priority Areas
Within Yolo County's TPAs, the land use growth footprint of the proposed MTP/SCS has the potential to impact 112 acres of prime farmland and two acres of unique farmland for a total potential impact of 114 acres.

Therefore, the impacts on FMMP designated farmland related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 34 acres of prime farmland for a total potential impact of 34 acres.

Therefore, the impacts on FMMP designated farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered potentially significant (PS) for Impact AG-1. Mitigation Measure AG-1 is described below.

Mitigation Measure AG-1: Mitigate for loss of farmland.

The implementing agency should mitigate for loss of farmland by requiring permanent protection of in-kind farmland at a 1:1 ratio, in the form of easements, fees, or elimination of development rights/potential.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact AG-1 would be reduced but not to a less than significant level. Additionally, SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact AG-1 remains significant and unavoidable (SU).

Impact AG-2: Conflict with existing zoning or general plan land use designations for agricultural use, or with a Williamson Act Contract.

A. Regional Impacts

As of 2008, the SACOG region contained 2,176,462 acres of land zoned for agricultural uses, 2,080,846 acres of land designated for agriculture in local general plans, and 740,025 acres of farmland under active Williamson Act contracts (see Table 4.2 above). These categories are not mutually exclusive. That is, lands classified in one category can also be classified in one or both of the other categories. The potential overlap of the proposed MTP/SCS land use and transportation projects with these lands is shown in Table 4.5.

Table 4.5
Proposed MTP/SCS Land Use and Transportation Overlap with Agricultural Zoning, Agricultural General Plan Designations, and Williamson Act Lands

	Acres of Impact		
Community Type	**Zoning**	**General Plans**	**Williamson Act Lands[1]**
Land Use Growth Footprint			
Center and Corridor Communities	820	22	0
Established Communities	2,798	0	117
Developing Communities	8,825	4,204	602
Rural Residential Communities	1,786	50	106
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0
Transportation Projects			
Center and Corridor Communities	117	0	0
Established Communities	382	0	1
Developing Communities	904	805	7
Rural Residential Communities	65	62	6
Lands Not Identified for Development in the MTP/SCS Planning Period	1,281	1,587	200
Regional Totals			
Land Use Growth Footprint Total	**14,228**	**4,726**	**825**
Transportation Projects Total	**2,750**	**2,453**	**215**
Land Use and Transportation Combined Total	**16,978**	**7,179**	**1,040**

[1] Overlap with Williamson Act lands does not include lands that are currently in non-renewal.
Zoning and general plan designations were collected from local jurisdiction data sources.
Note: Zoned agricultural lands, agricultural lands designated in general plans, and Williamson Act lands cannot be "totaled," as some lands may fit in more than one category. Therefore, totaling the three categories would overestimate the actual amount of agricultural land.
Note: Numbers may not total due to rounding.
Source: California Department of Conservation, 2010. The California Land Conservation (Williamson) Act Status Report, 2010.

The land use growth footprint of the proposed MTP/SCS has the potential to impact 14,228 acres of agricultural zoning, 4,726 acres of agricultural general plan designations, and 825 acres of farmland under active Williamson Act contracts.

Transportation projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping agricultural zoning, agricultural general plan designations, and farmland under active Williamson Act contracts. This analysis indicated that 2,750 acres of agricultural zoning, 2,453 acres of agricultural general plan designations, and 215 acres of farmland under active Williamson Act contracts could potentially be impacted by proposed MTP/SCS transportation projects.

Together, land use changes and transportation projects have the potential to impact 16,978 acres of agricultural zoning, 7,179 acres of agricultural general plan designations, and 1,040 acres of Williamson Act contracted lands. As a total of all agricultural land within the region, agricultural land that has the potential to be impacted by the land use changes and transportation

projects associated with implementation of the proposed MTP/SCS includes approximately 0.8 percent of land with an agricultural zoning, 0.3 percent of land designated as agricultural in an applicable general plan, and 0.1 percent of land currently under a Williamson Act contract.

Therefore, while these impacts appear relatively small from a regional perspective, due to the importance of the region's agricultural resources, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to the land use changes and transportation impacts from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

B. Localized Impacts

Center and Corridor Communities
Within Center and Corridor Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 820 acres of agricultural zoning, 22 acres of agricultural general plan designations, and no Williamson Act lands.

Therefore, the impacts on zoned or general plan designated agricultural lands related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 117 acres of agricultural zoning.

Therefore, the impacts on zoned agricultural lands related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Established Communities
Within Established Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 2,798 acres of agricultural zoning and 117 acres of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned agricultural lands and Williamson Act lands related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 382 acres of agricultural zoning and one acre of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned agricultural lands and Williamson Act lands related to transportation improvements from implementation of the proposed MTP/SCS in Established

Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Developing Communities
Within Developing Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 8,825 acres of agricultural zoning, 4,204 acres of agricultural general plan designations, and 602 acres of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 904 acres of agricultural zoning, 805 acres of agricultural general plan designations, and seven acres of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Rural Residential Communities
Within Rural Residential Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 1,786 acres of agricultural zoning, 50 acres of agricultural general plan designations, and 106 acres of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 65 acres of agricultural zoning, 62 acres of agricultural general plan designations, and six acres of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
Existing development in these areas consists of primarily farm homes, agricultural-related uses, forestry, mining and public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses will occur in this Community Type

within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035. Because the growth in these areas will support agricultural uses, such development will not result in the conversion of zoned or general plan designated agricultural lands and Williamson Act lands to other uses.

Therefore, the impacts on zoned or general plan designated lands or Williamson Act lands related to the land use impacts from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-2. No mitigation is required.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 1,281 acres of agricultural zoning, 1,587 acres of agricultural general plan designations, and 200 acres of farmland under active Williamson Act contracts.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to transportation improvements from implementation of the proposed MTP/SCS on land not identified for development are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

C. Transit Priority Area Impacts

Impacts to agricultural zoning, agricultural general plan designations, and farmland under active Williamson Act contract in TPAs are shown below in Table 4.6.

Table 4.6
Proposed MTP/SCS Land Use and Transportation Overlap with Agricultural Zoning, Agricultural General Plan Designations, and Williamson Act Lands in Transit Priority Areas

Community Type	Acres of Impact		
	Zoning	General Plans	Williamson Act
Land Use Growth Footprint			
Placer County TPAs	0	0	0
Sacramento County TPAs	502	0	0
Yolo County TPAs	114	0	0
Transportation Projects			
Placer County TPAs	0	0	0
Sacramento County TPAs	137	42	0
Yolo County TPAs	0	0	0
Regional Totals			
Land Use Growth Footprint Total	**617**	**0**	**0**
Transportation Projects Total	**137**	**42**	**0**
Land Use and Transportation Combined Total	**754**	**42**	**0**

Note: Numbers may not total due to rounding.
Source: California Department of Conservation, 2010. The California Land Conservation (Williamson) Act Status Report, 2010.
Zoning and general plan designation data were collected from local jurisdiction data sources.

Placer County Transit Priority Areas
The land use growth footprint does not overlap with agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in the Placer County TPAs.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-2. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in the Placer County TPAs.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for impact AG-2. No mitigation is required.

Sacramento County Transit Priority Areas
Within the Sacramento County TPAs, the land use growth footprint of the proposed MTP/SCS has the potential to impact 502 acres of agricultural zoning.

Therefore, the impacts on zoned agricultural lands related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 137 acres of agricultural zoning and 42 acres of agricultural general plan designations.

Therefore, the impacts on zoned or general plan designated agricultural lands related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

Yolo County Transit Priority Areas
Within the Yolo County TPAs, the land use growth footprint of the proposed MTP/SCS has the potential to impact 114 acres of agricultural zoning.

Therefore, the impacts on zoned agricultural lands related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered potentially significant (PS) for Impact AG-2. Mitigation Measure AG-2 is described below.

The new transportation project 100-foot buffer does not overlap with agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in the Yolo County TPAs.

Therefore, the impacts on zoned or general plan designated agricultural lands and Williamson Act lands related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AG-2. No mitigation is required.

Mitigation Measure AG-2: Implement Mitigation Measure AG-1.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact AG-2 would be reduced but not to a less than significant level. Additionally, SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact AG-2 remains significant and unavoidable (SU).

Impact AG-3: Conflict with existing zoning or land use designation for, or cause rezoning of, forest land, timberland, or timberland zoned timberland production.

A. Regional Impacts

As of 2008, the SACOG region contained 633,981 acres of land zoned or designated for forest land or timber production.

Among the region's general plans, only three had designations for forests or timberland. The three plans handle these lands in different ways. Only Yuba County had a designation specifically for forest land and timber production, covering 30,687 acres of land. El Dorado County included forest land in their "Natural Resources" designation, along with "mineral resources, important watershed, lakes and ponds, river corridors, grazing lands, and areas where the encroachment of development would compromise these natural resource values." (El Dorado County, 2004). This designation covers 637,056 acres of land in El Dorado County. Placer County includes agriculture and forest land in the same general plan designation, covering 607,058 acres of land. Sacramento, Sutter, and Yolo Counties do not reference forests or timberland in their general plans.

The potential overlap of the proposed MTP/SCS land use and transportation projects with these lands is shown below in Table 4.7.

Table 4.7
Proposed MTP/SCS Land Use and Transportation Overlap with Timberland/ Forest Zoning and General Plan Designations

	Acres of Impact	
Community Type	**Regional Zoning**	**General Plan Designation**
Land Use Growth Footprint		
Center and Corridor Communities	0	0
Established Communities	0	0
Developing Communities	0	0
Rural Residential Communities	243	96
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0
Transportation Projects		
Center and Corridor Communities	0	0
Established Communities	0	0
Developing Communities	0	0
Rural Residential Communities	0	33
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0
Regional Totals		
Land Use Growth Footprint Total	**243**	**96**
Transportation Projects Total	**0**	**33**
Land Use and Transportation Combined Total	**243**	**129**

Note: Sacramento, Sutter, and Yolo Counties do not have forest or timberland general plan designations.
Note: Numbers may not total due to rounding.
Source: Yuba County General Plan, 2011; El Dorado County General Plan, 2004; Placer County General Plan, 1994.

The land use growth footprint of the proposed MTP/SCS has the potential to impact 243 acres of timberland zoning and 96 acres of general plan designated land.

Transportation projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping timberland zoning and general plan designations. This analysis indicated that 33 acres of general plan designated land could be impacted by transportation improvements.

Together, land use changes and transportation projects have the potential to impact 243 acres of regionally zoned timberland (or approximately 0.04 percent of all timberland zoned land in the region). Additionally, the land use changes and transportation projects have the potential to impact 129 acres of general plan designated land (or approximately 0.01 percent of the total land designated for timberland in applicable general plans).

Therefore, while these impacts appear relatively small from a regional perspective, due to the importance of the region's timberland resources, the impacts on zoned or general plan designated forest land/timberland related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS are considered potentially significant (PS) for Impact AG-3. Mitigation Measure AG-3 is described below.

B. Localized Impacts

Center and Corridor Communities
The land use growth footprint does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Center and Corridor Communities.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AG-3. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Center and Corridor Communities.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Established Communities
The land use growth footprint does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Established Communities.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AG-3. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Established Communities.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Developing Communities
The land use growth footprint does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Developing Communities.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact AG-3. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Developing Communities.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Rural Residential Communities

Within Rural Residential Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 243 acres of timberland zoning and 96 acres of general plan designated land.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-3. Mitigation Measure AG-3 is described below.

Transportation projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping timberland zoning and general plan designations. This analysis indicated that 33 acres of general plan designated land could be impacted by transportation improvements.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-3. Mitigation Measure AG-3 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period

Existing development in these areas consists of primarily farm homes, agricultural-related uses, forestry, mining and public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses will occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035. Because the growth in these areas will support forestry uses, such development will not result in the conversion of zoned or general plan designated forest land/timberland to other uses.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-3. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with zoned or designated forest land, timberland, or timberland zoned Timberland Production Zoning in Lands Not Identified for Development.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-3. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The Placer County TPAs do not contain any timberland zoning or related general plan designations.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Sacramento County Transit Priority Areas
The Sacramento County TPAs do not contain any timberland zoning or related general plan designations.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Yolo County Transit Priority Areas
The Yolo County TPAs do not contain any timberland zoning or related general plan designations.

Therefore, the impacts on zoned or general plan designated forest land/timberland related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AG-3. No mitigation is required.

Mitigation Measure AG-3: Mitigate for loss of forest land or timberland.

The implementing agency should mitigate for loss of forest land or timberland by requiring permanent protection of in-kind land at a 1:1 ratio, in the form of easements or fees and elimination of development rights/potential.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact AG-3 would be reduced but not to a less than significant level. Additionally, SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to

determine and adopt mitigation. Therefore, Impact AG-3 remains significant and unavoidable (SU).

Impact AG-4: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.

A. Regional Impacts

By 2035, the proposed MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

By developing more compactly, the proposed MTP/SCS directs more growth to the areas that are already urbanized and prevents undeveloped land from being converted to urban uses. Keeping growth contained to areas that are already developed limits the amount of growth that takes place at the urban edge, adjacent to agricultural areas.

However, as discussed in Impact AG-1 and AG-2, implementation of the proposed MTP/SCS will result in the conversion of 8,420 acres of farmland, 14,228 acres of zoned agricultural land, 4,726 acres of general plan designated agricultural land, and 825 acres of land under Williamson Act contracts. Lands that remain agricultural lands, but are located near to lands that will be converted to urban uses, may feel pressure to develop, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

On the transportation side, the region will see more than 7,700 lane miles of additional capacity over existing conditions, including freeway, HOV, auxiliary, arterial, and surface street lane miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles. The proposed MTP/SCS also contains numerous rehabilitation and maintenance projects. Transit improvements will include 3,989 new daily VSH, 437 new bus route miles, 56 new light rail route miles, new transit facilities, and numerous transit operational improvements.

While much of this transportation infrastructure will serve urban uses in urbanized areas of the region, it is likely that implementation of transportation improvements at the urban edge could increase urban traffic patterns on roads that serve urban development and agricultural lands. Frequently, the increased traffic volumes are caused by spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between uses, which could result in the conversion of additional agricultural lands in order to reduce such conflicts.

As discussed above, the proposed MTP/SCS will result in more compact development than existing conditions. The MTP/SCS is designed to improve transportation options and increase capacity within urbanized areas. Owners of agricultural lands nearest to these urbanized areas

may feel pressure to develop as transportation improvements within proximity of these lands are rehabilitated or further developed. Such pressure will also increase as land uses surrounding these properties continue to urbanize.

Therefore, impacts on farmland related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AG-4. Mitigation Measure AG-4 is described below.

B. Localized Impacts

Center and Corridor Communities

Center and Corridor Communities are already urbanized and are typically surrounded by other urban land uses like Established Communities or Developing Communities. As discussed in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS will likely result in the conversion of agricultural land to urban uses, but that amount is anticipated to be less than ten percent of the total amount of agricultural land impacted by development in all Community Types. Most of the development that could impact agricultural lands occurs in Yolo County around the City of Davis. Because Yolo County has such strict land use policies that allocate growth to incorporated cities or developed unincorporated communities, future development in Center and Corridor Communities will abut agricultural lands. However, because Yolo County restricts urban development to cities and/or their spheres of influence and to existing unincorporated communities, such growth is unlikely to have spillover effects that would cause any additional conversion of farmland. Similarly, because Center and Corridor communities elsewhere in the region are surrounded by urban uses, development in those areas would be unlikely to result in the conversion of additional farmland to urban uses.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

On the transportation side, Center and Corridor Communities will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These transportation projects will primarily serve urban uses. As with the land use discussion above, transportation projects around the City of Davis in Yolo County will likely result in the conversion of agricultural lands to transportation uses. However, such projects will serve existing and future urban developments and will not likely have impact that would result in the conversion of additional agricultural lands to transportation uses.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Established Communities
Like Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities. New development will primarily occur through building out existing subdivisions and filling in empty lots. For the most part, these areas are located in the interior portions of incorporated cities or unincorporated communities. However, as stated in Impact AG-1 and Impact AG -2, implementation of the proposed MTP/SCS will likely result in the conversion of farmland to urban uses in Established Communities. Lands that remain agricultural lands, but are located near to lands that will be converted to urban uses, may feel pressure to develop, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-4. Mitigation Measure AG-4 is described below.

On the transportation side, Established Communities will experience transportation improvements similar to those found in Center and Corridor Communities. Transportation improvements may include new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These projects will serve existing and new development in Established Communities.

It is likely that implementation of transportation improvements in Established Communities could increase urban traffic patterns on roads that serve urban development and agricultural lands. Frequently, the increased traffic volumes are caused by spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between uses, which could result in the conversion of additional agricultural lands in order to reduce such conflicts.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact AG-4. Mitigation Measure AG-4 is described below.

Developing Communities
Developing Communities are communities that are just starting to develop or will begin to develop over the next 25 years and are often located at or near the edge of the existing urbanized area of the region. In many cases, the current zoning in these areas is agriculture and they have been proposed to rezone for residential, commercial, or industrial development. As stated in Impact AG-1 and Impact AG -2, implementation of the proposed MTP/SCS will likely result in the conversion of farmland to urban uses in Developing Communities. Lands that remain agricultural lands, but are located near to lands that will be converted to urban uses, may be subject to development pressures, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-4. Mitigation Measure AG-4 is described below.

On the transportation side, Developing Communities experience more road widening projects and newly constructed road projects to serve the new residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the proposed MTP/SCS.

It is likely that implementation of transportation improvements in Developing Communities could increase urban traffic patterns on roads that serve urban development and agricultural lands. Frequently, the increased traffic volumes are caused by spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between uses, which could result in the conversion of additional agricultural lands in order to reduce such conflicts.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-4. Mitigation Measure AG-4 is described below.

Rural Residential Communities

Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. The predominant form of development anticipated by the proposed MTP/SCS in these areas will be incremental development on large parcels, typically one unit or parcel at a time. New development in these areas will be largely isolated from urban areas. As stated in Impact AG-1 and AG-2, implementation of the proposed MTP/SCS in this Community Type will likely result in the conversion of farmland to urban uses. Because Rural Residential Communities have a total land area of 717,616 acres, it is unlikely that the conversion of such a small amount of acreage will result in development pressures that would convert additional agricultural land to urban uses. This Community Type already coexists with agricultural uses. Conflicts that already exist between uses are likely to continue with implementation of the proposed MTP/SCS, but because the increment of growth is so small, it is unlikely to exacerbate these existing nuisances in such a way as to cause additional conversion of farmland.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly

constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Rural residential developments and agricultural lands already coexist on existing roadway infrastructure. As noted in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS will likely result in the conversion of farmland to transportation uses. However, the amount of land converted is expected to be small and would be unlikely to cause conflict or development pressure that would result in the conversion of additional farmland.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Lands Not Identified for Development in the MTP/SCS Planning Period

Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Because Lands Not Identified for Development have a total land area of over 2.6 million acres, it is unlikely that the conversion of such a small amount of acreage will result in development pressures that would convert additional agricultural land to urban uses. This Community Type consists of mostly agricultural uses. Conflicts that already exist between uses are likely to continue with implementation of the proposed MTP/SCS, but because the increment of growth is so small, it is unlikely to exacerbate these existing nuisances in such a way as to cause additional conversion of farmland.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Transportation infrastructure in Lands Not Identified for Development consists primarily of roads serving automobile traffic. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements.

As noted in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS will likely result in the conversion of farmland to transportation uses. It is likely that implementation of transportation improvements in this Community Type could increase urban traffic patterns on roads that serve agricultural lands. Frequently, the increased traffic volumes are caused by spillover from congested roads near the exterior of urbanized areas. Increased urban traffic on transitional roads can lead to increased conflict between uses, which could result in the conversion of additional agricultural lands in order to reduce such conflicts.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-4. Mitigation Measure AG-4 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The land use forecast does not overlap with farmlands, agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in the Placer County TPAs.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with farmlands, agricultural zoning, agricultural general plan designations, or farmland under active Williamson Act contracts in the Placer County TPAs. In addition, the Placer County TPAs are surrounded by other urban uses. Transportation infrastructure improvements would be unlikely to result in the conversion of additional farmland to urban uses.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Sacramento County Transit Priority Areas
The Sacramento County TPAs are already urbanized and are typically surrounded by other urban land uses like Established or Developing Communities. As discussed in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS will likely result in the conversion of agricultural land to urban uses. Because the Sacramento County TPAs are surrounded by urban uses, development in those areas would be unlikely to result in the conversion of additional farmland to urban uses.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

On the transportation side, the Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These transportation projects will primarily serve urban uses. Transportation projects will likely result in the conversion of agricultural lands to transportation uses. However, such projects will serve existing and future urban developments and will not likely have impact that would result in the conversion of additional agricultural lands to transportation uses.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Yolo County Transit Priority Areas

The Yolo County TPAs are already urbanized and are typically surrounded by other urban land uses like Established or Developing Communities. As discussed in Impact AG-1 and Impact AG-2, implementation of the proposed MTP/SCS will likely result in the conversion of agricultural land to urban uses. Most of the development that could impact agricultural lands occurs around the City of Davis. Because Yolo County has such strict land use policies that allocate growth to incorporated cities or developed unincorporated communities, future development in the Yolo County TPAs will abut agricultural lands. However, because Yolo County restricts urban development to cities and/or their spheres of influence and to existing unincorporated communities, such growth is unlikely to have spillover effects that would cause any additional conversion of farmland.

Therefore, the impacts on farmland related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

On the transportation side, the Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. These transportation projects will primarily serve urban uses. Transportation projects around the City of Davis in Yolo County will likely result in the conversion of agricultural lands to transportation uses. However, such projects will serve existing and future urban developments and will not likely have impact that would result in the conversion of additional agricultural lands to transportation uses.

Therefore, the impacts on farmland related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AG-4. No mitigation is required.

Mitigation Measure AG-4: Inventory innovative ideas and best practices from the RUCS toolkit, USEPA and USDA Supporting Sustainable Rural Communities publication, and other sources and implement a locally appropriate strategy to manage growth issues at the rural-urban interface to support the long-term viability of agriculture in the SACOG region.

The implementing agency should mitigate to avoid or minimize general pressure to convert agriculture land at the urban edge to non-agricultural uses by adopting regulations that enforce the innovations and best practices identified to minimize conversion pressures on farmland. Examples of this might include:

Agriculture Buffers

Buffers, generally imposed on new development, can assist in reducing urban land use conflicts with farming operations.

Right-to-Farm Ordinances

These ordinances require project applicants to agree to provide real estate disclosures explaining farmers' rights to purchasers or lessees as a condition of project approval for projects located in active farming areas. The intent of such an ordinance is to protect farmers from nuisance complaints and enforcement actions.

Infill and Redevelopment

Policies supportive of infill and redevelopment, consistent with the policy objectives of the proposed MTP/SCS and SB 375, would direct population growth to urban communities, or in established rural communities, thereby reducing pressure to convert agricultural land to development.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact AG-4 would be reduced but not to a less than significant level. Additionally, SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact AG-4 remains significant and unavoidable (SU).

Impact AG-5: Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) or conversion of Forest Land to nonforest use.

A. Regional Impacts

California's vegetation is mapped by the California Land Cover Mapping and Monitoring Program. According to data provided for 2008, there are 938,770 acres of conifer forests, 368,353 acres of hardwood forests, and 354,219 acres of mixed conifer/hardwood forests in the proposed MTP/SCS plan area. The California Forest Legacy Act of 2007 defines "forest land" as "land that can support ten-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." For purposes of analysis, it is assumed that lands mapped as conifer forest, hardwood, or mixed forest by the California Land Cover Mapping and Monitoring Program fall under the definition of "forest land."

The overlap between land use and transportation projects anticipated in the proposed MTP/SCS with the region's forest land is shown in Table 4.8.

Table 4.8
Proposed MTP/SCS Land Use and Transportation Overlap with State-Designated Forest Land

Community Type	Acres of Impact			
	Conifer Forest	Hardwood Forest	Mixed Forest	Total Forest Overlap
Land Use Growth Footprint				
Center and Corridor Communities	NA[1]	NA[1]	NA[1]	NA[1]
Established Communities	NA[1]	NA[1]	NA[1]	NA[1]
Developing Communities	0	1,762	176	1,938
Rural Residential Communities	853	657	483	1,993
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0	0
Transportation Projects				
Center and Corridor Communities	NA[1]	NA[1]	NA[1]	NA[1]
Established Communities	NA[1]	NA[1]	NA[1]	NA[1]
Developing Communities	1	66	3	70
Rural Residential Communities	16	93	46	155
Lands Not Identified for Development in the MTP/SCS Planning Period	0	0	0	0
Regional Totals				
Land Use Growth Footprint Total	**894**	**3,264**	**1,094**	**5,252**
Transportation Projects Total	**20**	**263**	**67**	**350**
Land Use and Transportation Combined Total	**914**	**3,527**	**1,161**	**5,602**

[1] Because the Land Cover Mapping and Monitoring data are remote sensing data created to estimate all tree canopy, in some cases, particularly in urban areas, it is likely these are not actual "forest" areas. No screening for tree canopy density was done in this analysis; however, the data were geographically screened so that only forests that actually exist today were used. These areas include the Rural Residential Communities and the Lands Not Identified for Development in El Dorado County, Placer County, and Yuba County.
Note: This analysis includes all overlapping and non-overlapping vegetation cover in conifer, hardwood, and mixed forests.
Note: Numbers may not total due to rounding.
Source: California Land Cover Mapping and Monitoring Program, 2008

The land use growth footprint of the proposed MTP/SCS has the potential to impact 894 acres of conifer forest, 3,264 acres of hardwood forest, and 1,094 acres of mixed forest, for a total forest overlap of 5,252 acres.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 20 acres of conifer forest, 263 acres of hardwood forest, and 67 acres of mixed forest for a total potential impact of 350 acres.

Together, land use changes and transportation projects have the potential to impact 914 acres of conifer forest, 3,527 acres of hardwood forest, and 1,161 acres of mixed forest for a total of 5,602 acres. As a total of all state-designated forest land within the region, forest land that has the potential to be impacted by the land use changes and transportation projects associated with implementation of the proposed MTP/SCS includes approximately 0.09 percent of conifer forest, 0.1 percent of hardwood forest, and 0.3 percent of mixed forest.

Therefore, while these impacts appear relatively small from a regional perspective, due to the importance of the region's forestry resources, the impacts on forest land related to the land use changes and transportation improvements at the regional level are considered potentially significant (PS) for Impact AG-5. Mitigation Measure AG-5 is described below.

B. Localized Impacts

Center and Corridor Communities and Established Communities
Because there were no forest lands identified in Center and Corridor Communities and Established Communities, forest lands are not impacted by implementation of the proposed MTP/SCS.

Therefore, the impacts on forest land related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact AG-5. No mitigation is required.

Developing Communities
Within Developing Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 1,762 acres of hardwood forest and 176 acres of mixed forest, for a total impact of 1,938 acres.

Therefore, the impacts on forest land related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-5. Mitigation Measure AG-5 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact one acre of conifer forest, 66 acres of hardwood forest, and three acres of mixed forest for a total potential impact of 70 acres.

Therefore, the impacts on forest land related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact AG-5. Mitigation Measure AG-5 is described below.

Rural Residential Communities
Within Rural Residential Communities, the land use growth footprint of the proposed MTP/SCS has the potential to impact 853 acres of conifer forest, 657 acres of hardwood forest, and 483 acres of mixed forest for a total impact of 1,993 acres.

Therefore, the impacts on forest land related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-5. Mitigation Measure AG-5 is described below.

Transportation projects implemented as part of the proposed MTP/SCS have the potential to impact 16 acres of conifer forest, 93 acres of hardwood forest, and 46 acres of mixed forest for a total potential impact of 155 acres.

Therefore, the impacts on forest land related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact AG-5. Mitigation Measure AG-5 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
Existing development in these areas consists of primarily farm homes, agricultural-related uses, forestry, mining and public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses will occur in this Community Type within the proposed MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on forest land related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-5. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with forest land in Lands Not Identified for Development.

Therefore, the impacts on forest land related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-5. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The land use growth footprint does not overlap forest land in the Placer County TPAs.

Therefore, the impacts on forest land related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with forest land in the Placer County TPAs.

Therefore, the impacts on forest land related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

Sacramento County Transit Priority Areas
The land use growth footprint does not overlap forest land in the Sacramento County TPAs.

Therefore, the impacts on forest land related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with forest land in the Sacramento County TPAs.

Therefore, the impacts on forest land related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

Yolo County Transit Priority Areas
The land use growth footprint does not overlap forest land in the Yolo County TPAs.

Therefore, the impacts on forest land related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

The new transportation project 100-foot buffer does not overlap with forest land in the Yolo County TPAs.

Therefore, the impacts on forest land related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact AG-5. No mitigation is required.

Mitigation Measure AG-5: Implement Mitigation Measure AG-3.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact AG-5 would be reduced but not to a less than significant level. Additionally, SACOG cannot require implementing agencies to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact AG-5 remains significant and unavoidable (SU).

Impact AG-6: Result in construction impacts that would convert prime farmland, unique farmland, or farmland of statewide importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.

A. Regional Impacts

Implementation of the proposed MTP/SCS will result in the conversion of agricultural land, forest land, and timberland to other uses. The land use growth footprint will convert 8,420 acres of farmland (prime farmland, unique farmland, and farmland of statewide importance); 14,228 acres of zoned agricultural land; 4,726 acres of general plan designated agricultural land; 825

acres of Williamson Act lands; 5,252 acres of state-designated forest land; 243 acres of zoned forest land; and 96 acres of general plan designated timberland or forest land.

Improvements to the transportation system will convert 1,484 acres of farmland (prime farmland, unique farmland, and farmland of statewide importance); 2,750 acres of zoned agricultural land; 2,453 acres of general plan designated agricultural land; 215 acres of Williamson Act lands; 350 acres of state-designated forest land; and 33 acres of general plan designated timberland or forest land.

There will be construction impacts related to these land use developments and transportation projects. Some construction activities associated with land use changes and transportation projects related to implementation of the proposed MTP/SCS may occur concurrently. However, at the regional level, the construction of such projects will not conflict with agricultural and forestry activities, as these projects will be spread out over the 25 year life of the proposed MTP/SCS and occur at varied locations throughout the MTP/SCS plan area. There may be localized construction impacts, and those impacts are discussed below in the localized analysis.

Therefore, construction-related impacts on agricultural and forestry resources related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AG-6. No mitigation is required.

B. Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and transportation projects in Lands Not Identified for Development

The construction of new developments could result in construction-related impacts that would temporarily conflict with or cause conversion of agricultural and forest lands. Construction of new developments will include impacts from grading, paving, clearing, landscaping, staging, access routing, excavation, earthmoving, and other related construction activities. These activities could temporarily impact agricultural lands and forestry resources by using agricultural land and forestry resources for other uses or causing conflict between uses. Any permanent conflicts with or conversions of agricultural lands and forestry resources are considered part of implementation of the proposed MTP/SCS and are analyzed under Impacts AG-1 through AG-5.

Therefore, the construction-related impacts on agricultural and forestry resources related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and transportation projects in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-6. Mitigation Measures AG-6 and AG-7 are described below.

The construction of new transportation projects could result in construction-related impacts that would temporarily conflict with or cause conversion of agricultural and forest lands.

Construction of new transportation infrastructure will include impacts from grading, paving, clearing, landscaping, staging, access routing, excavation, earthmoving, and other related construction activities. These activities could temporarily impact agricultural lands and forestry resources by using agricultural land and forestry resources for other uses or causing conflict between uses. Any permanent conflicts with or conversions of agricultural lands and forestry resources are considered part of implementation of the proposed MTP/SCS and are analyzed under Impacts AG-1 through AG-5.

Therefore, the construction-related impacts on agricultural and forestry resources related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and transportation projects in Lands Not Identified for Development are considered potentially significant (PS) for Impact AG-6. Mitigation Measures AG-6 and AG-7 are described below.

Land Use Projects in Lands Not Identified for Development

The one Community Type excepted from the foregoing is land use projects in Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in land-use-related construction impacts that would convert prime farmland, unique farmland, or farmland of statewide importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.

Therefore, the construction-related impacts on agricultural and forestry resources related to the land uses changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact AG-6. No mitigation is required.

C. Transit Priority Area Impacts

The Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the localized impact discussion above. Land use and transportation projects in all of the TPAs have the potential to result in construction impacts that would convert prime farmland, unique farmland, or farmland of statewide importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.

Therefore, the construction-related impacts on agricultural and forestry resources related to the land use changes and transportation improvements from implementation of the proposed

MTP/SCS in TPAs are considered potentially significant (PS) for Impact AG-6. Mitigation Measures AG-6 and AG-7 are described below.

Mitigation Measure AG-6: Minimize construction-related impacts to agricultural and forestry resources.

The implementing agency should:

- restrict construction activities to permitted hours in accordance with local jurisdiction regulations;
- locate materials and stationary equipment such as generators, compressors, rock crushers, cement mixers, etc. as far from conflicting uses as possible;
- locate materials and stationary equipment in such a way as to prevent conflict with agricultural and forestry resources; and
- minimize conflict between construction vehicles and agricultural operations on roads that facilitate agricultural operations.

Mitigation Measure AG-7: Implement Mitigation Measure AES-3.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, Impact AG-6 would be reduced to less than significant (LS). However, because SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact AG-6 remains significant and unavoidable (SU).

CHAPTER 5 – AIR QUALITY

INTRODUCTION

This chapter describes the environmental setting (existing conditions and regulatory setting) for air quality in the Sacramento region. This chapter also analyzes the impacts on air quality that may result from implementation of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The proposed MTP/SCS plan area consists of El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba counties, excluding the portions of El Dorado and Placer counties located in the Tahoe Basin. When determining regional conformity, the eastern portion of Solano County is analyzed as part of the emissions analysis; for purposes of this EIR, impacts are limited to the six-county plan area, which does not include Solano County. This area represents a variety of land use types ranging from open space and recreational lands to urban office, residential and retail. Transportation routes within the plan area include highways, rail alignments, bicycle trails, state routes, roads, and Caltrans right-of-way. The proposed MTP/SCS plan area is located within the Sacramento Valley Air Basin (SVAB). Air quality conditions in the project area are regulated by the U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and the local air districts—El Dorado County Air Quality Management District (EDCAQMD), Feather River Air Quality Management District (FRAQMD), Placer County Air Pollution Control District (PCAPCD), Sacramento Metropolitan Air Quality Management District (SMAQMD), and Yolo-Solano Air Quality Management District (YSAQMD). Figure 5.1 shows the federal air quality planning boundaries within the plan area.

Chapter 8 – Energy and Global Climate Change provides information on the related topic of greenhouse gases and potential climate change effects.

SETTING

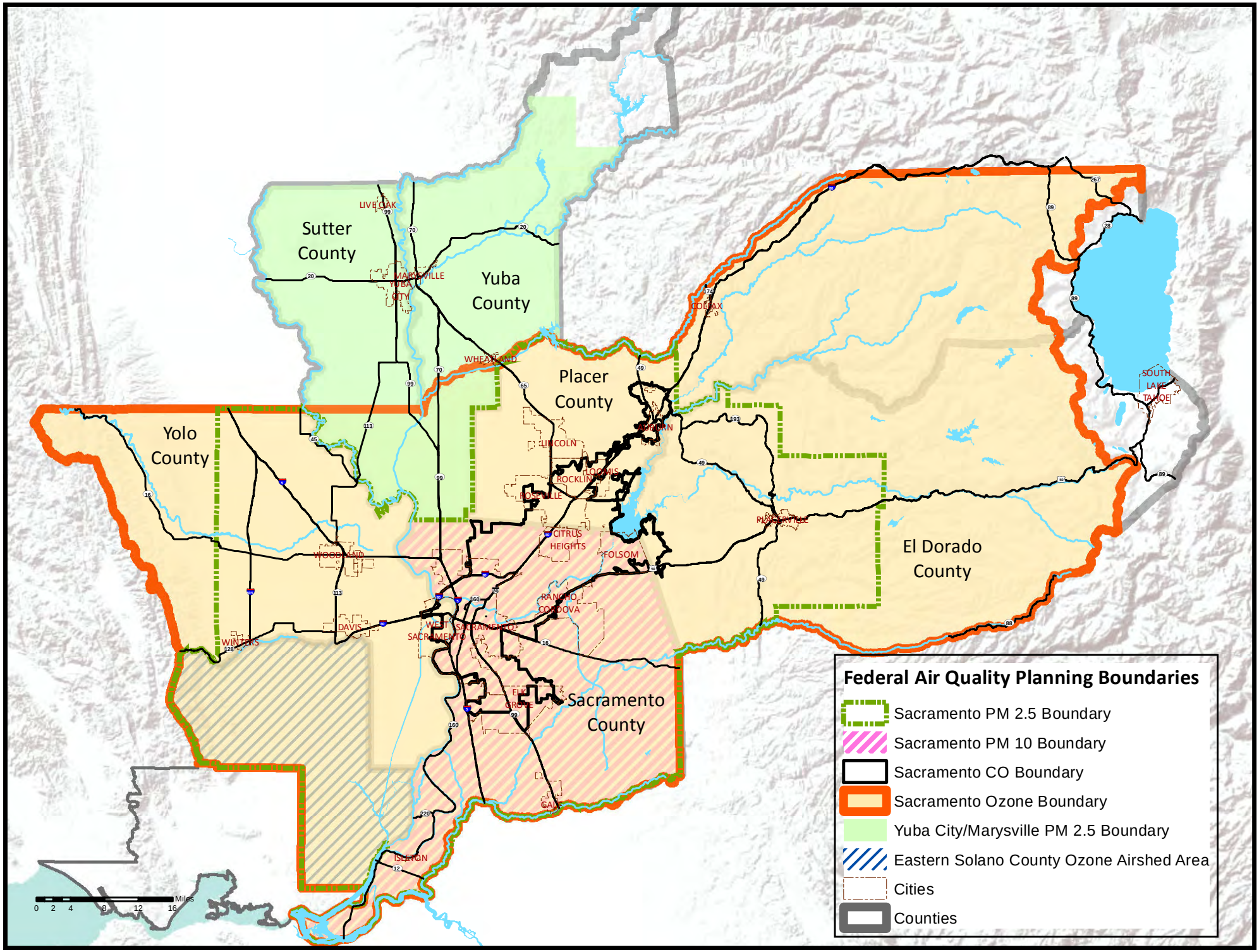
Environmental Setting

The proposed MTP/SCS plan area is characterized by several urban centers that will continue to have population and urban growth. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas. Air quality conditions in a given area are characterized by the concentrations of various pollutants in that area. The concentration of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute. Air pollution transport and dilution are mostly determined by wind, atmospheric stability, terrain, and insolation (i.e., solar energy).

Climate and Topography

The majority of the proposed MTP/SCS plan area is located in the Sacramento Valley, a basin bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Ranges to the west. Topography in the Sacramento Valley is generally flat, with relief anywhere from

Figure 5.1 Federal Air Quality Planning Boundaries



slightly below sea level near the Sacramento/San Joaquin Delta to over 2,150 feet above sea level at the Sutter Buttes.

Hot dry summers and mild rainy winters characterize the Mediterranean climate of the SVAB. The temperature may range during the year from 30 to 115 degrees Fahrenheit, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 15 inches, with about 75 percent occurring during the rainy season generally from November through March. Humidity levels vary within the region, often dropping below 10 percent in the warm season, while increasing during colder months to form shallow layers of ground fog (i.e., tule fog) in the valley. The prevailing winds are moderate in strength, primarily from the south or southeast (WRRC, 2011).

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants when certain meteorological conditions exist. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the Sacramento Valley. The lack of surface wind during these periods, and the reduced vertical flow caused by less surface heating, reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog and pollutants near the ground. The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds, with the Delta sea breeze arriving in the afternoon out of the southwest. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NOx), which result in ozone formation.

As an air basin, air quality in the Sacramento region is impacted not only by pollutants generated within the region, but also by pollutants generated in the San Francisco Bay Area, which are carried into the Sacramento region by Delta breezes. The effect of pollutants transported from the San Francisco Bay Area or from the San Joaquin Valley on air quality in the Sacramento region can vary from substantial to inconsequential on any given day, largely determined by accompanying meteorological conditions. Thus, the success of the Sacramento region in attaining better air quality is partially contingent on the achievement of better air quality in nearby areas that affect Sacramento's air quality.

Criteria Air Pollutants and Sources

EPA uses six criteria air pollutants as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. When an area does not meet the air quality standard for one of the criteria air pollutants, it may be subject to the formal rule-making process which designates it as nonattainment. The Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.) further classifies ozone, carbon monoxide (CO), and some particulate matter nonattainment areas based on the magnitude of an area's problem. Nonattainment classifications may be used to specify what air pollution reduction measures an area must adopt, and when the area must reach attainment. The technical details underlying these classifications are described in the Code of Federal Regulations (Protection of Environment) (40 C.F.R. § 81).

Air pollutants come from vehicle exhaust, power generation, natural gas generation, and the operation of certain equipment in construction and industry and other activities. Exhaust emissions from vehicles vary according to driving speed, type of engine (e.g., gasoline or diesel), length of use, and available power. Emissions from stationary sources occur at off-site power plants and emissions are estimated by the amount of natural gas and electric power consumption. Construction and industrial equipment generate pollutant emissions that are highly variable by type and technology of specific equipment.

The four major types of air pollution in the Sacramento metropolitan area are ozone, CO, and particulate matter (PM), or dust, which is further broken into two categories according to the size of the PM: PM_{10} and $PM_{2.5}$. The following discussion provides a description of all six criteria air pollutants.

Ozone

Ozone is a nearly colorless, odorless gas which irritates the lungs and damages materials and vegetation. Ozone pollution is created by chemicals that come from many sources, including mobile sources such as automobiles, buses, heavy duty trucks, light trucks, trains, construction vehicles, farm vehicles, airplanes, motorcycles, boats, and dirt bikes. Ozone is a major component of smog in the Sacramento region, and results from the photochemical reaction of ozone precursors, hydrocarbons (HC), or ROG, and NOx in the presence of sunlight and heat. Although ozone is the air contaminant for which standards are set, HC and NOx are the pollutants that must be controlled.

Ozone interferes with the photosynthesis process necessary for plant growth, reducing forest and crop growth. Thus, ozone pollution poses a danger to agricultural economies that depend on stable conditions. In addition to the effect on economies reliant on natural resources and crops, ozone deteriorates the appearance of local, state, and national parks in the Sacramento region by damaging the vegetation. The effects of ozone on health have also been studied by health researchers, who have found that exposure to ozone can cause decreases in lung function, and repeated exposure can result in permanent lung damage. Symptoms of lung disease may also be related to repeated exposure to ozone concentrations above current standards. Ozone reduces resistance to colds and pneumonia, and aggravates heart disease, asthma, bronchitis, and emphysema. Irritation from ozone pollution also manifests as wheezing, coughing, and irritation of the airways. Ozone also contributes to premature death. EPA, in its most recent criteria document for ozone, found that both short-term and long-term exposure to ozone can irritate and damage the human respiratory system, resulting in: decreased lung function; development and aggravation of asthma; increased risk of cardiovascular problems such as heart attacks and strokes; increased hospitalizations and emergency room visits; and premature deaths (EPA, 2006).

CO

CO is a highly toxic, odorless, colorless gas which is primarily produced by the incomplete combustion of carbon-containing fuels (vehicular exhaust from tailpipes). CO is a local pollutant that creates individual hot spots, or small areas where CO concentrations are high. CO is mostly a wintertime problem in the Sacramento urbanized area (as shown in Figure 5.1), which is

currently in attainment of the CO standard. CO affects human health by binding to hemoglobin in the bloodstream in the place of oxygen molecules. By reducing the oxygen-carrying potential of blood, CO causes heart difficulties in people with chronic diseases, reduces lung capacity, impairs mental functioning by interfering with the transfer of oxygen to the brain, and may aggravate arteriosclerosis. CO air contamination can result in death if quantities are extremely high.

Nitrogen dioxide (NO_2)

NO_2 is one of a group of highly reactive gasses known as NOx. Other nitrogen oxides include nitrous acid and nitric acid. While EPA's National Ambient Air Quality Standard (described under Regional Attainment Status) covers this entire group of NOx, NO_2 is the component of greatest interest and the indicator for the larger group of NOx. NO_2, when combined with nitric oxide (NO), forms nitrous oxide (N_2O), a precursor to ozone. Therefore, reducing the amount of NO_2 created will also decrease the amount of ozone created.

NO_2 is a highly reactive reddish-brown gas that, at high levels, can cause breathing difficulties. It is formed when nitric oxide (the pollutant produced from burning processes) combines with oxygen. It contributes to smog formation and causes the brown haze seen on cold mornings. NO_2 pollution is most severe close to roadways and in vehicles; consequently, area-wide pollution monitors often show a considerably lower reading of NO_2 pollution than readings collected beside active roadways.

NO_2 has an adverse effect on the respiratory system of humans, with exposure causing inflammation of the airways in people without a respiratory condition, and aggravated symptoms in people with asthma or other respiratory conditions. Children, the elderly population, people suffering from respiratory conditions, and people who exert energy through working or exercising outside are most sensitive to the effects of NO_2 pollution.

Sulfur dioxide (SO_2)

SO_2 is a colorless gas that can irritate the respiratory system and may cause severe inflammation. It comes from industrial processes and contributes to the formation of smog and acid rain. It is important to note that the conditions which create SO_2 often also create sulfur oxide (SOx), which can react with other compounds to form particles that deeply infiltrate the lungs and cause or aggravate respiratory illness. Exposure to air contaminated with SO_2 for periods of time as short as five minutes can result in adverse respiratory effects, such as the constriction of airways and other asthmatic afflictions.

Lead

Lead is a metal found in the natural environment, as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. In the past, mobile sources were the main contributor to ambient lead concentrations in the air. With the phase-out of lead in gasoline, other stationary sources, such as metal processing, are currently the primary source of lead emissions. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Lead is also present in some aviation fuels. Ecosystems can suffer from exposure to lead, resulting in retarded growth and reproduction of plants and animals, as well as losses in biodiversity and extinction of native populations. Human exposure

to lead can result in adverse effects to the nervous system, kidneys, immune system, and cardiovascular system. Lead that is introduced to the body by ingestion or inhalation is distributed through the entire body by the circulatory system and can accumulate in the bones.

PM

PM refers to finely divided solids or liquids such as soot, dust, aerosols, and mists. PM is largely the result of human activities, such as residential fuel combustion smoke and soot, grading and excavation activities, agriculture (as created by soil preparation activities, fertilizer and pesticide spraying, weed burning, and animal husbandry), and from motor vehicles, particularly diesel-powered vehicles. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements such as lead, cadmium, antimony, arsenic, nickel, vinyl chloride, asbestos, and benzene compounds. Suspended particulates also absorb sunlight, producing haze and reducing visibility.

PM_{10}

Respirable PM_{10} consists of small particles, less than 10 microns in diameter, of dust, smoke, or droplets of liquid which penetrate the human respiratory system and cause irritation by themselves or in combination with other gases. In rural and urban locations within the western United States, sources of PM_{10} include the following (ARB, 2009):

- Motor vehicles;
- Wood burning stoves and fireplaces;
- Dust from construction, landfills, and agriculture;
- Wildfires and brush/waste burning;
- Industrial sources; and
- Windblown dust from open lands.

PM_{10} pollution can result in damage to vegetation, but the focus is generally placed on the adverse health effects of PM. PM_{10} causes a greater health risk than larger particles, since these fine particles are too small for the natural filtering process of the human body and can more easily penetrate the defenses of the human respiratory system.

Controlled human exposure studies have shown that exposure to elevated levels of particulate matter causes adverse health effects, especially regarding the inhibition of lung functions and an increase in respiratory and cardiovascular afflictions, as well as cancer risks. Individuals with preexisting respiratory or cardiovascular disease are especially susceptible to the adverse effects of PM_{10} exposure, as are asthmatic children and the elderly population.

$PM_{2.5}$

Fine $PM_{2.5}$ consists of small particles which are less than 2.5 microns in size. Similar to PM_{10}, these particles are primarily the result of combustion in motor vehicles, particularly diesel engines, as well as from industrial sources and residential/agricultural activities such as burning. $PM_{2.5}$ is also formed through the reaction of other pollutants. As $PM_{2.5}$ is smaller than PM_{10}, it can more deeply penetrate the human body through inhalation, allowing many chemicals harmful to human health to be carried to internal organs. These particulates can increase the

chance of respiratory disease, cause lung damage, cancer, and even premature death in people with heart or lung disease.

Regional Attainment Status

The federal and state governments—specifically, EPA and ARB—each establish ambient air quality standards (AAQS) for several criteria air pollutants. These are referred to as the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), respectively. The current standards are listed in Table 5.1. Most of the standards have been set to protect public health, although some are based on other values (e.g., protection of crops, protection of materials, or avoidance of nuisance conditions). For some pollutants, separate standards have been set for different periods of time (averaging times). Measured air pollutant concentrations in the air basins are compared to the AAQS to determine the attainment status of that air basin. Attainment status is a classification of regional air quality that describes whether an air basin is meeting the standards (attainment) or not (nonattainment).

The state is divided into 15 air basins characterized by similar meteorological and geographic conditions. Air pollutant concentrations in these air basins are monitored at stations throughout the state. The Sacramento Air Quality Maintenance Area (AQMA) is comprised of five air districts in the southern portion of the SVAB. Various portions within this area have been classified as either attainment or nonattainment for NAAQS and CAAQS. Ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and lead are monitored in the AQMA. Portions of the AQMA are in nonattainment status for ozone, PM_{10}, and $PM_{2.5}$, and classified as a maintenance area for CO.

Ozone

The Sacramento AQMA is designated a severe nonattainment area for the eight-hour NAAQS for ozone (as shown in Figure 5.1). The nonattainment area for ozone is comprised of Sacramento County, Yolo County, the southern portion of Sutter County, the eastern portion of Solano County, and the portions of El Dorado and Placer counties west of the Tahoe Basin. The area was previously a serious nonattainment area for ozone until the five local air districts requested to be reclassified as severe-15 in February 2008. The request for a voluntary bump-up in classification was in recognition of the fact that the Sacramento AQMA must rely on longer-term reduction strategies to meet the ozone attainment goal. The use of longer-term reduction strategies should have lasting effects, though it called for the extension of the original attainment deadline from 2013 to 2019.

PM_{10}

EPA designated Sacramento County as a moderate nonattainment area for PM_{10} in 1994. The area monitored for PM_{10} consists solely of Sacramento County, though the four remaining air districts in the Sacramento region are designated nonattainment for CAAQS and unclassified/attainment areas for NAAQS. Sacramento County attained the PM_{10} NAAQS by the attainment deadline of 2000 and has been demonstrating maintenance since then. On November 18, 2010, ARB approved the *PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County*. The plan shows that the 1987 standard for PM_{10} was attained and establishes the strategy for maintaining the standard through 2022. U.S. EPA has yet to act on the redesignation request to classify Sacramento County as a maintenance area for PM_{10}, thus the area is still designated as a moderate nonattainment area.

Table 5.1
National and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards Concentration[1,2]	Federal Standards Primary[3]
Ozone	1 Hour	0.09 ppm	-
	8 Hour	0.070 ppm	0.075 ppm
PM_{10}	24 Hour	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	-
$PM_{2.5}$	24 Hour	No Separate Standard	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3
CO	8 Hour	9.0 ppm	9 ppm
	1 Hour	20 ppm	35 ppm
NO_2	Annual Arithmetic Mean	0.030 ppm	53 ppb
	1 Hour	0.18 ppm	100 ppb
SO_2	24 Hour	0.04 ppm	-
	3 Hour	-	-
	1 Hour	0.25 ppm	75 ppb
Lead[4]	30 Day Average	1.5 µg/m^3	-
	Calendar Quarter	-	1.5 µg/m^3
	Rolling 3-Month Average[5]	-	0.15 µg/m^3

Notes:
[1] µg/m^3 = micrograms per cubic meter; ppm=parts per million; ppb=parts per billion
[2] CAAQS for ozone, CO, SO_2, NO_2, PM_{10}, $PM_{2.5}$, and visibility reducing particles are values not to be exceeded. All other are not to be equaled or exceeded.
[3] NAAQS, other than ozone, PM, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
[4] ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[5] NAAQS for lead, rolling 3-month average: final rule signed October 15, 2008.
Source: ARB 2011a

$PM_{2.5}$

There are two nonattainment designations within the AQMA for $PM_{2.5}$. EPA changed the 24-hour standard for $PM_{2.5}$ from 65µg/m^3 to 35µg/m^3 in 2006. The areas failed to meet the new standards and were consequently designated as $PM_{2.5}$ nonattainment areas in 2009.

Beginning in 2012, the region will initiate efforts to produce a State Implementation Plan (SIP) for $PM_{2.5}$. Planning assumptions to develop the emission budgets for this SIP will be derived from the VMT and population data used to develop the proposed MTP/SCS. This will be a future collaborative effort between SACOG and the various air districts in the region.

CO

The area monitored for CO levels was redesignated as a maintenance area in the *1996 Carbon Monoxide Maintenance Plan for 10 Federal Planning Areas* prepared by ARB (see Figure 5.1). The maintenance area for CO includes the urbanized portions of Placer, Yolo, and Sacramento counties. The area has reduced emissions to acceptable amounts in accordance with the

proposed budget of CO emissions as included in the *2004 Amendment to the California State Implementation Plan for Carbon Monoxide*.

Air Pollution Monitoring

ARB maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations is used by ARB to classify air basins as attainment or nonattainment with respect to each pollutant and to monitor progress in attaining air quality standards.

Table 5.2 lists the existing air quality monitoring sites within the Sacramento and Yuba City/Marysville air quality planning areas, and Figure 5.2 depicts the locations of these sites. Tables 5.3 through 5.7 show the average number of days that the federal and state standards were exceeded at each air quality monitoring site from 2002 through 2009, the last year for which data is currently available.

Table 5.2
Existing Air Quality Monitoring Sites

Monitoring Sites	Operating Agency	Address
El Dorado County		
Big Hill Lookout Road	ARB	N/A; 2.6 miles west of Jones Place
Cool-Highway 193	ARB	1400 American River Trail
Echo Summit	ARB	U.S. 50 Echo Summit
Placerville-Gold Nugget Way	ARB	3111 Gold Nugget Way
Placer County		
Auburn-Dewitt-C Avenue	PCAPCD	11484 B Ave DeWitt Cen.
Colfax-City Hall	PCAPCD	10 West Church Street
Rocklin-Rocklin Road	PCAPCD	5000 Rocklin Rd
Roseville-N Sunrise Blvd	ARB	151 North Sunrise
Sacramento County		
Elk Grove-Bruceville Road	SMAQMD	12490 Bruceville Road
Folsom-Natoma Street	SMAQMD	1300 Liedesdorff
North Highlands-Blackfoot Way	SMAQMD	Navajo Street
Sacramento-2221 Stockton Boulevard	SMAQMD	2221 Stockton Blvd.
Sacramento- 3847 Branch Center Road	SMAQMD	3847 Branch Center Rd.
Sacramento - Del Paso Manor	SMAQMD	2701 Avalon Street
Sacramento-Goldenland Court	SMAQMD	68 Goldenland Ct
Sacramento-T Street	ARB	1309 T Street
Sloughhouse	SMAQMD	7520 Sloughhouse Road
Solano County		
Vacaville-Elmira Road	YSAQMD	Elmira Road
Vacaville-Ulatis Drive	YSAQMD	Ulatis Drive
Sutter County		
Pleasant Grove-4 miles SW	ARB	7310 Pacific Avenue
Sutter Buttes-S Butte	ARB	Top of South Butte
Yuba City-Almond Street	ARB	773 Almond St
Yolo County		
Davis-UCD Campus	YSAQMD	U.C. Davis Ag. Station
Woodland-Gibson Road	YSAQMD	17 W. Main Street

Source: ARB 2010

Figure 5.2 Location of Monitoring Sites

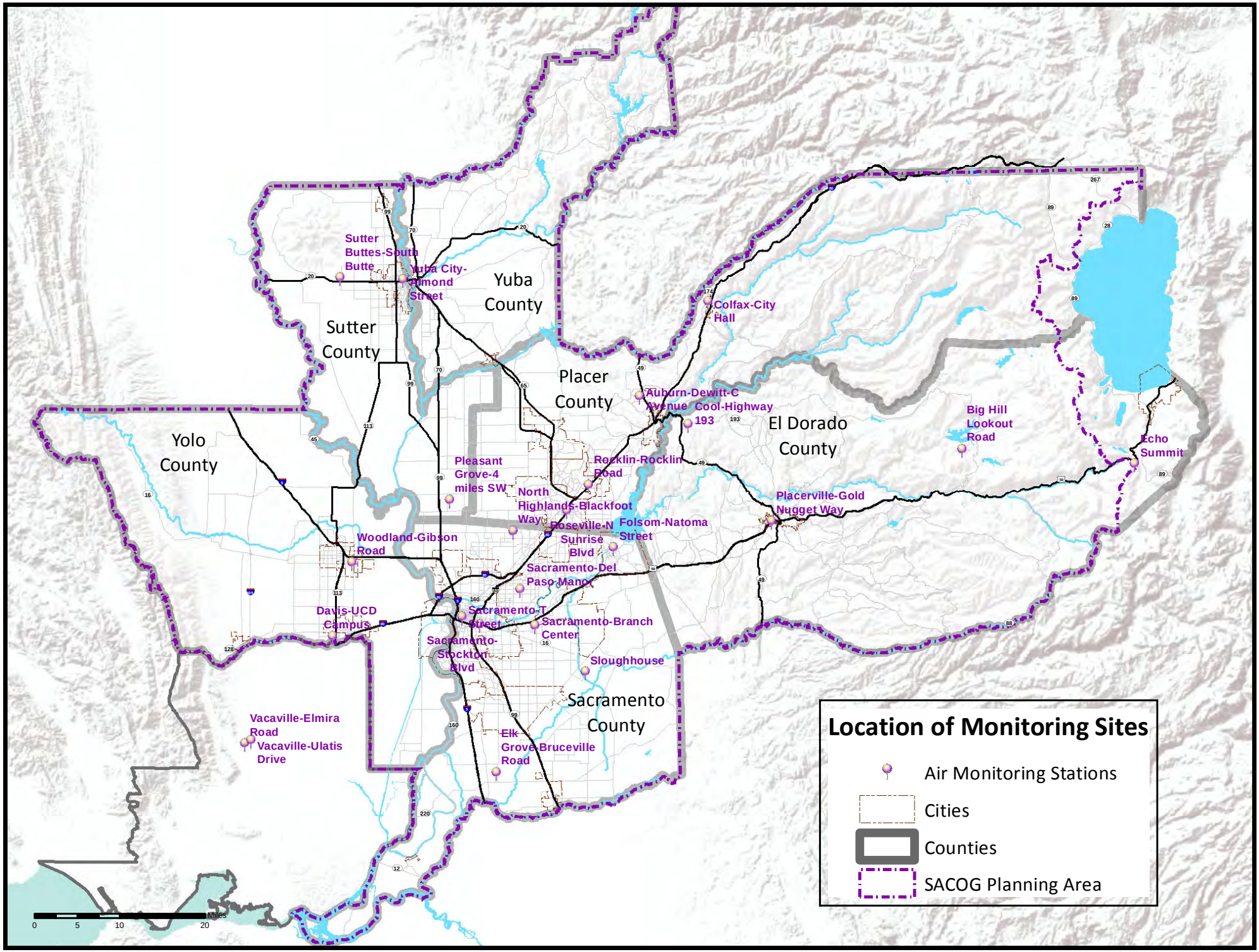


Table 5.3
Number of Days Per Year Ozone Levels Exceeded State 8-Hour Standard

Monitoring Sites	2002	2003	2004	2005	2006	2007	2008	2009	2010
El Dorado County									
Big Hill Lookout Road	*	45	0	*	*	*	*	*	*
Cool-Highway 193	97	63	50	56	75	44	40	35	18
Echo Summit	24	8	13	2	12	9	9	1	3
Placerville-Gold Nugget Way	63	59	38	48	63	20	52	32	19
Placer County									
Auburn-Dewitt-C Avenue	54	42	56	42	67	21	36	27	19
Colfax-City Hall	54	46	42	45	64	24	29	12	11
Rocklin-Rocklin Road	51	*	*	*	*	*	*	*	*
Roseville-N Sunrise Blvd	35	25	13	27	38	20	38	32	21
Sacramento County									
Elk Grove-Bruceville Road	3	27	10	22	32	13	13	12	6
Folsom-Natoma Street	60	58	41	41	62	34	65	47	26
North Highlands-Blackfoot Way	39	23	14	11	42	4	4	18	10
Sacramento-3801 Airport Road	13	7	2	8	13	8	15	*	*
Sacramento - Del Paso Manor	46	31	14	19	24	10	18	15	7
Sacramento-Goldenland Court	*	*	*	*	*	*	0	11	2
Sacramento-T Street	12	7	3	5	14	7	18	13	1
Sloughhouse	46	55	38	29	46	17	37	34	13
Solano County									
Vacaville-Elmira Road	6	2	*	*	*	*	*	*	*
Vacaville-Ulatis Drive	*	5	3	5	10	4	7	2	3
Sutter County									
Pleasant Grove-4 miles SW	17	*	*	*	*	*	*	*	*
Sutter Buttes-S Butte	35	32	24	19	43	19	27	7	3
Yuba City-Almond Street	9	18	5	7	13	6	2	1	1
Yolo County									
Davis-UCD Campus	7	8	6	6	9	4	10	7	3
Woodland-Gibson Road	21	20	3	13	23	5	12	11	0

Note: *There was insufficient (or no) data available to determine the value.
Source: ARB 2011b

Table 5.4
Number of Days Above National 8-Hour Standard for Ozone

Monitoring Sites	2002	2003	2004	2005	2006	2007	2008	2009	2010
El Dorado County									
Big Hill Lookout Road	*	25	0	*	*	*	*	*	*
Cool-Highway 193	77	44	27	39	55	29	29	21	6
Echo Summit	8	3	1	0	3	3	5	0	0
Placerville-Gold Nugget Way	41	40	24	31	45	9	36	20	8
Placer County									
Auburn-Dewitt-C Avenue	36	27	31	29	56	9	21	14	10
Colfax-City Hall	37	32	26	31	39	10	16	3	3
Rocklin-Rocklin Road	29	*	*	*	*	*	*	*	*
Roseville-N Sunrise Blvd	25	16	8	18	25	8	22	19	15
Sacramento County									
Elk Grove-Bruceville Road	2	14	6	12	17	5	7	5	2
Folsom-Natoma Street	40	42	23	30	42	21	50	35	19
North Highlands-Blackfoot Way	24	11	5	6	24	2	2	7	3
Sacramento-3801 Airport Road	6	3	0	3	5	4	9	*	*
Sacramento - Del Paso Manor	46	31	14	19	24	10	18	15	5
Sacramento-Goldenland Court	*	*	*	*	*	*	0	5	1
Sacramento-T Street	7	5	0	4	6	2	9	4	0
Sloughhouse	30	34	21	19	32	10	19	24	8
Solano County									
Vacaville-Elmira Road	2	0	*	*	*	*	*	*	*
Vacaville-Ulatis Drive	*	2	1	2	6	2	4	2	1
Sutter County									
Pleasant Grove-4 miles SW	12	*	*	*	*	*	*	*	*
Sutter Buttes-S Butte	19	22	12	5	23	7	12	2	0
Yuba City-Almond Street	9	18	5	7	13	6	2	1	0
Yolo County									
Davis-UCD Campus	4	5	0	3	4	3	5	1	0
Woodland-Gibson Road	13	10	0	6	14	2	4	3	0

Note: *There was insufficient (or no) data available to determine the value.
Source: ARB 2011b

Table 5.5
Number of Days Above National 8-Hour Standard for $PM_{2.5}$

Monitoring Sites	2002	2003	2004	2005	2006	2007	2008	2009	2010
El Dorado County									
Big Hill Lookout Road	*	*	*	*	*	*	*	*	*
Echo Summit	*	*	*	*	*	*	*	*	*
Placer County									
Roseville-N Sunrise Blvd	19.7	0	0	6.1	11.5	0	6.5	0	0
Sacramento County									
Elk Grove-Bruceville Road	*	*	*	*	*	*	*	*	*
Folsom-Natoma Street	*	*	*	*	*	*	*	*	*
Sacramento - Del Paso Manor	*	13.9	13.1	18.3	19.3	26.1	24.1	8.9	0
Sacramento-Health Dept.- Stockton Blvd.	*	7.8	6.2	11.8	11.2	23.1	21.5	3.1	0
Sacramento-T Street	28.9	*	*	10.7	*	27.6	15.4	3	0
Sutter County									
Yuba City-Almond Street	6.1	0	12.2	11.5	16.2	8.1	9.7	2.1	1.1
Yolo County									
Davis-UCD Campus	*	*	*	*	*	*	*	*	*
Woodland-Gibson Road	3.4	0	3.4	0	12.3	15.1	*	0	0

Note: *There was insufficient (or no) data available to determine the value. Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored, which can result in fractions of a day.
Source: ARB 2011b

Table 5.6
Estimated Number of Days Above the State 24-Hour Standard for PM_{10}

Monitoring Sites	2002	2003	2004	2005	2006	2007	2008	2009	2010
El Dorado County									
Big Hill Lookout Road	*	*	*	*	*	*	*	*	*
Echo Summit	0	0	*	*	*	*	*	*	*
Placerville-Gold Nugget Way	0	0	0	0	0	0	6.1	*	*
Placer County									
Rocklin-Rocklin Road	*	*	*	*	*	*	*	*	*
Roseville-N Sunrise Blvd	6.1	6.1	0	5.7	5.7	0	6.0	0	0
Sacramento County									
North Highlands-Blackfoot Way	*	*	0	42.3	17.9	13	*	0	0
Sacramento-3801 Airport Road	24.5	*	0	6.4	*	36.4	*	*	*
Sacramento-Branch Center Rd	*	24.5	0	23.6	*	*	*	*	*
Sacramento-Branch Center Rd #2	*	*	*	*	*	30.2	68.7	12.2	12.2
Sacramento-Del Paso Manor	29.5	12.2	6.1	29.4	40.2	30.2	12.1	0	0
Sacramento-Goldenland Court	*	12.1	0	*	*	25.1	13	0	0
Sacramento- T Street	18.4	6.1	*	24.4	*	30.2	17.8	6	6.1
Sacramento- Health Dept.-Stockton Blvd.	*	12.1	0	*	*	25.1	13.0	0	0
Solano County									
Vacaville-Merchant Street	6.1	0	0	0	6.1	0	6	0	*
Sutter County									
Yuba City-Almond Street	24.5	30.6	*	31	*	*	*	0	0
Yolo County									
West Sacramento-15th Street	18.8	*	6.1	29.9	53.3	32.4	31.6	12.1	6.1
Woodland-Gibson Road	36.8	*	79.5	6.1	36.8	18.7	48.9	12.2	6.5

Note: *There was insufficient (or no) data available to determine the value. Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored, which can result in fractions of a day.
Source: ARB 2011b

Table 5.7
Estimated Number of Days Above the National 24-Hour Standard for PM_{10}

Monitoring Sites	2002	2003	2004	2005	2006	2007	2008	2009	2010
El Dorado County									
Big Hill Lookout Road	*	*	*	*	*	*	*	*	*
Echo Summit	0	0	*	*	*	*	*	*	*
Placerville-Gold Nugget Way	0	0	0	0	0	0	0	*	*
Placer County									
Rocklin-Rocklin Road	*	*	*	*	*	*	*	*	*
Roseville-N Sunrise Blvd	0	0	0	0	0	0	0	0	*
Sacramento County									
North Highlands-Blackfoot Way	*	0	0	0	0	0	*	0	0
Sacramento-3801 Airport Road	0	*	0	0	0	0	*	*	*
Sacramento-Branch Center Rd	0	0	0	0	*	*	*	*	*
Sacramento-Branch Center Rd #2	*	*	*	*	*	0	0	0	0
Sacramento - Del Paso Manor	0	0	0	0	0	0	0	0	0
Sacramento-Goldenland Court	*	*	*	*	*	*	*	0	0
Sacramento-Health Dept.- Stockton Blvd.	0	0	0	0	0	0	0	0	0
Sacramento-T Street	0	*	0	0	0	0	0	0	0
Solano County									
Vacaville-Merchant Street	0	0	0	0	0	0	0	0	0
Sutter County									
Yuba City-Almond Street	0	0	*	0	*	0	0	0	0
Yolo County									
West Sacramento-15th Street	0	0	0	0	0	0	0	0	0
Woodland-Gibson Road	0	0	6.1	0	0	0	6.1	0	0

Note: *There was insufficient (or no) data available to determine the value. Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored, which can result in fractions of a day.
Source: ARB 2011b

Sources of Air Pollution

Release of air pollutants comes from almost all human activities, including industrial facilities, dry cleaners, automobiles, auto body shops, trucks, trains, lawn movers, bakeries, farm equipment, paints, paving, printing, airplanes, construction equipment, refining, and agricultural activities. Some sources emit large amounts of the pollutants that cause ozone (e.g., NOx), but only small amounts of CO or PM, while others emit large amounts of all three.

Emissions are normally grouped into four main categories: stationary, area-wide, mobile, and natural sources for each of the air districts within the Sacramento and Yuba/Sutter ozone areas. Generally, stationary and area-wide sources are those attached to the ground, while mobile sources, as the name implies, are those involved in the movement of people and goods. Natural emission sources refer to emissions that are non-anthropogenic (non-human-caused) sources. Each of these categories is usually further divided into major source categories and then summary categories. A brief description of these four main categories is listed below.

Stationary Emission Sources
Stationary source emissions, also referred to as point-source emissions, are emissions from major industrial, manufacturing and processing plants. This category also includes emissions from electric utilities; waste burning; solvent use; petroleum processing, storage, and transfer; and industrial processes.

Area-wide Emission Sources
Area-wide sources are those that individually emit only small quantities, but collectively result in substantial emissions when aggregated over a larger area. Emissions result from landscaping; natural gas consumption; small industrial engines; solvent use in dry cleaning, auto repair, auto body and paints; wood burning; industrial coatings; consumer products; printing; bakeries and restaurants; asphalt paving; and fugitive dust.

Mobile Emission Sources
There are two major categories under mobile emissions:

- *On-road Motor Vehicles:* This major source category accounts for the emissions from all vehicles licensed to travel on public roads and highways. This includes passenger cars, light- and medium-duty trucks, heavy-duty gas and diesel trucks, heavy-duty urban diesel buses, and motorcycles.
- *Other Mobile Sources*: This major category accounts for vehicular emissions from construction equipment, farm tractors, off-road recreational vehicles, trains, ships, aircraft, mobile equipment, utility equipment, and lawn mowers.

Natural (Non-anthropogenic) Sources
This category accounts for emissions from non-anthropogenic sources such as wildfires, agricultural vegetation, petroleum seeps, and others.

Toxic Air Contaminants
Air quality also focuses on toxic air contaminants (TACs) or, in federal parlance, hazardous air pollutants (HAPs). In this chapter, the term TAC is used from this point forward. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which standards have been established (Table 5.1).

A wide range of sources, from industrial plants to motor vehicles, emit TACs. Because it is not practical to eliminate all TACs, these compounds are regulated through risk management programs, statutes, and regulations (e.g., established permitting processes, use of control technologies) as discussed in more detail in the regulatory section of this chapter. These programs are designed to eliminate, avoid, or minimize the risk of adverse health effects from exposure from TACs (SMAQMD, 2009).

A chemical becomes a regulated TAC after it is identified by ARB or EPA, assessed for its potential for human exposure, and evaluated for its health effects on humans. ARB has listed

approximately 200 TACs, including those from EPA, which are identified on the California Air Toxics Program's TAC list (SMAQMD, 2009).

TACs can cause long-term health effects such as cancer, birth defects, neurological damage, and genetic damage; or short-term acute effects such as eye watering, respiratory irritation, running noise, throat pain, and headaches. TACs can be separated into carcinogens and non-carcinogens, based on the nature of the physiological degradation associated with exposure. For regulatory purposes, carcinogens are assumed, as mentioned above, to have no safe threshold below which health impacts would not occur and cancer risk is expressed as excess cancer cases per one million exposed individuals. These levels are determined on a pollutant-by-pollutant basis. Acute and chronic exposure to non-carcinogens is expressed using a Hazard Index, which is the ratio of unexpected exposure levels to acceptable health exposure levels (SMAQMD, 2009). The specific health effects of each particular TAC as identified by the Office of Environmental Health Hazard Assessment (OEHHA) and ARB are listed in the Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values (SMAQMD, 2009).

The dose to which sensitive receptors (see definition and discussion below) are exposed to a TAC is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the duration of exposure. Dose is positively correlated with concentration of the TAC, which generally disperses with distance from the source under normal meteorological conditions. Dose is also positively correlated with time, meaning that a longer exposure results in a higher risk to exposed individuals (SMAQMD, 2009).

In addition, naturally occurring asbestos (NOA), which was identified as a TAC in 1986 by ARB, is located in many parts of California, including the SVAB, and is commonly associated with ultramafic rocks. Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks or along their boundaries (Churchill and Hill, 2000).

For individuals living in areas of NOA, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; rock blasting; quarrying; gardening; and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in outdoor air. Once such fibers are indoors, they can be entrained into the air by normal household activities, such as vacuuming (as many respirable fibers will simply pass through vacuum cleaner bags).

People exposed to low levels of asbestos may be at elevated risk (i.e., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (i.e., quantity of fibers), and also increases with the time since first exposure. Although there are a

number of factors that influence the disease-causing potency of any given asbestos (e.g., fiber length and width, fiber type, and fiber chemistry), all forms are carcinogens.

The California Geological Survey (formerly the California Division of Mines and Geology) has prepared reports on the relative likelihood for the presence of NOA in California. See Chapter 10 – Hazards and Hazardous Materials for additional information and impact analyses regarding NOA.

The California Almanac of Emissions and Air Quality (Almanac), which is published annually by ARB, presents the trends of various TAC emissions in California. According to Almanac (2009 Edition), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (DPM) (ARB, 2009). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, and lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies on chemical speciation to estimate concentrations of DPM. In addition to DPM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene are the TACs for which data are available that pose the greatest existing ambient risk in California.

DPM poses the greatest health risk among the 10 TACs mentioned above. In fact, ARB estimates that 79 percent of the known statewide cancer risk from the top 10 outdoor TACs is attributable to DPM. Based on receptor modeling techniques, ARB estimated the average health risk in the SVAB from DPM to be 750, 480, and 360 excess cancer cases per million exposed individuals for 1990, 1996, and 2000, respectively. From 1990 to 2000, the health risk associated with DPM was reduced by approximately 52 percent. Current DPM levels are being reviewed by ARB. Overall, levels of most TACs, except for para-dichlorobenzene and formaldehyde, have gone down since 1990 (ARB, 2009).

It is also important to note that living near freeways and major roadways is associated with non-cancer acute and chronic health effects (SMAQMD, 2009). These are primarily associated with DPM, but also benzene and 1.3-butadiene. The pollutants causing adverse respiratory effects in children are less known; while $PM_{2.5,}$ PM_{10}, and DPM have been considered, NO_2, NOx, and elemental carbon have also been identified as possible causes.

Many scientific studies have linked $PM_{2.5}$ and traffic-related air pollution to respiratory illness (Hiltermann et al. 1997, Schikowski et al 2005, Vineis et al. 2007) and premature mortality (Dockery 1993, Pope et al. 1995, Jerrett et al. 2005). Traffic-related air pollution is a complex mix of chemical compounds (Schauer et al. 2006), often spatially correlated with other stressors, such as noise and poverty (Wheeler and Ben-Shlomo 2005). While such correlations can be difficult to disentangle, strong evidence for adverse health effects of $PM_{2.5}$ has been developed

for regulatory applications in a study by EPA. This study found that a 10 percent increase in $PM_{2.5}$ concentrations increased the non-injury death rate by 10 percent (EPA 2006).

As described in ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB Handbook), the link between health risk and exposure is a growing area of study with continued collective evidence of an existing relationship; the guidelines within in the Handbook (2005) were developed as a means to share important public health information and highlight the potential health impacts associated with proximity to air pollution sources. As stated in the Handbook (2005), however, "with careful evaluation, infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level." The scientific research on health risk and exposure is ongoing. Recent studies have confirmed earlier findings, and identified additional potential risks, such as autism (Volk et al., 2011).

Odors

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The human nose is the sole sensing device for odors. The ability to detect odors varies considerably among the population and is quite subjective. Some individuals can smell minute quantities of specific substances; others may not have the same sensitivity but may be sensitive to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person (e.g., an odor from a fast-food restaurant) may be perfectly acceptable to another. It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor with recognition occurring only with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the odor is quite difficult to detect or recognize. At some point during dilution, the concentration of the odorant reaches a detection threshold. When an odorant concentration is below the detection threshold, the concentration in the air is not detectable by the average human.

The local air districts in the SVAB have identified types of facilities that have been known to produce odors: wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odors. In the first situation, the local air districts recommend operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the plan area is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects being developed near a source of odors where there is no nearby development that may have filed complaints, and for odor sources being developed near existing sensitive receptors, the local air districts recommend that the determination of potential conflict be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility.

Sensitive Receptors

Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. Air quality impacts all of the general public, but sensitive receptors are those who are considered to be most vulnerable to its effects.

Greenhouse Gases

Chapter 8 – Energy and Global Climate Change evaluates potential changes in the global climate associated with greenhouse gas emissions and the potential for emissions generated by the implementation of the proposed MTP/SCS to contribute to global climate change.

Construction-related Emissions

Construction-related emissions are produced by two main sources: construction equipment and fugitive dust generated by excavation and grading. Although these activities and emissions would last only a short time, they may affect persons in the adjacent areas. Emissions of ozone precursors are associated primarily with exhaust from off-road construction equipment. Worker commute trips and other construction-related activities also contribute to short-term increases in ozone precursors. Emissions of fugitive PM dust (i.e., PM_{10} and $PM_{2.5}$) are associated primarily with ground disturbance activities during site preparation (e.g., excavation, grading, and clearing) and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and vehicle miles traveled (VMT) on- and off-site. Exhaust emissions from diesel equipment and worker commute trips also contribute to short-term increases in PM_{10}.

Regulatory Setting

Responsibility for air quality planning involves a wide variety of agencies and groups at the federal, state, regional, and local levels. Some of these agencies have actual regulatory authority, while others are responsible for development and implementation of programs and procedures aimed at reducing air pollution levels.

Federal Regulations

Clean Air Act of 1970 and Amendments – NAAQS

The Clean Air Act (CAA) of 1970 was amended in in 1977 (Pub.L. No. 95-95 (Aug. 7, 1977), 91 Stat. 685.) and 1990 (Clean Air Act Amendments of 1990, Pub.L. No. 101-549 (Nov. 15, 1990), 104 Stat. 2399.). The CAA was enacted for the purposes of protecting and enhancing the nation's air resources to benefit public health. To achieve the purposes of Section 109 of the act, the CAA requires EPA to set NAAQS for air pollutants that pose a threat to human health and welfare. The national standards are categorized as primary standards and secondary standards. The national primary standards are meant to protect public health while the national secondary standards are meant to protect the public welfare from any known or anticipated adverse effects of the pollutant.

As required by the CAA, EPA must:

- Identify those air pollutants that pose a threat to human health;
- Publish criteria for these air pollutant compounds based on the most recent scientific knowledge about the compounds, their interactions, and their effects on human health;
- Include measures and control techniques for these pollutants; and
- Identify NAAQS for each criteria air pollutant in order to protect public health and welfare.

NAAQS consist of two parts: the allowable concentration of a criteria air pollutant, and the average time period during which the pollutant is to be measured. The concentration standard for the pollutant is based on studies of the effect of the pollutant on human health, crops, vegetation, and in some cases materials (e.g., paint). The average time period is typically based on the adverse effect caused by exposure to that pollutant. Damage from the pollutant is evaluated based on exposure to a high concentration over a short period of time (e.g., one hour) or to a low concentration during a longer period (e.g., eight hours or 24 hours). Some pollutants are evaluated for both time periods due to their effects over the short- and long-term.

EPA makes national area designations—nonattainment, maintenance, attainment—for six criteria air pollutants: ozone (8-hour standards; the 1-hour standard was revoked effective June 15, 2005), PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2 (Protection of Environment) (40 C.F.R. § 81.305; ARB 2011c). Once designated, the CAA then requires each area to develop a plan (i.e., SIP) which identifies how nonattainment areas will attain and/or maintain the NAAQS for each pollutant. EPA is the federal agency responsible for reviewing each plan and any plan revisions

and approving each plan or plan revisions if it is determined to be consistent with the CAA. Key elements of a plan include emission inventories, emission control strategies and rules, air quality data analyses, modeling, air quality progress and attainment or maintenance demonstrations. EPA allowed some states the option to develop stricter state standards. As such, California has adopted its own set of stricter standards under the California Clean Air Act (CCAA) of 1988 (discussed under State Regulations).

If an area does not meet NAAQS, federal clean air planning requirements specify that states develop and adopt SIPs, which are air quality plans showing how air quality standards will be attained. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. SIPs must be prepared by each state and are submitted to EPA for review and approval.

Transportation Control Measures

One particular aspect of the SIP development process is the consideration of potential control measures as a part of making progress towards clean air goals. While most SIP control measures are aimed at reducing emissions from stationary sources, some are typically also created to address mobile or transportation sources. These are known as transportation control measures (TCMs). TCM strategies are designed to reduce VMT and trips, or vehicle idling and associated air pollution. These goals are achieved by developing attractive and convenient alternatives to single-occupant vehicle use. SACOG has committed to a wide range of TCMs as part of the 8-Hour Ozone State Implementation Plan. Appendix F of the proposed MTP/SCS, the *Conformity Analysis for the 2011/14 Metropolitan Transportation Improvement Program Amendment #14 And Metropolitan Transportation Plan and Sustainable Communities Strategy 2035* (Conformity Analysis), includes a detailed listing of the TCMs and their implementation status in Appendix D.

Transportation Conformity Analysis

The CAA requires that federally funded or approved transportation plans, programs, and projects in nonattainment or maintenance areas conform to the SIP for meeting the NAAQS. Transportation conformity must be assessed for all nonattainment area transportation-related pollutants classified as regional pollutants. This process involves forecasting future air pollutant emissions to determine whether the amount of pollution expected to result from the plan, program, or project would be within the allowable limit for motor vehicle emissions. Transportation projects also generate CO, PM_{10}, and $PM_{2.5}$ which are considered localized pollutants. CO, PM_{10}, and $PM_{2.5}$ micro-scale analyses are required in CO, PM_{10}, and $PM_{2.5}$ nonattainment areas, respectively, to determine whether a transportation project would cause or contribute to localized violations of the NAAQS for CO, PM_{10}, or $PM_{2.5}$.

Typically, conformity for a federally funded transportation project is assessed by evaluating whether the project is included in a conforming metropolitan transportation plan (MTP) and transportation improvement program (TIP). If the air pollutant emissions associated with an MTP and TIP are within the allowable motor vehicle emissions budgets defined by a SIP or can

meet non-budget test criteria, then no further assessment of the project or plan's contribution to regional emissions levels is needed.

As discussed under the Environmental Setting, the applicable NAAQS attainment plans are *2004 Revision to the California State Implementation Plan for Carbon Monoxide* and *2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan* and their corresponding California SIPs. In November 2010, SMAQMD adopted the *PM_{10} Implementation/Maintenance Plan (PM_{10} Plan) for Sacramento County*. The plan has been approved by ARB and is currently awaiting action by EPA. A $PM_{2.5}$ attainment plan has not been developed for the nonattainment areas within the plan area.

Toxic Air Contaminants

The 1990 CAA amendments identified 188 HAPs and addressed the need to control toxic emissions from transportation sources. EPA in 2001 issued its first Mobile Source Air Toxics Rule (66 Fed.Reg. 1723 (March 29, 2001).), which identified 21 mobile source air toxic (MSAT) compounds as being hazardous air pollutants requiring regulation. A subset of six of these MSAT compounds were identified as having the greatest influence on health and included benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and DPM. Also in 2001, EPA adopted a rule to reduce emissions standards for heavy-duty diesel engines in 2007 and subsequent model years (66 Fed.Reg. 5001 (January 18, 2001).). These emissions standards represent a 90 percent reduction in NOx emissions, 72 percent reduction of non-methane HC emissions, and 90 percent reduction of PM emissions in comparison to the emissions standards for the 2004 model year. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule (69 Fed.Reg. 38958 (June 29, 2004).) that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after-treatment-based exhaust standards for NOx and PM starting in 2011 that are more than 90 percent lower than current levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

In February 2007, EPA issued a second MSAT Rule which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health (72 Fed.Reg. 8427 (February 26, 2007).

State Regulations

ARB Mobile-Source Regulation

The State of California is responsible for developing statewide programs and strategies to reduce the emission of smog-forming pollutants and toxics by mobile sources. ARB is responsible for setting standards and adopting regulations to achieve the maximum degree of emissions reduction possible from vehicular and other mobile sources. Motor vehicle emissions are responsible for greater than half of air pollution emissions statewide. Under the CAA, ARB is responsible for submitting the SIP to EPA. ARB makes state area designations for ten criteria air pollutants: ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, sulfates, lead, hydrogen sulfide, and visibility reducing particles. Each year, ARB reviews the area designations and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality

data (ARB 2011d). SIPs which are developed and provided to EPA for review and approval are limited to the six criteria air pollutants stated above.

ARB develops air quality regulations at the state level. The state regulations mirror federal regulations by establishing industry-specific pollution controls for criteria, toxic, and nuisance pollutants. California also requires areas to develop plans and strategies for attaining state ambient air quality standards as set forth in the California Clean Air Act (CCAA) of 1988, described below. In addition to developing regulations, ARB develops motor vehicle emission standards for California vehicles.

In more recent action, ARB has taken on greater responsibility in the implementation and development of standards for greenhouse gas emissions associated with climate changes. Additional information on these regulations can be found in Chapter 8 – Energy and Global Climate Change.

California Clean Air Act of 1988 – CAAQS

The California Clean Air Act (CCAA) of 1988, also known as Assem. Bill No. 2595 (Stats. 1988, ch. 1568) (AB 2595) established the framework for addressing air quality issues in the state. The CCAA created air quality goals, planning mechanisms, regulatory policies, and specific strategies.

The State of California has adopted CAAQS, its own set of stricter standards for most of the federal criteria air pollutants under the CCAA. Similar to NAAQS, CAAQS have been designed to protect the most sensitive persons from illness or discomfort with a margin of safety. In most cases, CAAQS are more stringent than NAAQS, and, in the case of PM_{10} and SO_2, far more stringent. For those districts that are in violation of CAAQS for ozone, CO, SO_2, or NO_2, individual special attainment plans are required.

With regard to mobile-source control measures, ARB establishes emission standards for on-road motor vehicles sold in California. These standards are more stringent than the federal standards. With respect to stationary and area-wide emission source control measures, ARB works closely with air districts in the development of model stationary- and area-wide emission source rules for possible adoption by individual air districts. In addition, ARB works closely with air districts in controlling pollution from agricultural burning, with the primary role to determine permissible burn days and fund research toward alternatives to or reducing agricultural burning.

TAC Regulations

Assem. Bill No. 1807 (AB 1807) (Stats. 1983, Ch. 1047) (Health & Saf. Code, § 39650 et seq.; Food & Ag. Code, § 14021 et seq.), enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. The Air Toxics Hot Spots Information and Assessment Act, also known as Assem. Bill No. 2588 (Stats. 1987, ch. 1257) (AB 2588), code supplements the AB 1807 program, by requiring a statewide TAC inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. Work continues to identify and implement measures to reduce from emissions from diesel-fueled engines. Additionally, research and development led and encouraged by the state continues to help and promote new programs, plans and activities around the reduction of exposure to TACs.

As discussed above in the environmental setting, there has been a considerable body of data developed in the past 10 years linking adverse health effects with traffic-generated TACs. These studies have resulted in the publication of guidelines relative to the location of certain land uses near freeways and major roadways with high volumes of traffic and other sources of TACs not regulated through the permitting process. For example, the ARB Handbook was published to provide guidance on land use compatibility with sources of TACs (ARB, 2005). The ARB Handbook is not a law or adopted policy but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

Below is a table that outlines the ARB Handbook's advisory guidance on siting various sources, which recommends buffer zones in order to achieve a decrease in harmful levels of exposure to TACs by 80 percent. These recommendations do not account for site-specific design improvements that could decrease the amount of air pollution exposure.

Sen. Bill No. 352 (Stats. 2003, ch. 668) (SB 352) (Ed. Code, § 17213; Pub. Resources Code, § 21151.8) expands on previous requirements for the review of TAC sources near school sites. Accordingly, SB 352 requires that any school site located within 500 feet of the edge of the closest travel lane of a freeway or other busy traffic corridor be reviewed for potential health risks.

Table 5.8 ARB Handbook Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

Source: ARB, 2005

Local Regulations

Air Districts

Local air districts attain and maintain air quality conditions in the SVAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of the local air districts includes preparing plans for the attainment of NAAQS and CAAQS, adopting and enforcing rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution. Air districts also inspect stationary sources of air pollution and respond to citizen complaints, monitor ambient air quality and meteorological conditions, and implement programs and regulations required by the CAA and CCAA. As noted previously, air districts have primary responsibility for preparation, adoption, and implementation of mobile, stationary, and area emission control measures and for the preparation and amendment of SIPs.

As part of the development of and revisions of SIPs, local air districts are authorized to make commitments to achieve reductions in emissions through the development and implementation of rules (Health & Saf. Code, § 40702).

The CCAA requires air districts to endeavor to attain and maintain CAAQS by the earliest practicable date and develop plans for attaining CAAQS. The local air districts prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the CCAA, which specifically addressed the nonattainment status for ozone and, to a lesser extent, CO and PM_{10}. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing ROG and NOx. It promotes active public involvement, enforcement of rules and regulations, public education in the public and private sectors, development and promotion of transportation and land use programs designed to reduce VMT in the region, and implementation of control measures for stationary and mobile sources. The OAP became part of the SIP in accordance with the requirements of the 1990 CAA amendments and amended the 1991 AQAP. However, at that time, the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" coupled with additional emissions requirements on stationary sources. Additional triennial reports were also prepared in 1997, 2000, 2003, and 2009 in compliance with the CCAA and act as incremental updates.

According to SMAQMD, to evaluate consistency with the regional OAP, which is specifically for compliance with the CCAA and associated CAAQS, the lead agency shall consider the following:

- The plan's consistency with both the OAP and MTP population growth projections;
- The relationship between the plan's projected VMT and population growth (i.e., whether the two projections are proportional, or whether the VMT increases at a slower rate than population, indicating a mode sift); and
- The extent to which the plan implements OAP transportation control measures.

Though these are defined in SMAQMD's CEQA Guide, these are applicable to all the air districts within the plan area.

Air District Rules and Regulations

All projects in the respective counties are subject to adopted air district rules and regulations in effect at the time of construction. Specific rules applicable to the construction of proposed MTP/SCS projects may include, but are not limited to those listed in Table 5.9.

Table 5.9
Local Air District Rules and Regulations Applicable to MTP/SCS Projects

	EDCAQMD	FRAQMD	PCAPCD	SMAQMD	YSAQMD
Visible Emissions	Rule 202	Rule 3-0	Rule 202	Rule 401	Rule 2-3
Cutback and Emulsified Asphalt Paving Materials	Rule 224	-	Rule 217	Rule 453	Rule 2-28
Application of Architectural Coatings	Rule 215	Rule 3-15	Rule 218	Rule 442	Rule 2-14
Fugitive Dust	Rule 223	Rule 3-16	Rule 228	Rule 403	-
General Permit Requirements	Rule 501	Rule 4-0	Rule 501	Rule 201	Rule 3-1
Nuisance	Rule 205	Rule 2-13	Rule 205	Rule 402	Rule 2-5
Wood-Burning Appliances	-	Rule 3-17	Rule 225	Rule 417	Rule 2-40

Source: EDCAQMD, FRAQMD, PCAPCD, SMAQMD, YSAQMD, 2011

Air District Permits

Local air districts address the potential creation of air quality disturbances with the permit process as guided by Health and Safety Code section 41700, which states:

> [N]o person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Aside from facilities easily identified as pollution sources, a facility can be deemed a public nuisance if it has a certain number of confirmed complaints regarding a specific incident over a given amount of time. The number of complaints and spans of time vary from district to district, with YSAQMD stipulating that five confirmed complaints from different households per incident constitutes a public nuisance, and SMAQMD requiring one confirmed complaint per year averaged over a 3-year period or three unconfirmed complaints per year averaged over a 3-year period. Facilities/sources also can be considered a private nuisance, which does not call for interference from any of the air districts, even if they do not receive the minimum number of confirmed complaints. Rules and processes (e.g., permit requirements) vary by district. Additionally, individual districts can, and have, implemented recommended protocols for addressing TACs within their regions.

Air districts regulate land use types and facilities through a permit process. Facilities with equipment that may emit air pollution, or equipment used for controlling air pollution are required to obtain permits to operate. Air districts grant two types of permits: Authority to Construct and Permit to Operate. An Authority to Construct permit is obtained prior to the building or installation of a new emissions unit; it is also required to modify an existing emissions unit. Following the construction, installation, or modification of the emissions unit, air district staff conducts an inspection to determine if the project was completed in accordance with the application submitted for the Authority to Construct permit. If the project is determined to comply with all applicable rules, regulations, and conditions, a Permit to Operate will be issued. In order to maintain the Permit to Operate, regular inspections are conducted by air district staff. The main function of the permitting process is

to control the quantity of criteria air pollutants and TACs along with associated exposure of sensitive receptors. Odors issues are not typically addressed through the permitting process. Permits may state a source cannot create a nuisance, but generally potential odor issues and the recommendation of specific controls are dealt with through CEQA in the project-level analysis at the time new facilities are proposed and mitigation measures established. In addition, some uses (e.g., agriculture-related operations) are exempt from our odor nuisance authority.

Air District Thresholds of Significance for Construction and Operational Criteria Air Pollutants

Local air districts have direct and indirect regulatory authority over sources of air pollution in the SVAB. CEQA requires that public agencies consider the potential adverse environmental impacts of any project that a public agency proposes to carry out, fund or approve. In determining whether a project may have a significant effect on the environment, CEQA Guidelines section 15064.7 provides that lead agencies may adopt and/or apply "thresholds of significance." Consequently, the local air districts, as part of their responsibility to attain and maintain air quality conditions in the SVAB, recommend that lead agencies use the applicable district-recommended thresholds of significance when considering the air quality impacts of projects under their consideration (Table 5.10). In addition to developing thresholds of significance, the local air districts in the SVAB have developed guidance for the purposes of CEQA compliance, which include analysis methods and mitigation strategies. For example, SMAQMD has developed a construction mitigation protocol that states when the air quality analysis demonstrates that a proposed project's construction emissions exceed their threshold of significance, all feasible mitigation shall be applied as required by CEQA. SMAQMD defines all feasible mitigation measures with on- and off-site recommendations. SMAQMD requires enhanced exhaust controls for on-site, and payment of a mitigation fee for off-site, to reduce NOx emissions. SMAQMD has also developed a long-term operational mitigation protocol that requires the development of an air quality mitigation plan that reduces operational emissions by a minimum of 15 percent. The other local air districts in the SVAB have developed thresholds of significance and general CEQA guidance that contains recommended mitigation measures, but not to the extent of SMAQMD in terms of specific protocols.

Table 5.10
Thresholds of Significance for Criteria Air Pollutants of Concern in SVAB

		EDCAQMD	FRAQMD	PCAPCD	SMAQMD	YSAQMD
Construction	NOx	82 lbs/day	25 lbs/day multiplied by the project length, not to exceed 4.5 tons/year*	82 lbs/day	85 lbs/day	10 tons/year
	ROG	82 lbs/day	25 lbs/day multiplied by the project length, not to exceed 4.5 tons/year*	82 lbs/day	None	10 tons/year
	PM_{10}	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	80 lbs/day	82 lbs/day	50 µg/m^3 (24-hr std) 20 µg/m^3 (Annual Mean)	80 lbs/day
	$PM_{2.5}$	-	Not Yet Established	-	12 µg/m^3 (Annual Mean)	-
	CO	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	-	-	20 ppm (1-hr std) 9 ppm (8-hr std)	Violation of CAAQS for CO
Operational	NOx	82 lbs/day	25 lbs/day	82 lbs/day	65 lbs/day	10 tons/year
	ROG	82 lbs/day	25 lbs/day	82 lbs/day	65 lbs/day	10 tons/year
	PM_{10}	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	80 lbs/day	82 lbs/day	50 µg/m^3 (24-hr std) 20 µg/m^3 (Annual Mean)	80 lbs/day
	$PM_{2.5}$	-	Not Yet Established	-	12 µg/m^3 (Annual Mean)	-
	CO	A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of NAAQS or CAAQS	-	-	20 ppm (1-hr std) 9 ppm (8-hr std)	Violation of CAAQS for CO

*NOx and ROG Construction emissions may be averaged over the life of the project, but may not exceed 4.5 tons/year.
Source: EDCAQMD, FRAQMD, PCAPCD, SMAQMD, YSAQMD, 2011

Air Districts and Odors

Air districts address the issue of existing odor sources through nuisance rules, which are implemented in support of Health and Safety Code section 41700. Each air district determines the number of confirmed complaints required during an allotted time period to designate an odorous facility as a public nuisance. If a facility is in violation of the air districts nuisance rule, they will be issued a Notice of Violation, which may result in fines and required mitigation of the emission. An example of a nuisance rule, PCAPCD's Rule 205, is shown below:

Rule 205 Nuisance

Adopted 12-08-70
(Amended May 24, 1977)

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to

any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause to have a natural tendency to cause injury or damage to business or property.

Exception: The provisions of RULE 205 do not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals (PCAPCD, n.d.).

Air districts typically address the issue of new facilities that will create odors by recommending buffer zones between the new odor-generating development and people who would be affected by the odors, or other mitigations. For example, SMAQMD has created a table of Recommended Odor Screening Distances (Table 5.11) to identify the recommended physical buffer for different types of odor-producing facilities. YSAQMD also considers the use of add-on controls, such as filters or incinerators, to reduce the necessary buffer between an odor-producing facility and the people to be affected by the odors. These are examples of methods to guard against undesirable odors; the methods are employed by local air districts and are applied all new development in the region.

Table 5.11
SMAQMD Recommended Odor Screening Distances

Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	2 miles
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	4 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	2 miles
Metal Smelting Plants	1 mile

Note: Odor Screening distances should not be used as absolute thresholds of significance for an odor significance determination.
Source: SMAQMD, 2009

TACs

At the local level, local air districts may adopt and enforce ARB control measures. Under Toxic New Source Review rules, all sources that possess the potential to emit TACs must obtain permits from the district, as mentioned briefly above under the air district permit section. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and TAC control measures. Local air districts in the SVAB limit emissions and public exposure to TACs through a number of programs. The air districts prioritize TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sources that require a permit are analyzed by air districts (e.g., through a health risk assessment [HRA] or screening analysis) based on their potential to emit toxics. An HRA is a tool used to determine the exposure of sensitive receptors to TAC emissions based on a 70-year exposure period. If it is determined that the project will emit toxics in excess of the applicable threshold of significance for TACs (e.g., 10 in one million), sources have to implement the best available control technology for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, air districts deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that the air quality permitting process applies only to stationary sources; properties that may be exposed to elevated levels of TACs from mobile sources (e.g., vehicles) and the mobile sources themselves are not subject to this process, or to any requirements of T-BACT implementation. Rather, emissions controls on mobile sources are subject to regulations implemented on the state and federal levels.

However, as discussed above in the environmental setting and under state TAC regulations, there has been a considerable body of data developed in the past 10 years linking adverse health effects with traffic-generated TACs. These studies have resulted in the publication of guidelines not only at the state level (e.g., the ARB Handbook described above), but also at the local level relative to the location of certain land uses near freeways and major roadways with high volumes of traffic and other sources of TACs not regulated through the permitting process.

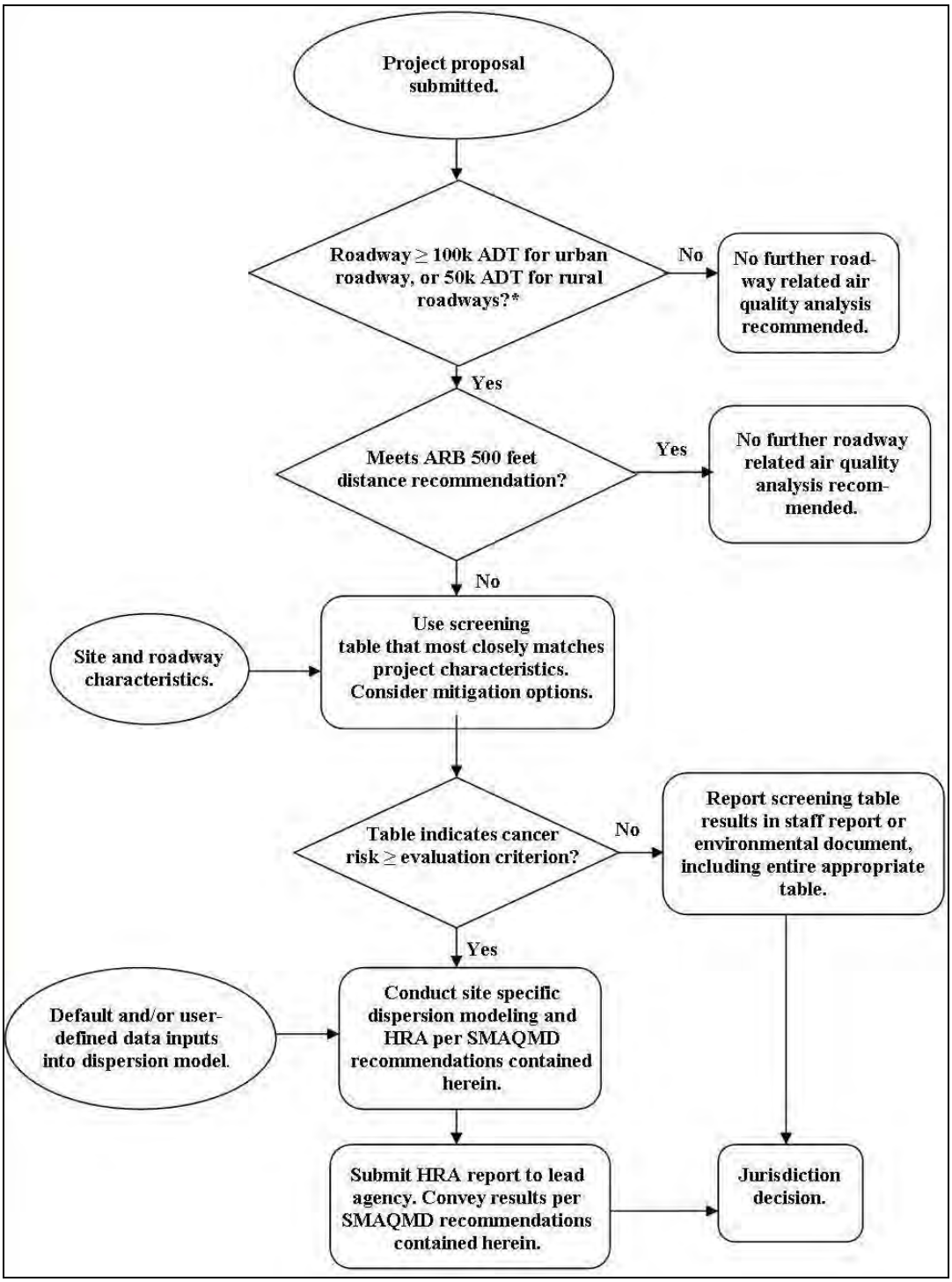
For eample, in July 2009, the California Air Pollution Control Officers Association (CAPCOA), building on the ARB Handbook, released the *Health Risk Assessments for Proposed Land Use Projects Guidance Document* (CAPCOA Guide) to assist Lead Agencies in complying with the requirements of CEQA. The CAPCOA Guide outlines the recommended procedures to identify when a project should undergo further risk evaluation, how to conduct an HRA, and what mitigation measure may be appropriate for various land use projects (CAPCOA 2009).

In addition, because ARB recommendations have major implications for land development projects, SMAQMD developed the *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* (SMAQMD Protocol), which was most recently updated in January 2011. The SMAQMD Protocol provides land use decision makers with a methodology to make informed land use decisions on siting new residential projects and other sensitive land uses in proximity to freeways and major roadways. The SMAQMD Protocol is intended to give local officials the information needed to assess health risk issues within the

spectrum of other issues that must be considered in the land use approval process. Other issues include housing and transportation needs, the benefits of urban infill, and community economic development priorities (SMAQMD 2011).

The SMAQMD Protocol defines a project evaluation process (see Figure 5.3) that indicates the need for, and the methodology to conduct, a site-specific HRA. In this process, project-site-specific characteristics are used to evaluate the potential cancer risk posed within the project and to determine whether a site-specific HRA is warranted. When the SMAQMD Protocol indicates that the project proponent should conduct a site-specific HRA, guidance is provided on how the HRA should be performed. A site-specific HRA is indicated when the screening tables indicate a project risk greater than the evaluation criterion. Note that the current evaluation criterion of 276 chances in one million of contracting cancer does not represent an acceptable risk or a threshold of significance, but merely provides a threshold for the performance of a site-specific HRA. A site-specific HRA allows the cancer risk to be based on more precise site-specific characteristics than are available through the screening tables. SMAQMD also highly recommends incorporating exposure reduction features to reduce pollutant exposure for all projects contemplated within 500 feet of a freeway or major roadway.

Figure 5.3
Stepwise Approach to Evaluating Sensitive Land Use Projects Adjacent to Major Roadways



Source: SMAQMD, March 2011.

SACOG 2008 Metropolitan Transportation Plan

An MTP is a long-range comprehensive plan for the region's multi-modal transportation system and one of SACOG's primary statutory responsibilities. Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars for public transit, streets/roads, bicycles, and pedestrian improvements. As part of each MTP, SACOG must examine the long-term air quality impacts of the transportation system and ensure that it is compatible with the region's air quality goals. In doing so, regional agencies must work with state and local partner agencies to assess the impacts of growth on air pollution and decide how to manage growth. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region built on the Sacramento Region Blueprint.

The 2008 MTP outlines the region's transportation needs, sets principles and policies, and proposes specific strategies. It is a program of related actions designed to coordinate and manage future transportation improvements among the various jurisdictions and agencies operating within the region. The 2008 MTP covers a wide range of transportation issues, including how the land use pattern affects travel behavior, development of multiple modes of transportation, rush-hour congestion, special needs of people with limited mobility, goods movement, long-distance travel between the SACOG region and other areas, and the environmental and air quality impacts related to travel. The 2008 MTP is designed to guide future transportation investment decisions in a balanced manner, sufficient to make needed improvements in all modes of surface transportation, within the limits of resources and at the same time maintain and improve the air quality of the region.

SUMMARY OF REGIONAL LAND USE AND TRANSPORTATION CHANGES

At the regional level, growth patterns and land use patterns will influence the nature of the impacts associated with implementation of the proposed MTP/SCS. By 2035, the proposed MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 35 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. The location and pattern of this growth is important because it determines travel behavior and provides a means for determining the impact of future vehicle emissions in the proposed MTP/SCS planning area. A compact growth pattern served by an efficient transportation system provides the foundation to reduce automotive travel and increase walking, bicycling, and transit use; behaviors which lower VMT and reduce individual trip numbers.

The proposed MTP/SCS is an update of the 2008 MTP. The proposed MTP/SCS addresses projected changes in population growth, lower projected funding for transportation projects, and further integrates Blueprint principles through the SCS. The 2035 horizon year is the same for both plans. The 2035 forecast for the proposed MTP/SCS indicates that population in the plan area is expected to be 3.07 million in 2035 (SACOG, 2011). This forecast is significantly lower

than the 3.3 million people previously forecast in the 2008 MTP (SACOG, 2007). In addition to a lower population forecast, the proposed MTP/SCS accounts for lower projected funding for transportation than the previous MTP due to a downward turn in the economy. The proposed MTP/SCS focuses on maximizing the efficiency of existing infrastructure and identifying investments that bring the most benefit to the regional transportation network. Overall, the proposed MTP/SCS guides the Sacramento region toward a more sustainable future through better integration of smart land use decisions with an efficient, well-managed, and diverse transportation system. The creation of the SCS serves to further SACOG's longstanding effort to integrate land use and transportation planning by tying the plan's performance to reduce automotive travel and increase walking, bicycling, and transit use based on Blueprint-influenced land use patterns.

With respect to transportation projects proposed as a part of the proposed MTP/SCS, the plan includes 7,730 new lane miles of highways, arterials, expressways, collectors, bridges, and local streets, as well as new light rail tracks to accommodate the addition of approximately 871,000 people in the plan area. The proposed MTP/SCS also provides maintenance, major reconstruction, and rehabilitation activities on the 35,061 lane miles making up the 2035 road and highway network.

COMMUNITY TYPE AREAS: SUMMARY OF LAND USE AND TRANSPORTATION CHANGES

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to see approximately 92,000 new housing units and 104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of new acres developed.

The compact and mixed use character of land uses in Center and Corridor Communities helps reduce VMT by providing more opportunities for shorter trips by non-auto modes of travel. Center and Corridor Communities are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel.

In addition, Center and Corridor Communities will add a variety of transportation improvements by 2035, including new transit, non-motorized, and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Center and Corridor Communities receive new and expanded bus and rail transit, and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure in the Center and Corridor Communities.

Established Communities

Similar to Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually have their proportional share of regional housing

decrease from 2008 to 2035. The housing units in Established Communities will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed generally will maintain their proportional shares, with jobs increasing by about 187,000, and acres developed increasing by almost 20,000 for regional shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will add population, housing, and employment, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which have a much higher rate of growth.

Established Communities are mostly low density residential, office parks, and strip retail. They are considered to be mostly built-out. Most development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses. Established Communities are typically adjacent to, and surrounding, Center and Corridor Communities, taking advantage of higher densities and mixed uses. Established Communities in the proposed MTP/SCS receive 52 percent of the employment growth, in an attempt to better balance the housing and job development.

The type of growth in Established Communities takes advantage of existing transportation infrastructure and surrounding land uses. However, Established Communities will have a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. As with Center and Corridor Communities, Established Communities receive new and expanded bus and rail transit, and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points along major arterials and freeways leading to and from major employment centers in Sacramento, Rancho Cordova, and Roseville. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

Developing Communities

Developing Communities are expected to include a high rate of growth during the proposed MTP/SCS plan period. They will have approximately 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

While Developing Communities will serve a substantial portion of the growth in residential units and employment, the housing type will have a significant shift during the planning period from large lot detached, which constitutes 78 percent of the housing in 2008, to small lot detached and attached housing, which will constitute 45 percent of the housing in 2035 compared to only 15 percent in 2008). As these communities become more established with a mix of housing and commercial uses, residents will be able to travel shorter distances to reach most routine destinations.

Developing Communities will have a somewhat different mix of transportation projects in comparison to Center and Corridor Communities and Established Communities. Developing Communities will have more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. Developing

Communities have little or no transit service in 2008, but with the proposed MTP/SCS, by 2035 some areas will include bus service every 30 minutes or less. These areas area will also include walk and bike facilities that are included in the new developments. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of the transportation infrastructure supporting developing communities.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to have very limited growth by 2035. These areas are expected to increase by about 5,300 housing units and 4,000 jobs, or less than two percent of the regional growth. This development will consume about 5,000 acres. This community type is expected to have the lowest rate of growth and will have a decreasing share of regional population, housing units, and employment.

While the land uses in Rural Residential Communities are staying largely the same in the proposed MTP/SCS, these communities benefit from changes in adjacent Developing Communities and Established Communities that bring important destinations closer and reduce the need to travel long distances on a regular basis. Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the plan area. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, with the focus on road maintenance and rehabilitation, safety projects and limited new or widened roadways or freeway improvements. Road projects in Rural Residential Communities focus on improving agricultural and goods movement travel as well as improving or maintaining accessibility for slow moving farm equipment. Rural Residential Communities will also benefit from improvements to lifeline and rural transit services that focus on bringing workers to job sites and providing access to crucial destinations such as hospitals, social services, and shopping. A number of road safety improvements, such as the addition of shoulders, in Rural Residential Communities create a safer environment for pedestrians and bicyclists.

Lands Not Identified for Development

The proposed MTP/SCS does not forecast or model growth in Lands Not Identified for Development during the planning period, though there is existing development in these areas (e.g., primarily farm homes, agricultural-related uses, and public lands such as waste water treatment facilities). Although the proposed MTP/SCS does not assume residential and employment growth in these areas, it is possible that some amount of agricultural-supporting homes and jobs will occur. Since virtually no growth is assumed in the proposed MTP/SCS for this community type, there will be a very limited number of transportation investments in this community type by 2035. The focus for investments is on road maintenance, safety enhancements, and other roadway operational improvements.

TRANSIT PRIORITY AREAS: SUMMARY OF LAND USE AND TRANSPORTATION CHANGES

Placer County Transit Priority Areas

The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will add approximately 2,600 new housing units and 10,000 new jobs by 2035. Jobs are primarily focused in existing job centers and residential growth in the TPAs is 78 percent attached. This development is generally more densely developed than surrounding areas.

The land use changes, together with the transportation investments in Placer County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations, and by increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Placer County TPAs will have a variety of transportation improvements by 2035, including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. The Placer TPAs are served by the Capitol Corridor train, as well as high-quality transit services in Roseville. These systems are connected to the larger regional transit network, making the Placer TPAs very accessible regional destinations. The sum of the investments creates more efficient travel, as well as opportunities for non-auto modes of travel.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will include approximately 93,000 new housing units and 108,000 new jobs. The Sacramento County TPAs will include a large amount of residential and employment growth, approximately 30 percent of regional growth, in the proposed MTP/SCS. Approximately 75 percent of all new residential products are attached in Sacramento County TPAs.

The land use changes, together with the transportation investments in Sacramento County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations, and by increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter

vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Sacramento County TPAs will have a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. The Sacramento TPA is served by light rail, Capitol Corridor, and numerous bus routes. In 2035, the Sacramento TPAs have a streetcar corridor in downtown, and bus rapid transit service. The transit in the Sacramento TPAs is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel.

Yolo County Transit Priority Areas

The Yolo TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will include approximately 20,000 new housing units and 22,000 new jobs. In the Yolo TPAs, about 79 percent of all residential growth is attached. The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis.

The land use changes, together with the transportation investments in Yolo County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and by increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Yolo County TPAs will have a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects, and ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo TPAs are served by Capitol Corridor as well as numerous bus routes. In 2035, the areas will include bus rapid transit and a streetcar in West Sacramento. These new transit services will be connected to new and existing regional transit service.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact the air quality environment. For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types. The five Community Types are: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, see Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), the impacts to air quality are based on information regarding proposed land use changes and transportation improvements that would occur under the proposed MTP/SCS.

By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to transportation and land use conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

Generally, with respect to air quality impacts, a change from existing conditions could prove beneficial if idling time is reduced, a project results in a mode shift, or clean technology is utilized. A change from existing conditions can, however, have a negative impact if a project results in increased levels of congestion, decreases in transit ridership, or an increase in localized truck traffic. Therefore, the general approach in this impacts analysis is to determine how implementation of the proposed MTP/SCS will change the air quality environment from existing conditions, and whether that change will have a positive or negative effect on the region, the five community types, and the three TPAs.

For the NAAQS, projecting the future air quality environment, and how well the proposed MTP/SCS fits within existing air quality plans and their projected maintenance or attainment strategies, can be evaluated through an existing federal process. Transportation conformity is established under the CAA to ensure that transportation planning, transportation improvement programs, and projects are consistent with plans to achieve and maintain NAAQS.

To meet its conformity requirements, SACOG estimates emissions using the most recent population, employment, travel, and congestion forecasts. 2008 is used as the baseline. Through the SACSIM model (described in Chapter 1), estimated daily VMT and trips are generated for

each milestone year identified in an air quality plan. Daily VMT and total trips from each milestone year are used as inputs to the vehicle-emissions forecasting model to develop emission forecasts. A determination of conformity, or conformance with the SIP, is realized when the forecasted emissions are within budgets identified in the SIP or pass the interim emissions test.

For the CAAQS, the evaluation is based on consistency with the parameters used by the local air districts in their planning processes. As noted above in the Regulatory Setting section, the CCAA requires air districts to endeavor to attain and maintain the CAAQS by the earliest practicable date and develop plans for attaining the CAAQS.

For long-term operational emissions of criteria air pollutants, the Urban Emissions Model 2007 Version 9.2.4 computer program (URBEMIS) was used to calculate the regional area source emissions of ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ associated with the operation of the proposed MTP/SCS. URBEMIS is designed to estimate emissions for land use development projects and allows land use data entries that include project location specifics and trip generation rates. URBEMIS accounts for area source emissions from the use of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products. This modeling was compared with local air district thresholds. Long-term stationary-source emissions were qualitatively assessed in accordance with air district-recommended methodologies that rely on compliance with associated rules and regulations (e.g., permitting process) for which compliance is required by law. Modeled long-term operational emissions were compared with applicable air district thresholds for determination of significance.

Long-term exposure of sensitive receptors to operational emissions of TACs was assessed qualitatively using a number of tools and publications. The analysis examines the guidance contained in the ARB Handbook, which includes recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, dry cleaners, gasoline stations, and industrial facilities (ARB 2005). The analysis of health risk exposure also explores the SMAQMD Protocol. However, neither of these guidance documents is regulatory, and neither claims to provide significance thresholds for the analysis of health risk exposure levels at proposed sensitive receptors from non-permitted sources of TACs; therefore, they are not used for that purpose. Although this impact is addressed qualitatively, the guidance parameters provided by these sources is acknowledged. Ultimately, the impact conclusion is based on whether the project would develop sensitive receptors in locations where they would be exposed to substantial levels of TAC-related health risk. Other important facets to this analysis are how the estimated health risk exposure levels at proposed sensitive receptors compare to background risk levels in the SVAB, and the necessity to disclose an accurate understanding of the potential risk levels so they can be considered in the planning process. Health risk associated with airport-generated emissions of TACs is also discussed qualitatively based on the limited and recent research on the topic. A literature review is also provided on the risk exposure levels associated with development near freeways and major roadways. Long-term stationary-source emissions were qualitatively assessed in accordance with air district-recommended methodologies that rely on compliance with associated rules and regulations (e.g., permitting process) for which compliance is required by law. It is important to note that the SMAQMD Protocol focuses on assessing cancer risk from

DPM, because it is the driving factor for assessing exposure from roadways. The SMAQMD Protocol suggests non-cancer acute and chronic health risks be qualitatively discussed.

Odors were assessed qualitatively in regards to the potential for the proposed MTP/SCS to result in the exposure of sensitive receptors to objectionable odors.

Construction-related emissions of criteria air pollutants (e.g., $PM_{2.5}$ and PM_{10}) and precursors (ROG and NOx) were assessed qualitatively, as specific construction details are not available at this time at the plan level. This assessment was based on general information provided in the project description and typical construction practices for the proposed land use types and transportation projects in regards to a potential exceedance of applicable thresholds of significance.

At this time, the local air districts have not adopted a methodology for analyzing temporary, short-term construction-related emissions of TACs and does not recommend the completion of HRAs for such emissions. Therefore, project-generated, construction-related emissions of TACs were assessed qualitatively. Construction-related odor impacts were also qualitatively assessed.

Finally, it is important to note that construction- and operational-related emissions of $PM_{2.5}$, by definition, would be a subset of PM_{10} emissions. Thus, local air district-recommended methodologies and mitigation measures for PM_{10} would also be relevant to emissions of $PM_{2.5}$.

Criteria for Determining Significance

For the purposes of this EIR, and subsequent projects evaluated pursuant to Public Resources Code section 21155.2, SACOG has determined that adoption and/or implementation of the MTP (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Conflict with or obstruct implementation of an applicable air quality plan.
2. Be inconsistent or exceed applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions.
3. Expose sensitive receptors to substantial TAC concentrations.
4. Create objectionable odors affecting a substantial number of people.
5. Be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions.

Appendix G of the CEQA Guidelines (Cal. Code Regs., tit. 14 § 15000 et seq.) specifically requires addressing whether the implementation of the proposed plan would: “violate any air quality standard or contribute substantially to an existing or projected air quality violation” or “expose sensitive receptors to substantial pollutant concentrations.” Additionally, as stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the above determinations; this approach has been taken and is identified above (see criteria 2 and 5).

Impacts and Mitigation Measures

Impact AIR – 1: Conflict with or obstruct implementation of the applicable air quality plans

A. Regional Impacts

The applicable air quality plans are as follows: *2004 Amendment to the California State Implementation Plan for Carbon Monoxide*, the federal maintenance plan for CO; *2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan*, the plan to meet the federal 8-hour ozone standard, and the corresponding state SIPs; and *PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County (October 28, 2010)*, the federal maintenance plan for PM_{10}; and all other local air district plans prepared in compliance with the CCAA to attain and maintain the CAAQS. The relationship between federal transportation conformity and local air district attainment and maintenance plans, budgets, and the associated fulfillment of attaining and maintaining the NAAQS and CAAQS, is discussed above under Setting, Regulatory Setting, and Methods and Assumptions. Under impact AIR – 1, the proposed MTP/SCS would have a significant air quality impact if the projected emissions of nonattainment and maintenance air pollutants would conflict with, or obstruct, implementation of any of the foregoing plans.

In general, projecting the future air quality environment and how well the proposed MTP/SCS fits within existing air quality attainment plans, and their projected maintenance or attainment strategies, is evaluated through existing federal, state, and local air district processes. A determination of conformity, or conformance with the plans, is realized when: the forecasted emissions are within budgets identified in the plans or pass the interim emissions test; the latest planning assumptions and emission models are used; the plan and program are financially constrained; and the timely implementation of transportation control measures can be demonstrated. Conformity analyzes the impacts of land use and transportation in combination at the regional level. It quantitatively measures how selected land use and transportation planning principles in combination will affect our future air quality environment. As established in the proposed MTP/SCS, behavioral changes in choice of travel directly impacts mobile source emission generation projections; reduced VMT and trip numbers result in lower emissions.

As described above, the CAA requires that federally funded or approved transportation plans, programs, and projects in nonattainment or maintenance areas conform to the SIP for meeting the NAAQS. Transportation conformity must be assessed for all nonattainment area transportation-related pollutants classified as regional pollutants. The proposed MTP/SCS was analyzed for transportation conformity according to the process described in the methods and assumptions section. Because this analysis provides the foundation for determining if the proposed MTP/SCS conflicts with or obstructs implementation of an applicable air quality plan (specifically in regards to the NAAQS), the Conformity Analysis is incorporated into this EIR by reference. The conformity analysis findings for the identified geographies and milestone years are listed below or can be found in Appendix C of the *Conformity Analysis for the 2011/14 Metropolitan Transportation Improvement Program Amendment #14 And Metropolitan Transportation Plan and Sustainable Communities Strategy 2035* (Conformity Analysis):

- CO: The Conformity Analysis determined that the implementation of the proposed MTP/SCS would result in less total regional on-road, vehicle-related emissions than the approved emissions budgets established in the *2004 Revision to the California State Implementation Plan for Carbon Monoxide*.

- Ozone: The Conformity Analysis determined that the implementation of the proposed MTP/SCS would result in less total regional on-road, vehicle-related emissions (ROG and NOx) than the approved emissions budgets established in *2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan.*

- PM_{10}: The Conformity Analysis determined that the implementation of the proposed MTP/SCS would result in less total regional on-road, vehicle-related emissions than the approved emissions budgets established in the *PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County (October 28, 2010).*

- $PM_{2.5}$: The Conformity Analysis determined that the total regional on-road, vehicle-related emissions associated with implementation of the proposed MTP/SCS for the analysis years are projected to be less than or equal to the emissions for the No-Build scenario, satisfying the test established in *Interim Transportation Conformity Guidance for 2006 $PM_{2.5}$ NAAQS Nonattainment Areas* in both the Sacramento and Yuba City-Marysville areas.

The forecasted emissions for ozone, PM_{10} and CO associated with the proposed MTP/SCS are within in the conformity budgets identified within the existing plans for each milestone year. Similarly, the forecasted emissions for PM_{10} and $PM_{2.5}$ associated with the proposed MTP/SCS pass all interim emissions tests for all milestone years. Conformity provides the link between air quality and land use/transportation planning by linking the SIP and the proposed MTP/SCS. More prescriptively, the SIPs in the plan area provide the strategies that will be used to attain and maintain the NAAQS; through conformity, the proposed MTP/SCS determines that the region's land use and transportation system implement this strategy.

For the CAAQS, the evaluation is based on consistency with the parameters used by the local air districts in their planning processes. As noted above in the Regulatory Setting section, the CCAA requires air districts to endeavor to attain and maintain the CAAQS by the earliest practicable date and develop plans for the CAAQS.

The proposed MTP/SCS accommodates the expected population growth and accompanying demand for transportation in the region through a multi-modal approach. The proposed MTP/SCS includes a reduced population forecast, is less focused on system expansion, and directs growth in a more compact manner than prior long-range transportation plans. The local air districts report actual progress toward meeting CAAQS by reporting recent historic trends in exceedances of CAAQS through their district monitoring programs. The proposed MTP/SCS supports continued reduction in criteria emissions from on-road mobile sources. The local air districts also report progress in implementing specific programs intended to reduce criteria emissions from on-road sources. The proposed MTP/SCS does not conflict with local air district programs, and includes programs and strategies that complement and support the local air

district programs. The proposed MTP/SCS thus continues to facilitate local air quality planning efforts as part of the implementation of the applicable air quality plans.

In addition, SACOG has committed to a wide range of TCMs as part of the 8-Hour Ozone State Implementation Plan. Appendix F of the proposed MTP/SCS, the Conformity Analysis, includes a detailed listing of the TCMs and their implementation status in Appendix D.

As a result, the proposed MTP/SCS will not conflict with or obstruct the implementation of any applicable air quality plan for CAAQS or NAAQS. Therefore, this impact is less than significant (LS). No mitigation is required. Please note that the federal transportation conformity and process for showing consistency with local air district plans is conducted at the regional level and, therefore, localized and TPA impacts are not discussed separately for this impact area.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact AIR-1. No mitigation is required.

Impact AIR-2: Be inconsistent or exceed applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions.

A. Regional Impacts

A summary of land use changes for the region as a result of the proposed MTP/SCS is provided above. These land use changes will increase the number of sources in the region, which will generate long-term operational criteria air pollutant emissions.

Implementation of the proposed MTP/SCS would result in long-term regional emissions of ROG, NOx, $PM_{2.5}$, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, and use of consumer products, in addition to operational vehicle exhaust emissions, which is discussed separately below. Long-term regional emissions are a function of project level design; the land use and transportation proposed by the MTP/SCS provides only the foundation for future development and transportation patterns. The design standards within these patterns are set by individual jurisdictions and local reviewing bodies. Whether or not individual projects would result in substantial area source emissions would depend of various parameters (e.g., project size, design, energy efficiency) that are not known at this time and, therefore, cannot be quantified on an individual basis. However, area source emissions associated with implementation of the entire proposed MTP/SCS could be generally calculated for informational purposes. These calculations of area sources emissions, as described below, represent a general assumption of the net increase in emissions that could result from implementation of the entire proposed MTP/SCS. Specifically, Table 5.12 summarizes the net change in area source criteria air pollutants between 2008 and 2035 (with the proposed MTP/SCS) based on the use of URBEMIS. As shown in Table 5.12, operational activities associated with the proposed MTP/SCS would result in a net increase in annual emissions from area sources of approximately 2,681 tons per year. As mentioned above, this modeling is general in nature and is meant to provide information about the magnitude of increased area source emissions that could occur from implementation of the entire proposed

MTP/SCS. It is important to note that as the proposed MTP/SCS is implemented, project level analysis of area sources will be completed. Because of the program level nature of the MTP/SCS, individual land uses and associated emissions may be different than what was projected at the plan level, which is an accumulation of all analyzed parcels.

Table 5.12
Net Increase in Area Source Emissions in SACOG Region 2008-2035

	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	Total
Residential	1,460.05	326.13	398.91	0.00	1.21	1.21	2,187.51
Non-Residential	165.90	173.69	153.46	0.00	0.39	0.39	493.83
Total	1,625.95	499.82	552.37	0.00	1.60	1.60	2,681.34

In addition to area source emissions, the land uses in the proposed MTP/SCS could also accommodate stationary sources of pollutants that would be required to obtain permits to operate in compliance with local air district rules. These sources could include, but not be limited to, the following: diesel engine or gas turbine generators for emergency power generation; central heating boilers for commercial, industrial, or large residential buildings; process equipment for light industrial uses; kitchen equipment at restaurants and schools; service station equipment; and dry cleaning equipment.

The permit process would assure that these sources would be equipped with the required emission controls, and that individually these sources would not cause a significant environmental impact. Emissions from stationary sources can vary greatly depending on the exact operations and processes involved. Specific information is not available for this program level analysis to reliably estimate these emissions; nonetheless, the emissions from these sources would be additive to the estimated area source emissions described above.

Based on the area source modeling conducted, and the potential emissions from stationary sources, operational activities could result in emissions of ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ in excess of existing conditions and that exceed applicable air district thresholds. Also, individual land use projects associated with implementation of the proposed MTP/SCS, depending on their size, may exceed the daily thresholds for long-term operational criteria air pollutant emissions in each air district described in Table 5.10. These would be analyzed during the project-level environmental review of such projects.

Therefore, at the regional level, the potential to be inconsistent with, or exceed, applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations) as a result of implementation of the land uses in the proposed MTP/SCS is potentially significant (PS). Mitigation is required. Mitigation Measure AIR-1 is described below.

A summary of transportation changes for the region as a result of the proposed MTP/SCS also is provided above. Although the proposed MTP/SCS forecasts that VMT will increase by 30

percent over the planning period, from approximately 57 million in 2008 to over 74 million in 2035 (see Chapter 16 – Transportation), and population over the same period is forecast to increase by over 39 percent, a decline in total VMT per capita would occur, from 25.8 miles in 2008 to 24.1 in 2035, as well as a decline in congested VMT. Lower speeds (5-30 MPH) are associated with higher criteria air pollutants and precursor emissions than optimal/efficient speeds (35-50 MPH). Higher speeds (55-70 MPH) are also associated with higher emissions than optimal speeds (ARB, 2011f). Moreover, despite the increase in total VMT associated with the substantial growth forecast for the region, mobile sources of criteria air pollutants will decrease over the planning period: ROG (-65 percent); NOx (-78 percent); CO (-73 percent); PM_{10} (-11 percent); and $PM_{2.5}$ (-36 percent). These declines over existing conditions result from a variety of factors, including vehicle technology, cleaner fuels, fleet turnover, and a more efficient land use/transportation system.

However, even though there would be an overall decrease in the region, individual land use projects associated with implementation of the proposed MTP/SCS, depending on their size, may exceed the daily thresholds for long-term operational criteria air pollutant emissions in each air district described in Table 5.10. In addition, even though emissions would decrease regionally, implementation could result in increases in localized pollutants (and associated exposure of sensitive receptors) (e.g., CO and NO_2), since they are governed by site-specific parameters. The primary mobile source pollutant of localized concern is CO. Local mobile source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect. These would be analyzed during the project-level environmental review of such projects.

Therefore, at the regional level, the potential to be inconsistent with, or exceed, applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions (e.g., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations) as a result of implementation of the transportation improvements in the proposed MTP/SCS is potentially significant (PS). Mitigation is required. Mitigation Measure AIR-1 is described below.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measure AIR-1 is described below.

B. Localized Impacts

Except as provided below, the Localized Impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the Region Impacts discussion above. Land use and transportation projects in Center and Corridor

Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to generate long-term operational criteria pollutant emissions inconsistent with, or exceeding, the significance criteria established by the applicable air districts. These impacts are potentially significant (PS). Mitigation is required. Mitigation Measure AIR-1 is described below. Specific information is not available for this program level analysis and will have to be analyzed during the project-level environmental review of such projects.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the proposed MTP/SCS does not forecast any development in these areas, there is no potential to be inconsistent with, or exceed, the significance criteria established by applicable air districts for long-term operational criteria air pollutant emissions in such areas and the impact is less than significant (LS). No mitigation is required. With respect to transportation changes in Lands Not Identified for Development, given the low numbers of employment and housing in such areas, and the absence of any growth forecast in the proposed MTP/SCS, there are few destinations to travel to and from. Therefore, there is no anticipated noticeable change in VMT, and no potential to be inconsistent with, or exceed, the significance criteria established by applicable air districts for long-term operational criteria air pollutant emissions in such areas. The transportation impacts in Land Not Identified for Development, therefore, is less than significant (LS). No mitigation is required.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact AIR-2. Mitigation is required. Mitigation Measure AIR-1 is described below.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the TPA impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the Region Impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to generate long-term operational criteria air pollutant emissions that are inconsistent with, or exceed, applicable thresholds of significance established by the applicable air district. These impacts are potentially significant (PS). Mitigation is required. Mitigation Measure AIR-1 is described below. Specific information is not available for this program level analysis and will have to be analyzed during the project-level environmental review of such projects.

Mitigation Measure AIR – 1: Implementing agencies should require air quality modeling for individual land use and transportation projects to determine whether thresholds of significance for long-term operational criteria air pollutant emissions are exceeded and apply recommended applicable mitigation measures as defined by the applicable local air district.

Implementing agencies should require modeling to identify long-term operational emissions of ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ to determine if the project will exceed the thresholds of significance established by the applicable local air district. Projects that exceed the long-term operational thresholds shall mitigate the air quality impacts using all feasible mitigation.

Examples of mitigation measures include, but are not limited to:

- provide for the use of energy-efficient lighting and process systems, such as low-NOx water heaters, furnaces, and boiler units;
- use EPA Phase II-certified devices for all newly installed woodburning devices;
- design streets to maximize pedestrian access to transit stops;
- include bus shelters at transit access points where deemed appropriate by local public transit operator in large residential, commercial, and industrial projects;
- contribute to traffic-flow improvements (e.g., right-of-way, capital improvements) that reduce traffic congestion;
- equip residential structures with electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment;
- provide for, or contribute to, dedication of land for off-site Class I and Class II bicycle trails linking the project to designated bicycle commuting routes in accordance with the regional bikeway master plan;
- contribute to the provision of synchronized traffic signals on roadways affected by the project and as deemed necessary by the local public works department;
- provide transit-enhancing infrastructure that includes bus turnouts/bulbs, passenger benches, street lighting, route signs and displays, and shelters as demand and service routes warrant, subject to review and approval by local transportation planning agencies;
- provide pedestrian-enhancing infrastructure that includes sidewalks and pedestrian paths, direct pedestrian connections, street trees to shade sidewalks, pedestrian safety designs/infrastructure, street furniture and artwork, street lighting, pedestrian signalization and signage, and/or access between bus service and major transportation points within the project;
- include neighborhood park(s) or other recreational options, such as trails, within the development to minimize vehicle travel to off-site recreational and/or commercial uses;
- install solar water heaters;
- incorporate mixed uses, where permitted by local development regulations, to achieve a balance of commercial, employment, and housing options on the project site;
- include neighborhood telecommunications/telework centers;
- contribute to traffic-flow improvements (e.g., right-of-way, capital improvements) that reduce traffic congestion and do not substantially increase roadway capacity;
- provide preferential parking spaces for carpool and vanpool vehicles, implement parking fees for single-occupancy vehicle commuters, and implement parking cash-out program for employees;

- use clean fuel vehicles in the vehicle fleet;
- require all employment centers to include an adequate number of on-site shower/locker facilities for bicycling and pedestrian commuters (typically one shower and three lockers for every 25 employees of a shift);
- construct/contribute to bicycle and pedestrian facility improvements;
- provide ancillary services within walking distance of proposed development (no further than 1,500 feet), such as cafeterias, health clubs, automatic tellers, and a post office, as appropriate and in compliance with local development regulations;
- provide park-and-ride lots as deemed feasible and appropriate by transportation planning agencies;
- employment centers that exceed a designated size, as measured by the number of employees, shall provide on-site child care and after-school facilities or contribute to off-site construction of such facilities within walking distance of employment land uses (for employment centers on or adjacent to industrial land uses, on-site child daycare centers shall be provided only if supported by the findings of a comprehensive HRA performed in consultation with the local air district);
- provide on-site pedestrian facility enhancements, such as walkways, benches, proper lighting, vending machines, and building access that are physically separated from parking lot traffic;
- offer alternative work schedules, where practical, that allow for work hours that are compressed into fewer than 5 days (e.g., 9/80, 4/40, or 3/36 schedules), or allow flextime schedules;
- provide transit amenities (e.g., on-site/off-site bus turnouts, passenger benches, or shelters) where deemed appropriate by local transportation planning agencies;
- contribute to the provision of synchronized traffic signals on roadways affected by the proposed project and as deemed necessary by the local public works department;
- provide video conferencing facilities;
- commit to support programs that include guaranteed ride home, subsidized transit passes, and rideshare matching;
- provide transportation (e.g., shuttles) to major transit stations and multimodal centers;
- require each employer employment center (more than 25 employees) to assign a transportation coordinator for the applicable Transportation Management Association (TMA);
- require all employers to install a permanent display in employee common areas of alternate transit information, as determined by the requirements of the TMA;
- require employers or employment centers (more than 25 employees) to implement a guaranteed ride home program;
- require employers or employment centers (more than 25 employees) to implement an incentive program for riding transit, carpooling, vanpooling, biking, and walking

instead of driving a single-occupancy vehicle to work. Design and locate buildings to facilitate transit access;

- install Energy Star (or equivalent) cool roofing systems on all buildings;
- design shuttle and transit exits to adjoining streets to reduce time to reenter traffic from the project site;
- increase wall and attic insulation to 20 percent above Title 24 requirements (residential and commercial);
- orient buildings to take advantage of solar heating and natural cooling, and use passive solar designs (residential, commercial, and industrial);
- provide energy-efficient windows (double pane and/or Low-E) and awnings or other shading mechanisms for windows, porches, patios, and walkways;
- consider passive solar cooling and heating designs, ceiling and whole house fans, and programmable thermostats in the design of heating and cooling systems; and
- use day lighting systems, such as skylights, light shelves, and interior transom windows.

(See also SMAQMD's Recommended Guidance for Land Use Emission Reductions (SMAQMD, 2010).)

Significance after Mitigation

Implementation of this mitigation measure will reduce this impact to a less-than-significant level (LS). However, because SACOG cannot require implementing agencies to adopt this mitigation measure, Impact AIR – 2 remains significant and unavoidable (SU).

Impact AIR – 3: Expose sensitive receptors to substantial TAC concentrations

The impact of TACs (as described in the Environmental Setting) is analyzed here based on the relationship between sensitive receptors and the sources of TACs. The ARB Handbook identifies residences, schools, day care centers, playgrounds, and medical facilities as sensitive land uses (ARB, 2005). For purposes of this impact analysis, individuals associated with these will be referred to as sensitive receptors. The sources of TACs are divided into land use and transportation sources. Land use TAC sources include chrome plating facilities, dry cleaners using perchloroethylene, high-volume gas stations, distribution centers, ports, and rail yards. Transportation TAC sources are mobile vehicle sources; major roadways and freeways are used as a proxy for measurement. This impact analysis considers existing and new sensitive receptors and sources. Because of the unique nature of TACs and their interface with land use and transportation, this impact uses the levels of analysis below, instead of the level of analysis applied in other impacts (i.e., regional, localized, and TPA).

A. New Sensitive Receptors Close to TAC Sources
B. New Stationary TAC Sources Close to Sensitive Receptors
C. New Mobile TAC Sources Close to Sensitive Receptors

Impact area A includes areas where new sensitive receptors may be sited in proximity to any TAC sources (either stationary or mobile). Impact area B includes areas where new stationary TAC sources may be sited in proximity to existing and new sensitive receptors. Impact area C includes areas where only new mobile TAC sources (major roadways) may be sited in proximity to existing and new sensitive receptors.

Each level of analysis also discusses permitted and non-permitted sources. To some extent, permitting will mitigate some of the impacts of TACs, but it may not fully mitigate to a less-than-significant level. Similarly, local jurisdictions may take actions that mitigate the impacts of non-permitted sources as part of their land use approval process, but these actions may not fully mitigate to a less-than-significant level. Each level of analysis provides additional detail on the potential impacts of the proposed MTP/SCS.

The potential impact of TACs is defined in the ARB Handbook based on TAC source. The recommended distances for siting new sensitive receptors are outlined under the Regulatory Setting and in Table 5.8. CAPCOA and SMAQMD provide additional guidance, as discussed in the Regulatory Setting.

See Impact AIR-5b for a discussion of construction TAC impacts.

A. New Sensitive Receptors Close to TAC Sources

Overview

A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided above. Though exact future locations cannot be known at this time, the proposed MTP/SCS would result in new sensitive receptors close (within the distance buffers identified by ARB) to existing and new TAC sources, potentially resulting in the exposure to substantial TAC concentrations. Of course, the siting of new sensitive receptors would be subject to an individual jurisdiction's land use approval processes.

The following discussion summarizes the recommendations of the ARB Handbook on specific distances from TAC sources. (See also Table 5.8.) Additional considerations relevant to the siting of new sensitive receptors in proximity to TAC sources also are listed. Where available, the general location of TAC sources are identified by community type. Figure 5.4 shows the existing stationary TACs sources known to SACOG in the plan area. Table 5.13 summarizes the number of existing sources by Community Type.

Non-Permitted Sources

Distribution centers: Avoid siting new sensitive receptors within 1,000 feet of a distribution center that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week. Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points. There are currently 53 distribution centers in the proposed plan area (SACOG, 2011). Because these sources are not

subject to the permitting process of the air districts, it is not known at this time where future distributions centers will be located. It is also not known how many future distributions centers may be sited in the plan area.

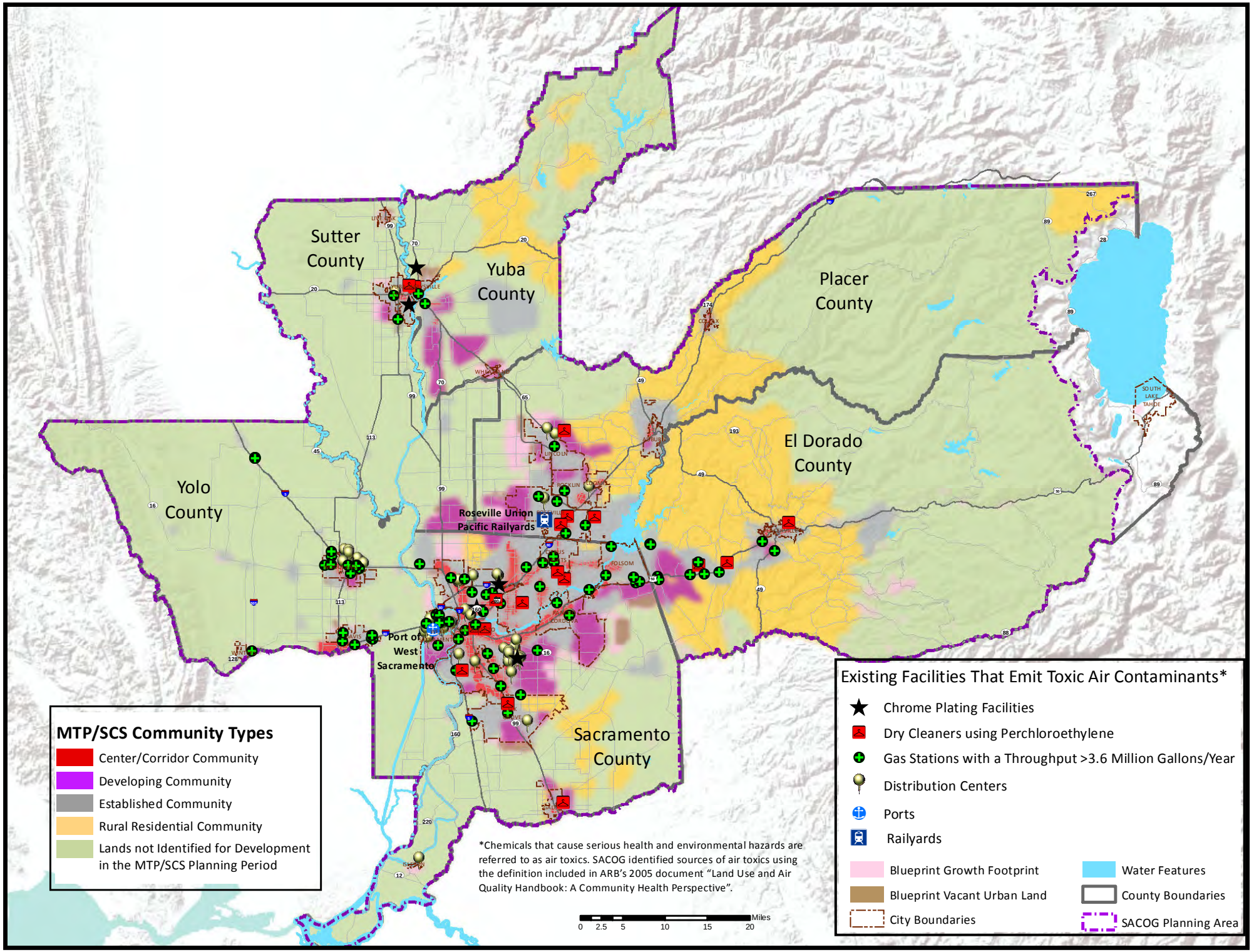
Rail yards: Avoid siting new sensitive receptors within 1,000 feet of a major service and maintenance rail yard. If a proposed receptor is within one mile of a rail yard, consider possible siting limitations and mitigation approaches. There is one rail yard in the proposed plan area that meets this definition, the J. R. Davis Rail Yard located in the city of Roseville. There are currently no HRAs pending around this location (PCAPCD, 2011b).

Major roadways: Avoid siting new sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Figure 5.5 shows the roadways in the region that currently have, or are projected to have, a capacity of 100,000 vehicles per day for urban roads, or 50,000 vehicles per day rural roads by 2035. Table 5.14 shows the population living within 500 feet of an identified TAC roadway in 2008 and 2035.

Permitted Sources

Ports: Avoid siting new sensitive receptors immediately downwind of ports where maximum concentrations would occur. There is one port in the proposed plan area that meets this definition, the Port of West Sacramento located in the City of West Sacramento. There are currently no HRAs pending around this location (YSAQMD, 2011b). No additional ports are proposed in the plan area.

Figure 5.4 Existing Facilities That Emit Toxic Air Contaminants



Refineries: Avoid siting new sensitive receptors immediately downwind of petroleum refineries. There are no refineries located in the proposed plan area (EDCAQMD, 2011a; FRAQMD, 2011a; PCAPCD, 2011a; SMAQMD, 2011a; YSAQMD, 2011a). No new refineries are proposed in the plan area.

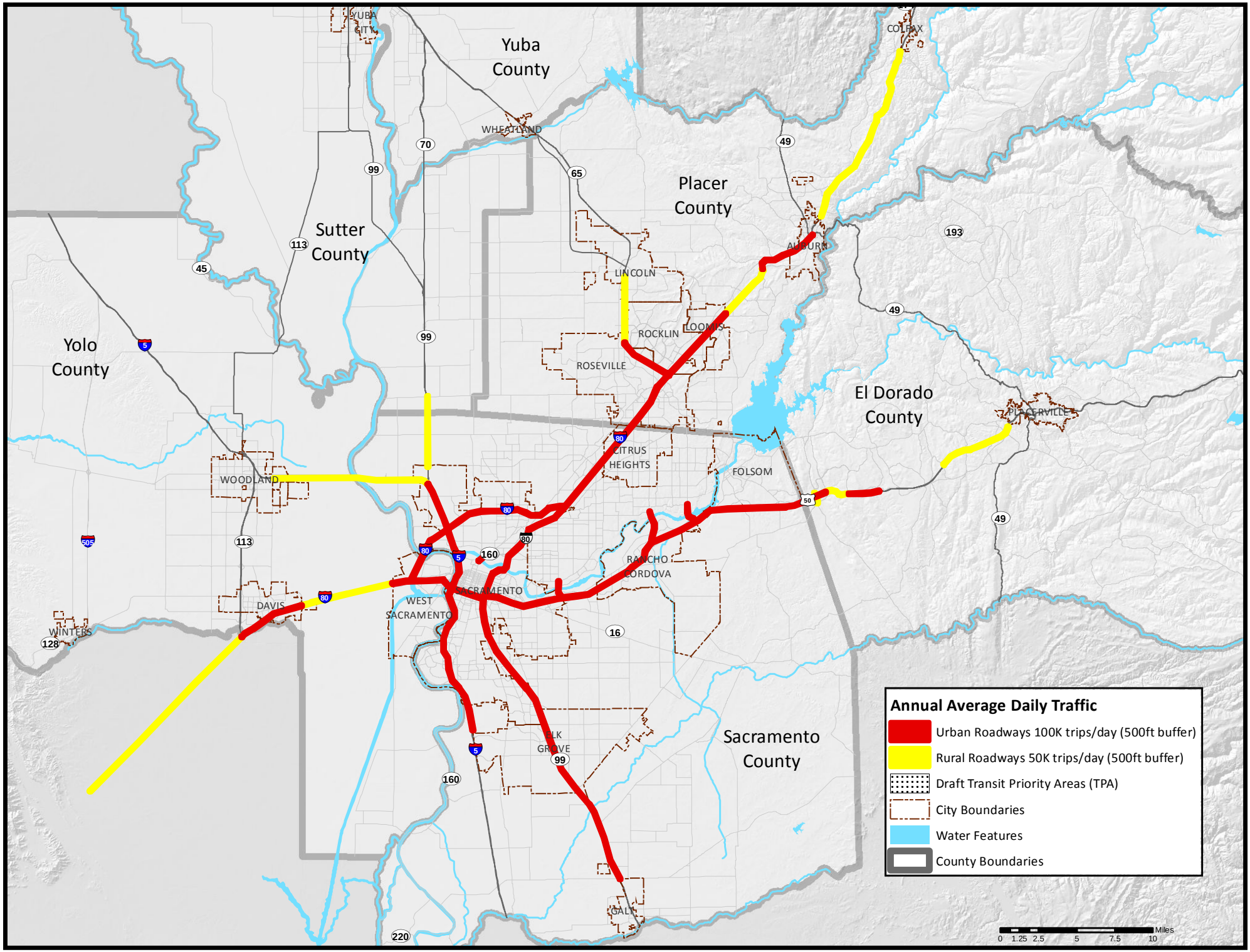
Chrome plating facilities: Avoid siting new sensitive receptors within 1,000 feet of a chrome plating facility. There are five facilities in the proposed plan area; three are located in the City of Sacramento, one is located in the City of Marysville, one is located in Yuba City. (EDCAQMD, 2011a; FRAQMD, 2011a; PCAPCD, 2011a; SMAQMD, 2011a; YSAQMD, 2011a). There are currently four HRAs pending around these locations (EDCAQMD, 2011b; FRAQMD, 2011b; PCAPCD, 2011b; SMAQMD, 2011b; YSAQMD, 2011b).

Dry cleaners using perchloroethylene: Avoid siting new sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene, a solvent used in dry cleaning. For operations with two or more machines, provide 500 feet. There are 19 of these facilities in the proposed plan area (EDCAQMD, 2011a; FRAQMD, 2011a; PCAPCD, 2011a; SMAQMD, 2011a; YSAQMD, 2011a). A regulation passed by ARB in January 2007 will phase out perchloroethylene by 2023, to be replaced with safer alternatives already available on the market (ARB Fact Sheet, 2007). Because this regulation prohibits the installation of new perchloroethylene dry cleaning machines as of 2008, and requires all perchloroethylene machines to be replaced when they are 15 years old, this TAC source will not exist after 2023. There is currently one HRA pending around one of these locations (EDCAQMD, 2011b; FRAQMD, 2011b; PCAPCD, 2011b; SMAQMD, 2011b; YSAQMD, 2011b).

Airports: In recent years, there has been heightened scientific awareness and public debate over potential impacts that may result from the exposure of sensitive receptors to TACs generated by aircraft and ground support operations at and near airports. Sources of airport-related TACs include aircraft (e.g., air carriers, commuter and cargo aircraft, and general aviation), ground service equipment, and fuel storage and handling. TACs released by these sources include, but are not limited to, VOCs (acetaldehyde, formaldehyde, benzene, and 1,3-butadiene), chromium, dioxins, lead, PAHs, tetrachloroethylene, nickel, and toluene.

Several studies and analyses have been performed in an effort to evaluate the risk posed from airport operations. Overall, the data and analyses from these studies provide an inadequate foundation to perform airport-related health studies. More recently, in an effort to improve available data, a multiagency aircraft particle emissions experiment (APEX) was established with participants from EPA, National Aeronautics and Space Administration (NASA), Federal Aviation Administration (FAA), the aviation industry (GE and Boeing), and the research community (Massachusetts Institute of Technology [MIT]). The main focus of APEX is to test aircraft engines for TACs. Data from this study are being analyzed with updated emission factors to follow. This study, along with further monitoring around airports and validation of modeling results, will allow the compilation of more accurate emissions data into EPA models and identification of the proper characterization methods.

Figure 5.5 Toxic Air Contaminants



Based on the above discussion, it can be ascertained that the proposed project, because it could result in new sensitive receptors being located near these types of operations, has the potential to expose sensitive receptors to TACs. However, this issue is not well understood and is the subject of ongoing research, and any conclusions regarding health risks associated with the airport would be speculative. Therefore, a conclusion on significance of the environmental impact cannot be reasonably reached. Section 15145 of the CEQA Guidelines provides that, if after a thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impacts. That is the case here. No impact conclusion can be made based on research of this issue.

Large gas dispensing facilities: Avoid siting new sensitive receptors within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities. There are 82 facilities located in the proposed MTP/SCS plan area with a permit for this level of throughput (EDCAQMD, 2011a; FRAQMD, 2011a; PCAPCD, 2011a; SMAQMD, 2011a; YSAQMD, 2011a). Not all facilities with this permit actually dispense this amount or greater. For purposes of this analysis, any facility with this type of permit was included as an identified TAC source. There are currently 13 HRAs pending around these locations (EDCAQMD, 2011b; FRAQMD, 2011b; PCAPCD, 2011b; SMAQMD, 2011b; YSAQMD, 2011b).

It is important to note that the permitted facilities could also include non-permitted sources (e.g., heavy-duty truck travel), and vice versa.

Table 5.13
Identified TAC Sources

Source	Region	Center/ Corridor	Established	Developing	Rural Residential	Lands Not Identified	Placer TPA	Sacramento TPA	Yolo TPA
Non-Permitted									
Distribution Centers	53	7	44	1	0	1	1	9	2
Rail Yards[1]	1	0	1	0	0	0	0	0	0
Permitted									
Ports	1	0	1[1]	0	0	0	0	0	0
Refineries		0	0	0	0	0	0	0	0
Chrome Plating Facilities	5	2	2	0	0	1	0	2	0
Dry Cleaners using perchloroethylene[2]	19	9	10	0	0	0	1	5	0
Large gas dispensing facilities	82	16	58	5	0	3	1	17	13

Source: EDCAQMD, 2011a; FRAQMD, 2011a; PCAPCD, 2011a; SMAQMD, 2011a; YSAQMD, 2011a; SACOG, 2011

[1] No HRAs pending around this location
[2] Phased out by 2023

The Interface of Land Use and Transportation, and TACs

The location and pattern of the proposed MTP/SCS growth is important because it impacts travel behavior, and provides a means to determine the impact of future vehicle emissions in the proposed plan area. A compact growth pattern served by an efficient and diverse transportation system provides the foundation to reduce automotive travel and increase walking, bicycling, and transit use—all of which reduce individual vehicle trips and associated VMT. Reduced VMT and vehicle trips are directly linked to reduced regional criteria air pollutant emissions and TAC emissions from mobile sources. It is important to note that a variety of other factors contribute to the declines over existing conditions, including vehicle technology, cleaner fuels, and fleet turnover. For example, $PM_{2.5}$ emission rates (grams per mile traveled) from large diesel trucks decreases by about 85 percent from 2008 to 2020, and 90 percent from 2008 to 2035. The primary reason for the improvement is the turnover of the engine inventory to newer engine standards already adopted by the ARB (ARB, 2011e). However, in order to achieve the greatest VMT reductions from a compact growth pattern, development also must necessarily be in close proximity to public transit and major roadway corridors. And though it is important TAC emissions are reduced regionally, exposure is primarily based on local parameters (e.g., average daily traffic (ADT) on local roadway segment, wind direction in relation to source and receptor). Thus, even though, as noted above, mobile source emissions will decrease substantially over the planning period (ROG (-65 percent); NOx (-78 percent); CO (-73 percent); PM_{10} (-11 percent); and $PM_{2.5}$ (-36 percent), despite the increase in total VMT associated with the substantial growth forecast for the region, this does not correlate directly to a decrease in local exposure to TACs. Incidentally, sensitive receptors may also then end up close to other non-permitted or permitted sources. Compact development can result in the close proximity of new sensitive receptors to localized sources of TACs.

While new permitted sources can mitigate TACs though air district processes (e.g., permit requirements), the placement of new sensitive receptors close to existing and new TAC sources could result in the substantial exposure to TAC concentrations.

Therefore, implementation of the proposed MTP/SCS may expose sensitive receptors to substantial TAC concentrations. This impact is potentially significant (PS). Mitigation Measure AIR-2 is described below.

B. New Stationary TAC Sources Close to Sensitive Receptors

New stationary TAC sources, such as those identified in Table 5.13, may be placed close to existing and new sensitive receptors as a result of the proposed MTP/SCS. The proposed MTP/SCS does not directly propose the siting of any stationary TAC sources (i.e., new distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, large gasoline dispensing facilities, or other land uses that may accommodate major sources of TACs). However, the land uses planned for the region could accommodate facilities that may include these proposed permitted and non-permitted TAC sources. There would be potential for new TAC-emitting land uses to be sited near existing and new sensitive receptors throughout the region.

As noted above, ARB, CAPCOA and SMAQMD provide guidance on siting of new sources. A full discussion is provided in the Regulatory Setting. A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided above.

Long-term operation of industrial and commercial uses that could be developed under the proposed MTP/SCS would likely include the installation of new stationary sources of TACs, such as dry cleaning establishments and gasoline-dispensing facilities. As is the case with existing industrial facilities, these types of stationary sources, in addition to any other stationary sources that may emit TACs (except for non-permitted sources), would be subject to air district rules and regulations, including: general requirements, new source review, T-BACT requirements, Title V federal operating permit requirements, and federal HAP requirements (NESHAPS). Thus, the applicable air district would analyze such sources based on their potential to emit TACs. If it were determined that the sources would emit TACs in excess of an air district's applicable threshold of significance, T-BACT would be implemented to reduce emissions. If the implementation of T-BACT would not reduce the risk below the applicable threshold, an air district would deny the required permit (or deny the renewal of existing permits). Even if multiple permitted TAC sources located in close proximity to each other generated a combined incremental increase in health risk that exceeds air district standards (i.e., 10 chances per million for excess cancer risk and/or a hazard index of 1 for no cancer risk at the MEI), these standards are incremental increase thresholds that inherently account for the possibility of sensitive receptors being exposed to risk from multiple TAC sources in addition to background risk levels. In other words, as incremental increase standards, they address the cumulative contribution of each individual stationary source of TACs. As a result, given compliance with applicable rules and regulations, operation of any stationary sources would not be expected to result in the exposure of sensitive receptors to TACs at levels exceeding an air district's significance threshold.

As described above, the proposed MTP/SCS would potentially place new stationary TAC sources close to existing and new sensitive receptors. Additionally, the proposed MTP/SCS could indirectly result in new stationary TAC sources being placed close to existing and new sensitive receptors. While new permitted sources can mitigate TACs through local air district processes (e.g., permit requirements), as noted above, some stationary TAC sources do not require permitting by the applicable air district and some permitted facilities may include non-permitted sources (e.g., heavy-duty truck travel) that are not controlled by compliance with existing processes. As a result, there is still some potential that existing and new TAC sources could result in the substantial exposure of sensitive receptors to TAC concentrations.

Therefore, the impacts associated with implementation of the proposed MTP/SCS may expose sensitive receptors to substantial TAC concentrations. This impact is potentially significant (PS). Mitigation Measure AIR-2 is described below.

C. New Mobile TAC Sources (Major Roadways) Close to Sensitive Receptors

Mobile sources are the primary source of TACs within the transportation footprint of the proposed MTP/SCS. The proposed MTP/SCS would place new major roadways (and increase

traffic on existing roadways), a source of TACs, close to existing and new sensitive receptors as defined by ARB Handbook (2005) and described in the general discussion of this impact.

A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided above. Improvements to existing facilities—such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, high-occupancy vehicle (HOV) lanes, and auxiliary and transition lanes—all have the potential to increase the amount of locally-generated TAC emissions in an area where the transportation infrastructure capacity is increased. Some roadway improvements would be intended to ease congestion and reduce idling, while others would be intended to improve physical roadway conditions. The improvements may prove beneficial on a regional scale, associated with the provision of more non-vehicle travel options, but also may result in more localized air quality impacts. It is important to note that site-specific data that would be required to conduct an HRA (e.g., hourly traffic volumes, exact location of receptor with respect to the source in terms of distance and direction [upwind vs. downwind]). And though it is important that TAC emissions are reduced regionally, as noted above, exposure is primarily based on local parameters (e.g., ADT on local roadway segment, wind direction in relation to source and receptor). Thus, even though mobile source emissions will decrease over the planning period, there may still be increases in localized exposure to TACs.

Investments in new transportation facilities could increase, redirect, or reduce the amount of vehicle travel in an area. In areas where new transportation infrastructure is proposed, there would be additional vehicle travel and associated vehicle-generated TACs. Investment in new facilities is expected to align with growth patterns, so that new roadway and highway investments serve planned housing and employment centers and would be compatible with surrounding land uses. More specifically, the design and expansion of the system paired with land use choices is intended to reduce VMT and congestion by offering an array of mode choices and reduced trip travel; biking, walking, and transit options are enhanced. By design, new facilities may redirect traffic off of congested routes or upgrade the facilities to better-accommodate the existing vehicle travel in an area. As noted, a variety of other factors also contribute to the declines over existing conditions, including vehicle technology, cleaner fuels, and fleet turnover.

In specific terms, implementation of the proposed MTP/SCS would result in the construction of 396 additional miles of Class I bicycle facilities and 722 miles of Class II bicycle lanes. Bicycle paths and pedestrian bridges or overpasses have the potential to facilitate change in travel choices by making non-vehicle travel more safe and convenient, which reduces vehicle generated emissions. The proposed MTP/SCS project list includes 3,989 new daily vehicle service hours for all modes of transit, 437 new bus and shuttle route miles, and 56 new light rail and streetcar route miles. Increasing the availability and frequency of transit service is expected to result in fewer vehicle trips per capita.

The proposed MTP/SCS would include construction of, or modifications to, transportation infrastructure within 500 feet of freeways and urban roads with 100,000 vehicles per day, and rural roads with 50,000 vehicles per day. In addition, growth in the region would continue to contribute traffic to existing roadways within 500 feet of existing and new sensitive receptors.

As described in the Regulatory Setting section, the screening threshold of 500 feet from certain roadways has been established because the exposure to TACs is generally higher within that proximity. However, risk is site-specific; specifically, the height of freeways, prevailing winds, and other factors can make a significant difference in whether an individual area is exposed to elevated risks. As Table 5.14 shows, 2.02 percent of the population currently lives within 500 feet of a roadway with existing or projected levels of traffic that exceed the screening level traffic volumes. In 2035, 2.4 percent of the population will live within this proximity. While the proposed MTP/SCS is placing new and existing sensitive receptors close to existing and proposed heavily traveled corridors, the actual number and proportion is small, less than half a percent (0.38 percent). This growth, over the planning period of 2008 to 2035, shows that only 8,385 persons are added by 2020, and 29,780 persons in total by 2035. In addition, though there is a larger percent of the population within 500 feet of major roadways under 2035 conditions, existing sensitive receptors could experience a decrease in localized emissions even with an increase in traffic volumes, depending on the percent increase in traffic versus the amount of reduction achieved from improved vehicle technology, cleaner fuels, and fleet turnover. As noted above, $PM_{2.5}$ emission rates from large diesel trucks decrease by eight percent by 2020, with a slight additional improvement to 2035. However, the population shown in Table 5.14 would include new sensitive receptors and the exact exposure at existing sensitive receptors would vary depending on specific local parameters that are not available at this time at the program level.

Table 5.14
Percent of Population Living within 500' of an Identified TAC Roadway in 2008 and 2035

County	Within 500' Buffer - 2008 % of total population	Within 500' Buffer - 2035 % of total population
El Dorado	0.26%	0.28%
Placer	1.30%	1.05%
Sacramento	2.73%	3.36%
Sutter	0.00%	0.00%
Yolo	1.23%	1.89%
Yuba	0.00%	0.00%
Region Total	2.02%	2.41%

Source: SACOG, 2011

DPM emissions are also an important indicator in evaluating mobile source TACs because they are small enough to be inhaled deep into the lungs and, therefore, pose unique risks (ARB, 1998a). As shown in Table 5.15 and Figure 5.6 below, PM_{10} and $PM_{2.5}$ from on-road diesel vehicles are expected to decrease substantially in the plan area. A first approximation can be made of the impact in the TAC buffer areas using the population changes, the VMT changes from diesel powered vehicles, and the declining $PM_{2.5}$ emission rates through the plan period. Table 5.16 summarizes these data for 2008, 2020 and 2035, to estimate the average $PM_{2.5}$

exposure per person. The population within the buffer areas are from the land use allocation. The total VMT is from all roads within the buffer areas, including freeways and surface streets. The percent of VMT from diesel vehicles is the Sacramento County average from the ARB emissions model. The $PM_{2.5}$ emission rates are the weighted average ARB rates for all diesel vehicles in each year assuming the Sacramento County fleet mix. The change from 2008 to 2020 is a 79 percent decrease per person, as shown in figure 5.7. While detailed study is needed for any particular area, this analysis indicates the general direction and magnitude that would be expected.

Table 5.15
Change in Emissions from
On-Road Diesel Vehicles between 2008 and 2035

	(Tons/Day)	
Year	$PM_{2.5}$	PM_{10}
2008	1.51	1.85
2035	0.33	0.55
Percent Change	-78 %	-70 %

Source: SACOG, 2011

Table 5.16
Average Daily $PM_{2.5}$ Exposure 2008, 2020 and 2035

		VMT		PM2.5		Avg. exposure
Year	Population	% diesel	Total	rate g/mi	lbs.	(lbs./day)
2008	44,666	5.7%	20,464,736	0.24181	621.31	0.0139
2020	53,051	5.9%	22,344,348	0.05290	153.61	0.0029
2035	74,446	6.2%	24,846,866	0.04052	137.48	0.0018

Source: SACOG, 2011

Figure 5.6
Total Daily $PM_{2.5}$ Emissions in TAC Buffer Areas

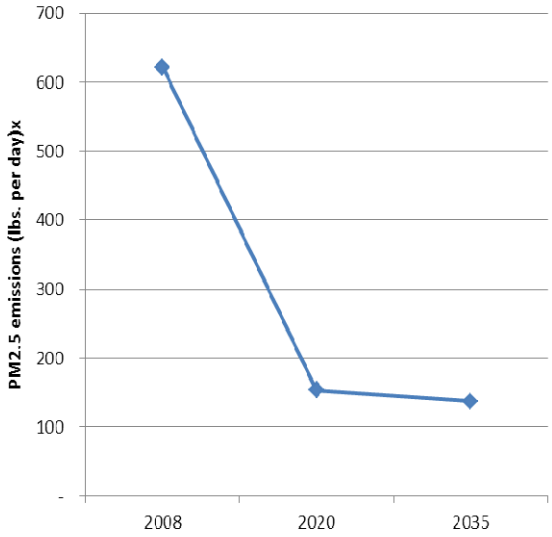
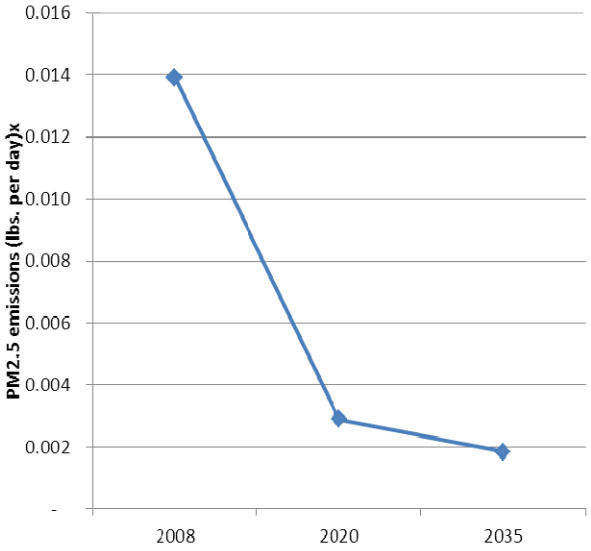


Figure 5.7
Daily $PM_{2.5}$ Emissions Per Capita in TAC Buffer Areas



As discussed above, however, site-specific source and receptor data is necessary to conduct an HRA, and though it is important TAC emissions are reduced regionally, exposure must still be assessed on local parameters through site-specific dispersion modeling. Done at a localized level, many features of the environmental setting, for both the source (e.g., roadway height, urban/rural, road speed and configuration, traffic volumes) and the receptor (e.g., housing

orientation, climatic conditions, vegetation) are important factors. In other words, the buffer distances, and the corresponding population, shown in Table 15.14 are merely a starting point to determine where further study should occur to determine the level of risk and exposure. Additionally, when assessing the public health impact of TACs, it should be noted that a risk analysis is based upon 70-year exposure (OEHHA, 2003). Again, the population impacts shown in Table 5.14 do not account for the duration of exposure.

In addition, though health risk, in particular for roadways, focuses on DPM, there is also research discussing non-cancer risks. The SMAQMD Protocol suggests qualitatively summarizing the current information, which is provided below.

Vehicle emissions contain a number of substances that can be harmful, including TACs such as DPM, benzene, and 1,3-butadiene. As noted, recent studies suggest that living or going to school near roadways with heavy traffic volumes is associated with a number of adverse effects, including increased respiratory symptoms, increased risk of heart and lung disease, and elevated mortality rates (South Coast Air Quality Management District 2005, ARB 2005). Generally, children are more vulnerable to air pollutants because of higher inhalation rates, narrower airways, and less mature immune systems. Therefore, particular attention is applied to the effects of pollutants on children.

In these studies, and other proximity studies cited in the Environmental Setting section, the distance from the roadway and truck traffic densities were key factors affecting the strength of the association with adverse health effects. The association of traffic-related emissions with adverse health effects was seen within 1,000 feet and was strongest within 300 feet.

Therefore, because of the potential risks, and because the site-specific TAC source conditions and the sensitive receptor conditions are unknown at this time, implementation of the proposed MTP/SCS has the potential to expose sensitive receptors to substantial TAC concentrations. This impact is potentially significant (PS). Mitigation Measure AIR-2 is described below.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS is considered potentially significant (PS) for Impact AIR-3. Mitigation is required. Mitigation Measure AIR-2 is described below.

Mitigation Measure AIR – 2: Adhere to ARB Handbook siting guidance to the maximum extent possible.

The implementing agencies should adhere to the ARB Handbook siting guidance to the maximum extent possible. Where sensitive land uses or TAC sources would be sited within the minimum ARB-recommended distances, a screening-level HRA shall be conducted to determine, based on site-specific and project-specific characteristics, and all feasible mitigation best management practices (BMPs) shall be implemented. The HRA protocols of the applicable local air districts shall be followed or, where a district/office does not have adopted protocols, the protocol of SMAQMD or CAPCOA shall be followed. BMPs shall be applied as recommended and applicable, to reduce the impact to a less-than-significant level where feasible. The HRA should give particular attention to the nature of the receptor, recognizing that some receptors are particularly sensitive (e.g., schools, day care centers, assisted living and

senior centers, and hospitals) and may require special measures. Examples of BMPs known at this time to be effective include:

- install passive (drop-in) electrostatic filtering systems (especially those with low air velocities (i.e., 1 MPH)) as a part of the HVAC project HVAC system(s);
- orient air intakes away from TAC sources to the maximum extent possible; and
- use tiered tree planting between roadways and sensitive receptors wherever feasible, using native, needled (coniferous) species, ensure a permanent irrigation source, and provide permanent funding to maintain and care for the trees.

Significance after Mitigation

Use of air filtering systems, orientation of HVAC air intakes, and tiered tree planting can substantially reduce TAC concentrations (Cahill 2008). However, due to uncertainty in individual project conditions (e.g., location of receptor in relation to source [upwind versus downwind], the effectiveness of filtering systems depending on the TACs present) the extent to which this measure would reduce emissions is unknown at this time as such details are not available at the plan level. Because the detailed analysis for each project cannot be done at the programmatic plan level, it cannot be known to a certainty that the mitigation measure will reduce all impacts to a less than significant level. Further, SACOG cannot require the implementing agency to adopt this mitigation measure. Therefore, this mitigation measure cannot be guaranteed to provide acceptable levels of TAC exposure to sensitive receptors. This impact would remain significant and unavoidable (SU).

Impact AIR – 4: Create objectionable odors affecting a substantial number of people.

A. Regional Impacts

A summary of land use changes for the region as a result of the proposed MTP/SCS is provided above. The proposed MTP/SCS has the potential to result in creating odor problems in : the development of new odor-producing facilities in areas where they do not currently exist, which could affect existing sensitive receptors; and the development of new sensitive receptors near existing odor sources (e.g., wastewater treatment plants, landfills, and composting operations).

The proposed MTP/SCS does not specifically identify odor-producing facilities, as it does not forecast land use to that level of specificity. The local air districts have confirmed that they are not aware of planned facilities or operations with the potential to emit odors. However, operation-related activities at the new facilities (e.g., industrial and/or commercial uses) could create odors, exposing existing sensitive receptors that are not currently affected under existing conditions. Specific uses are not yet known, and detailed site and grading plans have not yet been developed; however, these types of uses could entail composting or recycling operations, manufacturing, painting/coating operations (e.g., auto body shops), and coffee roasters close to existing receptors. Because odors are subjective, new fast-food restaurants and bakeries may also be considered odors sources. Most, but not all, of these source types would likely be subject to the local air district permitting processes. However, the main function of the permitting process is to control the quantity of criteria air pollutants and TACs along with associated

exposure of sensitive receptors. Odors issues are not typically addressed through the permitting process. Permits may state a source cannot create a nuisance, but generally potential odor issues and the recommendation of specific controls are dealt with through CEQA in the project-level analysis at the time new facilities are proposed and mitigation measures established. In addition, there are some uses (e.g., agriculture-related operations) that are exempt from the local air districts odor nuisance authority. Thus, new facilities could result in the exposure of existing sensitive receptors to odor sources. See Impact AIR-5c for discussion of construction-generated odors.

With regards to the second situation, implementation of the proposed MTP/SCS could result in the development of new sensitive receptors near existing odor sources. The potential conflict is considered significant if the plan area is at least as close as any other site that has already experienced significant odor problems related to the odor source. The local air districts may recommend operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. When this occurs, the mitigation options are more limited and consist primarily of modifications to the proposed new structures to minimize exposure to odors (e.g., HVAC filters and other construction treatments) and notification to incoming property owners regarding the existence of pre-existing odor-emitting facilities/operations (e.g., similar to aviation easements for noise). Specific uses are not yet known, and detailed site and grading plans have not yet been developed and; thus, the local parameters that affect odor exposure are also not known (e.g., wind direction). Thus, new sensitive receptors could be exposed to existing odor sources.

Therefore, at the regional level, the potential that the land uses in the proposed MTP/SCS could create objectionable odors affecting a substantial number of people is potentially significant (PS). Mitigation is required. Mitigation Measure AIR-3 is described below.

A summary of transportation changes for the region as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. The majority of proposed MTP/SCS roadway investments will occur in urbanized areas, where roadway improvements will not have an impact on the number of people exposed to objectionable odors at the regional level. Transportation projects do emit DPM, which has an odor, but the odor dissipates quickly and within a small area. Additionally, DPM is not considered to be a major odor source and; thus, not considered to be a public nuisance. Therefore, the transportation element of the proposed MTP/SCS is not considered a source of objectionable odor.

Therefore, at the regional level, the potential of the transportation investments in the proposed MTP/SCS to create objectionable odors affecting a substantial number of people is less than significant (LS). No mitigation is required.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact AIR-4. Mitigation is required. Mitigation Measure AIR-43 is described below.

B. Localized Impacts

Except as provided below, the Localized Impacts associated with implementation of the proposed MTP/SCS is the same in each of the Community Types as described in the Region Impacts discussion above. Land use projects in Center and Corridor Communities, Established Communities, and Developing Communities have the potential to create objectionable odors affecting a substantial number of people and the impact in these areas is considered potentially significant (PS). Mitigation is required. Mitigation Measure AIR-3 is provided below. However, as established above, transportation investments do not have the potential to create such objectionable odors and the impact is considered less than significant (LS) in these Community Types.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the localized level, except as stated below, are considered potentially significant (PS) for Impact AIR-4. Mitigation is required. Mitigation Measure AIR-43 is described below.

By contrast, Rural Residential Communities will house a very small portion of the total population and employment in the region. While it is possible that odor-emitting facilities will be built in this Community Types, there will not be much density or intensifying of land uses proximate and/or adjacent to those facilities/operations. Of the employment-related land uses forecast as part of the proposed MTP/SCS, industrial land uses are the most probable generators of odors—Rural Residential Communities will have less than a one percent increase of their industrial acreage over the life of the plan. Lands Not Identified for Development will receive no growth. Future development included as part of the plan will be subject to the mitigation requirements enacted by local air districts at the project-level of review in the respective regions of development. The land uses will be very low density and are unlikely to bring substantial numbers of people into contact with odor-emitting facilities. Therefore, within Rural Residential Communities and Lands Not Identified for Development, the potential to create objectionable odors affecting a substantial number of people as a result of implementation of land uses proposed as part of the proposed MTP/SCS is less than significant (LS). No mitigation is required.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Rural Residential Communities and in Lands Not Identified for Development are considered less than significant (LS) for Impact AIR-4. No mitigation is required.

C. *Transit Priority Area Impacts*

The Transit Priority Area Impacts associated with implementation of the proposed MTP/SCS is the same in each of the TPAs as described for Center and Corridor Communities, Established Communities, and Developing Communities in the Localized Impacts discussion above. Land use projects in all of the TPAs have the potential to create objectionable odors affecting a substantial number of people and the impact in these areas is considered potentially significant

(PS). Mitigation is required. Mitigation Measure AIR-3 is provided below. However, transportation investments in these areas do not have the potential to create such objectionable odors and the impact is considered less than significant (LS) in all TPAs.

The combined impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the TPA level, except as stated below, are considered potentially significant (PS) for Impact AIR-4. Mitigation is required. Mitigation Measure AIR-43 is described below.

Mitigation Measure AIR-3: Implementing agencies should require assessment of new and existing odor sources for individual land use projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the applicable local air district and best practices

Implementing agencies should require assessment of new and existing odor sources for individual land use projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the applicable local air district and best practices.

Examples of mitigation measures could include, but not limited to, the following:

- Proposed industrial/commercial/convenience land uses (e.g., fast-food restaurants, painting operations) that have the potential to emit objectionable odors shall be located as far away as feasibly possible from existing and proposed sensitive receptors and oriented where possible to place buildings or other obstructions between the odor source and downwind receptors.
- The odor-producing potential of land uses shall be considered when the exact type of facility that would occupy industrial/commercial/convenience areas is determined.
- If an odor-emitting facility is to occupy space in the industrial/commercial/convenience area, the odor-producing potential of the source and potential control devices shall be determined in coordination with the local air district and shall be based on the number of complaints associated with existing sources of the same nature. Odor-control devices (e.g., wet chemical scrubbers, HVAC filters, activated carbon scrubbers, biologically active filters, enclosures) shall be identified in the improvement plans before the approval of building permits. The odor-control devices shall be installed before the issuance of certificates of occupancy for the potentially odor-producing use.
- Require notification to incoming property owners (e.g., real estate disclosures) regarding the existence of pre-existing odor-emitting facilities/operations (e.g., similar to aviation easements for noise).

Also, see specifically SMAQMD's Recommended Guidance for Land Use Emission Reductions (SMAQMD 2010). Chapter 7 of the SMAQMD guidance provides an extensive list of technology- and design based odor reduction measures.

Significance after Mitigation

Implementation of mitigation measure AIR-4 will help to mitigate exposure to odors as a result of the proposed MTP/SCS. While this mitigation measure will not eliminate sources of odor, it will help to reduce the exposure and ensure disclosure of pre-existing conditions. For this reason, and because SACOG cannot require implementing agencies to adopt this mitigation measure, this impact would remain significant and unavoidable (SU) regionally and in Center and Corridor Communities, Established Communities, Developing Communities, and Transit Priority Areas.

Impact AIR-5a: Be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term operational criteria air pollutant emissions.

A. Regional Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. As individual land use and transportation improvements are constructed, the activity at individual construction sites will result in emissions of criteria air pollutants (e.g., $PM_{2.5}$ and PM_{10}) and precursors (e.g., ROG and NOx) from site preparation (e.g., excavation, grading, and clearing); exhaust from off-road equipment, material delivery vehicles, and worker commute vehicles; vehicle travel on paved and unpaved roads; and other miscellaneous activities (e.g., building construction, asphalt paving, application of architectural coatings, and trenching for utility installation).

Detailed phasing and construction information (e.g., construction equipment type and number requirements, maximum daily acreage disturbed, number of workers, hours of operation) is not possible to determine at the level of the proposed MTP/SCS. Because of the land use and transportation improvements proposed in the MTP/SCS, there is potential for simultaneous construction of multiple sites within the nonattainment areas of the El Dorado, Feather River, Placer County, Sacramento Metropolitan, and Yolo-Solano air districts. As a result, construction activities could result in emissions of ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ in excess of existing conditions that exceed applicable air district thresholds as a whole. Also, individual land use and transportation projects associated with implementation of the proposed MTP/SCS, depending on their size, may exceed the thresholds for short-term construction criteria air pollutant emissions in each air district described in Table 5.10, especially if best management practices are not implemented. These would have to be analyzed during the project-level environmental review of such projects.

Therefore, at the regional level, the potential to be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations) as a result of implementation of the land use and transportation improvements in the proposed MTP/SCS is potentially significant (PS). Mitigation is required. Mitigation Measure AIR-4 is described below.

B. Localized Impacts

Except as provided below, the Localized Impacts associated with implementation of the proposed MTP/SCS is the same in each of the Community Types as described in the Region Impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations) as a result of implementation of the land use and transportation improvements in the proposed MTP/SCS is potentially significant (PS). Mitigation is required. Mitigation Measure AIR-4 is described below. Specific information is not available for this program level analysis and will have to be analyzed during the project-level environmental review of such projects.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the proposed MTP/SCS does not forecast any development in these areas, there is no potential to be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations) and the impact is less than significant (LS). No mitigation is required.

C. Transit Priority Area Impacts

As with the Localized Impacts discussed above, the Transit Priority Area Impacts associated with implementation of the proposed MTP/SCS is the same in each of the TPAs as described in the Region Impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term construction criteria air pollutant emissions (i.e., violate an air quality standard or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations) as a result of implementation of the land use and transportation improvements in the proposed MTP/SCS is potentially significant (PS). Mitigation is required. Mitigation Measure AIR-4 is described below. Specific information is not available for this program level analysis and will have to be analyzed during the project-level environmental review of such projects.

Mitigation Measures AIR — 4: Implementing agencies should require project applicants to implement applicable, or equivalent, standard construction mitigation measures.

Lead agencies should require project applicants, prior to construction, to implement construction mitigation measures that, at a minimum, meet the requirements of the applicable air district with jurisdiction over the area in which construction activity would occur if the project is anticipated to exceed thresholds of significance for short-term criteria air pollutant emissions. Projects that exceed these thresholds shall mitigate the air quality impacts using all feasible mitigation. For

construction activity on the project site that is anticipated to exceed thresholds of significance, the project applicant(s) shall require construction contractors to implement both Standard Mitigation Measures and Best Available Mitigation Measures for Construction Activity to reduce emissions to the maximum extent feasible for all construction activity performed in the plan area.

Examples of mitigation measures could include, but not limited to, the following:

- The applicant shall implement a Fugitive Dust Control Plan.
- All grading operations on a project shall be suspended when winds exceed 20 miles per hour (MPH) or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Construction sites shall be watered as directed by the local air district and as necessary to prevent fugitive dust violations.
- An operational water truck shall be on-site at all times. Water shall be applied to control dust as needed to prevent visible emissions violations and off-site dust impacts.
- On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. The use of approved nontoxic soil stabilizers shall be incorporated according to manufacturers' specifications to all inactive construction areas.
- All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
- Approved chemical soil stabilizers shall be applied according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas.
- To prevent track-out, wheel washers shall be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed before each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks and prevent/diminish track-out.
- Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom permitted) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Temporary traffic control shall be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by the appropriate department of public works and/or California Department of Transportation (Caltrans), and to reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 MPH.

- Traffic speeds on all unpaved surfaces shall be reduced to 15 MPH or less, and unnecessary vehicle traffic shall be reduced by restricting access. Appropriate training to truck and equipment drivers, on-site enforcement, and signage shall be provided.
- Ground cover shall be reestablished on the construction site as soon as possible and before final occupancy through seeding and watering.
- Open burning shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (e.g., trash, demolition debris) may be conducted at the project site. Vegetative wastes shall be chipped or delivered to waste-to-energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.
- The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and for the duration of on-site operation.
- Existing power sources (e.g., power poles) or clean-fuel generators shall be used rather than temporary power generators.
- A traffic plan shall be developed to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Operations that affect traffic shall be scheduled for off-peak hours. Obstruction of through-traffic lanes shall be minimized. A flag person shall be provided to guide traffic properly and ensure safety at construction sites.
- The project proponent shall assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that will be used an aggregate of 40 or more hours for the construction project and provide a plan for approval by the local air district demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used for construction, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet-average 20 percent NO_X reduction and 45 percent particulate reduction compared to the most recent ARB fleet average at the time of construction. These equipment emission reductions can be demonstrated using the most recent version of the Construction Mitigation Calculator developed by the SMAQMD. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary off-site mitigation projects, the provision of funds for air district off-site mitigation projects, and/or other options as they become available. In addition, implementation of these measures would also result in a 5 percent reduction in ROG emissions from heavy-duty diesel equipment. The local air district shall be contacted to discuss alternative measures.

Air districts provide similar recommendations to those listed above. Some air districts in the region (e.g., SMAQMD) also offer the option for paying off-site construction mitigation fees if the recommended actions do not reduce construction emissions to acceptable levels.

Significance after Mitigation

Implementation of this mitigation measure will reduce this impact to a less-than-significant level (LS). However, because SACOG cannot require implementing agencies to adopt this mitigation measure, Impact AIR – 2 remains significant and unavoidable (SU).

Impact AIR-5b: Expose sensitive receptors to substantial TAC concentrations from construction.

A. Regional Impacts

A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Construction-related activities associated with implementation of land use and transportation improvements in the proposed MTP/SCS would result in short-term emissions of DPM from the exhaust of off-road heavy-duty diesel equipment for site preparation (e.g., excavation, grading, and clearing); paving; application of architectural coatings; and other miscellaneous activities. DPM was identified as a TAC by ARB in 1998 due to its potential to increase cancer risk when inhaled over long periods of time.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. Because the use of off-road heavy-duty diesel equipment would be temporary and intermittent, and would combine with the highly dispersive properties of DPM (Zhu et al. 2002), TAC emissions would not expose sensitive receptors to emissions of TACs over extended periods.

Though sensitive receptors would only be exposed to TACs for limited amounts of time during construction, substantial emissions of TACs could be released in that time if the proper mitigation is not applied.

Therefore, at the regional level, the potential to exposure sensitive receptors to substantial TAC concentrations from construction as a result of implementation of land use and transportation improvements proposed as part of the proposed MTP/SCS is potentially significant (PS). Mitigation is required. See Mitigation Measure AIR – 5 described below.

B. Localized Impacts

The potential impact to be inconsistent or exceed the significance criteria established by applicable air districts for TACs from construction as a result of implementation of the proposed MTP/SCS in all Community Types is the same as at the regional level, excluding the land use impacts of Lands Not Identified for Development.

Therefore, for all Community Types excluding the land use impacts of Lands Not Identified for Development, the potential to exposure sensitive receptors to substantial TAC concentrations from construction as a result of implementation of the proposed MTP/SCS is potentially significant (PS). Mitigation is required. See Mitigation Measure AIR – 5 described below.

For Lands Not Identified for Development, the proposed MTP/SCS does not forecast growth in the remainder of the region during the planning period. For the limited number of construction projects that may occur in Lands Not Identified for Development in the proposed MTP/SCS, the potential to be inconsistent or exceed the significance criteria established by applicable air districts for TACs from construction is less than significant (LS). No mitigation is required.

C. Transit Priority Area Impacts

The potential impact to be inconsistent or exceed the significance criteria established by applicable air districts for TACs from construction as a result of implementation of the proposed MTP/SCS in all community types is the same as at the regional level.

Therefore, for all transit priority areas, the potential to exposure sensitive receptors to substantial TAC concentrations from construction as a result of implementation of the proposed MTP/SCS is potentially significant (PS). Mitigation is required. See Mitigation Measure AIR – 5 described below.

Mitigation Measures AIR—5: Implement Mitigation Measure AIR-4.

Significance after Mitigation

Implementation of this mitigation measure will reduce this impact to a less-than-significant level (LS). However, because SACOG cannot require implementing agencies to adopt this mitigation measure, Impact AIR – 2 remains significant and unavoidable (SU).

Impact AIR-5c: Create objectionable odors from construction affecting a substantial number of people

A. Regional Impacts

A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Construction activities associated with land use and transportation improvements in the proposed MTP/SCS may result in minor sources of odors. The

predominant source of power for construction equipment is diesel engines. Exhaust odors from diesel engines, as well as emissions associated with asphalt paving and the application of architectural coatings may be considered offensive to some individuals.

However, because odors associated with diesel fumes would be temporary and would disperse rapidly with distance from the source, construction-generated and mobile-source odors would not result in the frequent exposure of on-site receptors to objectionable odor emissions.

Therefore, at the regional level, the potential to create objectionable odors from construction affecting a substantial number of people as a result of implementation of land uses and transportation improvements proposed as part of the proposed MTP/SCS is less than significant (LS). No mitigation is required.

B. Localized Impacts

The Localized Impacts associated with implementation of the proposed MTP/SCS is the same in each of the Community Types as described in the Region Impacts discussion above. The potential to create objectionable odors from land use and transportation projects affecting a substantial number of people is the in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the proposed MTP/SCS is the same as at the regional level. Therefore, the potential to create objectionable odors from construction affecting a substantial number of people as a result of implementation of land uses and transportation improvements proposed as part of the proposed MTP/SCS is less than significant (LS). No mitigation is required.

C. Transit Priority Area Impacts

The Transit Priority Area Impacts associated with implementation of the proposed MTP/SCS is the same in each of the transit priority areas as described in the Region Impacts discussion above. The potential to create objectionable odors from land use and transportation projects affecting a substantial number of people is the in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the proposed MTP/SCS is the same as at the regional level. Therefore, the potential to create objectionable odors from construction affecting a substantial number of people as a result of implementation of land uses and transportation improvements proposed as part of the proposed MTP/SCS is less than significant (LS). No mitigation is required.

CHAPTER 6 – BIOLOGICAL RESOURCES

INTRODUCTION

This chapter describes the biological resources (existing environmental conditions and regulatory settings) in the Sacramento region. This chapter also assesses the potential of the proposed Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the biological resources within the MTP/SCS plan area. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

This chapter also provides an overview of habitat conservation plans (HCPs) and natural community conservation plans (NCCPs) that currently exist or are in preparation for the proposed MTP/SCS plan area.

One comment regarding biological resources, submitted by Placer County Community Development/Resource Agency was received during circulation of the Notice of Preparation (NOP), requesting that the EIR for the proposed MTP/SCS recognize the work of the Placer County Conservation Plan in regards to natural source conservation and land use planning in Placer County. This plan is discussed below when discussing HCPs and NCCPs.

SETTING

Environmental Setting

This environmental setting section contains information on the following biological resources:

- land cover types and associated biological habitat uses,
- invasive plants,
- waters of the United States (including wetlands), and
- special-status species.

This chapter presents information on existing biological resources, based on a review of existing and available information. The level of detail provided in this section is regional in scope, and considered appropriate for general policy planning at the regional level.

Land Cover Types and Associated Habitat Uses and Values

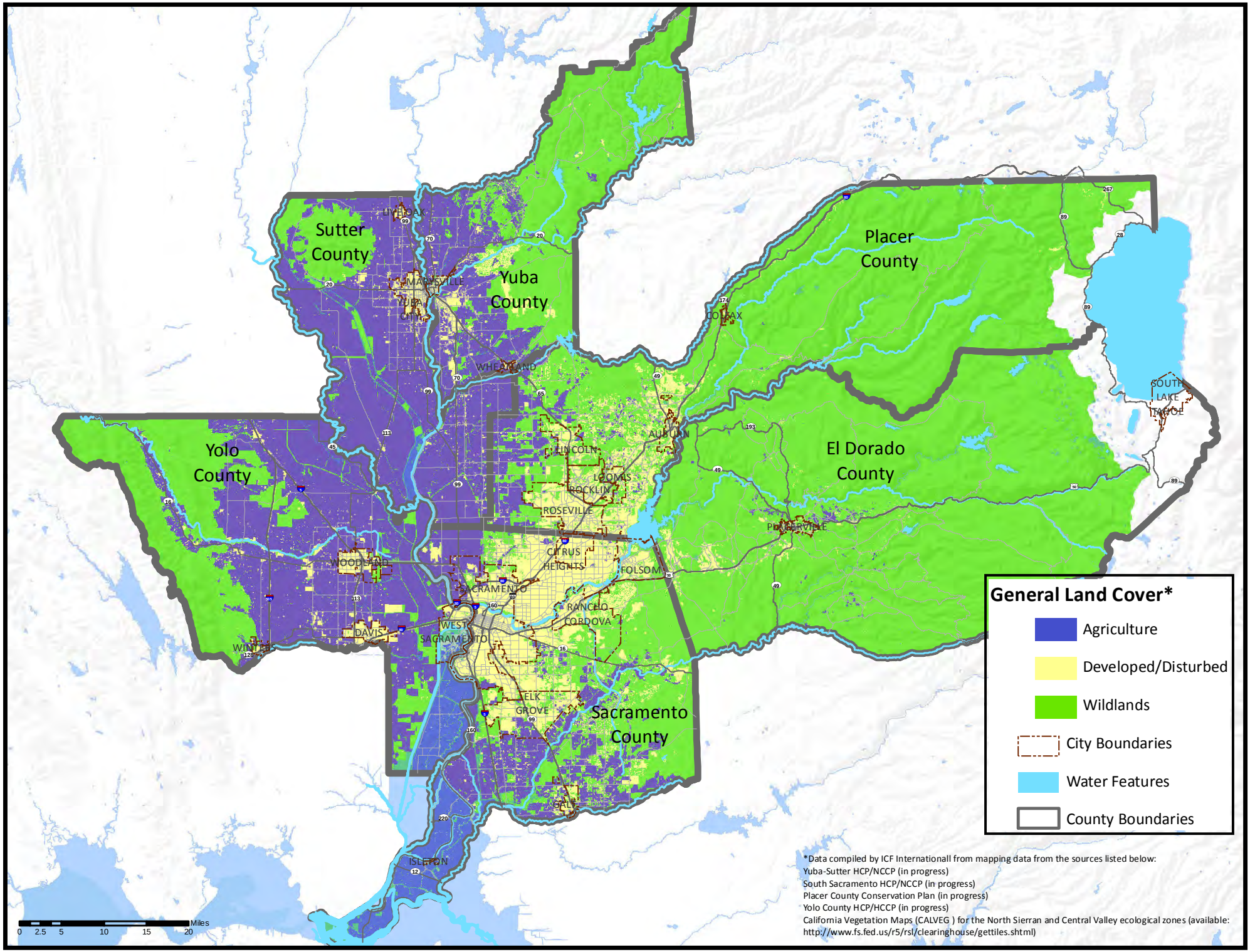
Information about the locations and distribution of land cover types in the proposed MTP/SCS plan area was compiled using data from the sources listed below.

- Yuba-Sutter HCP/NCCP (in progress)
- South Sacramento HCP/NCCP (in progress)
- Placer County Conservation Plan (in progress)
- Yolo County HCP/HCCP (in progress)

- California Vegetation Maps (CALVEG) for the North Sierran and Central Valley ecological zones (available: http://www.fs.fed.us/r5/rsl/clearinghouse/gettiles.shtml)

The land cover data obtained from these sources varied from general natural community types to specific vegetation alliances. Therefore, for the purposes of this program-level document, data was grouped into general land cover types within three broad categories: wildlands, agriculture, and developed/disturbed areas. These general land cover types are shown on Figure 6.1. Accordingly, the land cover type descriptions presented below are intended to provide general information about the proposed MTP/SCS plan area.

Figure 6.1 General Land Cover in Plan Area



Summaries of the land cover in the plan area are presented in Tables 6.1, 6.2, and 6.3 below.

Table 6.1
Wildland Land Cover Types and Acreages by County in the Proposed MTP/SCS Plan Area[1]

Wildland Cover Type	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	Total[2]
Barren	**31,379**	**18,854**	**1,351**	**94**	**-**	**5,094**	**56,772**
Chaparral	**74,624**	**59,175**	**35**	**-**	**44,996**	**2,494**	**181,324**
Foothill Woodland	**55,706**	**48,041**	**11,202**	**306**	**83,457**	**50,881**	**249,592**
Blue Oak Woodland	42,631	9,821	11,045	28	36,257	38,625	138,407
Canyon Live Oak Woodland	–	–	–	–	484	–	484
Coast Live Oak Woodland	–	–	32	–	–	41	73
Foothill Pine Woodland	–	–	–	–	3,753	–	3,753
Foothill Pine-Oak Woodland	13,075	16,830	122	–	–	3,126	33,154
Interior Live Oak Woodland	–	714	–	–	13,254	–	13,968
Juniper Woodland	–	–	–	–	2	–	2
Knobcone Pine Woodland	–	–	–	–	201	–	201
McNab Cypress Woodland	–	–	–	–	13	–	13
Mixed Foothill Woodland	–	–	–	–	235	–	235
Mixed Oak Woodland	–	20,675	2	277	29,259	9,089	59,302
Grassland	**95,008**	**76,856**	**172,717**	**34,489**	**78,853**	**52,223**	**510,147**
Annual Grassland	82,545	74,528	172,512	34,489	78,853	52,223	495,150
Perennial Grassland	12,463	2,328	206	-	-	-	14,997
Montane Forest	**698,321**	**490,703**	**428**	**-**	**97**	**132,143**	**1,321,692**
Aspen Forest	35	71	-	-	-	10	117
Black Oak Woodland	-	-	-	-	97	-	97
Closed-Cone Pine-Cypress Forest	421	1,925	-	-	-	74	2,420
Douglas-fir Forest	7,862	38,810	-	-	-	29,046	75,719
Eastside Pine Forest	11	3,741	-	-	-	-	3,752
Jeffrey Pine Forest	11,319	1,759	-	-	-	-	13,077
Lodgepole Pine Forest	1,798	4,325	-	-	-	-	6,123
Montane Hardwood Forest	164,688	89,795	428	-	-	40,536	295,448
Montane Hardwood-Coniferous Forest	40,773	48,500	-	-	-	15,183	104,455
Ponderosa Pine Forest	87,884	32,604	-	-	-	14,290	134,778
Red Fir Forest	71,661	43,631	-	-	-		115,292
Sierran Mixed Conifer Forest	288,997	189,132	-	-	-	32,750	510,879
Subalpine Forest	1,585	1,178	-	-	-	-	2,763
White Fir Forest	21,287	35,233				253	56,773
Open Water	**14,146**	**9,747**	**5,887**	**274**	**9,918**	**6,880**	**46,852**
Riparian	**1,691**	**10,944**	**14,993**	**14,789**	**8,926**	**8,178**	**59,520**
Montane Riparian	1,687	3,870	123	-	-	263	5,943
Valley Foothill Riparian	4	7,074	14,870	14,789	8,926	7,915	53,577
Riverine	**226**	**162**	**15,763**	**77**	**1,602**	**346**	**18,177**

Wildland Cover Type	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	Total[2]
Rock Outcrop	**6**	**493**	**-**	**-**	**359**	**-**	**858**
Rock Outcrop	-	-	-	-	349	-	349
Rock Outcrops/Cliffs	6	493	-	-	-	-	499
Serpentine Barren	-	-	-	-	10	-	10
Scrub	**334**	**1,997**	**145**	**-**	**-**	**-**	**2,477**
Alkali Desert Scrub	-	-	145	-	-	-	145
Alpine Dwarf Scrub	281	624	-	-	-	-	905
Low Sage Scrub	-	0	-	-	-	-	0
Sagebrush Scrub	53	1,373	-	-	-	-	1,427
Valley Oak Savanah	***30***	***10,161***	***5,569***	**–**	**–**	**–**	***15,759***
Valley Oak Woodland	***3,500***	***870***	***1,301***	***5,107***	***1,025***	***1,089***	***12,892***
Wetland	**2,123**	**3,332**	**13,373**	**16,374**	**14,396**	**17,860**	**67,458**
Freshwater Marsh	4	1,783	4,012	10	4,274	68	10,151
Seasonal Wetland	10	536	3,589	15,684	9,698	7,729	37,246
Vernal Pool	0	0	5,762	680	425	10,055	16,922
Wet Meadow	2,109	951	10	-	-	9	3,079
Wetland		61	0	-	-	-	61
TOTAL	**977,093**	**731,334**	**242,765**	**71,509**	**243,630**	**277,189**	**2,543,519[3]**

[1]The mapping scales of land cover data obtained for this programmatic-level document varied from general natural community types to specific vegetation alliances. Accordingly, the land cover types and acreages presented in this Table are intended to provide general information about the proposed MTP/SCS plan area. Implementation of future projects within the proposed plan area would provide more specific land cover type information.

[2]All values were rounded for presentation in the table; however the subtotals and totals here reflect the sums of the non-rounded numbers from the original data.

[3]The acres described in this table are derived from a number of land surveys and data sources (described in Methods and Assumptions) that differ from the data SACOG used to develop the land use assumptions for the proposed MTP/SCS. The net result is that the acres of impact described in the tables presented in this chapter overestimate the impact resulting from the implementation of the plan and represent a conservative approach to identifying potential impacts.

Table 6.2
Agricultural Land Cover Types and Acreages by County in the Proposed MTP/SCS Plan Area[1]

Agricultural Land Cover Type	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	Total[2]
Irrigation Canal	**–**	**–**	***265***	**–**	**–**	**–**	***265***
Orchards and Vineyards							***171,572***
Orchards	502	2,860	9,294	67,386	20,857	34,761	135,660
Vineyards	266	97	26,629	–	8,920	–	35,912
Pasture	***3***	***20,341***	***81,057***	***1,867***	***40,680***	***247***	***144,195***
Rice	**–**	***20,765***	***8,739***	***132,922***	***37,087***	***38,144***	***237,657***
Row and Field Crops							***464,657***
Agriculture	–	–	59	35	–	–	94
Field Crop	4,491	1,871	45,455	89,862	97,854	38,492	278,026
Row Crop	–	751	16,304	7,315	162,166	2	186,538
TOTAL	**5,262**	**46,685**	**187,803**	**299,387**	**367,564**	**111,646**	**1,018,346**

Table 6.3
Developed/Disturbed Land Cover Types and Acreages by County in the Proposed MTP/SCS Plan Area[1]

Developed/Disturbed Land Cover Type	El Dorado	Placer	Sacramento	Sutter	Yolo	Yuba	Total[2]
Developed	**16,582**	**83,567**	**189,725**	**18,470**	**38,012**	**22,921**	**369,278**
Developed	16,582	44,868	189,723	18,470	38,012	22,921	330,576
Rural Residential	-	38,699	2	1	-	-	38,702
Disturbed	**–**	**5,007**	**12,994**	**2**	**2,798**	**1**	**20,800**
Landscaped	**–**	**3,631**	**2,703**	**–**	**–**	**–**	**6,333**
Non-native Vegetation	**38**	**82**	**70**	**2**	**1,368**		**1,561**
Arundo	–	–	–	–	98	–	98
Black Locust	–	–	1	–	4	–	5
Blackberry	–	–	9	2	227	–	239
Eucalyptus	38	82	57	–	319	–	496
Pepperweed	–	–	2	–	221	–	224
Tamarisk	–	–	–	–	499	–	499
TOTAL	**16,621**	**92,286**	**205,491**	**18,474**	**42,178**	**22,922**	**397,972**

[1] The mapping scales of land cover data obtained for this programmatic-level document varied from general natural community types to specific vegetation alliances. Accordingly, the land cover types and acreages presented in this Table are intended to provide general information about the proposed MTP/SCS plan area. Implementation of future projects within the proposed plan area would provide more specific land cover type information.

[1] All values were rounded for presentation in the Table; however the subtotals and totals here reflect the sums of the non-rounded numbers from the original data.

Wildlands

Grassland

Within the MTP/SCS plan area there are two types of grassland land cover types: annual grassland and perennial grassland. Annual grassland is one of the most common plant communities in the MTP/SCS plan area and is dominated by nonnative annual grasses, nonnative native forbs, and native forbs. Grasslands are found on ridges, hill slopes, and valley floors. Representative species include a mix of dominant nonnative grasses such as soft chess (*Bromus hordeaceus*), red brome (*B. madritensis ssp. rubens*), ripgut brome (*B. diandrus*), foxtail barley (*Hordeum murinum* spp. *leporinum*), wild oat (*Avena* spp.), and annual fescues (*Vulpia* spp.), intermixed with forb species such as clovers (*Trifolium* spp.), lupines (*Lupinus* spp.), owl's clover (*Castilleja* spp.), popcornflower (*Plagiobothrys* spp.), poppies (*Eschscholzia* spp.), and various species of filaree (*Erodium* spp.). Some annual grasslands in the MTP/SCS plan area are subject to frequent disturbance, such as grazing and maintenance activities along roadsides. The annual grassland vegetation in these areas may be dominated by introduced nonnative species, such as yellow star-thistle (*Centaurea solstitialis*).

Annual grassland is a common plant community found regionally and statewide. Perennial grassland is dominated by native perennial bunchgrass plants that are intermixed with species typical of the aforementioned annual grassland. Perennial grassland is not common in California, and is considered a sensitive natural community by the California Department of Fish and Game (CDFG). Several areas of this land cover type are habitat restoration sites created and set aside specifically for this community.

In the MTP/SCS plan area, grasslands are important because they support insects, amphibians, reptiles, and small birds and mammals that are prey for other wildlife, such as red-tailed hawks, northern harriers, American kestrels, burrowing owls, and coyotes. Grasslands near open water and woodland habitats are used by the greatest number of wildlife species because they provide places for resting, breeding, and escape.

Both annual and perennial grassland stabilize soils, protect watersheds from erosion, and provide forage for wildlife and livestock. They also provide habitat for a variety of special-status species (Appendix BIO-1).

Chaparral

Chaparral communities in the MTP/SCS plan area typically occur on the drier slopes of the foothill region and are characterized by drought-resistant shrubs. These communities are relatively uncommon in the foothill regions of the MTP/SCS plan area. Dominant species in chaparral communities in the MTP/SCS plan area include manzanita species (*Arctostaphylos* spp.), buckbrush (*Ceanothus* spp.), black sage (*Salvia mellifera*), coyote brush (*Baccharis pilularis*), scrub oak (*Quercus berberidifolia*), leather oak (*Q. durata*) and chamise (*Adenostoma fasciculatum*). The herbaceous understory varies depending on the density of shrub cover, and typically includes native grasses and wildflowers.

Chaparral plants provide browse, berries, and seeds for a variety of birds, such as California quail, northern mockingbird, American robin, hermit thrush, rufous-sided towhee, California towhee, dark-eyed junco, and golden-crowned sparrow. Insectivorous birds, such as orange-crowned warbler, bushtit, and Bewick's wren, feed on insects in chaparral foliage. Many bird species also find nesting and roosting sites, and protection from predators, in chaparral habitats. Numerous rodents inhabit chaparral habitats, and deer, rabbits, and hares make extensive use of chaparral sources of food and cover. In addition, chaparral provides foraging and refuge habitat for other mammals and reptiles, including gray fox, coyote, deer mouse, western fence lizard, western rattlesnake, and gopher snake.

Special-status wildlife species that may occur in chaparral habitat include California horned lizard, and Marysville kangaroo rat. Some chaparral communities, especially those found in the lower foothill region of El Dorado County, provide habitat for a variety of special-status plant species (Appendix BIO-1).

Scrub

Four scrub land cover types have been identified in the proposed MTP/SCS plan area: alkali desert scrub, alpine dwarf scrub, low sage scrub, and sagebrush scrub. These areas within the MTP/SCS plan area are characterized by typically low growing (i.e., 25–0.5m tall) shrubs that have varying canopy density. Although generally dominated by shrubs, small trees and herbaceous annual species may also occur in these scrub areas.

No special-status wildlife in MTP/SCS plan area were identified as potentially occurring in this habitat.

Valley Oak Savanna

In the MTP/SCS plan area, the valley oak savanna occurs in the valley and at the mid- to upper elevations. These communities are dominated by valley oak (*Q. lobata*), but blue oak (*Q. douglasii*) and interior live oak *(Q. wislizeni*) may also be present. The canopy cover is less than 10 percent, the shrub layer is sparse or absent, and the herbaceous layer consists of grassland.

Valley oak savanna communities provide important breeding, foraging, and cover habitat for several wildlife species common to the region. The upper canopy of the oak trees provides nesting, foraging, and cache sites for many birds, such as Lewis' woodpecker, acorn woodpecker, northern flicker, oak titmouse, western bluebird, mourning dove, and red-tailed hawk; the understory grassland layer provides nesting and foraging habitat for many common species of birds, small mammals, and reptiles.

Special-status wildlife species that could occur in valley oak savanna communities in the MTP/SCS plan area include western spadefoot, western pond turtle, California horned lizard, white-tailed kite, Cooper's hawk, golden eagle, purple martin, Townsend's big-eared bat, and pallid bat. Special-status plants that could occur in valley oak savannas are included in Appendix BIO-1.

Valley Oak Woodland

Valley oak woodlands in the MTP/SCS plan area are differentiated from oak savanna by the amount of canopy cover within the community. Valley oak woodland canopy cover ranges from approximately 10–60 percent. Oak woodlands are dominated by valley oak, but interior live oak, and coast live oak (*Q. agrifolia*) are also present. The understory of valley oak woodlands varies from sparse to well-developed, including shrubs such as poison oak (*Toxicodendron diversilobum*), ceanothus (*Ceanothus* spp.), and scrub oak. The herbaceous understory frequently contains plant species found in annual grasslands.

Valley oak woodland communities provide important breeding, foraging, and cover habitat for several wildlife species common to the region. The upper canopy of the oak trees provides nesting, foraging, and cache sites for many birds, such as Lewis' woodpecker, acorn woodpecker, northern flicker, oak titmouse, western bluebird, mourning dove, and red-tailed hawk; the understory layer provides nesting and foraging habitat for many common species of birds, small mammals, and reptiles.

Special-status wildlife species that could occur in valley oak woodland communities in the MTP/SCS plan area include western spadefoot, western pond turtle, California horned lizard, white-tailed kite, Cooper's hawk, golden eagle, purple martin, Townsend's big-eared bat, and pallid bat. Special-status plants that could occur in valley oak woodlands are listed in Appendix BIO-1.

Foothill Woodland

Foothill woodlands the MTP/SCS plan area occur along the slopes of both the Sierra Nevada foothill regions of Placer, El Dorado, and Yuba counties, and the interior coast ranges of Yolo County. This land cover type included woodlands dominated by blue oak, canyon live oak (*Q. chrysolepis*), coast live oak, foothill pine (*Pinus sabiniana*), juniper (*Juniperus* spp.), and knobcone pine (*Pinus attenuata*).

A variety of common wildlife species inhabit foothill woodlands. These areas represent important habitat for nesting birds, roosting habitat for bats that utilize tree cavities, wintering habitat for deer, and resident habitat for many common mammals.

Montane Forest

Montane forest communities within the MTP/SCS plan area occur in the Sierra Nevada foothill and mountainous regions of Placer, El Dorado, and Yuba counties. These forest communities are dominated by a mix of pines (depending on the elevation), black oaks (*Q. kelloggii*), red fir (*Abides magnificent*), white fir (*A. councilor*), incense-cedar (*Calocedrus decurrens*), quaking aspen (*Populus tremuloides*), Douglas-fir (*Pseudotsuga menziesii*), juniper, and Pacific madrone (*Arbutus menziesii*). Pine species that occur in montane forest are ponderosa pine (*P. ponderosa*), Jeffrey pine (*P. jeffreyi*), sugar pine (*P. lambertiana*), and lodgepole pine (*P. contorta*).

Species composition of the understory of the montane forest communities varies widely with elevation, slope aspect, and fire history of individual stands. However, in most areas, the shrub and herbaceous layers occur primarily at forest edges or in canopy openings, such as rock outcrops and other natural or artificial clearings.

Large mammals that frequent montane forest communities include coyote, black bear, mountain lion, and bobcat. A variety of smaller rodents, squirrels, and shrews are found in shrub thickets and open patches within the forest. Amphibians and reptiles that occur in forest communities include California newt, long-toed salamander, Pacific treefrog, western toad, western fence lizard, northern alligator lizard, gopher snake, common kingsnake, mountain kingsnake, common garter snake, and western rattlesnake.

A variety of flycatchers, vireos, warblers, and many other birds occur in montane forests. Canopy-dwelling species include olive-sided flycatcher, golden-crowned kinglet (winter only), and western tanager. Large snags and the decaying portions of living trees offer nesting cavities for pileated woodpecker, western screech owl, and northern flicker. The forest also provides food and habitat for a variety of birds, including white-headed woodpecker, white-breasted nuthatch, red-breasted nuthatch, chestnut-backed chickadee, mountain chickadee, dark-eyed junco, spotted towhee, black-headed grosbeak, and evening grosbeak.

Special-status species that are known to visit this habitat include western pond turtle, northern goshawk, California spotted owl, great gray owl, yellow warbler, American marten, Pacific fisher, ringtail, and bats such as Yuma myotis and pallid bat. There are also a variety of special-status plants that are known to occur within montane forest communities in the Sierra Nevada region (Appendix BIO-1).

Riparian

Riparian land cover types in the proposed MTP/SCS plan area occur along creeks, rivers, and other water bodies in the proposed MTP/SCS plan area. The composition and structure of vegetation varies among riparian areas on the valley floor, in the foothills, and in montane areas, typically includes willows (*Salix* spp.), Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*), valley oak, California sycamore (*Platanus racemosa*), box elder (*Acer negundo* var. *californicum*), Oregon ash (*Fraxinus latifolia*), white alder (*Alnus rhombifolia*), and wild grape (*Vitis californica*). The shrub layer of riparian areas is also highly variable and can range from extremely sparse to well-developed. The herbaceous understory of riparian areas typically contains a mixture of native and introduced species.

Despite widespread disturbances resulting from urbanization, agricultural conversion, and grazing, riparian forests remain important wildlife resources because of their scarcity regionally and statewide and because the riparian community is used by a large variety of wildlife species. This habitat supports abundant aquatic and terrestrial invertebrates that are prey for amphibians and reptiles, such as common garter snakes, western skinks, and ringneck snakes, as well as insectivorous birds, such as warblers, northern flickers, downy woodpeckers, and flycatchers. Small mammals found in riparian habitats include shrews, voles, bats, and mice. Raptors that nest in large riparian trees include great horned owls, red-tailed hawks, and American kestrels.

Cavity-dependent species, such as woodpeckers, bats, squirrels, and raccoons, require mature stands of trees. Striped skunks, red foxes, gray foxes, and badgers forage in riparian habitats and use them for cover and travel.

Elderberry shrubs within riparian woodlands in the proposed MTP/SCS plan area provide habitat for valley elderberry longhorn beetle, a species listed as threatened under the federal Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq.). Riparian woodlands also provide nesting habitat for several special-status raptors, including osprey, bald eagle, Cooper's hawk, Swainson's hawk, and white-tailed kite. Although it is a very rare species, western yellow-billed cuckoos potentially could nest in very dense areas of riparian woodland. Cavities in riparian trees along waterways in the proposed MTP/SCS plan area may be used as roosting sites by some species of special-status bats, such as pallid bat.

Many riparian forests (especially those found in the proposed MTP/SCS plan area) represent uncommon plant communities regionally and statewide because of historic and continuing habitat loss. These communities provide essential habitat functions and values for many species. For this reason, riparian habitat has been designated by CDFG as a critical primary habitat. Land conversion practices and flood control projects have been identified as the primary causes of riparian habitat loss.

Wetland

The MTP/SCS plan area contains a variety of seasonal and perennial wetland communities and riverine communities. Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The importance and sensitivity of wetlands has increased; their value as recharge areas and as filters for water supplies has become recognized. The most common types of wetlands in the MTP/SCS plan area, seasonal wetlands (including vernal pools) and fresh emergent wetlands, are discussed below.

Vernal Pools and Other Seasonal Wetland Communities

Seasonal wetlands in the MTP/SCS plan area are typically shallow depressions that frequently occur in grasslands and are inundated only during the rainy season. Vernal pools in the MTP/SCS plan area are a type of seasonal wetland that is characterized by the presence of an impermeable hardpan layer, a unique hydrologic cycle, and a plant community that adapted to conditions within vernal pools. Vernal pools provide habitat for numerous plant, vertebrate, and invertebrate species, many of which are endemic to vernal pools.

Seasonal wetlands, including vernal pools and seasonal swales, provide habitat for a variety of wildlife species. During the wet season when seasonal wetlands and vernal pools are ponded, avian species such as killdeer black-necked stilts, American avocets, great egrets, and greater yellowlegs commonly forage on the many invertebrate and amphibian larvae commonly found in this habitat. Seasonal wetlands are also an important breeding habitat for several amphibian species that depend on these temporary water bodies for successful reproduction.

Vernal pools and other types of seasonal wetlands provide habitat for several special-status wildlife species in the MTP/SCS plan area, including vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, Delta green ground beetle, California tiger salamander, and western spadefoot toad.

Special-status plants that may occur in these seasonal wetland communities include Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), legenere (*Legenere limosa*), dwarf downingia (*Downingia pusilla*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Sacramento Orcutt grass (*Orcuttia viscida*), slender Orcutt grass (*Orcuttia tenuis*), Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*, and pincushion navarretia (*Navarretia myersii* ssp. *myersii*) (Appendix BIO-1).

Vernal pools are sensitive natural communities that are being lost increasingly as a result of conversion of land to other uses. One priority of several of the HCPs that are currently being prepared for areas within the SACOG region is to conserve and protect remaining vernal pool complexes within the respective planning areas.

Fresh Emergent Wetland Communities

This community in the MTP/SCS plan area is distinguished from deepwater aquatic habitats and other wetlands by the presence of tall, perennial, grass-like plants rooted in soils that are permanently or seasonally flooded or inundated. Characteristic species include broadleaf cattail (*Typha latifolia*), California bulrush (*Schoenoplectus californicus*), creeping spikerush (*Eleocharis macrostachya*), Pacific rush (*Juncus effusus* var. *pacificus*), Baltic rush (*Juncus balticus*), mannagrass (*Glyceria* spp.), water primrose (*Ludwigia* spp.), water-plantain (*Alisma plantago*-aquatica), and swamp smartweed (*Polygonum hydropiperoides*).

In the MTP/SCS plan area, fresh emergent wetlands are often associated with small artificial ponds, reservoirs, natural drainages, irrigation canals, and roadside ditches.

Characteristic water birds that nest in emergent wetlands include Canada goose, mallard, cinnamon teal, gadwall, Virginia rail, American coot, common moorhen, and Wilson's snipe. These species may be joined by migratory and wintering waterfowl such as American wigeon, northern shoveler, northern pintail, green-winged teal, ring-necked duck, bufflehead, and ruddy duck. Amphibians and reptiles that are found in fresh emergent wetland communities include western toad, Pacific tree frog, common garter snake, and western aquatic garter snake.

Special-status wildlife species in the MTP/SCS plan area that may use this community type include California tiger salamander, California red-legged frog, western pond turtle, giant garter snake, northern harrier, white-tailed kite, California black rail, saltmarsh common yellowthroat, and tricolored blackbird. There are also a variety of special-status plants that are known to occur in this wetland community (Appendix BIO-1).

Riverine Systems

Riverine systems in the MTP/SCS plan area comprise permanent, intermittent, and ephemeral drainages. Most of the rivers in the MTP/SCS plan area and their tributaries are part of the Sacramento–San Joaquin River watershed. This includes streams and creeks, as well as their associated gravel and sand bars.

A variety of invertebrate and vertebrate species occur in riverine ecosystems in the MTP/SCS plan area. Invertebrates that might be found in rivers and creeks include mayflies, alderflies, stoneflies, dragonflies, damselflies, water striders, and caddis flies.

Fish-eating birds such as ospreys and bald eagles forage for fish near the surface of pools and shallow waters along the rivers. Belted kingfishers, double-crested cormorants, and common mergansers also forage for fish in streams and reservoirs. Many amphibians and reptiles depend on riverine systems; these include California newt, western toad, foothill yellow-legged frog, western terrestrial garter snake, western aquatic garter snake, and western pond turtle. Mammals in riverine systems include northern river otter, American mink, muskrat, and American beaver. Emerging aquatic insects are a major food source for many bat species that forage over open waters in the proposed MTP/SCS plan area.

Low-elevation rivers and large, perennial creeks support runs of Chinook salmon and Central Valley steelhead. Other native fish species include hitch, Sacramento roach, hardhead, Sacramento sucker, riffle sculpin, Sacramento pike minnow, and Pacific lamprey. Appendix BIO-1 presents a list of special-status fish that are known or have the potential to occur in the proposed MTP/SCS plan area.

Open Water/Lakes and Reservoirs

The MTP/SCS plan area contains several lakes, reservoirs, and flood control basins, including Folsom Lake, Rollins Reservoir, Sugar Pine Reservoir, New Bullards Bar Reservoir, Collins Lake, and Camp Far West Reservoir. There are many other small reservoirs, lakes, and ponds throughout each of the counties. Many of these large water bodies support perennial and seasonal wetland and riparian communities along their edges.

These reservoirs provide habitat for a variety of waterfowl, including goose species, mallard, cinnamon teal, green-winged teal, American wigeon, northern pintail, northern shoveler, gadwall, ruddy duck, and merganser, and can provide important resting and foraging habitat for many waterfowl species during migration.

Vegetation growing along the edges of water bodies also provides nesting habitat for several bird species and foraging and refuge habitat for numerous amphibian, reptile, and mammal species occupying the open water and adjacent grassland, woodland, and forest habitats.

Barren

Barren areas in the proposed MTP/SCS plan area include cliffs, rock outcrops, and serpentine barrens that support little, if any, vegetative cover.

Agriculture

Agricultural lands occur throughout the valley and lower foothill regions of the MTP/SCS plan area. Agricultural lands include, but are not limited to, irrigated pastures, vineyards, rice fields, row crops, and orchards. Depending on the crop pattern and the land's proximity to native habitats, agricultural lands can provide relatively high-value habitat for wildlife, particularly as foraging habitat. Raptor species use row- and grain-crop agricultural lands for foraging because several species of common rodents are found in agricultural fields. Agricultural habitats also provide foraging and resting habitat for migrating and wintering waterfowl and shorebirds.

Special-status wildlife species associated with agricultural lands, such as northern harrier and giant garter snake, may use adjacent irrigation canals and freshwater marsh vegetation for foraging or breeding. Giant garter snakes have the potential to occur in irrigation canals and can use the adjacent agricultural lands as foraging and basking habitat. Swainson's hawks also forage in agricultural land types such as alfalfa and grain crops.

Orchards and Vineyards

Areas mapped as orchards and vineyards occur in both the valley and lower foothill regions of the MTP/SCS plan area, with the majority of orchards composed of walnut, plum, or peach trees. This type of agriculture requires active maintenance such as irrigation, pruning, and frequent mowing or herbicide use to discourage vegetation. If present, vegetation typically consists of nonnative, weedy species. The vineyards in the study area contain grape vines, and maintenance is comparable to that in orchards.

Row and Field Crops

Agricultural areas mapped as row and field crops are distributed primarily in the valley regions of the MTP/SCS plan area. Row and field crops include both active and fallow fields that exhibit indicators of tillage. Row and field crop types mapped in the study area include alfalfa, croplands, grain and hay, irrigated grain crops, irrigated hay field, irrigated row and grain crops, dry land grain crops, and upland crops. Active row and field crops are maintained with irrigation and herbicide application. Alfalfa, hay, and rotating crop farming methods can mean a given piece of land may be harvested several times during the course of the year. The margins of row and field crops typically support nonnative, weedy species.

Rice

Areas mapped as rice, primarily in the valley regions of the MTP/SCS plan area, are agricultural lands planted with rice and include both flooded and fallow rice fields. Rice fields commonly include irrigation features such as berms, ditches, canals, and water control structures. Rice is

grown as a monoculture, using tillage or herbicides to eliminate unwanted vegetation; remaining vegetation is generally confined to the berms, ditches, and canals between and around fields, and is dominated by wetland plants, both native and nonnative.

Pasture

Areas mapped as pasture occur in both the valley and lower foothill regions of the MTP/SCS plan area, and consist of actively irrigated fields utilized for grazing purposes. Vegetation in pastures, which represents regularly grazed or mowed, typically consists of grasses, rushes, and legumes that form a dense ground cover. Representative species are nonnative clovers (*Trifolium* spp.), dallis grass (*Paspalum dilatatum*), and Italian ryegrass (*Lolium multiflorum*).

Irrigation Canal

Areas mapped as irrigation canals are composed of ditches, canals, and levees that convey and distribute water to agricultural lands (e.g., row and field crops, irrigated pasture, rice, orchard and vineyard) in the MTP/SCS plan area. Irrigation canals are typically maintained and cleared of vegetation, although some may contain wetland vegetation characteristic of fresh emergent wetland communities.

Developed/Disturbed

Developed

Developed areas within the MTP/SCS plan area are characterized by residential and commercial properties, infrastructure, and impermeable surfaces. The composition of vegetation within developed areas is variable, but most are ornamental species planted for landscaping or horticulture (e.g., fruit trees) and are actively irrigated. Developed areas also contain weedy plant species, some of which are considered invasive by the CDFA and California Invasive Plant Council (Cal-IPC). Representative weed species that occur in these areas are black mustard (*Brassica nigra*), bristly ox-tongue (*Picris echioides*), Himalayan blackberry, pampas grass (*Cortaderia jubata*), Bermuda grass (*Cynodon dactylon*), Italian ryegrass, Bermuda buttercup (*Oxalis pes-caprae*), and periwinkle (*Vinca major*).

Developed areas in the MTP/SCS plan area also contain inclusions of annual grassland, riparian habitat along streams and rivers, and landscaped areas. In addition to the ornamental landscaping, these habitat types , in the developed areas provide nesting and foraging habitat for common bird species, including house sparrow, northern flicker, western scrub-jay, northern mockingbird, Brewer's blackbird, and European starlings. California ground squirrels, eastern gray squirrels, house mice, and striped skunks can also be found using habitats in urban landscapes, such as parks, schools, and vacant lots.

Disturbed

The disturbed portions of the MTP/SCS plan area include nonagricultural areas that have been heavily disturbed or graded such as landfills, gravel mines, and mine tailings. The vegetation in disturbed areas varies in density and typically contains a large proportion of nonnative species.

Landscaped

Landscaped portions of the MTP/SCS plan area include urban parks, golf courses, and urban woodlands, which are frequently located within city limits and are typically surrounded (partially or fully) by developed areas. Landscaped areas vary in size, from large areas that may include remnant patches of natural vegetation, to small, heavily landscaped and managed playgrounds and ball fields.

Nonnative Vegetation

The areas of nonnative vegetation that have been identified in the proposed MTP/SCS plan area consist of dense, monotypic patches of nonnative trees, shrubs, or herbs, including: black locust (*Robinia pseudoacacia*), eucalyptus (*Eucalyptus* spp.), Himalayan blackberry, tamarisk (*Tamarisk* spp.), giant reed (*Arundo donax*), and perennial pepperweed (*Lepidium latifolium*).

Invasive Plants

The proposed MTP/SCS plan area contains plant species that are considered invasive plants or noxious weeds by Cal-IPC and/or CDFA. According to the California Flora Database (Calflora; 2011), 204 invasive plant species have been reported in El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. The introduction and spread of invasive plants adversely affect natural plant communities by altering ecosystem processes (e.g., fire frequency, hydrological cycles), displacing native plant species, and reducing the quality of habitats that provide shelter and forage for wildlife species (California Invasive Plant Council 2006). Invasive plants also affect the quality of forage on rangelands and cropland productivity. Invasive plant ratings assigned by Cal-IPC and CDFA are based on multiple criteria, including ecological impacts, invasive potential, distribution, the likelihood that eradication or control efforts would be successful, and perceived importance by CDFA and Cal-IPC.

Invasive plants in the proposed MTP/SCS plan area were not inventoried for this program-level analysis because target invasive plants would differ widely from project site to project site, depending on the sensitivity of the site to infestation, the nature of the specific proposed project, and the type of invasive plants in the immediate specific project area. Target lists of invasive plants for specific project implementation would include both CDFA and Cal-IPC species, with priority given to CDFA A-rated weed species and species designated as high or moderate invasive plants by Cal-IPC. Some CDFA B- and C-rated species would be included on project-specific target lists if they are identified by the applicable county agricultural commissioner as target invasive plants. Federal Executive Order (EO) 13112, signed on February 3, 1999, directs federal agencies to prevent and control the introduction of invasive species.

Wetlands and Other Waters

The MTP/SCS plan area contains numerous types of wetlands and other waters (i.e., non-wetlands) that are subject to state and/or federal regulation. Compliance with regulations for wetlands and other waters in the plan area would be required on a project-level basis. Wetlands and other waters in the proposed plan area are discussed briefly below; more detailed information is provided in the discussion of land cover types. Applicable regulations and regulatory agencies are discussed under Regulatory Setting.

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) define wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 C.F.R. § 232.2). This definition is referred to as a three-parameter definition because positive indicators of all three wetland criteria (vegetation, soils, and hydrology) must be present. The most common wetland land cover types identified in the MTP/SCS plan area are seasonal wetlands (including vernal pools) and freshwater emergent wetlands. Areas identified as other waters typically lack positive indicators of one or more wetland criteria. Other waters that occur in the MTP/SCS plan area include streams, creeks, rivers, irrigation canals, reservoirs, and ponds.

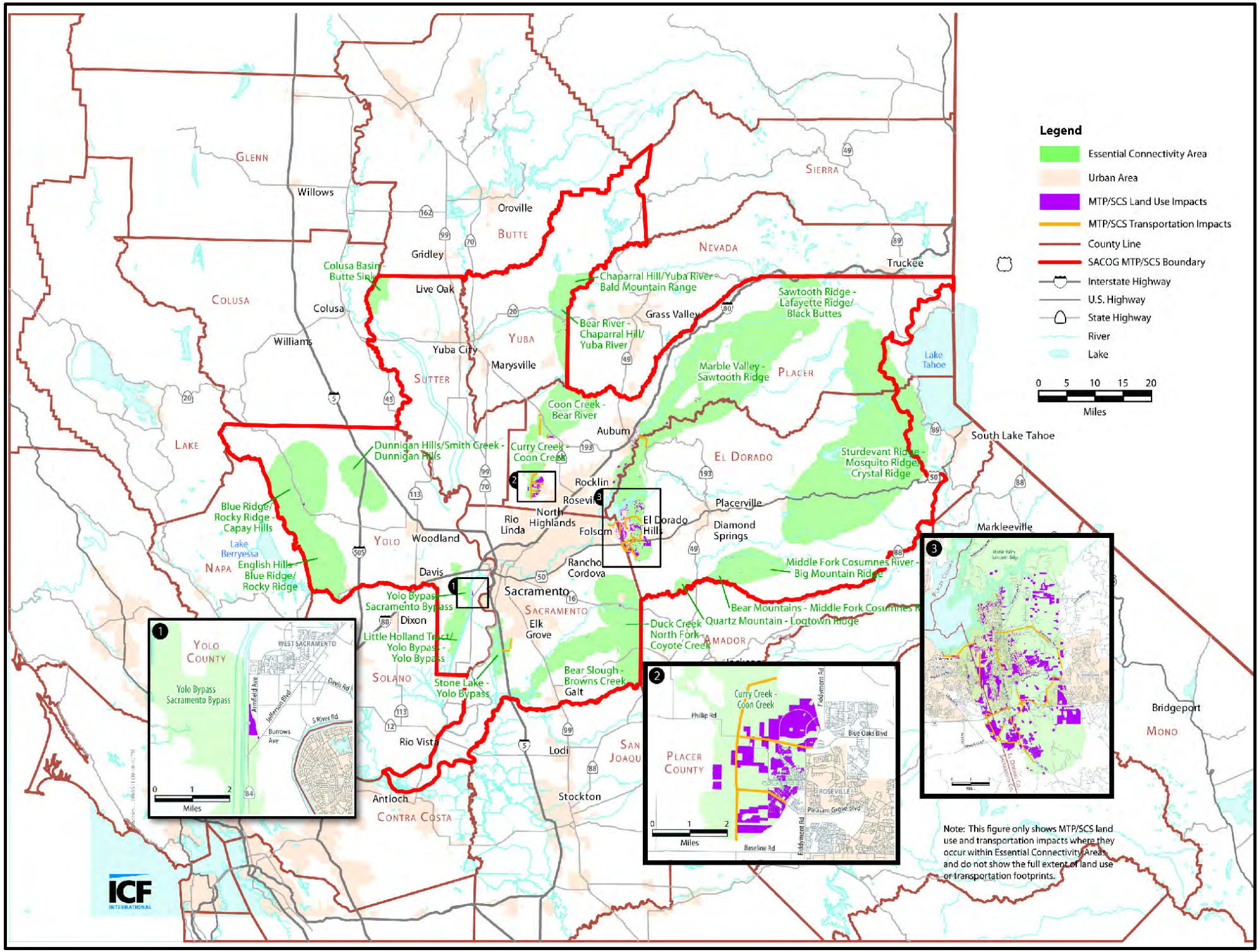
Habitat Corridors

The proposed plan area encompasses larger large areas of wildlands that provide habitat for both common and rare plants and animals. Some of these areas were mapped as Essential Connectivity Areas (ECA) for the California Essential Habitat Connectivity Project, which was commissioned by the California Department of Transportation (Caltrans) and CDFG with the purpose of making transportation and land-use planning more efficient and less costly, while helping reduce dangerous wildlife-vehicle collisions (Spencer et al, 2010). The ECAs were not developed for the purposes of defining areas subject to specific regulations by CDFG, or other agencies.

The ECAs are not regulatory delineations and are identified as lands likely important to wildlife movement between large, mostly natural areas at the state wide level. The ECAs form a functional network of wildlands that are considered important to the continued support of California's diverse natural communities. The ECAs were not developed for the needs of particular species but were based primarily on the concept of ecological integrity, which considers the degree of land conversion, residential housing impacts, road impacts, and status of forest structure (for forested areas) (Spencer et al, 2010). In addition, consideration was given to the degree of conservation protection and areas known to support high biological values, such as mapped critical habitat and hotspots of species endemism (Spencer et al, 2010). ECAs are placeholder polygons that can inform land-planning efforts, but that should eventually be replaced by more detailed linkage designs, developed at finer resolution at the regional and ultimately local scale based on the needs of particular species and ecological processes. Figure 6.2 shows where these areas occur within the plan area. As seen in this figure, ECAs occur within all six of the counties comprising the proposed plan area with El Dorado, Placer, and

Sacramento counties having the largest blocks of ECAs. There are total of 20 ECAs mapped within the plan area with many of these having some overlap. There are a total of 1,032,641 acres of ECA lands mapped within the plan area, which equates to roughly one-quarter of the plan area. These areas are comprised of mostly wildlands, but also include certain agricultural areas and certain developed areas (mostly rural residential).

Figure 6.2 Essential Connectivity Areas



Special-Status Species

Special-status species are plants and animals that are legally protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the ESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under the ESA (50 C.F.R. § 17.12) for listed plants, (50 C.F.R § 17.11) for listed animals, and various notices in the Federal Register for proposed species);
- species that are candidates for possible future listing as threatened or endangered under the ESA (75 Fed. Regs,.§ 69222) (November 10, 2010);
- species that are listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) of 1984 (14 C.C.R. § 670.5);
- plants listed as rare under the California Native Plant Protection Act (NPPA) of 1977 (Fish and G. Code, § 1900 et seq.);
- plants considered by CDFG and CNPS to be "rare, threatened, or endangered in California" (Rare Plant Ranks 1B and 2; California Department of Fish and Game, 2010; California Native Plant Society, 2011);
- plants identified by CDFG and CNPS about which more information is needed to determine their status, and plants of limited distribution (Rare Plant Ranks 3 and 4, California Department of Fish and Game, 2010; California Native Plant Society, 2011), which may be included as special-status species on the basis of local significance or recent biological information; ;
- species that meet the definition of rare or endangered under the State CEQA Guidelines, Section 15380;
- animals fully protected in California (Fish & G. Code, § 3511 for birds, § 4700 for mammals, and § 5050 for reptiles and amphibians); or
- animal species of special concern to CDFG (California Department of Fish and Game, 2011).

Special-status plant, fish, and wildlife species that have been documented or have the potential to occur in the MTP/SCS plan area are identified in Appendix BIO-1. Critical habitat for various federally listed species has been designated in each of the counties within the MTP/SCS plan area. A summary of the designated critical habitat in the plan area is presented in Table 6.4.

Table 6.4
Acreages of Critical Habitat for Federally Listed Species in the Proposed MTP/SCS Plan Area

Species	Federal Status	Total
Amphibians		
California red-legged frog (*Rana draytonii*)	Threatened	**13,032**
California tiger salamander (*Ambystoma californiense*)	Threatened	**12,699**
Fish		
Delta smelt (*Hypomesus transpacificus*)	Threatened	**210,502**
Invertebrates		
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened	**515**
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	**40,924**
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Endangered	**38,783**
Plants		
Fleshy owl's-clover (*Castilleja campestris ssp. succulent*)	Threatened	**52**
Contra Costa wallflower (*Erysimum capitatum var. angustatum*)	Endangered	**24**
Colusa grass (*Neostapfia colusana*)	Threatened	**440**
Antioch Dunes evening primrose (*Oenothera deltoides ssp. howellii*)	Endangered	**24**
Sacramento Orcutt grass (*Orcuttia viscida*)	Endangered	**30,747**
Slender Orcutt grass (*Orcuttia tenuis*)	Threatened	**1,161**
Solana grass (*Tuctoria mucronata*)	Endangered	**440**
TOTAL		**349,343**

Regulatory Setting

Federal

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq.) requires similar environmental impact analysis as CEQA for projects that require federal funding or a federal permit. For biological resources, NEPA requires consideration of a project's impact on biological resources, its compliance with federal regulations concerning biological resources (as noted below), and consideration of alternatives to the proposed federal action.

Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq.) protects fish and wildlife species and their habitats that have been identified by the United States Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

The ESA is administered by USFWS and the NMFS. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, whereas other listed species are under USFWS jurisdiction.

Clean Water Act

The Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) was enacted as an amendment to the federal Water Pollution Control Act of 1972 (33 U.S.C. § 1251 et seq.), which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers EPA to set national water quality standards and effluent limitations and includes programs addressing both point source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure, an excavation site, or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

Section 4(f) of the Department of Transportation Act of 1966

Per Section 4(f) of the Department of Transportation Act (DOT Act) of 1966 (49 U.S.C. § 303), the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from a historic site of national, state or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use. The policies Section 4(f) engendered are widely referred to as "Section 4(f)" matters.

Section 4(f) states that subject to exceptions for *de minimis* impacts, the Secretary of Transportation may approve a transportation program or project requiring the use of publicly-owned land of a park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance or land of a historic site of national, state, or local significance as determined by the official having jurisdiction over those resources only if there is no prudent and feasible alternative that would avoid using those resources, and the program or project includes all possible planning to minimize harm resulting from the use.

When there is no physical taking, but there is the possibility of constructive use, the Federal Aviation Administration (FAA) must determine if the impacts would substantially impair the 4(f) resource (FAA AC 1050.1E, Section 6, Paragraph 6.2e). If there would be no substantial impairment, the action would not constitute a constructive use and would not therefore invoke the DOT Act. Substantial impairment occurs only when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. An

example of "constructive use" could be an increase in noise levels at a park resulting from aircraft overflights where the noise is loud enough to substantially impair the intended use of the park, even though the park property is not directly affected through acquisition or physical development. In this instance, the noise would have to be at levels high enough to have negative consequences of a substantial nature that would impair a park or portion of a park for transportation purposes.

Construction of recreational improvements in a recreation area, including enhancement done as part of mitigation for a transportation project are not subject to Section 4(f) provided they do not permanently incorporate land into a transportation facility, do not appreciable change the use of the property, and the officials having jurisdiction agree (FHWA Section 4(f) Policy Paper, Response to Question 22, March 1, 2005).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. § 703 et seq.) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (50 C.F.R. § 10 & § 21). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird-banding, and other similar activities. The USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

State

Wetlands Stewardship

Many programs and policies have been adopted by federal, state, and regional agencies and private entities to protect and restore wetlands in California. In 1993, the California Wetlands Conservation Policy was established through Executive Order W-59-93. The goals of the policy were to establish a framework and a strategy that would:

- ensure no overall net loss, and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property;
- reduce procedural complexity in the administration of state and federal wetlands conservation programs; and
- encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

California Endangered Species Act

California implemented the California Endangered Species Act (CESA) of 1984 (Fish & G. Code, § 2050 et seq.) prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Under CESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include harm or harassment. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and promote conservation of these species. DFG administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act (NPPA) of 1977, which prohibits importing rare and endangered plants into California, taking rare and endangered plants, and selling rare and endangered plants. State-listed plants are protected mainly in cases where state agencies are involved in projects under CEQA. In these cases, plants listed as rare under the NPPA are not protected under CESA but can be protected under CEQA.

Natural Community Conservation Planning Act

The goal of the California Natural Community Conservation Planning Act (NCCPA) of 1991 (Fish & G. Code, § 2800 et seq.) is to provide long-term protection of species and habitats through regional, multi-species planning; the intent is that such planning will obviate the need to list species under CESA.

California Native Plant Protection Act

The California Native Plant Protection Act (NPPA) of 1977 (Fish & G. Code, §§ 1900-1913) prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The CESA defers to the NPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the NPPA are not protected under CESA but rather under CEQA.

Porter-Cologne Water Quality Control Act

Water Code Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." Under the Porter-Cologne Water Quality Control Act (Porter Cologne Act) of 1969 (Wat. Code, § 13000 et seq.) waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." Key court cases, (*Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers et al (2001) 531 U.S. 159)* and (*Rapanos et ux., et al. v. United States (2006) 547 U.S. 715)* have no bearing on the Porter-Cologne definition. Although all waters of the United States that are within the borders of California are also waters of the state, the converse is not true (i.e., in California, waters of the United States represent a subset of waters of the state). Thus, California retains authority to regulate discharges of waste into any

water of the state, regardless of whether the USACE has concurrent jurisdiction under CWA Section 404.

If the USACE determines that a wetland is not subject to regulation under CWA Section 404, Section 401 water quality certification is not required. However, the Regional Water Quality Control Board may impose waste discharge requirements (WDRs) if fill material is placed into waters of the state.

California Fish and Game Code

Sections 1600-1616

The CDFG activities that would interfere with the natural flow of, or substantially alter the channel, bed, or bank of, a lake, river, or stream, including disturbance of riparian vegetation under CDFG Code sections 1600–1616. CDFG requires a streambed alteration agreement permit for these activities. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Required conditions include avoidance or minimization of vegetation removal, use of standard erosion control measures, limitations on the use of heavy equipment, limitations on work periods to avoid impacts on fisheries and wildlife resources, and requirements to restore degraded sites or compensate for permanent habitat losses.

Sections 3503 and 3503.5

Section 3503 of the Fish and Game Code prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests. The MTP/SCS plan area provides suitable nesting habitat for raptors.

Section 3511

The Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Section 3511 lists fully protected birds and prohibits take of these species. The Fish and Game Code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited. The MTP/SCS plan area provides potential nesting habitat for the following fully protected bird species: white-tailed kite, bald eagle, golden eagle, and California black rail.

Section 3513

Section 3513 of the Fish and Game Code prohibits the take or possession of any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Section 4700

Fish and Game Code Section 4700 lists fully protected mammals and prohibits take of these species. Except for take related to scientific research, all take of fully protected species is prohibited. The MTP/SCS plan area provides suitable habitat for two fully protected mammals: California wolverine and ringtail.

California Oak Woodlands Conservation Act

The California Oak Woodlands Conservation Act of 2001 (Fish & G. Code, §§ 1360-1372) was enacted to protect oak woodland habitats that were being diminished by development, firewood harvesting, and agricultural conversions. The Oak Woodlands Conservation Program was established as a result of the act and is intended to provide project funding opportunities for private landowners, conservation organizations, and cities and counties to conserve and restore oak woodlands. The program authorizes the Wildlife Conservation Board to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts.

California's Wildlife Action Plan

In 2000, Congress enacted the State Wildlife Grants Program to support state programs that broadly benefit wildlife and habitats, particularly those addressing "species of greatest conservation need." As a requirement for receiving federal funds under this program, state wildlife agencies were required to submit a state wildlife action plan to USFWS by October 2005.

In a cooperative effort, CDFG and the Wildlife Health Center at the University of California, Davis produced *California Wildlife: Conservation Challenges (California's Wildlife Action Plan*). The Wildlife Health Center managed scoping meetings, expert consultations, conservation workshops, and prepared the report and Web publications. CDFG provided guidance, technical analyses, and critical review and editing.

Local

This section summarizes local policies and habitat conservation plans that pertain to biological resources that could affect or be affected by the proposed MTP/SCS. Policies may either support or conflict with proposed project improvements.

Habitat Conservation Plans

A summary of the current habitat conservation plans (HCPs) and natural community conservation plans (NCCPs) in the proposed MTP/SCS plan area is provided below. Not all of these plans have been adopted or fully implemented. During implementation of specific projects, an activity subject to Section 10 of the Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq.) and considered a covered project under the implementing rules of an adopted HCP or NCCP may be able to participate in the plan for effects on covered species. In some of the HCP/NCCPs, the permit requirement for waters, wetlands, and streams under Section 404 and Section 401 of the Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) and Section 1602 of the Fish and Game Code are included in the overall permitting process.

Bay Delta Conservation Plan (HCP/NCCP)

The Bay Delta Conservation Plan (BDCP) is currently in preparation. The BDCP is being prepared by a group of local water agencies, environmental and conservation organizations, state and federal agencies, and other interest groups. The BDCP is being developed in compliance with the federal ESA and the California NCCPA. When complete, the BDCP will provide the basis for the issuance of endangered species permits for the operation of the state and federal water projects. The plan would be implemented over the next 50 years and covers 30 aquatic and terrestrial species. The BDCP area includes portions of Yolo and Sacramento counties.

El Dorado County Integrated Natural Resources Management Plan

The El Dorado County Integrated Natural Resources Management Plan (INRMP) is currently being prepared as a requirement of the 2004 El Dorado County General Plan, and is intended to help compensate for impacts from development in western El Dorado County. The INRMP will identify important habitat in the county and establish a program for effective habitat preservation and management. Supporting studies and reports have been and are currently being produced to support the development of the final INRMP.

Natomas Basin HCP

The Natomas Basin is a low-lying area of the Sacramento Valley located in the northern portion of Sacramento County and the southern portion of Sutter County. The Natomas Basin HCP (NBHCP) was approved in 2003, covers a 53,537-acre area, and has two permit holders: the City of Sacramento and Sutter County. The Natomas Basin Conservancy (TNBC) is a nonprofit entity responsible for administering and implementing the NBHCP, and reports directly to the permit holders. The HCP covers 22 sensitive species, which are included in Appendix BIO-1.

Placer County Conservation Plan

The Placer County Conservation Plan is currently in preparation. Placer County, DFG, and USFWS finalized an NCCP planning agreement in December, 2001. The Conservation Plan is being prepared in three phases. Phase 1 is currently underway and covers 273,983 acres of the valley floor and low foothill portions of Placer County. Five plant and 28 wildlife species are proposed for coverage and are included in Appendix BIO-1. Placer County is considering expanding the plan area to include the City of Roseville. The County is also working to establish a process to review and evaluate interim projects in order to avoid foreclosing conservation options and receipt of desired permits.

South Sacramento HCP

The South Sacramento Habitat Conservation Plan (SSHCP) is currently in preparation and is undergoing environmental review (a working draft was released in 2010 but the actual draft HCP has not yet been publically released). The SSHCP area encompasses 345,000 acres in southern Sacramento County. The SSHCP will consolidate environmental efforts to protect and

enhance wetlands (primarily vernal pools) and upland habitats to provide ecologically viable conservation areas. It will also minimize regulatory hurdles and streamline the permitting process for development projects. The SSHCP will cover 40 different species of plants and wildlife including 10 that are state or federally listed as threatened or endangered, which are included in Appendix BIO-1. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species (i.e., to destroy or degrade habitat) in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to the adoption of the SSHCP. The geographic scope of the SSHCP includes U.S. Highway 50 to the north, Interstate-5 to the west, the Sacramento county line with El Dorado and Amador counties to the east, and San Joaquin County to the south. The Study Area excludes the City of Sacramento, the City of Folsom and Folsom's Sphere of Influence, the Sacramento-San Joaquin Delta, and the Sacramento County community of Rancho Murieta. Sacramento County is partnering with the incorporated cities of Rancho Cordova, Galt, and Elk Grove as well as the Sacramento Regional County Sanitation District, Sacramento County Connector JPA, and Sacramento County Water Agency to further advance the regional planning goals of the SSHCP.

Yolo County Natural Heritage Program (NCCP/HCP)

The Yolo County NCCP/HCP is currently in preparation. In February 2005, a Joint Powers Authority (five local public agencies formed to prepare a regional conservation plan for Yolo County) and DFG entered into an NCCP/HCP Planning Agreement, now known as the Yolo Natural Heritage Program. The NCCP/HCP planning area encompasses almost 400,000 acres and provides habitat for 28 sensitive species, including 13 state- and federally listed species. The 28 species that have been proposed for coverage are included in Appendix BIO-1 (no fish species are covered).

Yuba/Sutter NCCP/HCP

The Yuba-Sutter County NCCP/HCP (Plan) is currently in preparation. This plan is intended to provide an effective framework to protect and enhance agricultural and natural resources in Yuba and Sutter counties, while improving and streamlining the environmental permitting process for impacts on threatened and endangered species. The Plan will allow Yuba and Sutter counties; the cities of Wheatland, Yuba City, and Live Oak; and the Plan Implementing Entity (collectively, the Permitees) to control threatened and endangered species permitting for activities and projects in specifically defined areas of the counties encompassing approximately 440,000 acres. The Plan will also serve to provide comprehensive species and ecosystem conservation and contribute to the recovery of threatened and endangered species in northern California. The Plan will provide coverage for 17 species: 14 wildlife species and three plant species (included in Appendix BIO-1). The Plan is currently under development with public drafts anticipated in mid-2012 and completion anticipated in 2013.

Native and Heritage Tree Ordinances

Most counties and numerous cities within the MTP/SCS plan area have adopted general plan policies, and in some cases adopted ordinances to protect native and/or heritage trees. These include the Placer County Tree Ordinance (Article 12.16), Sacramento County Tree Preservation and Protection Ordinance (Chapter 12.12), and general plan policies in the Yolo County General Plan, Yuba County Conservation Element, and El Dorado County Conservation and Open Space Element. Most policies and ordinances require project applicants to obtain a tree removal permit and compensate for the removal of protected trees. These ordinances and policies are implemented at the project level.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact biological resources. For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types. The five Community Types are: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, see Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, Transit Priority Areas), the impacts to biological resources are based on a combination of available land cover data and information regarding proposed land use changes and transportation improvements that would occur under the proposed MTP/SCS.

By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to transportation and land use conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year that comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1: Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

For the analysis of specific biological resources in this chapter, "existing conditions" refers to conditions approximately in the period 2008 to 2010. The biological resource data available for this program level document are compiled from resource surveys that occur over multiple years with varying completion dates making it impossible to determine an exact year for the data. However, this chapter uses the most comprehensive and recently available maps on biological

resources in each county. This analysis assumes that the condition of the biological resources environment in 2011 is not substantially different from conditions between 2008 and 2010 due to the relatively limited development that has occurred in the region as a result of recent economic conditions. The key sources of data and information used to identify existing biological resources in the plan area are listed below:

- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation
- California Department of Fish and Game, and Federal Highways Administration (Spencer et. Al. 2010)
- USFWS National Wetland Inventory Maps, 2011
- Yuba-Sutter HCP/NCCP Land Cover, 2009
- South Sacramento HCP/NCCP Land Cover, 2008
- Placer County Conservation Plan Western Placer Land Cover, 2011
- Yolo County HCP/HCCP Land Cover, 2008
- California Vegetation Maps (CALVEG) for the North Sierran and Central Valley ecological zones, 2011
- CWA Section 303(d)-Listed Impairments in the Plan Area, 2010
- California Natural Diversity Database (CNDDB) for Sacramento, Sutter, Yolo, Yuba, Placer, and El Dorado Counties (California Natural Diversity Database 2011)
- the U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for Sacramento, Sutter, Yolo, Yuba, Placer, and El Dorado Counties (Appendix Bio-1)
- CDFG's List of Special Vascular Plants, Bryophytes, and Lichens (California Department of Fish and Game 2010)
- California Native Plant Society's (CNPS's) 2011 online Inventory of Rare and Endangered Plants for Sacramento, Sutter, Yolo, Yuba, Placer, and El Dorado Counties (California Native Plant Society 2011)
- California Department of Food and Agriculture's (CDFA's) Pest Ratings of Noxious Weed Species and Noxious Weed Seed (California Department of Food and Agriculture 2010)
- California Invasive Plant Council's (Cal-IPC's) California Invasive Plant Inventory (California Invasive Plant Council 2006, 2007)
- California Flora Database (Calflora; 2011)

This impact analysis assumes that biological resources could be indirectly or directly affected by construction and maintenance activities associated with potential projects in the MTP/SCS plan area. Biological resources could be directly or indirectly disturbed by the following activities:

Operational Impacts:

- projected changes in land use, where wildlands or agricultural areas are converted;
- indirect changes in biological resources due to land use, such as changes in hydrology and runoff due to increased impervious surfaces (Chapter 11 – Hydrology and Water Quality discusses water runoff and water quality degradation and associated mitigation measures);
- direct loss of habitat associated with roadway widening, new transportation facilities, or interchange, rail, bikeway improvements;
- herbicide application and removal of vegetation as part of landscaping and road maintenance; and
- degradation of water quality in wetlands and waterways, resulting from road runoff containing petroleum products.

Construction Impacts:

- stream dewatering or installation of temporary water-diversion structures during construction of new growth, bridges and other transportation facilities over riverine systems;
- temporary stockpiling of soil or construction materials and sidecasting of soil and other construction wastes;
- temporary removal of riparian vegetation along waterways during construction of new land uses and bridges;
- removal of vegetation during construction of temporary staging areas and access roads;
- soil compaction in temporarily disturbed areas and generation of dust by construction equipment; and
- water runoff from the construction area.

The footprints of new land use and transportation projects anticipated in the proposed MTP/SCS were overlaid with various wildland and agricultural data. Potential impacts on wildlife corridors rely on data gathered for Essential Connectivity Areas (ECA) from the California Essential Habitat Connectivity Project (see discussion in Setting) overlaid with the land use and transportation project footprints. Transportation projects were analyzed by calculating a 100-foot buffer area around the center line of the proposed projects and measuring the area overlapping various farmland and forestry data. Although only road widenings, new roads, new or expanded interchanges, and new rail transit infrastructure were spatially analyzed this way, the analysis is very conservative because many of transportation projects, such as road widenings, will not use the entire buffer area. Class II (bike lanes) and class III (bike routes) bicycle projects are included in the roadway buffer analysis because such projects are part of the roadway right-of-way. A buffer analysis was not performed for class I (separate, multi-use trails) projects. Because class I trails are much narrower than roadways, performing a buffer analysis is difficult, as even small shifts in alignment can result in varying outcomes. However,

a majority of new class I trails in the proposed MTP/SCS run parallel to new, expanded, or existing roadways or along waterways and levees. Class I trails that run parallel to new or expanded roadways would be captured by the 100-foot buffer around new or expanded roadway and light rail projects that was used to calculate potential impacts on agricultural lands. Additionally, because the 100-foot buffer assumption is conservative, and will result in a greater estimate of impacted acreage than is likely to occur, the amount of potential habitat impacted by class I trails that are not otherwise captured by the 100-foot buffer for new or expanded roadway and light rail projects is covered by the analysis. Furthermore, the acres described in the tables presented in this analysis are derived from a number of land surveys and data sources (described above) that differ from the data SACOG used to develop the land use assumptions for the proposed MTP/SCS. The net result is that the acres of impact described in the tables presented in this chapter overestimate the impact resulting from the implementation of the plan and represent a conservative approach to identifying potential impacts.

Where land use or transportation projects result in the conversion of land from wildland or potential habitat to developed or disturbed land, this analysis assumes there is a potential direct impact on biological resources. The impact acreages presented are the approximate sum of the acres within each land cover type under existing conditions that overlap with land use or transportation changes in the proposed MTP/SCS. This analysis does not quantify indirect impacts to biological resources. However, wherever direct impacts occur, the analysis assumes that there are potential indirect impacts to biological resources adjacent to the converted lands. Mitigation measures proposed within this chapter are designed to address both potential direct and indirect impacts to biological resources.

Impacts identified in this analysis for the plan area are shown in Table 6.5, by Community Type, Transit Priority Area, and regionally.

Table 6.5
Biological Resources Impact Overview by Land Use Development Areas

	Unit	Regional	Center/ Corridor	Established	Developing	Rural Residential	Placer TPAs	Sac. TPAs	Yolo TPAs
Growth Area	Acres	53,266	4,446	19,756	23,994	5,070	315	5,158	1,250
Wildland Impact	Acres	33,760	926	10,101	14,650	7,868	27	1,026	345
Critical Habitat Impact[1]	Acres	1,935	196	624	1,086	29	0	60	656
Essential Connectivity Area Impact	Acres	7,144	32	2,204	3,655	1,253	0	0	105
Delta Smelt (DS) Critical Habitat	Acres	1,825	174	572	1,079	0	0	38	656
Critical Habitat Impact without DS	Acres	110	22	52	7	29	0	22	0

[1] Critical Habitat impact areas can include non-wildland areas such as agriculture and developed areas. The majority of effects to critical habitat are to critical habitat for the Delta Smelt, which includes upland agricultural, developed, and wildland areas within the Delta. Although this critical habitat area is within certain land use types and TPAs that would have development under the proposed MTP/SCS, development within the designated critical habitat unit does not necessarily correspond to an actual impact on the Delta Smelt itself or its aquatic habitat; in most cases impacts would be indirect (due to site runoff) and can be addressed through water quality controls and mitigation. These are the totals for critical habitat impact without Delta smelt critical habitat are shown below.

The mitigation measures described for potential impacts on sensitive biological resources have not been developed through formal consultation or coordination with resource agencies (e.g., CDFG, USFWS, NMFS and USACE). As part of subsequent, project-level environmental analysis, agencies must be contacted as part of the environmental compliance process to determine specific compensatory mitigation for impacts on wetlands, state- and federally listed species, and riparian habitats. Additional mitigation measures may also be identified as conditions of future project permits (e.g., a Section 404 permit, biological opinions, or Section 1602 Streambed Alteration Agreement).

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to Public Resources Code Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the proposed MTP/SCS policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by DFG or USFWS;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California DFG or USFWS;
3. Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
6. Conflict with the provisions of an adopted habitat conservation plan (HCP), natural communities conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan; or
7. Have an impact on substantial impact on biological resources during construction.

Impacts and Mitigation Measures

Impact BIO–1a: Potential direct and indirect impacts on special-status plant species.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert about 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions.

Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

Implementation of the land use and transportation elements of the proposed MTP/SCS could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.6 provides estimates of potential regional impacts to habitat resulting from land use changes and transportation investments intended to accommodate population growth and travel in the plan area.

Table 6.6
Potential Impacts to Habitat Areas in the Proposed MTP/SCS Plan Area (acres)[1]

Land Cover	Land Use Impact	Transportation Impact	Total Impact
Agriculture	**13,766.5**	**2,466.2**	**16,232.8**
Irrigation Canal	**6.5**	**1.8**	**8.3**
Canal	6.5	1.8	8.3
Orchards and Vineyards	**1,324.7**	**402.2**	**1,727.0**
Orchard	1,310.9	391.2	1,702.2
Vineyard	13.8	11.0	24.8
Pasture	**2,285.7**	**463.7**	**2,749.4**
Pasture	2,285.7	463.7	2,749.4
Rice	**2,007.6**	**305.8**	**2,313.4**
Rice	2,007.6	305.8	2,313.4
Row and Field Crops	**8,142.0**	**1,292.6**	**9,434.6**
Agriculture	1.1		1.1
Field Crop	5,051.3	650.1	5,701.4
Row Crop	3,089.6	642.6	3,732.1
Wildlands	**33,760.0**	**3,921.4**	**37,681.4**
Barren	**215.1**	**17.1**	**232.2**
Barren	215.1	17.1	232.2
Chaparral	**1,207.9**	**19.1**	**1,227.0**
Chaparral	1,207.9	19.1	1,227.0
Foothill Woodland	**5,243.4**	**255.2**	**5,498.5**
Blue Oak Woodland	2,409.6	146.1	2,555.7
Foothill Pine-Oak Woodland	1,295.9	41.3	1,337.1
Interior Live Oak Woodland	1.9	6.3	8.2
Mixed Oak Woodland	1,536.1	61.5	1,597.6
Grassland	**20,132.9**	**3,148.0**	**23,280.9**
Annual Grassland	20,129.2	3,148.0	23,277.2
Perennial Grassland	3.6		3.6
Montane Forest	**4,016.0**	**84.5**	**4,100.5**
Aspen Forest	1.7		1.7
Douglas Fir Forest	88.7	9.8	98.5
Eastside Pine Forest	209.2		209.2
Lodgepole Pine Forest	5.9		5.9
Montane Hardwood Forest	2,554.4	61.3	2,615.7
Montane Hardwood-Coniferous Forest	317.0	13.5	330.5
Ponderosa Pine Forest	209.3	0.0	209.3
Red Fir Forest	5.4		5.4
Sierran Mixed Conifer Forest	535.6		535.6
White Fir Forest	88.6		88.6
Oak Savanah	**866.0**	**32.1**	**898.1**
Valley Oak Savannah	866.0	32.1	898.1

Land Cover	Land Use Impact	Transportation Impact	Total Impact
Open Water	**345.0**	**13.4**	**358.3**
Open water	345.0	13.4	358.3
Riparian	**1,025.7**	**211.8**	**1,237.5**
Montane Riparian	17.8	7.0	24.8
Valley Foothill Riparian	1,007.9	204.8	1,212.7
Riverine	**46.1**	**28.2**	**74.3**
Riverine	46.1	28.2	74.3
Scrub	**24.0**		**24.0**
Sagebrush Scrub	24.0		24.0
Valley Oak Woodland	**217.3**	**21.6**	**238.9**
Valley Oak Woodland	217.3	21.6	238.9
Wetland	**420.8**	**90.4**	**511.2**
Freshwater Marsh	95.3	12.8	108.1
Seasonal Wetland	126.3	39.5	165.8
Vernal Pool	198.7	33.7	232.4
Wet Meadow		3.6	3.6
Wetland	0.5	0.8	1.3
Grand Total	**47,526.6**	**6,387.6**	**53,914.2**

[1]The acres described in this table are derived from a number of land surveys and data sources (described in Methods and Assumptions) that differ from the data SACOG used to develop the land use assumptions for the proposed MTP/SCS. The net result is that the acres of impact described in the tables presented in this chapter overestimate the impact resulting from the implementation of the plan and represent a conservative approach at identifying potential impacts.

The land use changes in the proposed MTP/SCS could result in a total of 33,760 acres of potential impacts on wildland habitats and 13,767 acres of agricultural land cover. The potential impact from transportation infrastructure expansion is much smaller at 3,921 acres of wildland and 2,466 acres of agricultural land. Combined, the land use and transportation changes in the proposed plan impact 53,914 acres, or approximately 1.5 percent, of potential special-status plant habitat and agricultural cover in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. The proposed MTP/SCS could result in impacts to 398 acres of vernal pools and seasonal wetlands, which represents 0.7 percent of all vernal pools and seasonal wetlands in the plan area (transportation projects result in only 73 acres of this impact).

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. While land use changes in the plan do not impact these areas, the proposed MTP/SCS transportation improvements potentially impact critical habitat for two federally listed plant species. Approximately 13 acres, less than 0.1 percent, of critical habitat for both Sacramento Orcutt grass and Slender Orcutt grass could be impacted by the proposed MTP/SCS transportation improvements (Table 6.7).

Table 6.7
Potential Impacts to Critical Habitat for Federally Listed Species in the Proposed MTP/SCS Plan Area (acres)

Species	Land Use Impacts	Transportation Impacts	Total Impacts
California red-legged frog	41.1		41.1
Delta smelt	1,824.8	289.3	2,114.1
Sacramento Orcutt grass	0.0	13.4	13.4
Slender Orcutt grass		13.4	13.4
Valley elderberry longhorn beetle	24.3		24.3
Vernal pool fairy shrimp	22.5	53.9	76.4
Vernal pool tadpole shrimp	22.4	48.1	70.5

Because the land use changes and transportation investments of the proposed MTP/SCS at the regional level result in conversion of habitats that contain or have the potential to contain special-status plants, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are expected to see about 92,000 new housing units and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Despite the predominantly urbanized character of Center and Corridor Communities, they can house isolated patches of functional habitat (both wildland and agricultural). Effects on special-status plants in Center and Corridor Communities could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Center and Corridor Communities.

The land use changes in Center and Corridor Communities could result in a total of 926 acres of potential impacts on wildland habitats and 999 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 146 acres of wildland and 148 acres of agricultural land. Combined, the land use and transportation changes in the plan convert 2,220 acres or less than 0.1 percent of potential special-status plant habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Center and Corridor Communities could result in impacts to 8 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. Neither the land use changes nor transportation investments in Center and Corridor Communities propose projects that would impact these areas.

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Center and Corridor Communities, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Table 6.8
Potential Impacts to Habitat Areas by Community Type (acres)

	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
Row Labels	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Agriculture	**998.8**	**148.2**	**1,147.0**	**4,681.6**	**639.3**	**5,320.9**	**7,639.5**	**782.0**	**8,421.5**	**446.5**	**40.0**	**486.5**	**0.2**	**856.7**	**856.9**
Irrigation Canal				**6.5**	**1.5**	**8.0**								**0.3**	**0.3**
Canal				6.5	1.5	8.0								0.3	0.3
Orchards and Vineyards	**110.7**	**1.1**	**111.8**	**660.4**	**53.2**	**713.6**	**486.7**	**38.1**	**524.7**	**66.9**	**3.0**	**69.9**	**0.1**	**306.9**	**306.9**
Orchard	106.8	1.1	107.9	660.3	53.2	713.5	486.7	38.1	524.7	57.1	2.5	59.5	0.1	296.4	296.4
Vineyard	3.9		3.9	0.1		0.1				9.8	0.5	10.3		10.5	10.5
Pasture	**34.8**	**1.0**	**35.8**	**506.9**	**46.8**	**553.7**	**1,606.1**	**287.6**	**1,893.8**	**137.9**	**14.2**	**152.1**		**114.1**	**114.1**
Pasture	34.8	1.0	35.8	506.9	46.8	553.7	1,606.1	287.6	1,893.8	137.9	14.2	152.1		114.1	114.1
Rice	**339.3**	**41.4**	**380.7**	**597.9**	**26.2**	**624.1**	**1,070.4**	**67.6**	**1,138.0**					**170.7**	**170.7**
Rice	339.3	41.4	380.7	597.9	26.2	624.1	1,070.4	67.6	1,138.0					170.7	170.7
Row and Field Crops	**514.0**	**104.8**	**618.8**	**2,909.8**	**511.6**	**3,421.4**	**4,476.3**	**388.7**	**4,865.0**	**241.7**	**22.8**	**264.5**	**0.1**	**264.8**	**264.9**
Agriculture				1.1		1.1									
Field Crop	66.4	3.0	69.4	934.8	120.8	1,055.6	3,811.8	303.9	4,115.7	238.2	21.8	260.1	0.1	200.6	200.7
Row Crop	447.6	101.8	549.4	1,973.9	390.8	2,364.7	664.6	84.8	749.3	3.5	0.9	4.4		64.2	64.2
Wildlands	**926.3**	**146.2**	**1,072.5**	**10,234.5**	**1,017.3**	**11,251.8**	**14,651.5**	**1,841.2**	**16,492.6**	**7,947.8**	**257.9**	**8,205.7**		**658.8**	**658.8**
Barren	**0.4**	**0.3**	**0.7**	**133.3**	**9.2**	**142.6**	**1.6**	**3.5**	**5.1**	**79.8**	**4.1**	**83.9**			
Barren	0.4	0.3	0.7	133.3	9.2	142.6	1.6	3.5	5.1	79.8	4.1	83.9			
Chaparral	**1.8**		**1.8**	**378.3**	**14.9**	**393.1**	**40.7**		**40.7**	**787.0**	**4.2**	**791.2**			
Chaparral	1.8		1.8	378.3	14.9	393.1	40.7		40.7	787.0	4.2	791.2			
Foothill Woodland	**46.5**		**46.5**	**1,523.1**	**98.2**	**1,621.3**	**2,053.9**	**94.6**	**2,148.5**	**1,619.9**	**61.6**	**1,681.5**		**0.8**	**0.8**
Blue Oak Woodland	10.8		10.8	780.1	50.8	830.9	966.8	77.6	1,044.3	651.9	17.8	669.6			
Foothill Pine-Oak Woodland	0.5		0.5	289.5	10.8	300.3	537.8	1.1	538.9	468.1	29.4	497.5			
Interior Live Oak Woodland				1.8	6.1	7.8	0.1		0.1		0.3	0.3			
Mixed Oak Woodland	35.2		35.2	451.8	30.5	482.3	549.2	15.9	565.1	499.9	14.2	514.1		0.8	0.8
Grassland	**673.8**	**103.1**	**776.8**	**6,461.2**	**795.6**	**7,256.8**	**10,943.1**	**1,563.6**	**12,506.7**	**2,054.8**	**116.4**	**2,171.2**		**569.3**	**569.3**
Annual Grassland	673.8	103.1	776.8	6,459.5	795.6	7,255.1	10,943.1	1,563.6	12,506.7	2,052.8	116.4	2,169.2		569.3	569.3
Perennial Grassland				1.7		1.7				2.0		2.0			

	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
Row Labels	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Montane Forest	**62.4**	**3.0**	**65.4**	**1,110.3**	**21.8**	**1,132.2**	**216.5**	**9.0**	**225.5**	**2,626.7**	**50.6**	**2,677.4**			
Aspen Forest										1.7		1.7			
Douglas Fir Forest				5.4		5.4				83.3	9.8	93.1			
Eastside Pine Forest										209.2		209.2			
Lodgepole Pine Forest										5.9		5.9			
Montane Hardwood Forest	51.5	2.9	54.4	883.8	20.0	903.7	215.2	9.0	224.1	1,404.0	29.4	1,433.4			
Montane Hardwood-Coniferous Forest	10.8	0.1	10.8	107.2	1.9	109.1	1.3		1.3	197.8	11.5	209.3			
Ponderosa Pine Forest	0.2		0.2	70.3		70.3				138.9	0.0	138.9			
Red Fir Forest										5.4		5.4			
Sierran Mixed Conifer Forest				43.7		43.7				491.9		491.9			
White Fir Forest										88.6		88.6			
Oak Savanah	**20.8**		**20.8**	**118.6**	**4.3**	**122.8**	**404.4**	**11.5**	**415.8**	**322.3**	**16.4**	**338.6**			
Valley Oak Savanah	20.8		20.8	118.6	4.3	122.8	404.4	11.5	415.8	322.3	16.4	338.6			
Open Water	**13.6**	**0.0**	**13.6**	**165.8**	**4.8**	**170.6**	**68.7**	**7.3**	**76.0**	**96.9**	**0.1**	**97.0**		**1.1**	**1.1**
Open water	13.6	0.0	13.6	165.8	4.8	170.6	68.7	7.3	76.0	96.9	0.1	97.0		1.1	1.1
Riparian	**88.7**	**22.5**	**111.3**	**182.3**	**35.2**	**217.5**	**565.3**	**102.2**	**667.5**	**189.3**	**2.6**	**191.9**		**49.3**	**49.3**
Montane Riparian		0.1	0.1	7.2	2.0	9.2		4.9	4.9	10.6		10.6			
Valley Foothill Riparian	88.7	22.5	111.2	175.1	33.2	208.3	565.3	97.2	662.5	178.7	2.6	181.3		49.3	49.3
Riverine	**1.4**	**8.1**	**9.5**	**8.6**	**4.7**	**13.2**	**27.5**	**12.7**	**40.2**	**8.6**	**0.4**	**9.1**		**2.4**	**2.4**
Riverine	1.4	8.1	9.5	8.6	4.7	13.2	27.5	12.7	40.2	8.6	0.4	9.1		2.4	2.4
Scrub										**24.0**		**24.0**			
Sagebrush Scrub										24.0		24.0			
Valley Oak Woodland	**15.2**	**1.9**	**17.1**	**83.7**	**13.8**	**97.5**	**37.8**	**5.7**	**43.5**	**80.6**	**0.1**	**80.7**		**0.1**	**0.1**
Valley Oak Woodland	15.2	1.9	17.1	83.7	13.8	97.5	37.8	5.7	43.5	80.6	0.1	80.7		0.1	0.1
Wetland	**1.7**	**7.2**	**8.9**	**69.3**	**14.9**	**84.2**	**291.9**	**31.2**	**323.1**	**57.9**	**1.2**	**59.1**		**35.9**	**35.9**
Freshwater Marsh	0.6		0.6	38.6	2.9	41.5	44.4	9.1	53.5	11.6	0.0	11.7		0.7	0.7
Seasonal Wetland	0.5	7.2	7.7	17.7	5.0	22.7	93.9	8.9	102.9	14.2	0.2	14.3		18.2	18.2
Vernal Pool	0.6		0.6	12.4	2.5	15.0	153.6	13.1	166.8	32.1	1.0	33.1		17.0	17.0
Wet Meadow					3.6	3.6									
Wetland				0.5	0.8	1.3									

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Housing units in Established Communities will increase by about 79,000 units. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out lower density residential, office parks, and strip. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Though Established Communities already contain large amounts of disturbed or developed land, they do contain significant areas that still retain habitat. Implementation of the land use and transportation improvements associated with Established Communities could result in impacts to habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Established Communities.

The land use changes in Established Communities could result in a total of 10,235 acres of potential impacts on wildland habitats and 4,682 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 1,017 acres of wildland and 639 acres of agricultural land. Combined, the land use and transportation changes in Established Communities convert 16,573 acres or 0.4 percent of potential special-status plant habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Established Communities could result in impacts to 38 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. Neither the land use changes nor transportation investments in Established Communities in the proposed MTP/SCS would impact these areas.

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Established Communities, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Developing Communities

Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have about 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Implementation of the land use and transportation improvements associated with Developing Communities could result in impacts to habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Developing Communities.

The land use changes in Developing Communities could result in a total of 14,652 acres of potential impacts on wildland habitats and 7,640 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 1,841 acres of wildland and 782 acres of agricultural land. Combined, the land use and transportation changes in Developing Communities convert 24,915 acres or 0.7 percent of potential special-status plant habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Developing Communities could result in impacts to 270 acres of vernal pools and seasonal wetlands, which represents 0.5 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. While the land use changes in Developing Communities do not impact any areas containing these species, proposed transportation projects would cause 2.4 acres of potential impacts to both Sacramento Orcutt grass and Slender Orcutt grass (Table 6.9).

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Developing Communities, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Table 6.9
Potential Impacts to Critical Habitat for Federally Listed Species by Community Type (acres)

	Center and Corridor Communities			Established Communities			Developing Communities			Lands Not Identified for Development			Rural Residential Communities		
Species	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
California red-legged frog				38.1		38.1							3.0		3.0
Delta smelt	174.2	94.2	268.4	572.1	119.7	691.8	1,078.6	72.9	1,151.4		2.5	2.5			
Sacramento Orcutt grass					0.0	0.0		2.4	2.4		11.0	11.0		0.0	0.0
Slender Orcutt grass					0.0	0.0		2.4	2.4		11.0	11.0		0.0	0.0
Valley elderberry longhorn beetle	22.2		22.2	2.1		2.1									
Vernal pool fairy shrimp				6.1	34.7	40.8	3.5	2.4	5.9		16.8	16.8	12.9	0.0	12.9
Vernal pool tadpole shrimp				6.0	34.7	40.7	3.5	2.4	5.9		11.0	11.0	12.9	0.0	12.9

Rural Residential Communities
Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. SACOG anticipates growth in these areas of about 5,300 housing units. This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

Implementation of the land use and transportation improvements associated with Rural Residential Communities could result in impacts to habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Rural Residential Communities.

The land use changes in Rural Residential Communities could result in a total of 7,948 acres of potential impacts on wildland habitats and 447 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 258 acres of wildland and 40 acres of agricultural land. Combined, the land use and transportation changes in Rural Residential Communities convert 8,693 acres or 0.2 percent of potential special-status plant habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Rural Residential Communities could result in impacts to 47 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. Neither the land use changes nor transportation investments in Rural Residential Communities in the proposed MTP/SCS would impact these areas.

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Rural Residential Communities, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
The proposed MTP/SCS does not forecast in the MTP/SCS planning period growth in Lands Not Identified for Development during the planning period, though there is existing

development in these areas (primarily farm homes, agricultural-related uses, and public lands such as waste water treatment facilities, etc.).

Because no growth in these areas is included in the MTP/SCS, no impact related to special-status plants is identified. Therefore, the impacts from land use in this Community Type are considered less than significant (LS), no mitigation is required.

However, implementation of the proposed MTP/SCS will result in the construction of limited roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements in these areas. The proposed MTP/SCS transportation improvements in Lands Not Identified for Development could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from transportation investments intended to accommodate travel in Lands Not Identified for Development.

The transportation investments in Lands Not Identified for Development in the proposed MTP/SCS could result in impacts to 659 acres of wildland habitats and 857 acres of agricultural lands that have the potential to support special-status plant. Combined, the wildland and agricultural impacts in Lands Not Identified for Development represent less than 0.01 percent of potential habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Of these impacts, 35.2 acres would be attributed to impacts to seasonal wetland and vernal pools (out of more than 54,000 acres in the plan area).

The proposed MTP/SCS transportation improvements in Lands Not Identified for Development also potentially impact critical habitat for two federally listed plant species. Approximately 11 acres of critical habitat for both Sacramento Orcutt grass and Slender Orcutt grass could be impacted by the proposed MTP/SCS transportation improvements (Table 6.9).

Because the transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Lands Not Identified for Development, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation improvements associated with Placer County TPAs could result in impacts to habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.10 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Placer County TPAs.

The land use changes in Placer County TPAs could result in a total of 27 acres of potential impacts on wildland habitats (less than 0.1 percent of wildlands in Placer County) and no impacts on agricultural land. Transportation infrastructure expansion would not result in impacts on wildland or agricultural land.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. However, neither forecasted land use changes nor transportation investments impact wetland habitat in Placer County

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. However, neither the forecasted land use changes nor transportation investments in Placer County TPAs in the proposed MTP/SCS would impact critical habitat for federally listed species in Placer County.

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Placer County TPAs, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Table 6.10
Potential Impacts to Habitat Areas by Transit Priority Area (acres)

Land Cover	Placer County TPAs			Sacramento County TPAs			Yolo County TPAs		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Agriculture				**1,343.4**	**258.8**	**1,602.1**	**297.0**	**35.3**	**332.3**
Irrigation Canal					**1.2**	**1.2**			
Canal					1.2	1.2			
Orchards and Vineyards				**25.5**		**25.5**	**21.2**		**21.2**
Orchard				25.5		25.5	21.2		21.2
Pasture				**186.9**	**24.4**	**211.3**	**35.9**	**1.1**	**37.0**
Pasture				186.9	24.4	211.3	35.9	1.1	37.0
Rice				**393.6**	**43.5**	**437.1**			
Rice				393.6	43.5	437.1			
Row and Field Crops				**737.4**	**189.7**	**927.1**	**239.9**	**34.2**	**274.1**
Field Crop				207.1	13.8	221.0	99.7	6.8	106.4
Row Crop				530.3	175.9	706.1	140.2	27.5	167.7
Wildlands	**26.7**	**0.0**	**26.7**	**1,100.7**	**254.5**	**1,355.2**	**394.3**	**59.1**	**453.3**
Barren				**1.0**	**6.2**	**7.2**			
Barren				1.0	6.2	7.2			
Foothill Woodland	**11.4**		**11.4**						
Blue Oak Woodland	3.5		3.5						
Interior Live Oak Woodland	0.0		0.0						
Mixed Oak Woodland	7.9		7.9						
Grassland	**9.1**		**9.1**	**902.5**	**201.2**	**1,103.7**	**317.5**	**43.9**	**361.5**
Annual Grassland	9.1		9.1	902.5	201.2	1,103.7	317.5	43.9	361.5
Open Water				**44.5**	**0.9**	**45.5**	**42.0**	**1.4**	**43.4**
Open water				44.5	0.9	45.5	42.0	1.4	43.4
Riparian	**6.2**	**0.0**	**6.3**	**115.7**	**34.8**	**150.5**	**32.3**	**7.2**	**39.5**
Valley Foothill Riparian	6.2	0.0	6.3	115.7	34.8	150.5	32.3	7.2	39.5
Riverine				**4.5**	**8.0**	**12.5**			
Riverine				4.5	8.0	12.5			
Valley Oak Woodland				**18.2**		**18.2**	**0.3**	**2.4**	**2.7**
Valley Oak Woodland				18.2		18.2	0.3	2.4	2.7
Wetland				**14.3**	**3.3**	**17.6**	**2.1**	**4.2**	**6.3**
Freshwater Marsh				0.6		0.6	0.1		0.1
Seasonal Wetland				5.0	3.2	8.2	2.0	4.2	6.2
Vernal Pool				8.7	0.1	8.8			

Sacramento County Transit Priority Areas

The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see about 92,000 new housing units and employment development for about 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation improvements associated with Sacramento County TPAs could result in impacts to habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.10 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Sacramento County TPAs.

The land use changes in Sacramento County TPAs could result in a total of 1,001 acres of potential impacts on wildland habitats and 1,343 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 255 acres of wildland and 259 acres of agricultural land. Combined, the land use and transportation changes in Sacramento County TPAs convert 2,957 acres or 0.7 percent of potential special-status plant habitat in Sacramento County.

Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Sacramento County TPAs could result in impacts to 8 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. Neither the land use changes nor transportation investments in Sacramento County TPAs propose projects that would impact these areas.

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Sacramento County TPAs, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Yolo County Transit Priority Area

The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. SACOG forecasts Yolo County TPAs will see approximately 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation improvements associated with Yolo County TPAs could result in impacts to habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status plant populations. Effects on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.10 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Yolo County TPAs.

The land use changes in Yolo County TPAs could result in a total of 394 acres of potential impacts on wildland habitats and 297 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 59 acres of wildland and 35 acres of agricultural land. Combined, the land use and transportation changes in Yolo County TPAs convert 786 acres or 0.1 percent of potential special-status plant habitat in Yolo County. Vernal pools and seasonal wetlands in the region provide habitat for special-status plant species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Yolo County TPAs could result in impacts to 6 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed plant species. Neither the land use changes nor transportation investments in Yolo County TPAs propose projects that would impact these areas.

Because the land use changes and transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status plants within Yolo County TPAs, this impact is considered potentially significant (PS). Mitigation measure BIO-1 is described below.

Mitigation Measure BIO-1: Avoid, minimize, and mitigate impacts on special-status plant species.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, habitat for special-status plants. The assessment should be conducted by appropriately trained professionals

pursuant to adopted protocols and standards in the industry. Mitigation should be identified on a project level when significance thresholds are exceeded and should include measures to address direct and indirect impacts such as avoidance, minimization, and compensatory measures. Mitigation should be consistent with the requirements of CEQA, USFWS, and CDFG regulations and guidelines, in addition to applicable requirements of an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

At a minimum the following performance standards will be implemented by the project applicant for mitigation of impacts to special-status plants:

- Avoidance of special-status plants will be pursued where feasible, as defined in Section 15364 of the CEQA Guidelines.
- Where avoidance is infeasible, impacts should be mitigated through special-status plant habitat restoration or establishment, where appropriate and feasible. Habitat will be restored or newly established (on or off site) at a minimum ratio of 1:1 (1 acre restored for each acre impacted). Such mitigation sites will be dedicated either in fee or as an easement in perpetuity held by a qualified organization or agency. The mitigation site will be monitored the first year after the mitigation is implemented and every five years thereafter, until the mitigation is considered to be successful. Guaranteed funding for maintenance of the mitigation sites shall be established.
- Mitigation will be considered successful if restored areas are determined to be stable and contain at least 60 percent of the number of plants present in the original occurrence. If the population falls below 60 percent of the original number of plants, then remedial action will be required to reach and maintain this 60 percent standard until the mitigation is considered to be successful.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on special-status plant species. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-1b: Potential direct and indirect impacts on special-status wildlife species.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert about 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to

accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

Implementation of the land use and transportation elements of the proposed MTP/SCS could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.6 provides estimates of potential regional impacts to habitat resulting from land use changes and transportation investments intended to accommodate population growth and travel in the plan area.

The land use changes in the proposed MTP/SCS could result in a total of 33,760 acres of potential impacts on wildland habitats and 13,767 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 3,921 acres of wildland and 2,466 acres of agricultural land. Combined, the land use and transportation changes in the plan impact 53,914 acres or approximately 1.5 percent of potential special-status wildlife habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. The proposed MTP/SCS could result in impacts to 398 acres of vernal pools and seasonal wetlands, which represents 0.7 percent of all vernal pools and seasonal wetlands in the plan area (transportation projects result in only 73 acres of this impact).

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. Land use and transportation changes in the plan could potentially impact critical habitat for four federally listed wildlife species including land use impacts on the California red-legged frog and valley elderberry longhorn beetle, and combined land use and transportation impacts on vernal pool fairy and tadpole shrimp (Table 6.7).

Because the land use changes and transportation investments of the proposed MTP/SCS at the regional level result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are forecast to include approximately 92,000 new housing units and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Despite predominantly urbanized character of Center and Corridor Communities, they can house isolated patches of functional wildland habitat. Implementation of the land use and transportation elements in Center and Corridor Communities could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts to wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Center and Corridor Communities.

The land use changes in Center and Corridor Communities could result in a total of 926 acres of potential impacts on wildland habitats and 999 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 146 acres of wildland and 148 acres of agricultural land. Combined, the land use and transportation changes in the plan convert 2,220 acres or less than 0.1 percent of potential special-status wildlife habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Center and Corridor Communities could result in impacts to 8 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. The land use changes in Center and Corridor Communities could potentially impact critical habitat for the valley elderberry longhorn beetle. Transportation investments in Center and Corridor Communities would not impact critical habitat for federally-listed species (Table 6.9).

Because the land use changes and transportation investments in Center and Corridor Communities result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Housing in Established Communities will increase by about 79,000 units. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out lower density residential, office parks, and strip retail. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Though Established Communities already contain large amounts of disturbed or developed land, they do contain extensive areas that still retain wildland habitat. Implementation of the land use and transportation elements in Established Communities could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Established Communities.

The land use changes in Established Communities could result in a total of 10,235 acres of potential impacts on wildland habitats and 4,682 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 1,017 acres of wildland and 639 acres of agricultural land. Combined, the land use and transportation changes in Established Communities convert 16,573 acres or 0.4 percent of potential special-status wildlife habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildife species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Established Communities could result in impacts to 38 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. The land use changes in Established Communities could potentially impact critical habitat for the California red-legged from and valley elderberry longhorn beetle. Both land use and transportation changes in Established Communities could potentially impact critical habitat for vernal pool fairy and tadpole shrimp (Table 6.9).

Because the land use changes and transportation investments in Established Communities result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Developing Communities

Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have approximately 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Implementation of the land use and transportation elements in Developing Communities could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Developing Communities.

The land use changes in Developing Communities could result in a total of 14,652 acres of potential impacts on wildland habitats and 7,640 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 1,841 acres of wildland and 782 acres of agricultural land. Combined, the land use and transportation changes in Developing Communities convert 24,915 acres or 0.7 percent of potential special-status wildlife habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Developing Communities could result in impacts to 269 acres of vernal pools and seasonal wetlands, which represents 0.5 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. Both land use and transportation changes in Developing Communities could potentially impact critical habitat for vernal pool fairy and tadpole shrimp (Table 6.9).

Because the land use changes and transportation investments in Developing Communities result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. SACOG anticipates growth in these areas of about 5,300 housing units. This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

Implementation of the land use and transportation elements in Rural Residential Communities could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Rural Residential Communities.

The land use changes in Rural Residential Communities could result in a total of 7,948 acres of potential impacts on wildland habitats and 447 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 258 acres of wildland and 40 acres of agricultural land. Combined, the land use and transportation changes in Rural Residential Communities convert 8,693 acres or 0.2 percent of potential special-status wildlife habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Rural Residential Communities could result in impacts to 47 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. The land use changes in Rural Residential Communities could potentially impact critical habitat for vernal pool fairy and tadpole shrimp. The transportation

investments in Rural Residential Communities would not impact critical habitat for federally listed species (Table 6.9).

Because the land use changes and transportation investments in Rural Residential Communities result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
The proposed MTP/SCS does not forecast growth in the MTP/SCS planning period in Lands Not Identified for Development during the planning period.

Because no growth in these areas is included in the MTP/SCS, no impact related to special-status wildlife is identified. Therefore, the impacts from land use in this Community Type are considered less than significant (LS), no mitigation is required.

Implementation of the proposed MTP/SCS will result in the construction of limited roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements in these areas. The proposed MTP/SCS transportation improvements in Lands Not Identified for Development could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.8 provides estimates of potential impacts to habitat resulting from transportation investments intended to accommodate travel in Lands Not Identified for Development.

The transportation investments in Lands Not Identified for Development in the proposed MTP/SCS could result in impacts to 659 acres of wildland habitats and 857 acres of agricultural lands that have the potential to support special-status wildlife. Combined, the wildland and agricultural impacts in Land Not Identified for Development represent less than 0.01 percent of potential habitat in the plan area.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. Transportation improvements in Lands Not Identified for Development impact 35.2 acres of seasonal wetland and vernal pools (out of more than 54,000 acres in the plan area).

Transportation improvements in the proposed MTP/SCS in Lands Not Identified for Development also potentially impacts critical habitat for two federally listed wildlife species. As seen in Table 6.9, critical habitat for vernal pool fairy and tadpole shrimp could be impacted by transportation investments in these areas.

Because the transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status wildlife within Lands Not Identified for Development, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation elements in Placer County TPAs could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular, row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.10 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Placer County TPAs.

The land use changes in Placer County TPAs could result in a total of 27 acres of potential impacts on wildland habitats (less than 0.1 percent of wildlands in Placer County) and no impacts on agricultural land. Transportation infrastructure expansion would not result in impacts on wildland or agricultural land.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. However, proposed land use and transportation changes in Placer County TPAs would not result in impacts to either vernal pools or seasonal wetlands.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. However, no impacts to these species are anticipated due to land use or transportation changes in Placer County TPAs (Table 6.11).

Because the land use changes of the proposed MTP/SCS result in conversion of habitats that contain or have the potential to contain special-status wildlife within Placer County TPAs, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Because no acres of wildland habitat are converted as a result of transportation projects, no impact related to special-status wildlife is identified. Therefore, the impacts from transportation investments in Placer County TPAs are considered less than significant (LS), no mitigation is required.

Table 6.11
Potential Impacts to Critical Habitat for Federally Listed Species by Transit Priority Area (acres)

Species with Critical Habitat	Placer County TPAs	Sacramento County TPAs	Yolo County TPAs
Delta smelt	0	38.22	655.91
Valley elderberry longhorn beetle	0	22.23	0

Sacramento County Transit Priority Areas

The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see approximately 92,000 new housing units and employment development for 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation elements in Sacramento County TPAs could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular, row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.10 provides estimates of potential impacts to habitat resulting from land use changes and transportation investments intended to accommodate growth and travel in Sacramento County TPAs.

The land use changes in Sacramento County TPAs could result in a total of 1,001 acres of potential impacts on wildland habitats and 1,343 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 255 acres of wildland and 259 acres of agricultural land. Combined, the land use and transportation changes in Sacramento County TPAs convert 2,957 acres or 0.7 percent of potential special-status wildlife habitat in Sacramento County.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Sacramento County TPAs could result in impacts to 17 acres of vernal pools and seasonal wetlands, which represents 0.2 percent of all vernal pools and seasonal wetlands in Sacramento County.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. The land use changes in Sacramento County TPAs could potentially impact critical habitat for valley elderberry longhorn beetle. Transportation improvements in Sacramento County TPAs would not affect critical habitats for federally listed wildlife (Table 6.11).

Because the land use changes and transportation investments in the proposed MTP/SCS in Sacramento County TPAs result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Yolo County Transit Priority Area

The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. The proposed MTP/SCS forecasts Yolo County TPAs will see about 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation elements in Yolo County TPAs could result in the loss of habitats (both wildland and agricultural) that are known to contain or have the potential to contain special-status wildlife populations. Agricultural lands, in particular, row and field crops, pasture, and rice fields can provide valuable habitat for special-status wildlife. Row and field crops and pasture provide potential foraging habitat for the state threatened Swainson's hawk, while rice fields provide potential habitat for the state and federally threatened giant garter snake. Impacts from the conversion of wildland and agricultural lands on special-status wildlife could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. Table 6.10 provides estimates of potential impacts to habitat resulting

from land use changes and transportation investments intended to accommodate growth and travel in Yolo County TPAs.

The land use changes in Yolo County TPAs could result in a total of 394 acres of potential impacts on wildland habitats and 297 acres of agricultural land. The potential impact from transportation infrastructure expansion is much smaller at 59 acres of wildland and 35 acres of agricultural land. Combined, the land use and transportation changes in Yolo County TPAs convert 786 acres or 0.1 percent of potential special-status wildlife habitat in Yolo County.

Vernal pools and seasonal wetlands in the region provide habitat for special-status wildlife species, some of which are endemic to vernal pools. Proposed land use and transportation changes in Yolo County TPAs could result in impacts to 6 acres of vernal pools and seasonal wetlands, which represents less than 0.1 percent of all vernal pools and seasonal wetlands in Yolo County.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed wildlife species. However, no impacts to these species are anticipated due to land use or transportation changes in Yolo County TPAs (Table 6.11).

Because the land use changes and transportation investments in Yolo County TPAs result in conversion of habitats that contain or have the potential to contain special-status wildlife, this impact is considered potentially significant (PS). Mitigation measure BIO-2 is described below.

Mitigation Measure BIO-2: Avoid, minimize, and mitigate impacts on special-status wildlife species.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, habitat for special-status wildlife. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols and standards in the industry. Where the biological resources assessment establishes that mitigation is required to avoid direct and indirect adverse effects on special-status wildlife species, mitigation should be developed consistent with the requirements of CEQA, USFWS, and CDFG regulations and guidelines, in addition to applicable requirements of an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

At a minimum the following performance standards will be implemented by the project applicant for mitigation of impacts to special-status wildlife:

- Avoidance of special-status wildlife and their habitat will be pursued where feasible, as defined in Section 15364 of the CEQA Guidelines.
- Where avoidance is infeasible, impacts should be mitigated through preservation, restoration, or creation of special-status wildlife habitat, where appropriate and feasible. Loss of habitat will be mitigated at an agency approved mitigation bank or through individual mitigation locations as approved by USFWS and/or CDFG. The minimum replacement ratios and typical mitigation for wildlife habitat that could be

impacted by the proposed project are presented below in Table 6.12. The mitigation site will be monitored the first year after the mitigation is implemented and every five years thereafter, until the mitigation is considered to be successful.

- All mitigation areas should be preserved in perpetuity through either fee ownership or a conservation easement held by a qualified conservation organization or agency, establishment of a preserve management plan, and guaranteed long-term funding for site preservation through the establishment of a management endowment.

Table 6.12
Minimum Replacement Ratios and Typical Mitigation for Wildlife Habitat

Species	Preservation	Creation/Restoration
Vernal pool fairy shrimp and vernal pool tadpole (would mitigate for other vernal pool species)	2:1 (1:1 for indirect impacts)	1:1
Valley elderberry longhorn beetle	Transplant directly affected shrubs	Plant seedlings and associated riparian at stem placement ratios from 1:1 to 8:1, depending on stem size and shrub location
Giant garter snake	Preserve replacement habitat	From 1:1 to 3:1 depending on nature of impact
Burrowing owl	6.5 acres of foraging habitat for each pair relocated on site; 9.75 to 19.5 acres per pair for offsite relocation	Create artificial burrows if necessary
Swainson's hawk	Preserve foraging habitat from 0.5:1 to 1.5:1	NA

The implementing agency should require applicants to mitigate at the above ratios or greater depending on habitat quality, other impacts to the species, and other factors deemed important by the agencies.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on special-status wildlife species. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases because of differences in habitat quality, other impacts to the species in the area, and/or other factors deemed important by the implementing agency. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-1c: Potential direct and indirect impacts on special-status fish species.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions.

Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

Implementation of the proposed MTP/SCS could result in the loss of habitats that are known to contain or have the potential to contain special-status fish populations. Impacts on aquatic systems could result from an increase in sediment input, contaminant input, and removal of streamside riparian vegetation. Maintenance activities adjacent to waterways could disturb soils and cause sediment to be transported into and through the channel; this would result in temporary increases in turbidity and sedimentation downstream of maintenance sites. Periods of localized, high-suspended sediment concentrations and turbidity owing to channel disturbance can result in a reduction of feeding opportunities for sight-feeding fish and clogging and abrasion of gill filaments. Also, increased sediment loading can degrade food-producing habitat downstream of project areas. Finally, sediment can interfere with photosynthesis of aquatic flora and result in the displacement of aquatic fauna. Removal of riparian vegetation could weaken the stream bank by loosening the soil, thus increasing the bank's susceptibility to erosion. Alteration of fish habitat would occur if the channel bed and banks were disturbed (e.g., if riprap were placed there), or if sites that have been disturbed mechanically were further disturbed by high-flow events before they are stabilized. Streamside riparian vegetation provides cover for juvenile rearing, shade to reduce temperatures, and food input (i.e., terrestrial invertebrates) and is considered a very valuable component of fish habitat. The removal of woody riparian vegetation may affect fish directly by removing habitat. Fish use complex woody debris structure to avoid predators and conceal themselves from prey. Woody debris in the waterway reduces water velocity, providing resting habitat as well. Table 6.6 provides estimates of potential regional impacts to habitat resulting from land use and transportation changes intended to accommodate population growth and travel in the plan area.

The land use changes in the proposed MTP/SCS could result in impacts to approximately 46 acres of riverine habitat that represents habitat for special-status fish. In addition, 1,026 acres of riparian habitat could be impacted by the proposed MTP/SCS. Riparian vegetation contributes to instream habitat by regulating water temperatures through shade, contributing to food base from leaf litter, providing woody debris for instream habitat, lead the formation of undercut bank habitat, and stabilize banks. The potential impact from transportation infrastructure expansion is 28 acres of riverine and 212 acres of riparian land. Combined, the land use and transportation changes in the plan convert 1,312 acres of habitat capable of containing or supporting special-status fish species.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use and transportation changes in the plan could potentially impact 2,114 acres of critical habitat for Delta smelt populations, representing one percent of the total Delta smelt habitat in the plan area (Table 6.7).

Because the land use changes and transportation investments of the proposed MTP/SCS at the regional level result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are expected to see about 92,000 new housing units and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Despite predominantly urbanized character of Center and Corridor Communities, they can house isolated patches of functional riverine and riparian habitat. Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional impacts). Table 6.8 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Center and Corridor Communities.

The land use changes in Center and Corridor Communities could result in impacts to approximately one acre of riverine habitat and 89 acres of riparian habitat potentially capable of containing or supporting special-status fish. The potential impact from transportation infrastructure expansion is 8 acres of riverine and 23 acres of riparian land. Combined, the land use and transportation changes in the plan convert 121 acres of potential fish habitat, representing 0.2 percent of the total riverine and riparian habitats in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use and transportation changes in Center and Corridor Communities could potentially impact 268 acres of critical habitat for Delta smelt populations, representing 0.1 percent of the total Delta smelt habitat in the plan area (Table 6.9).

Because the land use changes and transportation investments in Center and Corridor Communities result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Housing in Established Communities will increase by about 79,000 units in the proposed MTP/SCS. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out lower density residential, office parks, and strip retail. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Though Established Communities already contain large amounts of disturbed or developed land, they do contain extensive areas that still retain wildland habitat. Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional impacts). Table 6.8 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Established Communities.

The land use changes in Established Communities could result in impacts to approximately 9 acres of riverine habitat and 182 acres of riparian habitat potentially capable of containing or supporting special-status fish. The potential impact from transportation infrastructure expansion is 5 acres of riverine and 35 acres of riparian land. Combined, the land use and transportation changes in the plan convert 231 acres of potential fish habitat, representing 0.3 percent of the total riverine and riparian habitats in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use and transportation changes in Established Communities could potentially impact 692 acres of critical habitat for Delta smelt populations, representing 0.3 percent of the total Delta smelt habitat in the plan area (Table 6.9).

Because the land use changes and transportation investments in Established Communities result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Developing Communities

Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have approximately 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional impacts). Table 6.8 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Developing Communities.

The land use changes in Developing Communities could result in impacts to approximately 28 acres of riverine habitat and 565 acres of riparian habitat potentially capable of containing or supporting special-status fish. The potential impact from transportation infrastructure expansion is 13 acres of riverine and 102 acres of riparian land. Combined, the land use and transportation changes in the plan convert 708 acres of potential fish habitat, representing 0.9 percent of the total riverine and riparian habitats in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use and transportation changes in Developing Communities could potentially impact 1,151 acres of critical habitat for Delta smelt populations, representing 0.5 percent of the total Delta smelt habitat in the plan area (Table 6.9).

Because the land use changes and transportation investments in Developing Communities result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. The proposed MTP/SCS includes growth in these areas of about 5,300 housing units. This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional

impacts). Table 6.8 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Rural Residential Communities.

The land use changes in Rural Residential Communities could result in impacts to approximately 9 acres of riverine habitat and 189 acres of riparian habitat potentially capable of containing or supporting special-status fish. The potential impact from transportation infrastructure expansion is 0.4 acres of riverine and 2.6 acres of riparian land. Combined, the land use and transportation changes in the plan convert 201 acres of potential fish habitat, representing 0.3 percent of the total riverine and riparian habitats in the plan area.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use changes in Rural Residential Communities could potentially impact 3 acres of critical habitat for Delta smelt populations. Transportation projects would not impact Delta smelt critical habitat areas (Table 6.9).

Because the land use changes and transportation investments in Rural Residential Communities result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period

The proposed MTP/SCS does not forecast growth in the proposed MTP/SCS growth in Lands Not Identified for Development during the planning period.

Because no growth in these areas is forecasted in the MTP/SCS, no impact related to special-status fish is identified. Therefore, the impacts from land use in this Community Type are considered less than significant (LS), no mitigation is required.

Implementation of the proposed MTP/SCS will result in the construction of limited roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, stream crossings, and freeway improvements in these areas. The proposed MTP/SCS transportation improvements in Lands Not Identified for Development could result in the loss of habitats that are known to contain or have the potential to contain special-status fish populations. Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (resulting from impacts described above in the Regional analysis). Table 6.8 provides estimates of potential impacts to habitat resulting from transportation investments intended to accommodate travel in Lands Not Identified for Development.

Implementation of the transportation investments in Lands Not Identified for Development could result in approximately 2.4 acres of impacts to riverine habitats and 49 acres of impacts to riparian habitats that provide potential habitat for special-status fish species. In addition, the growth in Lands Not Identified for Development could impact 3 acres of critical habitat for the federally listed delta smelt (Table 6.9).

Because the transportation investments of the proposed MTP/SCS result in conversion of habitats that contain or support or have the potential to contain or support special-status fish within Lands Not Identified for Development, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional impacts). Table 6.10 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Placer County TPAs.

Development in the Placer County TPAs will not affect any riverine habitat potentially containing special-status fish species. However, land use changes in these areas could result in potential impacts to six acres of riparian habitats that are known to have the potential to support special-status fish species. The transportation investments in Placer County TPAs in the proposed MTP/SCS do not impact any riverine or riparian habitat that have the potential to contain or support special-status fish.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Neither land use nor transportation changes in Placer County TPAs would impact critical habitat for Delta smelt populations.

Because the land use changes in Placer County TPAs result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Because no acres of special-status fish habitat are converted as the result of transportation projects in Placer County TPAs, no impact related to special-status fish is identified. Therefore, the impacts from transportation in Placer County TPAs are considered less than significant (LS), no mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see approximately 92,000 new housing units and employment development for 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional impacts). Table 6.10 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Sacramento County TPAs.

The land use changes in Sacramento County TPAs could result in impacts to approximately 5 acres of riverine habitat and 903 acres of riparian habitat potentially capable of containing or supporting special-status fish. The potential impact from transportation infrastructure expansion is 8 acres of riverine and 201 acres of riparian land. Combined, the land use and transportation changes in the plan convert 1,117 acres of potential fish habitat, representing one percent of the total riverine and riparian habitats in the plan area.

The MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use and transportation changes in Sacramento County TPAs could potentially impact 47 acres of critical habitat for Delta smelt populations, representing less than 0.1 percent of the total in the plan area (Table 6.11).

Because the land use changes and transportation investments in Sacramento County TPAs result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Yolo County Transit Priority Area

The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. SACOG forecasts Yolo County TPAs will see approximately 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing

infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Effects on special-status fish could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation (see more detailed discussion in regional impacts). Table 6.10 provides estimates of potential impacts to habitat resulting from land use and transportation changes intended to accommodate growth and travel in Yolo County TPAs.

The land use and transportation changes in Yolo County TPAs would not result in impacts to riverine habitat. However, land use and transportation changes could account for impacts to 32 acres and 7 acres of riparian habitat, respectively.

The proposed MTP/SCS plan area is also home to a number of critical habitats for federally listed fish species. Land use and transportation changes in Yolo County TPAs could potentially impact 798 acres of critical habitat for Delta smelt populations, representing 0.4 percent of the total in the plan area (Table 6.11).

Because the land use changes and transportation investments in Yolo County TPAs result in conversion of habitats that contain or have the potential to contain special-status fish, this impact is considered potentially significant (PS). Mitigation measure BIO-3 is described below.

Mitigation Measure BIO-3: Avoid, minimize, and mitigate impacts on special-status fish species.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, habitat for special-status fish. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols, and standards in the industry. Mitigation measures should be identified when significance thresholds are exceeded. Mitigation implementation should be consistent with the requirements of CEQA and USFWS, NMFS, and CDFG regulations and guidelines, and/or follow an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

The following performance standards should be implemented by the project applicant for mitigation of direct and indirect impacts to special-status wildlife:

- Avoidance of special-status fish species and their habitat will be pursued where consistent with the project objectives and where feasible, as defined in Section 15364 of the CEQA Guidelines.
- Where impacts are unavoidable, impacts should be mitigated through restoration or enhancement of special-status fish habitat, where appropriate and feasible. Loss of habitat will be mitigated off site at an agency approved mitigation bank or through individual mitigation locations approved, as approved by USFWS and/or CDFG. A minimum ratio of 1:1 (one acre restored or enhanced to one acre of disturbance). The mitigation site will be monitored the first year after the mitigation is

implemented and every five years thereafter, until the mitigation is considered to be successful.

- All mitigation areas should be preserved in perpetuity through either fee ownership or a conservation easement held by a qualified conservation organization or agency, establishment of a preserve management plan, and guaranteed long-term funding for site preservation through the establishment of a management endowment.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on special-status fish species. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-2a: Potential loss and disturbance of riparian habitat.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions.

Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

Implementation of the proposed MTP/SCS could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in the proposed MTP/SCS could result in potential impacts on riparian habitats of 1,026 acres and 212 acres, respectively (Table 6.6). As seen in Table 6.1, there are a total of 59,520 acres of riparian habitat within the plan area; therefore the proposed MTP/SCS projected land use changes could impact approximately three percent of this habitat in the plan area.

Because the land use and transportation changes of the proposed MTP/SCS at the regional level result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are expected to see approximately 92,000 new housing units, and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Despite predominantly urbanized character of Center and Corridor Communities, they can house isolated patches of functional riparian habitat. Implementation of land use and transportation projects in Center and Corridor Communities could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in Center and Corridor Communities could result in potential impacts on riparian habitats of 89 acres and 22 acres, respectively (Table 6.8). As seen in Table 6.1, there are a total of 59,520 acres of riparian habitat within the plan area; therefore the projected land use and transportation changes in Center and Corridor Communities could impact approximately 0.2 percent of this habitat in the plan area.

Because the land use and transportation changes in Center and Corridor Communities result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Housing in Established Communities will increase by about 79,000 units in the proposed MTP/SCS. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out lower density residential, office parks, and strip retail. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Though Established Communities already contain large amounts of disturbed or developed land, they do contain extensive areas that still retain riparian habitat. Implementation of land use and transportation projects in Established Communities could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in Established Communities could result in potential impacts on riparian habitats of 182 acres and 35 acres, respectively (Table 6.8). As seen in Table 6.1, there are a total of 59,520 acres of riparian habitat within the plan area; therefore the projected land use and transportation changes in Established Communities could impact approximately 0.4 percent of this habitat in the plan area.

Because the land use and transportation changes in Established Communities result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Developing Communities

Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have approximately 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Implementation of land use and transportation projects in Developing Communities could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in Developing Communities could result in potential impacts on riparian habitats of 565 acres and 102 acres, respectively (Table 6.8). As seen in Table 6.1, there are a total of 59,520 acres of riparian habitat within the plan area; therefore the projected land use and transportation changes in Developing Communities could impact approximately one percent of this habitat in the plan area.

Because the land use and transportation changes in Developing Communities result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Rural Residential Communities
Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. The proposed MTP/SCS forecast includes about 5,300 housing units. This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

Implementation of land use and transportation projects in Rural Residential Communities could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in Rural Residential Communities could result in potential impacts on riparian habitats of 189 acres and three acres, respectively (Table 6.8). As seen in Table 6.1, there are a total of 59,520 acres of riparian habitat within the plan area; therefore the projected land use and transportation changes in Rural Residential Communities could impact approximately 0.3 percent of this habitat in the plan area.

Because the land use and transportation changes in Rural Residential Communities result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
The proposed MTP/SCS does not forecast growth in the MTP/SCS planning period in Lands Not Identified for Development during the planning period.

Because no growth in these areas is forecasted in the MTP/SCS, no impact related to riparian habitat is identified. Therefore, the impacts from land use in this Community Type are considered less than significant (LS), no mitigation is required.

Implementation of the proposed MTP/SCS will result in the construction of limited roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, stream crossings, and freeway improvements in these areas. Transportation improvements in Lands Not Identified for Development could result in potential impact to approximately 49 acres of riparian habitats (Table 6.8).

Because transportation investments in Lands Not Identified for Development result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of land use and transportation projects in Placer County TPAs could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use changes in Placer County TPAs could result in potential impacts on riparian habitats of 6 acres, while transportation projects in these areas would not impact riparian habitats (Table 6.10). As seen in Table 6.1, there are a total of 10,944 acres of riparian habitat in Placer County; therefore the projected land use changes in Placer County TPAs would impact less than 0.1 percent of this habitat in the county.

Because the land use changes in Placer County TPAs result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Because no acres of riparian habitat are converted as the result of transportation projects in Placer County TPAs, no impact related to transportation investments is identified. Therefore, the impacts from transportation improvements in Placer County TPAs are considered less than significant (LS), no mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see about 92,000 new housing units and employment development for 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing

infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of land use and transportation projects in Sacramento County TPAs could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in Sacramento County TPAs could result in potential impacts on riparian habitats of 116 acres and 35 acres, respectively (Table 6.10). As seen in Table 6.1, there are a total of 14,933 acres of riparian habitat in Sacramento County; therefore the projected land use changes in Sacramento County TPAs would impact one percent of this habitat in the county.

Because the land use and transportation changes in Sacramento County TPAs result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Yolo County Transit Priority Area

The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. SACOG forecasts Yolo County TPAs will see approximately 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of land use and transportation projects in Yolo County TPAs could result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. The land use and transportation changes in Yolo County TPAs could result in potential impacts on riparian habitats of 32 acres and seven acres, respectively (Table 6.10). As seen in Table 6.1, there are a total of 8,926 acres of riparian habitat in Yolo County; therefore the projected land use changes in Yolo County TPAs would impact 0.4 percent of this habitat in the county.

Because the land use and transportation changes in Yolo County TPAs result in conversion of riparian habitats already severely reduced and impacted by development in California, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Mitigation Measure BIO-4: Avoid, minimize, and mitigate impacts to riparian habitats.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, riparian habitats. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols, and standards in the industry. Mitigation measures should be identified when significance thresholds are exceeded. Mitigation measures should be consistent with the requirements of CEQA, or follow an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

Implementing agencies should design projects such that they avoid and minimize direct and indirect impacts to riparian habitats where feasible, as defined in Section 15364 of the CEQA Guidelines.

In general, if riparian vegetation is removed or disturbed, the project applicant will compensate for the loss of riparian vegetation. Compensation will be provided at a minimum 1:1 ratio for restoration and preservation, and may be a combination of onsite restoration/creation, offsite restoration, preservation, or mitigation credits. Project applicants should be required to develop a restoration and monitoring plan that describes how riparian habitat will be enhanced or recreated and monitored. At a minimum, the restoration and monitoring plan will include clear goals and objectives, success criteria, specifics on restoration/creation (plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan. In general, any riparian restoration or creation will be monitored for a minimum of five years and will be considered successful when at least 75 percent of all plantings have become successfully established.

Such mitigation sites will be dedicated either in fee or as an easement in perpetuity held by a qualified organization or agency. Guaranteed funding for maintenance of the mitigation sites shall be established.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on riparian habitats. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-2b: Potential loss or alteration of oak woodlands.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions.

Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

Implementation of the proposed MTP/SCS will result in land use changes that could result in removal of oak woodland communities and individual oak trees. The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use and transportation changes in the proposed MTP/SCS could result in potential impacts on oak woodlands of 6,327 acres and 309 acres, respectively (Table 6.13). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the proposed MTP/SCS projected land use changes could impact approximately two percent of this habitat in the plan area.

Because the land use and transportation changes of the proposed MTP/SCS at the regional level result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-4 is described below.

Table 6.13:
Potential Impacts to Oak Woodlands (acres)

Land Cover	Land Use Impacts	Transportation Impacts	Total Impacts
Foothill Woodland	**5,243.4**	**255.2**	**5,498.5**
Blue Oak Woodland	2,409.6	146.1	2,555.7
Foothill Pine-Oak Woodland	1,295.9	41.3	1,337.1
Interior Live Oak Woodland	1.9	6.3	8.2
Mixed Oak Woodland	1,536.1	61.5	1,597.6
Oak Savanah	**866.0**	**32.1**	**898.1**
Valley Oak Savanah	866.0	32.1	898.1
Valley Oak Woodland	**217.3**	**21.6**	**238.9**
Valley Oak Woodland	217.3	21.6	238.9
Grand Total	**6,326.7**	**308.8**	**6,635.5**

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are expected to see approximately 92,000 new housing units and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Despite predominantly urbanized character of Center and Corridor Communities, they can house isolated patches of oak woodlands. The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use and transportation changes in Center and Corridor Communities could result in potential impacts on oak woodlands of 83 acres and 2 acres, respectively (Table 6.14). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the transportation and land use changes in these areas would impact less than 0.1 percent of this habitat in the plan area.

Because the land use and transportation changes in Center and Corridor Communities result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Established Communities will increase housing by about 79,000 units in the proposed MTP/SCS. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out residential, office parks, and strip. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Though Established Community Areas already contain large amounts of disturbed or developed land, they do contain extensive areas that still retain wildland habitat. The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use and transportation changes in Established Communities could result in potential impacts on oak woodlands of 1,725 acres and 116 acres, respectively (Table 6.14). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the transportation and land use changes in these areas would impact 0.7 percent of this habitat in the plan area.

Because the land use and transportation changes in Established Communities result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Developing Communities

Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have about 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because

these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use and transportation changes in Developing Communities could result in potential impacts on oak woodlands of 2,496 acres and 112 acres, respectively (Table 6.14). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the transportation and land use changes in these areas would impact one percent of this habitat in the plan area.

Because the land use and transportation changes in Developing Communities result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Table 6.14:
Potential Impacts to Oak Woodlands by Community Type (acres)

Land Cover	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Foothill Woodland	**46.5**		**46.5**	**1,523.1**	**98.2**	**1,621.3**	**2,053.9**	**94.6**	**2,148.5**	**1,619.9**	**61.6**	**1,681.5**		**0.8**	**0.8**
Blue Oak Woodland	10.8		10.8	780.1	50.8	830.9	966.8	77.6	1,044.3	651.9	17.8	669.6			
Foothill Pine-Oak Woodland	0.5		0.5	289.5	10.8	300.3	537.8	1.1	538.9	468.1	29.4	497.5			
Interior Live Oak Woodland				1.8	6.1	7.8	0.1		0.1		0.3	0.3			
Mixed Oak Woodland	35.2		35.2	451.8	30.5	482.3	549.2	15.9	565.1	499.9	14.2	514.1		**0.8**	**0.8**
Oak Savanah	**20.8**		**20.8**	**118.6**	**4.3**	**122.8**	**404.4**	**11.5**	**415.8**	**322.3**	**16.4**	**338.6**			
Valley Oak Savanah	20.8		20.8	118.6	4.3	122.8	404.4	11.5	415.8	322.3	16.4	338.6			
Valley Oak Woodland	**15.2**	**1.9**	**17.1**	**83.7**	**13.8**	**97.5**	**37.8**	**5.7**	**43.5**	**80.6**	**0.1**	**80.7**		**0.1**	**0.1**
Valley Oak Woodland	15.2	1.9	17.1	83.7	13.8	97.5	37.8	5.7	43.5	80.6	0.1	80.7		**0.1**	**0.1**
Grand Total	**82.5**	**1.9**	**84.4**	**1,725.4**	**116.2**	**1,841.6**	**2,496.1**	**111.7**	**2,607.8**	**2,022.7**	**78.1**	**2,100.8**	**0.0**	**0.9**	**0.9**

Rural Residential Communities
Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. SACOG anticipates growth in these areas of about 5,300 housing units . This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use and transportation changes in Rural Residential Communities could result in potential impacts on oak woodlands of 2,023 acres and 78 acres, respectively (Table 6.14). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the transportation and land use changes in these areas would impact 0.8 percent of this habitat in the plan area.

Because the land use and transportation changes in Rural Residential Communities result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
The proposed MTP/SCS does not forecast or model growth in Lands Not Identified for Development during the planning period.

Because no growth in these areas is forecasted in the MTP/SCS, no impact related to riparian habitat is identified. Therefore, the impacts from land use in this Community Type are considered less than significant (LS), no mitigation is required.

The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The transportation changes in Rural Residential Communities could result in potential impacts on oak woodlands of roughly one acre (Table 6.14).

Because the transportation changes in Lands Not Identified for Development result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use changes in Placer County TPAs could result in potential impacts on oak woodlands of 11 acres, while transportation projects in these areas would not impact oak woodlands (Table 6.15). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the land use changes in these areas would impact less than 0.1 percent of this habitat in the plan area.

Because the land changes in Placer County TPAs result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Because the transportation improvements in Placer County TPAs would not impact oak woodlands, this impact is considered less than significant (LS), and therefore no mitigation is required.

Table 6.15
Potential Impacts to Oak Woodlands by Transit Priority Area (acres)

	Placer County TPAs			Sacramento County TPAs			Yolo County TPAs		
Land Cover	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Foothill Woodland	**11.4**		**11.4**						
Blue Oak Woodland	3.5		3.5						
Interior Live Oak Woodland	0.0		0.0						
Mixed Oak Woodland	7.9		7.9						
Valley Oak Woodland				**18.2**		**18.2**	**0.3**	**2.4**	**2.7**
Valley Oak Woodland				18.2		18.2	0.3	2.4	2.7
Total	**11.4**	**0.0**	**11.4**	**18.2**	**0.0**	**18.2**	**0.3**	**2.4**	**2.7**

Sacramento County Transit Priority Areas
The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see about 92,000 new housing units and employment development for 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use changes in Sacramento County TPAs could result in potential impacts on oak woodlands of 18.2 acres, while transportation projects in these areas would not impact oak woodlands (Table 6.15). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the land use changes in these areas would impact less than 0.1 percent of this habitat in the plan area.

Because the land changes in Sacramento County TPAs result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Because the transportation improvements in Sacramento County TPAs would not impact oak woodlands, this impact is considered less than significant (LS), and therefore no mitigation is required.

Yolo County Transit Priority Area
The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. SACOG forecasts Yolo County TPAs will see approximately 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing

infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

The extent of oak woodlands within the Sacramento Valley has already been substantially reduced and on-going grazing activities in the remaining valley areas and in the adjacent foothills has drastically reduced recruitment of younger oak trees into these areas, reducing the long-term viability of these communities. Effects of the proposed MTP/SCS on individual trees are discussed under Impact BIO-5.

The land use changes in Yolo County TPAs could result in potential impacts on oak woodlands of 0.3 acres, while transportation projects in these areas could result in approximately two acres of potential impacts to oak woodlands (Table 6.15). As seen in Table 6.1, there are a total of 274,138 acres of oak woodlands within the plan area; therefore the transportation and land use changes in these areas would impact less than 0.1 percent of this habitat in the plan area.

Because the land use and transportation changes in Yolo County TPAs result in conversion of oak woodlands, this impact is considered potentially significant (PS). Mitigation measure BIO-5 is described below.

Mitigation Measure BIO-5: Avoid, minimize, and mitigate impacts to oak woodland habitats.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, oak woodland habitats. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols, and standards in the industry. Mitigation measures should be identified when significance thresholds are exceeded. Mitigation measures should be consistent with the requirements of CEQA, or follow an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

Implementing agencies should design projects such that they avoid and minimize direct and indirect impacts to oak woodland habitats where feasible, as defined in Section 15364 of the CEQA Guidelines.

In general, if oak woodland vegetation is removed or disturbed, the project applicant will compensate for the loss. Compensation will be provided at a minimum 1:1 ratio for restoration and preservation, and may be a combination of onsite restoration/creation, offsite restoration, preservation, or mitigation credits. If mitigation is completed by the project applicant, it will develop a restoration and monitoring plan that describes how oak woodland habitat will be enhanced or recreated and monitored. At a minimum, the restoration and monitoring plan will include clear goals and objectives, success criteria, specifics on restoration/creation (plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan. In general, any riparian restoration or creation will be monitored for a minimum of five years and will be considered successful when at least 75 percent of all plantings have become successfully established.

Such mitigation sites will be dedicated either in fee or as an easement in perpetuity held by a qualified organization or agency. Guaranteed funding for maintenance of the mitigation sites shall be established.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on oak woodlands. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-3: Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions.

Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

Implementation of the proposed MTP/SCS could result in substantial adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in the plan could result in the loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

Table 6.16
Potential Impacts to Protected Waters (acres)

Land Cover	Land Use	Transportation	Grand Total
Open Water	**345.0**	**13.4**	**358.3**
Riverine	**46.1**	**28.2**	**74.3**
Wetland	**420.8**	**90.4**	**511.2**
Freshwater Marsh	95.3	12.8	108.1
Seasonal Wetland	126.3	39.5	165.8
Vernal Pool	198.7	33.7	232.4
Wet Meadow		3.6	3.6
Wetland	0.5	0.8	1.3
Grand Total	**811.8**	**132.0**	**943.8**

The proposed MTP/SCS land use and transportation changes could result in a total of approximately 812 acres and 132 acres, respectively, of potential impacts to wetlands and other waters (Table 6.16). In total, the proposed MTP/SCS could impact 0.7 percent of the 132,487 acres of open water, riverine, and wetland habitats in the plan area.

Because the land use and transportation changes in the proposed MTP/SCS at the regional level could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

B. Localized Impacts

Center and Corridor Communities
By 2035 Center and Corridor Communities are expected to see about 92,000 new housing units and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Despite predominantly urbanized character of Center and Corridor Communities, they can house isolated patches of open water, riverine, and wetland habitat. Implementation of the land use and transportation changes in Center and Corridor Communities could result in adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in these areas could result in the loss of waters of the

United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

The land use and transportation changes in Center and Corridor Communities could result in a total of approximately 17 acres and 15 acres, respectively, of potential impacts to wetlands and other waters (Table 6.17). In total, these changes would impact less than 0.1 percent of the 132,487 acres of open water, riverine, and wetland habitats in the plan area.

Because the land use and transportation changes in Center and Corridor Communities could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Established Communities will increase housing by about 79,000 units. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out residential, office parks, and strip retail. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Implementation of the land use and transportation changes in Established Communities could result in adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in these areas could result in the loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

The land use and transportation changes in Established Communities could result in a total of approximately 244 acres and 24 acres, respectively, of potential impacts to wetlands and other waters (Table 6.17). In total, these changes could 0.2 percent of the 132,487 acres of open water, riverine, and wetland habitats in the plan area.

Because the land use and transportation changes in Established Communities could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

Table 6.17
Potential Impacts to Protected Waters by Community Type (acres)

Land Cover	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Open Water	13.6	0.0	13.6	165.8	4.8	170.6	68.7	7.3	76.0	96.9	0.1	97.0		1.1	1.1
Riverine	1.4	8.1	9.5	8.6	4.7	13.2	27.5	12.7	40.2	8.6	0.4	9.1		2.4	2.4
Wetland	1.7	7.2	8.9	69.3	14.9	84.2	291.9	31.2	323.1	57.9	1.2	59.1		35.9	35.9
Freshwater Marsh	0.6		0.6	38.6	2.9	41.5	44.4	9.1	53.5	11.6	0.0	11.7		0.7	0.7
Seasonal Wetland	0.5	7.2	7.7	17.7	5.0	22.7	93.9	8.9	102.9	14.2	0.2	14.3		18.2	18.2
Vernal Pool	0.6		0.6	12.4	2.5	15.0	153.6	13.1	166.8	32.1	1.0	33.1		17.0	17.0
Wet Meadow					3.6	3.6									
Wetland				0.5	0.8	1.3									
Total	**16.7**	**15.3**	**32.0**	**243.6**	**24.3**	**268.0**	**388.1**	**51.2**	**439.3**	**163.4**	**1.8**	**165.2**	**0.0**	**39.3**	**39.3**

Developing Communities
Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have approximately 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Implementation of the land use and transportation changes in Developing Communities could result in adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in these areas could result in the loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

The land use and transportation changes in Developing Communities could result in a total of approximately 388 acres and 51 acres, respectively, of potential impacts to wetlands and other waters (Table 6.17). In total, these changes would impact 0.3 percent of the 132,487 acres of open water, riverine, and wetland habitats in the plan area.

Because the land use and transportation changes in Developing Communities could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

Rural Residential Communities
Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. SACOG anticipates growth in these areas of about 5,300 housing units . This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

Implementation of the land use and transportation changes in Rural Residential Communities could result in adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in these areas could result in the loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

The land use and transportation changes in Rural Residential Communities could result in a total of approximately 163 acres and 2 acres, respectively, of potential impacts to wetlands and other waters (Table 6.17). In total, these changes would impact 0.1 percent of the 132,487 acres of open water, riverine, and wetland habitats in the plan area.

Because the land use and transportation changes in Rural Residential Communities could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period

The proposed MTP/SCS does not forecast growth in Lands Not Identified for Development during the planning period.

Because no growth in these areas is forecasted in the MTP/SCS, no impact related to protected waters is identified. Therefore, the impacts from land use in Lands Not Identified for Development are considered less than significant (LS), no mitigation is required.

However, implementation of the proposed MTP/SCS will result in the construction of limited roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements in these areas. The proposed MTP/SCS transportation improvements in Lands Not Identified for Development could result in the loss of protected waters.

The transportation changes in Lands Not Identified for Development could result in approximately 39 acres of potential impacts to wetlands and other waters (Table 6.17). These changes would impact less than 0.1 percent of the 132,487 acres of open water, riverine, and wetland habitats in the plan area.

Because the transportation changes in Lands Not Identified for Development could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

However, neither the transportation nor land use changes in Placer County TPAs will impact areas containing protected waters (Table 6.18).

Therefore, the impacts from land use and transportation changes in Placer County TPAs are considered less than significant (LS), no mitigation is required.

Table 6.18
Potential Impacts to Protected Waters by Transit Priority Areas (acres)

	Placer County TPAs			Sacramento County TPAs			Yolo County TPAs		
Land Cover	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Open Water				**44.5**	**0.9**	**45.5**	**42.0**	**1.4**	**43.4**
Open water				44.5	0.9	45.5	42.0	1.4	43.4
Riverine				**4.5**	**8.0**	**12.5**			
Riverine				4.5	8.0	12.5			
Wetland				**14.3**	**3.3**	**17.6**	**2.1**	**4.2**	**6.3**
Freshwater Marsh				0.6		0.6	0.1		0.1
Seasonal Wetland				5.0	3.2	8.2	2.0	4.2	6.2
Vernal Pool				8.7	0.1	8.8			
Grand Total	**0.0**	**0.0**	**0.0**	**63.4**	**12.2**	**75.6**	**44.2**	**5.6**	**49.7**

Sacramento County Transit Priority Areas

The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see approximately 92,000 new housing units and employment development for 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure

improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation changes in Sacramento County TPAs could result in adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in these areas could result in the loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

The land use and transportation changes in Sacramento County TPAs could result in a total of approximately 63 acres and 12 acres, respectively, of potential impacts to wetlands and other waters (Table 6.18). In total, these changes would impact 0.2 percent of the 35,023 acres of open water, riverine, and wetland habitats in Sacramento County.

Because the land use and transportation changes in Sacramento County TPAs could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

Yolo County Transit Priority Area

The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. SACOG forecasts Yolo County TPAs will see approximately 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because most of these improvements will be modifications of existing infrastructure, impacts to biological resources resulting from roads cutting through new lands will be limited.

Implementation of the land use and transportation changes in Yolo County TPAs could result in adverse effects on federally and state protected wetlands and other waters of the United States in the plan area. The land use and transportation changes in these areas could result in the loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), and alteration of bed and bank resulting in long-term degradation of sensitive plant communities, fragmentation or isolation of important wildlife habitat, or disruption of natural wildlife movement corridors.

The land use and transportation changes in Yolo County TPAs could result in a total of approximately 44 acres and 6 acres, respectively, of potential impacts to wetlands and other waters (Table 6.18). In total, these changes would impact 0.2 percent of the 25,916 acres of open water, riverine, and wetland habitats in Yolo County.

Because the land use and transportation changes in Yolo County TPAs could result in the loss of protected waters, this impact is considered potentially significant (PS). Mitigation measure BIO-6 is described below.

Mitigation Measure BIO-6: Avoid, minimize, and mitigate impacts to wetland and other waters.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, wetlands and other waters. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols, and standards in the industry. Mitigation measures should be identified when significance thresholds are exceeded. Mitigation measures should be consistent with the requirements of CEQA and USACE and SWRCB regulations and guidelines, and/or follow an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

Implementing agencies should design projects such that they avoid and minimize direct and indirect impacts to wetlands and other waters where feasible, as defined in section 15364 of the CEQA Guidelines.

If wetlands and waters are filled or disturbed as part a specific project, the project applicant will compensate for the loss of wetland and waters to ensure there is no net loss of habitat functions and values. The compensation will be at a minimum 1:1 restoration ratio and a 1:1 preservation ratio. A restoration and monitoring plan should be developed and implemented if onsite or offsite restoration or creation is chosen. The plan should describe how wetlands should be created and monitored over a minimum of five years (or as required by the regulatory agencies).

Such mitigation sites will be dedicated either in fee or as an easement in perpetuity held by a qualified organization or agency. Guaranteed funding for maintenance of the mitigation sites shall be established.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on wetlands and other waters. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

A. Regional Impacts

As described in Chapter 2 – Project Description, the proposed MTP/SCS forecasts the plan area will grow by approximately 871,000 people and convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions.

Transportation infrastructure investments expand the network of highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way to accommodate the forecasted land use patterns. By 2035, the road and highway system will grow by approximately 3,100 route miles.

There are a total of 1,068,416 acres of Essential Connectivity Areas (ECA) mapped within the plan area, most of which is comprised of wildland habitats (see discussions in Setting and Methods and Assumptions). Implementation of the proposed MTP/SCS could result in changes to approximately 5,862 acres of areas mapped as ECAs (roughly 0.5 percent of the ECA acreage in the plan area), 5,700 acres of which are currently classified as wildlands. The majority of the impacted wildland habitat within the ECAs consists of foothill woodland annual grasslands. These areas serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

The majority of the proposed MTP/SCS impacts are concentrated in two ECAs: the Marble Valley-Sawtooth Ridge ECA, which starts in the northeast from eastern Placer and El Dorado counties and heads west and then south toward the El Dorado and Sacramento county borders just south of Folsom; and the Curry Creek-Coon Creek ECA, which starts in the north near the Placer and Yuba county border and heads south through western Placer County just west of Roseville and Rocklin (see Figure 6.2). As see in Figure 6.2, both areas have concentrated land use changes forecast within the southern end of these ECAs. These changes in land use could result fragmented habitat and isolated populations of plants and wildlife.

The proposed MTP/SCS transportation improvements could affect seasonal migration corridors, routes for genetic exchange between populations, routes for species to disperse to new habitats in response to climate change, and fragmentation or isolation of an important wildlife habitat,. Large roads and highways are known to create barriers for dispersing wildlife as well as sources of mortality. The proposed MTP/SCS transportation projects could impact 794 acres of ECA lands, 731 acres of which are currently mapped as wildland habitat (see Table 6.19). These impacts are relatively small compared to the overall acreage of ECA lands in the plan area. As seen in Figure 6.2, transportation projects could create potential barriers for wildlife in the previously discussed ECAs (Curry Creek-Coon Creek and Marble Valley-Sawtooth Ridge);

however these improvements appear to be along existing transportation corridors that if widened may affect these ECAs though not to the same degree that the proposed land use changes would.

Table 6.19
Potential Impacts to Essential Connectivity Areas (acres)

Land Cover	Land Use Impacts	Transportation Impacts	Total Impacts
Agriculture	**161.6**	**63.7**	**225.3**
Pasture	65.2	59.9	125.1
Row and Field Crops	13.4	3.8	17.1
Rice	81.2		81.2
Orchards and Vineyards	1.8		1.8
Wildlands	**5,700.4**	**730.6**	**6,430.9**
Barren	27.7	8.2	35.8
Chaparral	454.0	4.5	458.4
Foothill Woodland	1,282.9	66.2	1,349.1
Grassland	3,310.9	571.5	3,882.4
Montane Forest	550.5	56.2	606.7
Oak Savanah	19.0	0.7	19.7
Open Water	14.4	2.8	17.2
Riparian	21.8	10.3	32.0
Riverine	0.7	0.6	1.4
Valley Oak Woodland	16.3	5.0	21.3
Wetland	2.3	4.7	7.0
Grand Total	**5,862.0**	**794.3**	**6,656.3**

Because the land use and transportation changes in the proposed MTP/SCS at the regional level could result in impacts to ECAs, and specifically the two aforementioned ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are expected to see about 92,000 new housing units and 104,000 new jobs. While this growth will consume approximately 4,400 acres, future development will primarily be infill development with minimal potential for widespread impacts on biological resources.

A variety of transportation projects occur in Center and Corridor Communities by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Many of the transportation projects in these areas expand or improve existing infrastructure limiting exposure to new areas potentially containing biological resources.

Development in Center and Corridor Communities does overlap with small portions of ECA lands, mostly on the edges of these communities. ECAs in the plan area serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

Implementation of the land use and transportation changes in these areas could result in impacts to approximately 31 acres and five acres, respectively, of ECA lands (Table 16.20). This amounts to less than 0.1 percent of the more than one million acres of ECA lands in the plan area.

Because the land use and transportation changes in Center and Corridor Communities could result in impacts to ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

Established Communities

Established Communities already have a significant amount of urban development, though generally not as dense as Center and Corridor Communities. Established Communities will increase housing by about 79,000 units. Proposed land use changes will consume approximately 20,000 acres. Established Communities are mostly built-out low density residential, office parks, and strip retail. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses.

Established Communities and Center and Corridor Communities see a similar variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Development in Established Communities does overlap with small portions of ECA lands, mostly on the edges of these communities. ECAs in the plan area serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

Implementation of the land use and transportation changes in these areas could result in impacts to approximately 1,699 acres and 209 acres, respectively, of ECA lands (Table 16.20). This amounts to 0.2 percent of the more than one million acres of ECA lands in the plan area.

Because the land use and transportation changes in Established Communities could result in impacts to ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

Table 6.20
Potential Impacts to Essential Connectivity Areas by Community Type (acres)

	Center and Corridor Communities			Established Communities			Developing Communities			Rural Residential Communities			Lands Not Identified for Development		
Land Cover	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts	Land Use Impacts	Transp. Impacts	Total Impacts
Agriculture				**0.8**	**2.1**	**2.9**	**158.3**	**24.7**	**183.0**	**2.6**	**0.1**	**2.7**		**36.8**	**36.8**
Pasture				0.1		0.1	65.1	24.7	89.8					35.3	35.3
Row and Field Crops				0.6	2.1	2.7	11.9		11.9	0.8	0.1	0.9		1.5	1.5
Rice							81.2		81.2						
Orchards and Vineyards				0.1		0.1				1.7		1.7			
Wildlands	**31.1**	**4.7**	**35.9**	**1,698.4**	**206.9**	**1,905.3**	**2,739.1**	**285.7**	**3,024.7**	**1,231.8**	**140.9**	**1,372.7**		**92.4**	**92.4**
Barren	0.4		0.4	25.6	0.5	26.2	1.6	3.5	5.1		4.1	4.1			
Chaparral				19.5	0.2	19.7	40.7		40.7	393.8	4.2	398.0			
Foothill Woodland				558.2	19.4	577.6	382.7	6.5	389.2	342.0	40.3	382.3			
Grassland	30.7	4.7	35.4	955.2	168.8	1,124.0	2,091.4	266.4	2,357.8	233.6	42.2	275.8		89.5	89.5
Montane Forest				123.9	6.4	130.3	199.3	0.0	199.4	227.2	49.8	277.0			
Oak Savanah					0.7	0.7				19.0		19.0			
Open Water				2.8	0.1	2.9	11.6	2.5	14.2		0.1	0.1			
Riparian		0.1	0.1	1.0	2.0	3.0	9.3	5.4	14.7	11.5		11.5		2.8	2.8
Riverine				0.0	0.3	0.3	0.7	0.2	1.0		0.0	0.0		0.1	0.1
Valley Oak Woodland				11.8	4.8	16.6				4.6	0.1	4.7			
Wetland				0.4	3.6	4.0	1.6	1.1	2.7	0.2		0.2		0.0	0.0
Grand Total	**31.1**	**4.7**	**35.9**	**1,699.1**	**209.1**	**1,908.2**	**2,897.4**	**310.3**	**3,207.7**	**1,234.4**	**141.0**	**1,375.4**		**129.2**	**129.2**

Developing Communities
Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have about 127,000 new housing units and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities have less existing transportation infrastructure and will see more road widening projects and newly constructed road projects to serve greatly expanded residential and employment developments. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Development in Developing Communities does overlap with small portions of ECA lands, mostly on the edges of these communities. ECAs in the plan area serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

Implementation of the land use and transportation changes in these areas could result in impacts to approximately 2,897 acres and 310 acres, respectively, of ECA lands (Table 16.20). This amounts to 0.3 percent of the more than one million acres of ECA lands in the plan area.

Because the land use and transportation changes in Developing Communities could result in impacts to ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

Rural Residential Communities
Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming and grazing surrounded by open space, forested lands, and agricultural lands. SACOG anticipates growth in these areas of about 5,300 housing units. This development will consume roughly 5,000 acres.

Existing transportation infrastructure in Rural Residential Communities consists primarily of two- to four-lane rural roads or highways serving automobile traffic and agricultural and farm equipment. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, and freeway improvements. Rural Residential Communities will receive some newly constructed roadways, but not to the extent of Center and Corridor, Established, and Developing Communities.

Development in Rural Residential Communities does overlap with small portions of ECA lands, mostly on the edges of these communities. ECAs in the plan area serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

Implementation of the land use and transportation changes in these areas could result in impacts to approximately 1,234 acres and 141 acres, respectively, of ECA lands (Table 16.20). This amounts to 0.1 percent of the more than one million acres of ECA lands in the plan area.

Because the land use and transportation changes in Rural Residential Communities could result in impacts to ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

Lands Not Identified for Development in the MTP/SCS Planning Period
The proposed MTP/SCS does not forecast growth in the Lands Not Identified for Development during the planning period.

Thus, no land use impacts in these areas related to wildlife corridors are identified. Land use impacts on ECAs in Lands Not Identified for Development are considered less than significant (LS), no mitigation is required.

The proposed MTP/SCS will make a limited number of transportation investments in Lands Not Identified for Development by 2035 that overlap with ECA areas, including road maintenance, road widening, and safety enhancements, and other roadway improvements. ECAs in the plan area serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

Implementation of the transportation changes in these areas could result in impacts to approximately 129 acres of ECA lands (Table 16.20). This amounts to less than 0.1 percent of the more than one million acres of ECA lands in the plan area.

Because the transportation changes in Lands Not Identified for Development could result in impacts to ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The Placer County Transit Priority Areas (Placer County TPAs) include portions of Roseville, Rocklin, and Auburn in areas that are in general already developed with urban uses. SACOG forecasts Placer County TPAs will see approximately 2,600 new housing units and employment development for 10,000 new jobs by 2035. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

However, none of the proposed transportation or land use changes in Placer County TPAs overlap with ECA areas in Placer County (Table 16.21). Therefore, impacts on ECAs in Placer County TPAs are considered less than significant (LS). No mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County Transit Priority Areas (Sacramento County TPAs) include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. SACOG forecasts Sacramento County TPAs will see about 92,000 new housing units and employment development for 108,000 new jobs. This development will occur on about 5,000 acres and is generally more densely developed than surrounding areas.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

However, none of the proposed transportation or land use changes in Sacramento County TPAs overlap with ECA areas in Sacramento County (Table 16.21). Therefore, impacts on ECAs in Sacramento County TPAs are considered less than significant (LS). No mitigation is required.

Yolo County Transit Priority Area

The Yolo County Transit Priority Areas (Yolo County TPAs) include the majority of West Sacramento and Davis. SACOG forecasts Yolo County TPAs will see 20,000 new housing units and employment development for 22,000 new jobs. This development will occur on about 1,250 acres and is generally more densely developed than surrounding areas.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Land use projects in Yolo County TPAs do overlap with small portions of ECA lands. Transportation projects do not overlap with ECA areas. ECAs in the plan area serve as important wildlife corridors that also provide habitat and dispersal corridors for special-status plants. The ECAs represent potential seasonal migration corridors, routes for genetic exchange between populations, and routes for species to disperse to new habitats in response to climate change.

Table 6.21
Potential Impacts to Essential Connectivity Areas by Transit Priority Area (acres)

Land Cover Impacted	Placer County TPA		Sacramento County TPA		Yolo County TPA	
	Land Use Impacts	Transp. Impacts	Land Use Impacts	Transp. Impacts	Land Use Impacts	Transp. Impacts
Agriculture					**9.3**	
Pasture					9.3	
Wildlands					**91.6**	
Grassland					34.2	
Open Water					53.3	
Valley Foothill Riparian					2.5	
Freshwater Marsh					1.5	
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**100.9**	**0.0**

Implementation of the land use changes in these areas could result in impacts to approximately 101 acres of ECA lands (Table 6.21). This amounts to less than 0.1 percent of the more than one million acres of ECA lands in the plan area.

Because the land use changes in Yolo County TPAs could result in impacts to ECAs, this impact is considered potentially significant (PS). Mitigation measure BIO-7 is described below.

Because the transportation changes in Yolo County TPAs would not result in impacts to ECAs, this impact is considered less than significant (LS). No mitigation is required.

Mitigation Measure BIO-7: Avoid, minimize, and mitigate impacts to wildlife corridors

Implementing agencies should require project applicants to prepare detailed analyses for specific projects impacting the ECA lands occurring within their sphere of influence to determine what wildlife species may use these area and what habitats those species require. The assessment should be conducted by appropriately trained professionals and standards in the industry. Mitigation implementation should be required when significance thresholds are exceeded. Mitigation should be consistent with the requirements of CEQA and/or follow an adopted HCP/NCCP or other relevant plans promulgated to protect species/habitat.

Implementing agencies should design projects such that they avoid and minimize direct and indirect impacts to wildlife corridors where feasible, as defined in section 15364 of the CEQA Guidelines. Design considerations may include but would not be limited to the following:

- Constructing wildlife friendly overpasses and culverts;
- Using wildlife friendly fences that allow larger wildlife such as deer to get over, and smaller wildlife to go under;
- Limiting wildland conversions in identified wildlife corridors; and
- Retaining wildlife friendly vegetation in and around developments.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on wildlife corridors. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

A. Regional Impacts

Several counties and cities in the proposed MTP/SCS plan area have local ordinances and policies in place that protect native trees as well as non-native trees in urban landscapes. These ordinances and policies have different definitions of protected trees (e.g., certain species, minimum diameter at breast height (dbh), trees that form riparian corridors). MTP/SCS land use changes could result in removal of trees that are protected by local policies or ordinances. Impacts BIO-2a and BIO-2b identity impacts to both oak woodlands and riparian habitats in urban as well as undeveloped areas and Mitigation Measures BIO-2a and BIO-2b will mitigate these impacts to less than significant. Most of the woodland habitats in the plan were mapped at sizes ranging from one-half acre up to several hundred acres. Therefore isolated trees in rural areas and city street trees were not mapped. However, it is assumed that the land use and transportation changes in the proposed MTP/SCS will result in impacts to these protected trees. In addition, implementation of the proposed MTP/SCS may also conflict with other local policies or ordinances that protect locally significant biological resources.

Therefore, land use and transportation impacts related to conflicts with local policies or ordinances protecting biological resources are considered potentially significant (PS) at the regional level. Mitigation measures are described below in BIO-8.

B. Localized and Transit Priority Area Impacts

The regional impact section describes the conditions that may result in a potentially significant impact related to conflicts with local policies or ordinances protecting biological resources. Because the impacts to biological resources protected by local policies or ordinances are site specific, the potential to impact these resources does not vary by the Community Type or location of transportation or land use improvements. Therefore, the regional analysis also applies at the localized and transit priority area levels with one exception noted below.

Therefore, impacts related to conflicts with local policies or ordinances protecting biological resources are considered potentially significant (PS) at the localized level. Mitigation measures are described below in BIO-8.

The one exception to the above is land use impacts in Lands Not Identified for Development in the Proposed MTP/SCS vary from the discussion in regional impacts. The proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on biological resources related to the land use changes from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (LS) for Impact BIO-5. No mitigation is required.

Mitigation Measure BIO-8: Avoid, minimize, and mitigate for impacts on protected trees and other biological resources protected by local ordinances.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, protected trees or other locally protected biological resources. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols, and standards in the industry. Mitigation should be implemented when significance thresholds are exceeded. Mitigation should be consistent with the requirements of CEQA and/or follow an adopted HCP/NCCP or other applicable plans promulgated to protect species/habitat.

Implementing agencies should design projects such that they avoid and minimize direct and indirect impacts to protected trees and other locally protected resources where feasible, defined in section 15364 of the CEQA Guidelines.

At a minimum, qualifying protected trees (or other resources) will be replaced at 1:1 in locally approved mitigation sites.

As part of project-level environmental review, implementing agencies will ensure that projects comply with the most recent general plans, policies, and ordinances, and conservation plans. Review of these documents and compliance with their requirements will be demonstrated in project-level environmental documentation. Review of these documents and compliance with their requirements should be demonstrated in project-level environmental documentation.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of the proposed MTP/SCS on protected trees and other biological resources protected by local ordinances. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

A. Regional Impacts

Implementation of the proposed MTP/SCS would not conflict with an adopted conservation plan. There is only one adopted HCP in the MTP/SCS area currently, the North Natomas HCP. There are many HCP plans under preparation throughout the region. Projects within the MTP/SCS that fall within the NNHCP boundaries must demonstrate consistency with the plan and satisfy mitigation requirements. Activities that are not covered under that plan as well as other projects elsewhere in the region where plans are underway must pursue individual project permitting for impacts to biological resources until such time as the specific activity/project is identified as a covered activity in an applicable plan.

Therefore, the proposed MTP/SCS land use and transportation impacts related to conflicts with the provisions of adopted HCPs, NCCPs, or other approved local, regional, or state habitat conservation plans associated at the regional level are considered less than significant (LS), no mitigation is required.

B. Localized and Transit Priority Area Impacts

The regional impact section describes the conditions that result in a less than significant impact related to conflicts with adopted HCPs, NCCPs, or other approved local, regional, or state habitat conservation plans. There is only one adopted HCP in the MTP/SCS area currently, the North Natomas HCP. There are many HCP plans under preparation throughout the region. Projects within the MTP/SCS that fall within the NNHCP boundaries must demonstrate consistency with the plan and satisfy mitigation requirements. Activities that are not covered under that plan as well as other projects elsewhere in the region where plans are underway must pursue individual project permitting for impacts to biological resources until such time as the specific activity/project is identified as a covered activity in an applicable plan. This analysis does not vary by the Community Type or location of transportation or land use improvements. Therefore, the regional analysis also applies at the localized level and transit priority area levels.

Therefore, land use and transportation impacts related to conflicts with the provisions of adopted HCPs, NCCPs, or other approved local, regional, or state habitat conservation plans are considered less than significant (LS) at the localized and transit priority area levels. No mitigation is required.

Impact BIO-7 Construction related impacts to biological resources.

A. Regional Impacts

Implementation of the proposed MTP/SCS could result in impacts on biological resources during and as a result of construction activities associated with regional growth. Construction related actions and potential construction related accidents that could impact biological resources in the plan area could include, but would not be limited to the following:

- potential spills of petroleum products, concrete, and other contaminants into aquatic and terrestrial habitats;
- introduction of sediment into aquatic habitats due to adjacent construction related ground disturbance;
- temporary dewatering of aquatic habitats;
- temporary loss of terrestrial habitats for construction staging and access;
- introduction of invasive plants into adjacent wildland habitats during construction related disturbances;
- tree trimming and trenching, parking construction equipment, and stockpiling construction materials in the root zones of protected trees;
- inadvertent mortality to special-status plants and wildlife due to construction vehicle traffic;
- entrapment of wildlife in open trenches and pipes;
- introduction of food waste and trash into adjacent wildlands from construction personnel;
- loud noises from construction vehicles, pile driving, and blasting; and
- visual changes to the landscape during construction (movement of construction personnel and vehicles that may disturb sensitive wildlife).

These activities could result in the direct loss of special-status plants, fish, and wildlife, and other protected biological resources, temporary disturbance to sensitive natural communities, and temporary disruption of fish and wildlife movement corridors, feeding behavior, and breading behavior. The potential impacts from these activities would apply at the regional and local scales, though the degree of these impacts would likely vary depending on proximity to larger areas of wildland habitat. Most construction related impacts to biological resources would be temporary, but some would be considered permanent (impacts that directly cause or lead to mortality).

At the regional scale, construction related activities discussed above could impact biological resources. The land use and transportation related construction activities in the proposed MTP/SCS could result in a total of 37,681 acres of potential impacts on wildland habitats and 16,233 acres of potential impacts on agricultural areas, which could impact sensitive biological resources in temporarily disturbed and adjacent habitats (Table 6.6). These potential impacts

represent 1.5 percent of wildland habitat and 1.6 percent of potential habitat in agricultural lands within the plan area. Though across the plan area these impacts are relatively small, most of the construction activity will occur on the valley floor in close proximity to sensitive plant, fish, and wildlife habitat (64 percent of the estimated 53,000 acres of new development will occur in wildland habitat). Construction activities within and adjacent to agricultural areas could also impact special-status wildlife species that utilize these areas.

Because construction activities related to the land use and transportation changes in the proposed MTP/SCS at the regional level could result in impacts biological resources, this impact is considered potentially significant (PS) at the regional level. Mitigation measure BIO-9 is described below.

B. Localized and Transit Priority Area Impacts

The regional impact section describes the conditions that may result in a potentially significant impact on biological resources due to construction activities related to implementation of the land use and transportation changes in the proposed MTP/SCS. Because the nature of construction activities does not vary by Community Type or transit priority area and all Community Types and transit priority areas are forecast to have some level of construction activities that impact potential habitat for biological resources, the potential to impacts to these resources does not vary by the Community Type or location of transportation or land use improvements. Therefore, the regional analysis also applies at the localized and transit priority area levels with one exception noted below.

Because construction activities related to the land use and transportation changes in the proposed MTP/SCS could result in impacts to biological resources, this impact is considered potentially significant (PS) at the localized and transit priority area levels. Mitigation measure BIO-9 is described below.

Land use impacts in Lands Not Identified for Development in the Proposed MTP/SCS vary from the discussion in regional impacts. The proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on biological resources related to construction activities from implementation of the proposed MTP/SCS on Lands Not Identified for Development are considered less than significant (LS) for Impact BIO-7. No mitigation is required.

Mitigation Measure BIO-9: Avoid and minimize, and mitigate for construction-related impacts.

Implementing agencies should require project applicants to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, sensitive biological resources. The assessment should be conducted by appropriately trained professionals pursuant to adopted protocols, and standards in the industry. As necessary and as required by regulatory agencies, project applicants should prepare mitigation and monitoring plans that identify avoidance and minimization measures that should reduce the level of potential direct

and indirect impacts to sensitive biological resources to below thresholds of significance. These measures should be consistent with the requirements of CEQA. Where federally or stated listed species could be potentially impacted by construction activities, the project applicant should adhere to regulatory guidelines and policies that identify specific avoidance and minimization measures to insure that these actions do not result in the take of a listed species, except as authorized under a USFWS Biological Opinion or a CDFG Incidental Take Permit.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, it will reduce the impacts of construction activities related to the implementation of the proposed MTP/SCS on biological resources. However, the mitigation measures may not be sufficient to reduce impacts to less than significant levels in all cases. Additionally, SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

CHAPTER 7 – CULTURAL AND PALEONTOLOGICAL RESOURCES

INTRODUCTION

This chapter describes the existing conditions (environmental and regulatory) for cultural and paleontological resources and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect cultural and paleontological resources in the MTP/SCS plan area. This chapter evaluates potential impacts on cultural and paleontological resources that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

One comment regarding cultural and paleontological resources, submitted by Rick Bettis, was received during circulation of the Notice of Preparation (NOP). The comment letter requested that the secondary impacts on cultural resources resulting from land use changes induced or facilitated by the proposed MTP/SCS be analyzed. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

SETTING

Environmental Setting

The following summarizes the region's geology, prehistoric and historic setting, known cultural resources, and paleontological sensitivity.

Regional Geology

The plan area is located in a broad area that extends across three geomorphic provinces, from the Coast Ranges on the west, across the Great Valley, to the Sierra Nevada on the east.

The western edge of the project area is in the Coast Ranges geomorphic province. This province is characterized by northwest-trending mountain ranges formed over the past 10 million years by active uplift related to complex tectonics of the San Andreas fault/plate boundary system (Norris and Webb, 1990; Atwater and Stock, 1998).

The eastern Coast Ranges are broadly antiformal (i.e., convex up). At the general latitude of the project area, they consist of a central core of Mesozoic units—including the diverse units of the Franciscan complex—flanked on the west by extensive exposures of Miocene volcanic rocks (Sonoma volcanics) and on the east by an upward younging sequence of marine and terrestrial sedimentary units that ranges in age from Cretaceous (Great Valley Group) to Neogene (Monterey Group, San Pablo Group, Sonoma volcanics, and Huichica Formation). The area's larger drainages preserve several generations of alluvial fan and stream deposits ranging in age from Pleistocene to Holocene (Wagner and Bortugno, 1982; Graymer et al., 2002).

The central portion of the project area is in the Sacramento Valley, which forms the northern portion of California's Great Valley geomorphic province (Norris and Webb, 1990). The Great Valley is a nearly flat alluvial plain that lies between the Sierra Nevada on the east and the Coast Ranges on the west. Its south end is defined by the Tehachapi Mountains north of Los Angeles, and its north end is defined by the Klamath Mountains. Subdivided into the Sacramento Valley to the north and the San Joaquin Valley to the south, the Great Valley has an average width of about 50 miles and is about 400 miles long (Norris and Webb, 1990; Bartow, 1991).

The Great Valley is floored by a thick sequence of sedimentary deposits that range in age from Jurassic through Quaternary. The base of the sequence likely rests on Mesozoic crystalline rock associated with the Sierra Nevada in the east and central portions of the valley and on Franciscan metasediments and mélange associated with the Coast Ranges in the west. Mesozoic sedimentary rocks now in the subsurface record marine deposition. They are overlain by Tertiary strata reflecting marine, estuarine, and terrestrial conditions, which are in turn overlain by Quaternary fluvial and alluvial strata that record uplift and erosion of the Sierra Nevada and Coast Ranges to approximately their present shape (Norris and Webb, 1990). Breaking the monotony of this long, flat valley is the Sutter Buttes, a volcano that intruded through the Great Valley sediments approximately 1.56 to 0.9 million years ago, creating the buttes and a ring of exposed Cretaceous and Tertiary sediments around the buttes (Hausback, 1991).

The Sierra Nevada geomorphic province is a 400-mile-long tilted fault block nearly 400 miles long. The eastern face of this block is steep and marked with rugged scarps. In contrast, the western face is a gentle slope (about 2°) that disappears under the sediments of the Great Valley (U.S. Geological Survey [California], 2002).

The Sierra Nevada were formed by a series of intrusion, uplift, and erosional/depositional events. Plutonic rocks of the Jurassic to Cretaceous Sierran batholith occur throughout the province. The Western Metamorphic Belt is a complex collage of various lithologic units formed at a collisional plate boundary during the late Jurassic to early Cretaceous Nevadan Orogeny. The geologic units that make up the belt are marine meta-volcanics, metasediments, and oceanic crustal rock of Ordovician to Jurassic age. Along the western edge of the northern Sierra Nevada, marine sediments of Cretaceous age, including fossiliferous sandstones and shales, overlay Sierran basement rocks. In a broken band along the lower foothills, the Ione Formation records Eocene marine sedimentation. This unit is known for the economic value of its high-quality clays and sands. Quaternary sedimentary rocks include alluvium, colluvium, landslide deposits, stream and river terrace deposits, lake deposits, and glacial deposits. The glacial deposits in the higher Sierra and the Basin and Range province are the oldest of the Quaternary deposits. (Norris and Webb, 1990.)

Prehistory

Much of our current understanding of the MTP/SCS plan area prehistory stems from work that was done in the region in the 1930s by Sacramento Junior College (Moratto, 2004).

Although the region may have been inhabited by humans as early as 10,000 years ago, the evidence for early human use is likely buried by deep alluvial sediments that accumulated during the late Holocene epoch. Although rare, archaeological remains of this early period have

been identified in and around the Central Valley and the Sierra Nevada Foothills (Treganza and Heizer, 1953; Johnson, 1967; Peak and Associates, 1981). Johnson (1967) presents evidence for some use of the Mokelumne River area, under what is now Camanche Reservoir, during the late Pleistocene. These archaeological remains have been grouped into what is called the Farmington Complex, which is characterized by core tools and large, reworked percussion flakes (Treganza and Heizer, 1953). Later periods are better understood due to a more abundant representation in the archaeological record.

The taxonomic framework of the Central Valley and surrounding area, which includes the MTP/SCS plan area, has been described in terms of archaeological patterns (Moratto, 2004). A pattern is a general mode of life archaeologically characterized by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Fredrickson (1974) identified three general patterns of resource use for the time period between 2,500 B.C. and A.D. 1,500, specifically the Windmiller, Berkeley, and Augustine Patterns.

The Windmiller Pattern (2,500 B.C. to 1,000 B.C.) shows evidence of a mixed economy of game procurement and use of wild plant foods. Settlement strategies during the Windmiller period reflect a seasonal adaptation. Habitation sites in the valley were occupied during winter, but populations moved into the foothills during summer (Moratto, 2004).

The Berkeley Pattern (1,500 B.C. to A.D. 500) reflects a greater dependence on acorns. Although gathered resources grew in importance during this period, the continued presence of projectile points and atlatls in the archaeological record indicates that hunting was still an important activity (Moratto, 2004).

The Augustine Pattern (around A.D. 500) reflects a change in subsistence and land-use patterns to those of the ethnographically known people (Nisenan) of the historic era. This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Exchange became well-developed, and an even more intensive emphasis was placed on the use of the acorn, as is evidenced by the presence of shaped mortars and pestles and numerous hopper mortars in the archaeological record. Other traits associated with the Augustine Pattern include the introduction of preinterment burning of offerings in a grave pit during mortuary ritual, increased village sedentism, population growth, and an incipient monetary economy in which beads were used as a standard of exchange (Moratto, 2004).

Ethnography

Three aboriginal populations lived in the MTP/SCS plan area; the Patwin, Nisenan (also referred to as the Southern Maidu), and the Eastern Miwok. Native American populations grew in numbers sporadically between 5,000 years ago and before the arrival of the Spanish in the late eighteenth century. By the beginning of the first millennium A.D., the Indians were living in the more favorable environmental niches of the MTP/SCS plan area, thanks to the discovery of acorns that could be used as a food staple throughout the year.

Patwin

Part of the MTP/SCS plan area is located within the historic territory of the Patwin (Johnson, 1978; Kroeber, 1976). *Patwin* is the local Native American word for "people." The approximate maximum extent of Patwin territory in the late eighteenth and early nineteenth centuries was from Princeton in Colusa County south to Suisun Bay, and from the Sacramento River west across the eastern slope of the Coast Ranges (Johnson, 1978; McCarthy, 1985). The Patwin economy was principally based on the utilization of natural resources from the riverine corridor, wetlands, and grasslands of the lower Sacramento Valley, and from the open woodlands on the eastern foothills of the Coast Ranges (Johnson, 1978; Kroeber, 1932 and 1976).

Nisenan

The plan area proposed plan area is located within the lands occupied and used by the Nisenan, or Southern Maidu. The language of the Nisenan, which includes several dialects, is classified within the Maiduan family of the Penutian linguistic stock (Kroeber, 1976; Shipley, 1978). The western boundary of Nisenan territory was the western bank of the Sacramento River. The eastern boundary was the higher elevations of the Sierra Nevada mountains.

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Villages ranged in size from three houses to 40 or 50. The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna that the rich valley environment provided. The Valley Nisenan economy involved riparian resources, in contrast to the Hill Nisenan, whose resource base consisted primarily of acorn and game procurement.

Plains Miwok

The Plains Miwok are part of the larger Eastern Miwok group that forms one of the two major divisions of the Miwokan subgroup of the Utian speakers. The Plains Miwok lived in the Central Valley along the Sacramento, Cosumnes, and Mokelumne rivers. Like their neighbors to their north, the Plains Miwok, out of necessity, built their homes on high ground, with major villages concentrated along the major waterways. The Plains Miwok gathered food resources as the seasons varied. As with most California tribes, the Plains Miwok relied heavily on the acorn for subsistence (Levy, 1978).

History

Early American Settlements

The pace of physical change to the landscape and the construction of adobes and other structures widened as the missions were disbanded in the 1830s and Mexican settlers took title to the land. Agriculture, grazing, and mining activities led the establishment of permanent settlements and urban centers. The natural environment began to change rapidly as cattle and other domesticated animals grazed the land, as woodlands were cut for fuel and lumber, and as native vegetation gave way to imported grasses and plants spread by the settlers and their livestock.

Gold Rush

In January 1848, gold was discovered by James Marshall on the South Fork of the American River near present day Coloma. Subsequent gold discoveries were made not long after that, such as the discovery made by Jonas Spect on the Yuba River in the vicinity of Marysville in June 1848. The onset of the Gold Rush brought large numbers of people into California; miners poured into the Sierra Nevada foothills in search of placer deposits along the rivers and creeks of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. When the placer deposits were depleted, the miners turned to other methods to reach gold-bearing strata. One of the most common methods of mining, hydraulic mining, introduced huge quantities of rock, sand, and mud into and adjacent to the mountain waterways. Later, mining companies deployed dredges to reach gold deposits along the rivers. Some of the tailings associated with this type of gold mining—particularly in and around the City of Folsom—have contributed to the city's historic significance. The Gold Rush dramatically altered the landscape of California, particularly the Sacramento Valley and the counties and regions that are part of and surround it (Hoover et. al., 1990).

Subregional History Setting

The following is a brief overview of the history of the MTP/SCS plan area by county. The term county is used to refer to the geographic area of the county and includes all land, both county and city, in that area.

El Dorado County

El Dorado County is one of the original 27 counties created by the California State Legislature in 1850. Originally, the county's boundaries included parts of present-day Amador, Alpine, and Placer counties. By 1919, the state adopted the current boundary lines that are marked to the east by the state of Nevada and to the west by Sacramento County. The American and Cosumnes rivers form the county's northern and southern boundaries. The original county seat was the town of Coloma, but in 1857 it was moved to Placerville (Coy, 1973; Hoover et al., 1990).

On January 24, 1848, James W. Marshall, an employee of John A. Sutter, discovered gold near the area of present-day Coloma. The first mining town in California sprouted soon after his discovery, and the gold region of El Dorado County experienced rapid growth. It was likely Marshall's discovery, as well as the gold discovered by others, from which the county derives its name, El Dorado, meaning "the gilded man" in Spanish (Hoover et al., 1990).

Both during and after the Gold Rush, gold mining was the predominant industry in El Dorado County for many years. Other mineral products in the region include large deposits of slate, granite, lime, and asbestos, as well as building stones. By the turn of the twentieth century, lumbering, livestock raising, and farming had joined mining as the principal industries of the county. Another industry that gained popularity in El Dorado County was tourism. In the early 1900s, with the advent of the automobile, visitors increasingly traveled to the Sierra Nevada and Lake Tahoe. Highway 50 (which was the primary route to the gold fields in 1849) was California's first state-sanctioned wagon road. It was incorporated into the state (and later the

national) highway network during the twentieth century, when it became part of the Interstate Highway System. At present, the county's economy is heavily dependent on recreation and tourism. El Dorado County was home to 181,058 residents by 2010 (Phillips and Miller, 1915; California Highways, 2011; Employment Development Department, 2011; Hoover et al., 1990; U. S. Census Bureau, 2011a).

Placer County

Placer County was created by the Legislature of the State of California in 1851, from portions of Sutter and Yuba counties. The county takes its name from a form of mining predominant during the Gold Rush—placer mining. The City of Auburn, one of the earliest mining towns in California, was designated the seat of justice when the county was created. It continues to be the seat of justice today (Hoover et al., 1990).

The earliest settlement in Placer County was Sicard's ranch, established in 1845, after Theodore Sicard obtained a Mexican grant of land in 1844. While the population of the county was small at this time, it grew exponentially with the onset of the Gold Rush, and mining towns and camps sprouted up in various places throughout the county (Hoover et al., 1990; Lardner and Brock, 1924).

For many years, the primary focus of Placer County's economy was gold mining. During the Gold Rush, easier-to-obtain placer deposits were mined in the rivers, but as gold became more difficult to mine, miners turned to hydraulic mining. However, the *Sawyer* decision of 1882 effectively ended hydraulic mining, and Placer County's economy shifted slowly away from gold production to agriculture, timber production, and the shipping and freighting industries. The production of citrus fruits became especially important during the 1880s and 1890s, while fruit packing and shipping were key industries in the first two decades of the twentieth century. In the 1930s, Lake Tahoe became known as a recreation center, and the area boomed as a ski resort destination after World War II. In the last half of the twentieth century, Placer County continued to grow and boasted a population of 348,432 by the year 2010 (Lardner and Brock, 1924; Hoover et al., 1990; U. S. Census Bureau, 2011b).

Sacramento County

Sacramento County is one of the original 27 counties established by the California Legislature in 1850, and the City of Sacramento has been the county seat since it was created. Spanish explorers first visited the Sacramento County region as early as the 1700s in their search for suitable inland mission sites. The first European American to travel through the Sacramento area was explorer and trapper Jedediah Strong Smith, who established the Sacramento Trail during the 1820s. Other explorers followed Smith's general path in the 1830s (Hoover et al., 1990).

European American settlement of the Sacramento area did not begin until the late 1830s and early 1840s, when individuals such as John Sutter obtained land grants from the Mexican government. Mexican citizens generally received these grants in exchange for an agreement to protect Mexican interests in these remote interior regions. Sutter's settlement at New Helvetia (Sutter's Fort) is probably the best known of these early operations.

At its inception, Sacramento County was largely supported by commerce related to the Gold Rush and river shipping. After the conclusion of the Gold Rush, when agriculture in the Sacramento Valley became an important part of the economy, Sacramento County, and particularly the city of Sacramento, continued to grow. Wheat was a staple product early on, but by the twentieth century, a variety of fruits, including citrus fruits, as well as nuts, displaced it in importance. The county also experienced tremendous growth as a result of the construction of railroads in the Sacramento area. In 1856, the Sacramento Valley Railroad constructed an alignment from Sacramento to Folsom; in 1869, the transcontinental railroad was completed, linking the Sacramento region directly with markets in the east. By the mid-twentieth century, two military bases had been constructed in the county and a major freeway, Interstate 5, ran through the heart of the old city of Sacramento. While the military bases closed in the late twentieth century, the county continued to grow in economic wealth and population. As of the year 2010, Sacramento County boasted a population of 1,418,788 (Phillips and Miller, 1915; Hoover et al., 1990; U.S. Census Bureau, 2011c).

Sutter County

The County of Sutter, one of the original 27 counties created in 1850 by the California State Legislature, was named in honor of the famous Sacramento Valley settler and pioneer, John Augustus Sutter. Initially, the county seat was located in Auburn; however, after Auburn became the seat for Placer County in 1851, it was moved to the small town of Vernon. Eventually, in 1856, Yuba City was designated the county seat, where it remains to this day (Hoover et al., 1990).

The Spanish were the first Europeans to explore the region of Sutter County. The first European American to enter it was famed hunter and trapper, Jedediah Strong Smith, who discovered the Yuba River in 1828. In late May and early June of 1848, well-known American explorer, John C. Fremont, camped in the vicinity of the Sutter Buttes (Hoover et al., 1990).

Sutter County's initial growth was a result of the influx of miners to the region during the Gold Rush. Its principal city, Yuba, was founded during this period. After the Gold Rush, however, the county grew slowly, and its economy was largely focused on agriculture. In 1863, county farmer, William Thompson, grew the first Thompson seedless grapes, which were exhibited to the public in Marysville in 1875. The county also became known for producing an assortment of other crops, including grains, peaches, rice, and walnuts. Stock raising and dairy farming were also practiced. Still relatively small and rural as of 2010, the county's population was 94,737 (Hoover et al., 1990; Phillips and Miller, 1915; Sutter County, 2011; U.S. Census Bureau, 2011d).

Yolo County

Yolo County is located in the northern part of California's Central Valley and is bounded on the west by Lake and Napa counties, to the south by Solano County, to the north by Colusa County, and to the east by Sutter and Sacramento counties. The Sacramento River spans the entire length of its eastern border. The county is one of the original 27 counties created by the California State Legislature in 1850. Initially, the county's territory was nearly twice as large as it is now and included a large portion of present-day Colusa County. By 1923, the boundaries were

redrawn to their current configuration. The City of Woodland became the county seat in 1862 and remains so to this day (*Daily Alta California*, 1850; Coy, 1973; Hoover et al., 1990).

As early as 1808, the Spanish explored Yolo County. European American hunters and trappers such as Jedediah Strong Smith, Ewing Young, and a group of Hudson's Bay Company trappers also visited the region in the early 1800s (Hoover et al., 1990).

The California Gold Rush of the 1850s transformed Yolo County from an isolated farming community into a booming agricultural region as disenchanted miners realized they could make greater fortunes through farming and ranching. In the 1840s and 1850s, residents of the county based their livelihood on raising livestock; however, as floods and droughts decimated their herds, farmers increasingly turned to crop farming. Barley and wheat became the dominant crops in Yolo County starting in the 1860s. Alfalfa, used to feed livestock and enrich the soil, was the major irrigated crop in the 1870s. Irrigation improvements in the twentieth century allowed the introduction of new crops, such as rice, into the area. In 1905, the University of California established a College of Agriculture in Yolo County. This evolved into the University of California, Davis in 1959, and its agricultural school continues to enjoy global renown for agricultural research and education (Olney, 1902).

In the last half of the twentieth century, Yolo County enjoyed a dramatic increase in population growth due to its climate, the rural atmosphere, and nearby educational opportunities. Today, agriculture remains Yolo County's primary source of commercial activity. By 2010, the population of Yolo County had reached 200,849 (Hart, 1978; U.S. Census Bureau, 2011e).

Yuba County

Yuba County is one of the original 27 counties created by the California State Legislature in 1850. At the time of its creation, the county included portions of Placer, Nevada, and Sierra counties. In 1851, Yuba County lost almost one-half of its territory when Placer and Nevada counties were created. In the following year, more of its territory was lost when Sierra County was created. It reached its current boundary configurations in 1923, and is bounded on the east by Sierra and Nevada counties, on the south by Placer County, on the north by Butte County, and on the west by Sutter County. Marysville, the county's principal city, has been the county seat since 1850 (Hoover et al., 1990; Coy, 1973).

The Spanish were likely the first Europeans to enter the territory of what is now Yuba County. Periodically, in the 1830s, hunters and trappers from the Hudson's Bay Company also penetrated the region. In 1846, American explorer, John C. Fremont, wrote a detailed account of the Maidu Indians living there (Hoover et al., 1990).

The first settlements in Yuba County were established just a few years before Fremont's visit, after John A. Sutter took control of the territory in 1841. In 1842, Theodore Cordua leased a portion of land from Sutter. An employee of Cordua's, Charles Cuvillaud eventually purchased some of Cordua's ranch. The town of Marysville was laid out on this land, which was named after Cuvillaud's wife, Mary Murphy Cuvillaud (Hoover et al., 1990).

The Gold Rush brought an influx of miners into Yuba County, and the county experienced an economic and population boom as a result. When the Gold Rush ended, the county still gained a portion of its income from gold-related industries. In the 1870s, equipment for hydraulic mining was manufactured in Marysville foundries. In the early twentieth century, after the Sawyer decision ended hydraulic mining, extensive dredging took place along the Yuba River (Kelley, 1989; Hoover et al., 1990).

For most of its history, agriculture has been an important part of Yuba County's economy. In 1845, the first wheat crop was planted in the county. From the 1850s to the 1870s, vineyards were planted, grain was produced, and livestock raising was practiced in the eastern part of the county. In the twentieth century, livestock raising continued to be important, as did cultivation of fruits and nuts. By 2005, the most important agricultural elements of Yuba County's economy were peach, rice, and walnut production, as well as cattle raising (Thompson & West, 1879; Pooler, 2005).

As of January 1, 2010 the population of Yuba County was 72,155. Agricultural-based industries and government services function as the predominant economic provider for the county (U.S. Census Bureau, 2011f; QUAD Consultants, 1994).

Known Cultural Resources Located in the MTP/SCS Plan Area

The following section presents a broad overview of the cultural resources (historical and archaeological) located in the MTP/SCS plan area. The description below of the archaeological and historical (architecture/built environment) resources in the plan area focuses on properties located within each SACOG county that are known to be significant resources.

The analysis of cultural resources is based on existing information. General cultural resources information was reviewed for each county within the MTP/SCS plan area with the exception of portions of El Dorado and Placer counties that are part of the Tahoe Regional Planning Area. This information is kept at the following regional cultural resources information centers:

- the Northwest Information Center at Sonoma State University (Yolo County);
- the North Central Information Center at Sacramento State University (Sacramento, Yuba, Placer, and El Dorado counties); and
- the Northeast Information Center at California State University, Chico (Sutter County).

Each Information Center keeps records and reports of known archaeological sites and historic architecture. Resources consulted at the Information Centers included data from the following:

- State Archaeological Determinations of Eligibility, for the National Register of Historical Resources (NRHP);
- Properties listed in the NRHP;
- State Historical Property Data File;

- California Points of Historical Interest;
- California Historical Landmarks;
- California Inventory of Historical Resources;
- Caltrans state and local bridge inventories; and
- California Native American Heritage Commission.

The information presented below is based on a review of existing and available information and is regional in scope. Data provided in this section should be considered preliminary and appropriate for general policy planning and tiering of subsequent environmental documents.

Historical (Architecture/Built Environment)

Numerous historic architectural (built-environment) resources are located throughout the greater MTP/SCS plan area. Historic architectural resources generally include buildings, roads, trails, bridges, canals, and railroads usually associated with the time period beginning with the first Euro-American contact. In general, concentrations of historic resources in the greater MTP/SCS plan area are expected to occur:

- within historic neighborhoods and business districts;
- adjacent to transportation corridors (historic highways, railroads, navigable sloughs);
- on historic ranches; and
- in areas of historic rock, soil, and mineral extraction.

These resources are commonly associated with key historic events that occurred in the region, including the Gold Rush, mining, agriculture, irrigation, reclamation, and transportation. Thousands of architectural resources are currently listed in or are eligible for listing in the NRHP or the California Register of Historical Resources (CRHR). Additional historic architectural resources have also been designated as State Historical Landmarks, Points of Historical Interest, or as local historic landmarks important to a region or community. In addition to the programs maintained at the national and state level, several local governments throughout the MTP/SCS plan area have also established listings or passed ordinances in recognition of the importance of such resources to their community.

Historic Properties in State Database

The Historic Property Data File Historic Resources Inventory (HRI), which is maintained by the State Office of Historic Preservation (OHP), identifies properties that have been surveyed, as well as properties that appear eligible, have been determined eligible for listing, or are listed in the NRHP or CRHR. In general, listing a property in the NRHP involves submission of a formal nomination form that requires concurrence from State Historic Preservation Officer (SHPO), the State Historical Resources Commission, and the Keeper of the National Register. Properties that are evaluated and found, with SHPO concurrence, to be eligible for listing under one or more of the NRHP criteria but are never nominated, are afforded the same protections for federally funded projects as listed properties. Properties listed or found eligible for listing in the NRHP

are also automatically eligible for the CRHR. The HRI also includes buildings that have been identified as historically significant by local government agencies. The property types listed in the HRI are typically non-archaeological in nature (for confidentiality reasons) and encompass numerous architectural and engineering features.

The HRI was accessed in order to provide a broad overview of the number and types of significant historic architectural/built environment resources located MTP/SCS plan area. Tables 7.1 through 7.5 list the number of individually eligible resources, historic districts, California Historic Landmarks, California State Points of Historical Interest, and Historic Bridges located within the MTP/SCS plan area. Because the HRI is frequently updated as new resources are continuously located through survey work and other means, the following tables should not be considered the final or the most comprehensive listings.

Table 7.1 lists by county the number of known individual historic architectural/built environment resources in the greater MTP/SCS plan area listed on or eligible for listing on national, state, or local registers. This table includes individual counts of historic district contributing resources.

Table 7.1
Number of Individual Architectural/Built Environment
Historic Resources in the MTP/SCS Plan Area

County	Properties Listed in the NRHP or the CRHR	Properties Determined Eligible for Listing in the NRHP or the CRHR	Properties That Appear Eligible for the NRHP or CRHR through Survey Evaluation	State Owned Properties That Appear Eligible for NRHP or CRHR	Properties Recognized as Historically Significant by Local Government
El Dorado	26	87	9	11	0
Placer	51	55	68	3	278
Sacramento	458	122	88	0	274
Sutter	12	8	1	0	0
Yolo	93	20	251	5	408
Yuba	69	18	57	5	151

Table 7.2 lists by county and city specific historic districts located in the MTP/SCS plan area listed on or eligible for listing on national, state, or local registers. The Historic Districts listed below comprise resources including but not limited to groupings of residential buildings, structures such as water conveyance resources, and railroad facilities. For planning purposes, it is important to keep in mind that Historic Districts are often found near downtown city cores where early commercial, industrial, and residential developments occurred. The list below provides the name and general location of the historic districts. It does not provide a count of individual or contributing resources.

Table 7.2
Historic Districts Located in the MTP/SCS Plan Area

City/Location	District Name	Listed in:		Determined Eligible for:		Recommended Eligible for NRHP or CRHR	Recognized as Historically Significant by Local Government
		NRHP	CRHR	NRHP	CRHR		
El Dorado County							
Echo Lake	El Dorado Wall Discontinuos District		X	X			
El Dorado National Forest	West Wright's Lake Tract Historic District		X	X			
Gold Hill	Wakamatsu Tea & Silk Farm Colony District	X	X				
Placer County							
Emigrant Gap	Drum-Spaulding Historic Hydro District		X	X			
Auburn	College Way District					X	
Auburn	Crutcher Court District						X
Auburn	Hale Tract & College Tract, Hale, College Tract District						X
Auburn	Huntley Subdivision, Huntley District						X
Auburn	East Auburn, Uptown Business District						X
Dutch Flat	Dutch Flat Historic District	X	X				
Auburn	Old Auburn Historic District	X	X				
Auburn	Parkside Terrace District						X
Sacramento County							
McClellan Air Force Base	Sacramento Air Depot Historic District		X	X			
Sacramento	Reclamation District 1000 - American River Watershed		X	X			
Sacramento	9th Street Plaza Park Historic District					X	
Sacramento	Capitol Extension District	X	X				
Sacramento	Alkali Flat North Historic District	X	X				
Sacramento	Boulevard Park	X	X				
Sacramento	Alkali Flat West Historic District	X	X				
Sacramento	Alkali Flat Central Historic District	X	X				

City/Location	District Name	Listed in:		Determined Eligible for:		Recommended Eligible for NRHP or CRHR	Recognized as Historically Significant by Local Government
		NRHP	CRHR	NRHP	CRHR		
Sacramento	Old Sacramento Historic District	X	X				
Sacramento	Transcontinental Railroad Terminus and Shops Historic District					X	
Sacramento	Upper K Street Commercial District					X	
Walnut Grove	Walnut Grove Chinese-American Historic District	X	X				
Sacramento	R Street Corridor Historic District		X	X			
Elk Grove	Elk Grove Historic District/Old Town Elk Grove	X	X				
Walnut Grove	Walnut Grove Commercial/Residential Historic District	X	X				
Walnut Grove	Walnut Grove Japanese-American Historic District	X	X				
Isleton	Isleton Chinese and Japanese Commercial Districts	X	X				
Sutter County							
Live Oak	Live Oak Historic Commercial District	X	X				
Yolo County							
Woodland	Downtown Woodland Historic District	X	X				
Winters	Main Street Historic District	X	X				
Yuba County							
Marysville	Marysville Historic Commercial District	X	X				

Tables 7.3 and 7.4 list by county and city the California Historic Landmarks and the California State Points of Historical Interest located in the MTP/SCS plan area. Like the resources noted above they should be considered in planning processes as significant historical resources. Some of these properties are also listed in the NRHP.

Table 7.3
California Historic Landmarks (CHL) Located in the MTP/SCS plan area

City/Location	CHL #	Name
El Dorado County		
Placerville	141	Hangman's Tree
Placerville	142	Studebaker's Shop (site of)
Coloma	143	Marshall Monument
Kelsey	319	Marshall's Blacksmith Shop
Shingle Springs	456	Shingle Springs
Placerville	475	Old Dry Diggins - Old Hangtown Placerville
Georgetown	484	Georgetown
El Dorado	486	El Dorado (Originally Mud Springs)
Diamond Springs	487	Diamond Springs
Greenwood	521	Greenwood
Coloma	530	Gold Discovery Site
Pilot Hill	551	Site of California's First Grange Hall
Folsom (Vicinity)	569	Mormon Island
Folsom (Vicinity)	570	Negro Hill
Folsom (Vicinity)	571	Salmon Falls
Folsom (Vicinity)	572	Condemned Bar
Clarksville	699	Mormon Tavern-Overland Pony Express Route in California
El Dorado	700	El Dorado-Nevada House (Mud Springs) Overland Pony Express Route in California
Placerville	701	Placerville - Overland Pony Express Route in California
Rescue	703	Pleasant Grove Overland Pony Express Route in California
Cedar Grove	704	Sportsman's Hall Overland Pony Express Route in California
US. Highway 50	705	Moore's (Riverton) - Overland Pony Express Route in California
US. Highway 50	706	Webster's (Sugar Loaf House) - Overland Pony Express Route in California
US. Highway 50	707	Strawberry Valley House - Overland Pony Express Route in California
US. Highway 50	708	Yank's Station - Overland Pony Express Route in California
US. Highway 50	728	Friday's Station- Overland Pony Express Route in California
Rescue	747	Coloma Road - Rescue
Coloma	478	Coloma Road - Coloma
Placerville	767	Methodist Episcopal Church
Gold Hill	815	Wakamatsu Tea and Silk Farm Colony
Placer County		
Dutch Flat	397	Town of Dutch Flat
Forest Hill	398	Yankee Jim's
Forest Hill	399	Town of Forest Hill
Between Fowler and Newcastle	400	Virginiatown
Iowa Hill	401	Iowa Hill
Michigan Bluff	402	Town of Michigan Bluff
Emigrant Gap	403	Emigrant Gap

City/Location	CHL #	Name
Auburn	404	City of Auburn
Gold Run	405	Town of Gold Run
Auburn	463	Ophir
Folsom Lake State Recreation Area	585	Pioneer Express Trail
Squaw Valley	724	Pioneer Ski Area of America, Squaw Valley
Roseville	780-1	First Transcontinental Railroad - Roseville
Rocklin	780-2	First Transcontinental Railroad - Rocklin
Newcastle	780-3	First Transcontinental Railroad - Newcastle
Auburn	780-4	First Transcontinental Railroad - Auburn
Colfax	780-5	First Transcontinental Railroad - Colfax
Soda Springs	799-2	Overland Emigrant Trail
Penryn	885	Griffth Quarry
Sacramento County		
Sacramento	366	Pioneer Telegraph Station
Meiss Road and Highway 16, West of Sloughhouse	439	Site of Grist Mill Built by Jared Dixon Sheldon
Prairie City Road and Highway 50	464	Prairie City
Highway 16 and Michigan Bar Road	468	Michigan Bar
Sacramento	525	Sutter's Fort
Sacramento	526	California's First Passenger Railroad
Folsom	558	Terminal of California's First Passenger Railroad
Sacramento	566	Sacramento City Cemetery
Sloughhouse	575	Sloughhouse
Sacramento	591	Sutter's Landing
Sacramento	592	New Helvetia Cemetery
Sacramento	593	Sutterville
Sacramento	594	Site of China Slough
Sacramento	595	Eagle Theater
Sacramento	596	Site of Home of Newton Booth
Sacramento	597	What Cheer House
Sacramento	598	Site of Stage and Railroad (First)
Sacramento	599	Crocker Art Gallery
Sacramento	601	Western Hotel
Sacramento	602	Ebner's Hotel
Sacramento	603	Lady Adams Building
Sacramento	604	Site of Sam Brannan House
Sacramento	605	Site of Sacramento Union
Sacramento	606	B.F. Hastings Building
Sacramento	607	Adams and Company Building
Sacramento	608	Site of Orleans Hotel
Sacramento	609	D.O. Mills Bank Building
Sacramento	610	Overton Building
Sacramento	611	Original Sacramento Bee Building

City/Location	CHL #	Name
Sacramento	612	Site of Pioneer Mutual Volunteer Firehouse
Sacramento	613	Site of Congregational Church
Sacramento	614	Stanford-Lathrop Home
Folsom Powerhouse State Park	633	Old Folsom Powerhouse
Sacramento	633-2	Old Folsom Powerhouse - Sacramento Station A
Sacramento	654	Site of the First Jewish Synagogue Owned by a Congregation on the Pacific Coast
Sacramento	654-1	Chevra Kaddisha (Home of Peace Cemetery)
Franklin (Franklin Cemetery)	657	Grave of Alexander Hamilton Willard
Sacramento	666	Camp Union, Sutterville
Elk Grove	680	Murphy's Ranch
Sacramento	697	Five Mile House - Overland Pony Express Route in California
Rancho Cordova	698	Fifteen Mile House - Overland Pony Express Route in California
Folsom	702	Folsom - Overland Pony Express Route in California
Elk Grove	719	Grave of Elitha Cumi Donner Wilder
Sacramento	745	The Coloma Road - Sutter's Fort
Folsom Lake State Recreation Area	746	The Coloma Road - Nimbus Dam
Sacramento	780	First Transcontinental Railroad
Sacramento	780-8	First Transcontinental Railroad - Western Base of the Sierra Nevada
Sacramento	812	Old Sacramento
Elk Grove	817	Site of First county Free Library Branch in California
Sacramento	823	Governor's Mansion
Sacramento	869	Site of First and Second State Capitols at Sacramento
Sacramento	872	California's Capitol Complex
Sacramento	900	Nisipowinan Village Site
Sacramento	934	Temporary Detention Camps for Japanese Americans - Sacramento Assembly Center
Sacramento	967	California Almond Growers Exchange Processing Facility
Sacramento	991	State Indian Museum
Sacramento	1013	Site of the First African American Episcopal Church Established on the Pacific Coast
Sutter County		
Yuba City (Highway 99)	346	Hock Farm (Site Of)
Yuba City (Highway 20)	929	Site of the Propagation of the Thompson Seedless Grape
Yolo County		
Woodland	851	Woodland Opera House
Woodland	864	Gable Mansion
West Sacramento	1040	First Pacific Coast Salmon Cannery Site
Yuba County		
Highway 20, West of Smartville	320	Timbuctoo
Smartville	321	Smartville
Wheatland	493	Johnson's Ranch
Wheatland	799-3	Overland Emigrant Trail

City/Location	CHL #	Name
Marysville	889	Bok Kai Temple
Aarboga Community, South of Marysville	934	Temporary Detention Camps for Japanese Americans - Marysville Assembly Center
Wheatland	1003	Site of the Wheatland Hop Riot of 1913

Table 7.4
California State Points of Historical Interest (SPHI) in the MTP/SCS plan area

City/Vicinity	SPHI#	Name	On NRHP
El Dorado County			
Carson Pass Summit	P42	Tragedy Springs (State Highway 88)	
Georgetown	P186	Hoboken House	
Placerville	P533	Methodist Episcopal Church/Episcopal Church of Our Savior	
Placerville	P637	Hangtown's Gold Bug Park - Hattie (Gold Bug), Priest, Silver Pine Mines, and 8-stamp Stamp Mill	
Placerville	P652	Pearson's Soda Works	X
Placerville	P653	The Stable Building	
Placerville	P734	The Smith Flat House	
Somerset	P747	Willow School	
South Lake Tahoe	P796	Newhall Estate Entrance Pillars (Highway 89)	
Placerville	P809	Spanish Hill Mine Complex (Highway 50)	
Placer County			
Auburn	P354	Buckner's Bar	
Auburn	P355	Grizzly Bear House	
Auburn	P356	Liberty House	
Auburn	P357	Butcher Ranch	
Auburn	P358	Todd's Valley	
Auburn	P359	Clipper Gap	
Auburn	P360	U.S. Ranch	
Auburn	P361	Spring Garden School	
Penryn	P517	Griffith Residence	
Newcastle	P578	Newcastle Portuguese Hall	X
Dutch Flat	P618	Baxter (Baxter's Camp)	
Auburn	P619	Allen & Sandhorfer Blacksmith, Auburn Iron Works	
Auburn	P656	Burns Home, Howell Home	
Rocklin	P664	Finnish Temperance Hall, Finn Hall	
Auburn	P693	Auburn Grammar School, Auburn Civic Center Project	
Sheridan	P728	Sheridan Cash Store	
Auburn	P803	Auburn IOOF Hall	
Auburn	P821	Masonic Temple, Masonic Hall	
Newcastle	P836	Newcastle Fruit Sheds	
Auburn	P838	Auburn Public Library, Old Auburn Library	

City/Vicinity	SPHI#	Name	On NRHP
Sacramento County			
Rancho Cordova	P823	American River Grange Hall #172	X
Rio Linda	P614	The Archway	
Folsom	P712	Chinese Diggings, Natoma Station Ground Sluice	
Sacramento	P666	Curran Farmhouse	
Sacramento	P754	Eastern Star Hall	
Elk Grove	P717	Elk Grove Grammar School/Elk Grove Unified School District	
Sacramento	P800	George Hack House	
Walnut Grove	P665	Jean Harvie School, Walnut Grove Community Center	
Sacramento	P126	Joseph Hampton Kerr Homesite	
Galt	P579	Liberty Schoolhouse	
Folsom	P798	Negro Bar	
Carmichael	N562	Nisenan Village Site	X
Sacramento	P532	Old Elk Grove Hotel Site	
Galt	P743	Rae House	
Sacramento	P149	River Mansion	
Citrus Heights	P737	Rusch Home	
Sacramento	P611	St. Elizabeth's Church	
Orangevale	P734	The Villa (Serve Our Seniors Incorporated)	
Sacramento	P744	Whitter Ranch (Originally Saylor Ranch)	
Folsom	P810	Yeong Wo Cemetery	
Sutter County			
Yuba City	P395	Bill Butler House	
Sutter	P315	Butte House watering Trough	
Yuba City	P390	Campbell's House	
Yuba City	P393	E.G. Van Arsdale House	
East Nicolaus	P333	East Nicolaus High School	
Yuba City	P396	Eugene Boyd House	
Sutter	P309	Freemont Monument	
Yuba City	P391	G.W. Carpenter House	
Yuba City	P311	H.C. McLaughlin Law Office	
Yuba City	P389	McGruder House	
East Nicolaus	P98	McKague Home	
Meridian	P314	Old Brick House of Sumner Paine	
Yuba City	P394	S.G. Stabler and Swinson House	
Yuba City	P312	Sanborn Law Office/Winship Hall	
Yuba City	P313	Sutter County Canning & Packing Company	
Yuba City	P387	Sutter County Courthouse	
Yuba City	P388	Sutter County Hall of Records	
Yuba City	P826	Sutter County Masonic Temple	
Yuba City	P392	Thomas D. Boyd House	
Yuba City	P385	William Harkey house	

City/Vicinity	SPHI#	Name	On NRHP
Yuba City	P386	William O'Banion House	
Meridian	P310	Wooley's Grave	
Yolo County			
Capay	P567	Capay School	
West Sacramento	P765	Leonidas Taylor Monument	
Yolo	P213	Mary's Chapel and Cemetery	
Davis	P144	Russell Boulevard	
Woodland	P214	Saint Agnes Church	
Woodland	P767	William B. Gibson House, Yolo County Museum	
Woodland	P374	Woodland Congregational Church, First Church of Christian Scientist	
Woodland	P766	Yolo County Courthouse	
Yuba County			
Wheatland	P376	Camp Far West Cemetery	
Wheatland	P467	Chinese Cemetery and Funeral Pyre	
Challenge	P350	Falck House	
Wheatland	P377	Grace Episcopal Church	
Wheatland	P375	Johnson's Crossing	
Marysville	P828	Marysville Hotel	
Wheatland	P378	Muck Home	
Smartville	P817	Parks Bar Bridge 16-11 Site	
Marysville	P436	Ramirez Castle/The Mansion	
Dobbins	P783	Sacred Heart Church	
Smartville	P740	Smartville Church of the Immaculate Conception	
Wheatland	P379	Wheatland Masonic Temple	X
Challenge	P351	Woodleaf Hotel	X
Marysville	P841	Yuba Power House	

Table 7.5 lists the historic bridges from the Caltrans state and local bridge inventories located in the MTP/SCS plan area. In consideration of the proposed MTP/SCS road improvements, it is possible that that a historic bridge could be located in or near a project site. The majority of historic bridges located in the MTP/SCS plan area can be found in the vicinity of waterways such as the American and Sacramento rivers. The historic bridges listed below should be considered in planning processes for road widening and interchange improvements.

Table 7.5
Historic Bridges in the MTP/SCS plan area

Bridge Name	Bridge #	State of California Bridge		Local Agency Bridge	
		Listed in NRHP	Determined Eligible for NRHP	Listed in NRHP	Determined Eligible for NRHP
El Dorado County					
Echo Summit Sidehill Viaduct	25 0044		X		
South Fork American River	25C0004				X
Camp Creek	25C0025				X
Rock Creek	25C0099				X
Weber Creek	25C0116				X
Placer County					
North Fork American River	19C0002				X
Sierra Boulevard Overhead	19C0067				X
Sacramento County					
Sacramento River (Isleton)	24 0051		X		
Steamboat Slough	24 0052		X		
Sacramento River (Paintersville)	24 0053		X		
Three Mile Slough	24 0121		X		
Sacramento River (Freeport)	24C0001				X
American River	24C0022				X
American River	24C0067				X
Gold Creek	24C0268				X
Yolo County					
Sacramento River (Tower Bridge)	22 0021	X			
Cache Creek	22C0003				X
Davis Underpass	22C0017			X	
Sacramento River ("I" Street)	22C0153			X	
Yuba County					
Dry Creek	16C0006				X
Oregon Creek	16C0017			X	
South Honcut Creek	16C0025				X

Source: Caltrans 2011a, 2011b.

Archaeology

For the six counties in the MTP/SCS plan area, records identifying the locations of archaeological sites and studies and technical reports are stored at the three previously mentioned California Historical Resources Information System information centers: the Northwest Information Center at Sonoma State University (Yolo County), the Northeast Information Center at California State University-Chico (Sutter County), and the North Central Information Center at California State University-Sacramento (Sacramento, Yuba, Placer, and El Dorado counties). Reports housed at the Information Centers contain information regarding known archaeological sites and other cultural resources in the plan area. Information Centers also provide information from the Historic Property Data File Historic Resources Inventory

(HRI) and the Archaeological Determinations of Eligibility (DOE) list, both of which are maintained by the State Office of Historic Preservation. The lists identify cultural resources that appear eligible, have been determined eligible for listing, or are listed in the NRHP or CRHR. The HRI and DOE were reviewed in order to provide a broad overview of the number of significant archaeological resources located in the MTP/SCS plan area. Because the HRI and DOE are frequently updated as new resources are continuously located or reassessed, the following table should not be considered the final or the most comprehensive listings. Table 7.6 lists by county the number of archaeological resources in the MTP/SCS plan area listed on or eligible for listing on national, state, or local registers.

Table 7.6
Significant Archaeological Resources in the MTP/SCS plan area

County	Eligible Historic Resources	NRHP Register	CRHR Register	Local Register
El Dorado	41	41	41	0
Placer	84	84	84	0
Sacramento	23	23	23	0
Sutter	1	1	1	0
Yolo	5	5	5	0
Yuba	6	6	6	0

The Native American Heritage Commission (NAHC) was contacted with a request for a search of their Sacred Lands database for any potential sacred sites or other potential Traditional Cultural Properties (TCPs) that they know to occur within the plan area. On September 26, 2011, a response was received from the NAHC indicating that specific tribal contacts must be made in order to determine relevant sacred lands (Appendix Cultural-1).

The types of archaeological resources generally present in the MTP/SCS plan area include prehistoric Native American sites, TCPs, and historic era archaeological sites.

Prehistoric site types in the MTP/SCS plan area include, but are not limited to, habitation sites, human burials, lithic scatters, bedrock milling features, and isolated artifacts.

TCPs are defined as areas or specific locations that have cultural significance for groups of people. Examples of properties possessing such significance include:

- a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- a rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents;
- an urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices;
- a location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; and

- a location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity.

The most common type of TCPs in the MTP/SCS plan area is typically associated with Native American resource procurement activities along waterways and sites where important religious ceremonies were/are performed. Such properties derive their significance not from the property itself, but from the role the property plays in the cultural practices or beliefs of an extant community or identifiable social group. While TCP's are typically Native American, they can also be associated with historic era groups. TCPs can range from expansive geographic areas such as the Sutter Buttes to individual locations associated with beliefs or practices that are of traditional cultural significance such as fishing and plant gathering sites and sacred ceremonial sites.

Historic era archaeological sites in the MTP/SCS plan area typically date to the Gold Rush era. Five categories of historical archaeological property types have been identified within the Plan area including mining sites, building foundations, refuse scatters/dumps, transportation-related features, and water-conveyance systems. Concentrations of both prehistoric and historic archaeological sites in the MTP/SCS plan area are commonly located along natural waterways, such as the Cosumnes, American, and Sacramento rivers as well as tributaries.

Paleontological Resources and Sensitivity

For the purposes of this analysis, *paleontological resources* are defined as including fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils. Key information used in the preparation of this section was derived from published geologic literature and maps, and from guidelines published by the Society of Vertebrate Paleontology (SVP).

The description of the paleontological sensitivity of geologic units in the project area is a broad description for program-level purposes and focuses on vertebrate fossils because of their rarity and uniqueness. The sensitivity of widespread or well-known units is provided.

Paleontological resources are described by county because location data on these resources in the University of California Museum of Paleontology (UCMP) database are provided by county. The term county is used to refer to the geographic area of the county and includes all land, both county and city, in that area.

El Dorado County

El Dorado County is in the Sierra Nevada geomorphic province, and the sensitivity for paleontological resources is similar to much of eastern Yuba and Placer counties. In addition, the Mehrten Formation, which is known to contain vertebrate fossils, is widespread in El Dorado County.

Of special note, is the cave paleontology of El Dorado County. The county has 357 records of vertebrate fossils (University of California Museum of Paleontology, 2011g), and these records are almost exclusively from the Hawver and Cool Caves. These Pleistocene caves formed in

limestone. As animal remains accumulated in the caves, the remains were covered by cave fill. Cave fossils represent the animals that lived in, fell into, or were dragged by carnivores into the cave. This type of preservation is extremely rare and rich in scientific information. Fossils from the Hawver and Cool Caves include ground sloths, raven, cougar, mammoth, dire wolf, deer, rodents, rabbit, and saber-toothed cat. Limestone in the county is therefore considered sensitive for paleontological resources.

Placer County

As with Yuba County, Placer County straddles the Great Valley and Sierra Nevada geomorphic provinces and the sensitivity of the geologic units is much the same as in Yuba County: much of the western edge of the county is underlain by sensitive Pleistocene units and the sensitivity of the many geologic units in the foothills of the Sierra Nevada geomorphic province requires further study. Of the five UCMP records in Placer County, one is from the Pleistocene, mastodon; three are from the Tertiary, a bony fish, a mammal, and a reptile; and one is from the Cretaceous, a cartilaginous fish (University of California Museum of Paleontology, 2011e).
In addition, the well-known Mehrten Formation of Tertiary age is exposed in Placer County. Although there are no records of fossils in this unit in Placer County, UCMP has 277 records of vertebrate fossils from the Mehrten Formation in other northern California counties. Fossils found in this unit include horse, mastodon, bony fish, saber-toothed cat, rodent, reptile, and camel (University of California Museum of Paleontology, 2011f). The Mehrten Formation contains significant fossils which aid in interpreting late Miocene uplift of the Sierra Nevada mountain ranges, the life during this time, climate and environment of deposition. This unit is therefore considered sensitive for paleontological resources.

Sacramento County

Sacramento County is entirely within the Great Valley geomorphic province, and most of the county is directly underlain by Quaternary deposits. The youngest of these deposits, such as the basin deposits and the levee and channel deposits, are of Holocene age (i.e., less than 10,000 years old) and are therefore unlikely to contain paleontological resources. However, they may occur as a thin veneer overlying older, more sensitive deposits (Wagner et al., 1981).
Older Quaternary deposits of the Pleistocene age, such as the Riverbank and Modesto Formations, are widespread in the county and are considered sensitive for paleontological resources. The UCMP database contains 46 records of vertebrate fossils in Sacramento County, including records for mammoth, camel, wood rat, and snake. Nearly all these are from the Riverbank Formation (University of California Museum of Paleontology, 2011a). In addition, the Pleistocene age of the Riverbank Formation is well represented by important fossils recovered from excavations in Sacramento County at the Arco Arena in 1989. Fossils from the Arco Arena site include remains of ground sloth, dire wolf, horse, rabbit, birds, wood rat, bison, camel, coyote, antelope, deer, and mammoth, as well as clams, fish, turtles, frogs, snakes, and land plant wood, leaves, and seeds (Jefferson, 1991; Hilton, 2000).

The Modesto Formation is also considered sensitive for paleontological resources because, although there are no known fossils records from the Modesto Formation in Sacramento County, diverse vertebrate faunas have been collected from similar Pleistocene alluvial units in other parts of northern California. These deposits are sensitive for paleontological resources because

they tend to contain vertebrate fossils. In addition, Pleistocene units containing nonmarine fossil are considered highly sensitive.

Numerous Tertiary and Jurassic deposits occur along the eastern margin of Sacramento County. These could be considered sensitive for paleontological resources because they could contain vertebrate fossils, though further information is needed.

Sutter County

Although wholly in the Great Valley geomorphic province, Sutter County is unique in the Great Valley because of the intrusion of the Sutter Buttes. The sensitivity of most of Sutter County, that portion directly underlain by Quaternary deposits, is the same as in Sacramento and Yolo counties. Of the five fossil records in the county (University of California Museum of Paleontology, 2011c), three are in Pleistocene deposits and are of bison, horse, and an unidentified mammal.

Tertiary and Cretaceous units are also exposed in this portion of the valley (Saucedo and Wagner, 1992) as a result of volcanism associated with the Sutter Buttes. UCMP has two records for Tertiary fossils in Sutter County, one of a cartilaginous fish in the Capay Formation and another of a horse in the Sutter Formation. These units are therefore considered sensitive for paleontological resources.

Yolo County

Yolo County is in both the Great Valley and Coast Ranges geomorphic provinces. The eastern portion of Yolo County is in the Great Valley province and is directly underlain by the same deposits described for Sacramento County (i.e., Quaternary deposits) (Wagner et al., 1981). As in Sacramento County, the Holocene deposits are not considered sensitive for paleontological resources, but the older Pleistocene deposits (such as the Riverbank and Modesto Formations) are considered sensitive. Of the 89 records for fossils in Yolo County (University of California Museum of Paleontology, 2011b), 19 are Pleistocene age and many are from the Modesto Formation. Fossils in these records include mammoth, giant ground sloth, saber-toothed cat, deer, and horse (University of California Museum of Paleontology, 2011b). Published literature on the Pleistocene fossils unearthed by construction at the Stevenson Bridge near Davis indicate that much valuable scientific information was collected because the fossils were recovered in situ thanks to observant construction personnel who notified a qualified paleontologist (Dundas and Cunningham, 1993).

The other 70 fossil records for Yolo County are from the western margin of the county, which is in the Coast Ranges province. These records are from the Tehama Formation of Tertiary age and include fossils of fish, horses, and rodent. Numerous vertebrate fossils in the Tehama Formation are also recorded in several other counties. This unit is therefore considered sensitive for paleontological resources, and other Tertiary deposits in the project area would also likely be considered sensitive.

Yuba County

Yuba County straddles the Great Valley and Sierra Nevada geomorphic provinces. Although there are no UCMP records of fossils in Yuba County (University of California Museum of Paleontology, 2011d), the paleontological sensitivity of the western portion of the county in the Great Valley province is the same as in Sacramento County because the geologic units are the same (i.e., Pleistocene sediments such as the Riverbank and Modesto Formations).

The sensitivity of the many geologic units in the foothills of the Sierra Nevada geomorphic province in Yuba County requires further study. Plutonic and metavolcanic units are unlikely to contain paleontological resources, but sedimentary and volcanic deposits could be sensitive for these resources.

Regulatory Setting

Federal

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq.) requires identification of impacts to environmental resources, similar to the requirements under CEQA. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. Proposed actions are to be evaluated according to their significance in affecting the quality of the environment.

NEPA addresses a wide range of environmental issues including the documentation of, and potential impacts to, cultural and historic properties. Most federal agencies consider compliance with Section 106 of the NHPA (see below) to constitute adequate analysis for NEPA's purposes, although NEPA lacks explicitly defined significance criteria and analysis protocols for cultural resources; therefore, different and possibly wider considerations of cultural resources are possible under a NEPA analysis.

NEPA does not provide specific guidance regarding paleontological resources, but the NEPA requirement that federal agencies take all practicable measures to "preserve important historic, cultural, and natural aspects of our national heritage" (NEPA § 101[b][4]) is interpreted as applying to paleontological materials. Under NEPA, paleontological resources are typically treated in a manner similar to that used for cultural resources. National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470 et seq.) as amended, is the primary mandate governing projects under federal jurisdiction that may affect cultural resources.

National Historic Preservation Act (NHPA) Section 106

The National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470 et seq.) is intended to preserve historic and archaeological sites. Specific regulations regarding compliance with Section 106 of the NHPA state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute. The Section 106 process is a consultation process that involves the State Historic Preservation Officer (SHPO) throughout; the process also calls for including Native American Tribes and interested members of the public, as appropriate, throughout the process. Implementing regulations for Section 106 (36 C.F.R. § 800) detail the following five basic steps.

1. Initiate the Section 106 process;
2. Identify and evaluate historic properties;
3. Assess the effects of the undertaking on historic properties within the area of potential effects (APE);
4. If historic properties are subject to adverse effects, the federal agency, the SHPO, and any other consulting parties (including Native American tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects; and
5. Proceed in accordance with the terms of the MOA.

National Register of Historic Places (NRHP)

The NRHP is the official list of the nation's recognized cultural resources. Authorized under the NHPA (1966), the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources. The National Park Service, under the Secretary of the Interior, administers the NRHP. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant to American history, architecture, archaeology, engineering, and culture. These resources contribute to an understanding of the historical and cultural foundations of the nation.
The NRHP includes:

- all historic areas in the National Park System;
- National Historic Landmarks which have been designated by the Secretary of the Interior for their significance to all Americans; and
- properties significant to the nation, state, or community which have been nominated by the states, federal agencies, and others, and which have been approved by the National Park Service.

Federal Historic Significance Criteria

For federal projects, cultural resource significance is evaluated in terms of eligibility criteria for listing in the NRHP as defined below.

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and that:

1. are associated with events that have made a contribution to the broad pattern of our history;
2. are associated with the lives of people significant in our past;
3. embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. have yielded, or are likely to yield, information important in prehistory or history (36 C.F.R. § 60.4).

Federal Antiquities Act

The Federal Antiquities Act of 1906 (16 U.S.C. §§ 431–433) was enacted with the primary goal of protecting cultural resources in the United States. As such, it prohibits appropriation, excavation, injury, or destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines or imprisonment, for these acts, and sets forth a permit requirement for collection of antiquities on federally owned lands.

Neither the Federal Antiquities Act itself nor its implementing regulations (43 C.F.R. § 3) specifically mentions paleontological resources. However, several federal agencies—including the National Park Service, U.S. Bureau of Land Management, and U.S. Forest Service—have interpreted objects of antiquity as including fossils. Consequently, the Federal Antiquities Act represents an early cornerstone for efforts to protect the nation's paleontological resources.

Archaeological and Paleontological Salvage Statute and Federal-Aid Highway Act

The Archaeological and Paleontological Salvage Statute of 1906 (23 U.S.C. § 305) amended the Federal Antiquities Act of 1906 via the following text.

Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the Preservation of American Antiquities," approved June 8, 1906 (PL 59-209; 16 USC §§ 431-433), and State laws where applicable.

This statute, included in the Federal-Aid Highway Acts of 1956 and 1960 (23 U.S.C. § 305) gives specific authority to use federal funds for salvage of paleontological sites impacted by highway projects. Paleontological resources salvage is permitted under federal highway project funding, as long as the excavated materials and any information recovered from them are used for public purposes and not for private gain.

Omnibus Public Lands Management Act of 2009

The Omnibus Public Lands Management Act of 2009 (16 U.S.C. § 1132 note) contains provisions for the protection and preservation of paleontological resources. Under this law, the secretaries of the departments of Interior and Agriculture are directed to inventory, manage, and protect paleontological resources on the public lands they administer. In addition, the secretaries are directed to coordinate these efforts and to establish education programs to increase public awareness of the significance of paleontological resources. The law also prohibits the collection of paleontological resources from federal land without a permit, except in the case of noncommercial collecting that complies with other regulations for that federal land.

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 (42 U.S.C. § 1996 note) pledges to protect and preserve the traditional religious rights of American Indians, Aleuts, Eskimos, and Native Hawaiians. Before the act was passed, certain U.S. federal laws interfered with the traditional religious practices of many American Indians. The Act establishes a national policy that traditional Native American practices and beliefs, sites (and right of access to those sites), and the use of sacred objects shall be protected and preserved.

Native American Graves Protection and Repatriation Act of 1990

The intent of the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 U.S.C. § 3001 note) is to identify proper Native American ownership and ensure the rightful disposition, or repatriation, of Native American remains and items of cultural patrimony that are in federal possession or control. The regulations implementing the requirements of NAGPRA relating to the inadvertent discovery of human remains of Native American origin are described in 43 C.F.R. Section 10.4.

Department of Transportation Act of 1966 Section 4(f)

Historic and cultural resources are also protected under regulations of the NHPA and the Department of Transportation Act (DOT Act) of 1966 (49 U.S.C. § 303). Section 4(f) of the DOT Act requires a comprehensive evaluation of all environmental impacts resulting from

federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, Federal Railroad Administration, and Federal Aviation Administration that involve the use—or interference with use—of the following types of land:

- public park lands;
- recreation areas;
- wildlife and waterfowl refuges; or
- publicly- or privately-owned historic properties of federal, state, or local significance.

This evaluation, called the Section 4(f) statement, must be completed by proponents of federal-aid transportation projects in the MTP/SCS plan area that affect Section 4(f) land, as defined above. In order to proceed with use of the above-referenced lands, the evaluation must be sufficiently detailed to permit the U.S. Secretary of Transportation to determine that:

- there is no feasible and prudent alternative to the use of such land;
- the program includes all possible planning to minimize harm to any park, recreation area, wildlife and waterfowl refuge, or historic site that would result from the use of such lands; or that
- if there is a feasible and prudent alternative, a proposed project using Section 4(f) lands cannot be approved by the Secretary; or if there is no feasible and prudent alternative, the proposed project must include all possible planning to minimize harm to the affected lands.

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments.

In August 2005, Section 4(f) was amended to simplify the process and approval of projects that have only *de minimis* impacts on lands affected by Section 4(f). Under these provisions, the U.S. Secretary of Transportation may find such a *de minimis* impact if consultation with the SHPO results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In this instance, analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete.

Secretary of the Interior Standards for the Treatment of Historic Properties

The Secretary of the Interior Standards for the Treatment of Historic Properties are intended to promote responsible preservation practices for treatment of historic building. The standards do not, in and of themselves, prescribe decisions about which features of the historic building should be saved and which can be changed. But once a treatment is selected, the standards provide philosophical consistency and guidance to the work. The four treatment approaches, in order of priority are: preservation, rehabilitation, restoration, and reconstruction:

- The first treatment, preservation, places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a building's continuum over time, through successive occupancies, and the respectful changes and alterations that are made.
- Rehabilitation, the second treatment, emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work. (Both preservation and rehabilitation standards focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships that, together, give a property its historic character.)
- Restoration, the third treatment, focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods.
- Reconstruction, the fourth treatment, establishes limited opportunities to re-create a non-surviving site, landscape, building, structure, or object in all new materials.

The standards are an important reference under CEQA because CEQA Guidelines section15064.5(3) specifies that projects that follow the Secretary of Interior's Standards shall be considered as mitigated to a level of less than a significant impact on historical resources.

State

California Environmental Quality Act (CEQA) Guidelines Section 15064.5

The California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) Guidelines (Cal. Code Regs., tit. 14 § 15000 et seq.) includes in its definition of historical resources "any object [or] site … that has yielded or may be likely to yield information important in prehistory" (CEQA Guidelines § 15064.5[3]), which is typically interpreted as including fossil materials and other paleontological resources. More specifically, destruction of a "unique paleontological resource or site or unique geologic feature" could be a significant impact under CEQA (CEQA Guidelines Appendix G [CEQA Checklist]). Treatment of paleontological resources under CEQA is generally similar to treatment of cultural resources, requiring evaluation of resources in a project's area of potential affect, assessment of potential impacts on significant or unique resources, and development of mitigation measures for potentially significant impacts, which may include monitoring combined with data recovery and/or avoidance.

CEQA Guidelines Section 15064.5 addresses the process of determining the significance of impacts on historical and unique archaeological resources as follows:

- if the resource is listed in or determined eligible for listing in the CRHR;
- if the resource is included in a local register of historical resources, as defined in Public Resources Code (P.R.C.) section 5020.1(k), or is identified as significant in an historical resource survey meeting the requirements of P.R.C. Section 5024.1(g) unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or

- the lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (14 Cal. Code Regs., § 15064.5[a]).

This section identifies actions that will result in a significant adverse effect on an historic resource:

> (b) A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.
>
> (1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
>
> (2) The significance of an historical resource is materially impaired when a project:
>
> (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources (CRHR); or
>
> (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the P.R.C. or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the P.R.C., unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
>
> (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

This section also defines appropriate mitigation and regional consultation for historic resources. Section 15064.5c addresses archaeological sites and identifies required steps in the process for identifying resources, categorizing resources, and mitigating for unknown subsurface resources discovered during development.

State Historical Significance Criteria

According to P.R.C. Section 5024.1(c)(1-4), a cultural resource may be eligible for inclusion in the California Register of Historic Resources (CRHR), if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;

- embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

In addition, CEQA distinguishes between two classes of archaeological resources: archaeological resources that meet the definition of a historical resource as above, and "unique archaeological resources." An archaeological resource is considered unique if it:

- is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory;
- can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions; or
- has a special or particular quality such as oldest, best, largest, or last surviving example of its kind (Pub. Resources Code, § 21083.2).

California Register of Historic Resources (CRHR)

The CRHR is a state program for use by state and local agencies, private groups and citizens to identify, evaluate, register and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archaeological resources. The CRHR encourages public recognition and protection of resources of architectural, historical, archaeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA.

In order for a resource to be designated, it must meet the following criteria:

- associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
- associated with the lives of persons important to national, California or local history;
- embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values; and
- has yielded, or has the potential to yield, information important to the prehistory or history of the nation, California or the local area.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

The effects of designation include the following:

- Limited protection: Environmental review may be required under CEQA if property is threatened by a project;
- Local building inspector must grant code alternatives provided under State Historical Building Code;
- Local assessor may enter into contract with property owner for property tax reduction (Mills Act); and
- Owner may place his or her own commemorative plaque or marker at the site of the resource.

California Historic Landmarks Program

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the county board of supervisors or city council in whose jurisdiction it is located; be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. To be eligible for designation as a Landmark, a resource must meet at least one of the following criteria:

- first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California);
- associated with an individual or group having a profound influence on the history of California; or
- a prototype of, or an outstanding example of, a period, style, architectural movement or construction, or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

The effects of designation include the following:

- Registration will be recorded on the property deed;
- Limited protection: Environmental review may be required under CEQA if the property is threatened by a project;
- Local building inspector must grant code alternative provided under State Historic Building Code;
- Local assessor may enter into contract with property owner for property tax reduction (Mills Act of 1972 (Gov. Code, § 50280 et seq.));
- Automatic listing in California Register of Historical Resources; and
- Bronze plaque at site (underwritten by local sponsor) may be ordered through OHP; highway directional sign available through local Caltrans district office.

California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. No historical resource may be designated as both a Landmark and a Point. If a Point is subsequently granted status as a Landmark, the Point designation will be retired.

To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- the first, last, only, or most significant of its type within the local geographic region (city or county);
- associated with an individual or group having a profound influence on the history of the local area; or
- a prototype of, or an outstanding example of, a period, style, architectural movement or construction, or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer or master builder.

The effects of designation include the following:

- Registration is recorded on property deed;
- Limited protection: Environmental review may be required under CEQA if property is threatened by a project;
- Local building inspector must grant code alternative provided under State Historic Building Code;
- Local assessor may enter into contract with property owner for property tax reduction (Mills Act); and
- A small enamel directional sign (no text) available through local Caltrans district office. Owner may place his or her own marker at the site.

Written consent of property owner(s) is required for designation. Local government will be given 60 days to comment on application before the nomination is considered by the State Historical Resources Commission.

Other State Code Requirements

This section discusses other relevant regulations under the California Public Resources Code (P.R.C.), the California Code of Regulations, the California Government Code, the California Health and Safety Code, and other sources.

Public Resources Code Sections 5079-5079.65 – California Heritage Fund
P.R.C. sections 5079-5079.65 outline the appropriate uses of the California Heritage Fund. The fund shall be available, upon appropriation by the State Legislature, to implement laws providing for historical resource preservation, including, but not limited to, section 5028 and Executive Order W-26-92, under criteria developed by the Office of Historic Preservation and adopted by the State Historical Resources Commission.

Public Resources Code Sections 5097-5097.6 – Archaeological, Paleontological and Historical Sites
P.R.C. sections 5097-5097.6 outline the requirements for cultural resource analysis prior to the commencement of any construction project on State Lands. This section identifies that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California NAHC whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

Public Resources Code Sections 5097.9-5097.991 – Native American Heritage
P.R.C. sections 5097.9-5097.991 identify that no public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1,1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the U.S. Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require it. In addition, this section details the composition and responsibilities of the NAHC. The NAHC strives for the preservation and protection of Native American human remains, associated grave goods, and cultural resources. The NAHC has developed a strategic plan to assist the public, development community, federal and local agencies, educational institutions, and California Native Americans to better understand problems relating to the protection and preservation of cultural resources and to serve as a tool to resolve these problems and create an awareness among lead agencies and developers of the importance of working with Native Americans. P.R.C. section 5097.91 and 5097.98 were amended by State Assembly Bill 2641 in 2006. This bill authorizes the NAHC to bring an action to prevent damage to Native American burial grounds or places of worship and establishes more specific procedures to be implemented in the event that Native American remains are discovered.

Public Resources Code Section 5097.5 – Unauthorized Actions
P.R.C. Section 5097.5 specifically defines unauthorized excavation, removal, destruction, etc. of archaeological, paleontological, or historical features on Public Lands as a misdemeanor.

California Government Code Section 25373
California Government Code Section 25373 gives authority to local governments to acquire property for the preservation or development of a historical landmark. In addition, local governments may provide special conditions or regulations for the protection, enhancement, perpetuation, or use of places, sites, buildings, structures, works of art, and other objects having a special character or special historical or aesthetic interest or value.

California Government Code Section 27288.2
California Government Code Section 27288.2 requires the county recorder for which historical resources reside to record a certified resolution establishing a historical resources designation issued by the State Historical Resources Commission or a local agency. For previously designated properties, the county may record the certified resolution establishing the historical resources designation upon submission.

California Government Code Sections 50280-50290 – Mills Act
The Mills Act of 1972 (Gov. Code, § 50280 et seq.) provides for reduced property taxes on eligible historic properties in return for the property owner's agreement to maintain and preserve the historic property. Preservation of properties is to be in accordance with the standards and guidelines set forth by the U.S. Secretary of the Interior. To be designated, a building must meet qualifying criteria such as significant architecture, association with a historically significant event or person, or location in a historic district. Criteria for designation are described in greater detail under state historic points and landmarks.

California Government Code Sections 65352.3-5 – Local Government–Tribal Consultation
Sen. Bill No. 18 (Stats. 2004, ch. 904) (SB 18) established Government Code Sections 65352.3-5 that states that prior to the adoption or amendment of a city or county's general plan, or specific plans, the city or county shall consult with California Native American tribes that are on the contact list maintained by the NAHC. The intent of this law is to preserve or mitigate impacts on places, features, and objects, as defined in P.R.C. sections 5097.9 and 5097.993, that are located within the city or county's jurisdiction. The law also states that the city or county shall protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features, and objects identified by Native American consultation. Government Code sections 65362.3-5 apply to all general and specific plans adopted and/or amended after March 1, 2005.

As the proposed MTP/SCS is not a general plan or specific plan, SB 18 does not apply. However, SB 18 would apply to updates to county general plans or specific plans that may be adopted by local jurisdictions in the future.

California Code of Regulations Title 14 Sections 4307-4309 – Department of Parks and Recreation
The sections of the California Code of Regulations relating to the Department of Parks and Recreation afford protection to geologic features and "paleontological materials" but grant the director of the state park system authority to issue permits for specific activities that may result in damage to such resources, if the activities are in the interest of the state park system and for state park purposes (Cal. Code Regs., tit. 14 §§ 4307-4309).

Health and Safety Code Sections 18950-18961 – State Historic Building Code
The State Historic Building Code (Health & Saf. Code, §§ 18950-18961) provides alternative regulations and standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of qualified historical buildings or structures. These alternative standards and regulations are intended to facilitate the rehabilitation, restoration, or change of occupancy so as to preserve their original or restored architectural elements and features, to encourage energy conservation and a cost-effective approach to preservation, and to provide for the safety of the building occupants.

Health and Safety Code Sections 8010-8011 – California Native American Graves Protection and Repatriation Act
California Native American Graves Protection and Repatriation Act of 2001 (Health & Saf. Code, §§ 8010-8011) establishes a state repatriation policy intent that is consistent with and facilitates implementation of the federal Native American Graves Protection and Repatriation Act. This law strives to ensure that all California Indian human remains and cultural items are treated with dignity and respect and encourages voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums in California.

Health and Safety Code Sections 7050-7052, Public Resources Code Section 5097.98 – Disturbance of Human Remains
Disturbance of human remains without the authority of law is a felony (Health & Saf. Code, § 7052). According to state law (Health & Saf. Code, § 7050.5; Pub. Resources Code, § 5097.98), if human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the coroner of the county has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin:
    - the descendants from the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of with appropriate dignity the human remains and any associated grave goods as provided in P.R.C. Section 5097.98; or
    - the NAHC was unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the commission.

According to the Health and Safety Code, six or more human burials at one location constitute a cemetery (Health & Saf. Code, § 8100), and disturbance of Native American cemeteries is a felony (Health & Saf. Code, § 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC, who has jurisdiction over Native American remains (Health & Saf. Code, § 7052.5c; Pub. Resources Code, § 5097.98).

Local

In addition to federal and state regulations, many county and city general plans and ordinances address identification, maintenance, and protection of cultural resources. This section presents local cultural resources-related policies that could affect or be affected by the proposed MTP/SCS.

Many cities and counties include cultural resources preservation elements in their general plans that include some mechanism pertaining to cultural resources in those communities. In general, the sections pertaining to archaeological and historical properties are put in place to afford the cultural resources a measure of local protection. The policies outlined in the individual general plans should be consulted prior to any undertaking or project.

Cultural resources are generally discussed in either the Open Space Element or the Conservation Element of the General Plan. Policies regarding cultural resources are similar throughout the MTP/SCS plan area general plans and call for the identification, protection, interpretation and enhancement of important historical, archaeological, paleontological, and cultural sites and their contributing environments.

Certified Local Governments

In 1980, the NHPA was amended to include the Certified Local Governments (CLG) program. The purpose of this program was to support local governments in efforts to identify, evaluate, and register historic resources within their province and integrate preservation into local planning. A CLG is a local government whose historic preservation program and/or ordinance has been certified pursuant to Section 101(c) of the NHPA. The CLG program is a partnership among local governments, the State of California OHP, and the National Park Service (NPS) which is responsible for administering the National Historic Preservation Program. CLGs must be included in the process of nominating properties within their jurisdiction to the NRHP. They are also eligible to apply for a portion the state's annual federal allotment of Historic Preservation Funds which are designated for historic preservation projects.

The following CLGs are located in the MTP/SCS plan area (listed by county):

City and County General Plans

- Sacramento: City of Sacramento and City of Elk Grove;
- Yolo: City of Davis; and
- Yuba: City of Marysville.

SUMMARY OF REGIONAL LAND USE AND TRANSPORTATION CHANGES

The proposed MTP/SCS will add approximately 871,000 people to the plan area, an increase of 39 percent, between 2008 and 2035. This increase will accompany about 303,000 new housing units and about 361,000 new employees in the region through the year 2035. This growth is accommodated in the proposed MTP/SCS, as described in the Project Description chapter, by locating people closer to jobs and transit services and generally developing in a compact form.

Combined with the transportation investments, the land use patterns of the proposed MTP/SCS reduce the need to travel frequently or over long distances using single occupancy vehicles.

In terms of transportation improvements, the MTP/SCS emphasizes transit, biking, walking and road operation investments to improve system productivity. More than two-thirds of the total road and highway investments in the MTP/SCS pay for operational or capacity improvements to existing facilities, while the remainder of the budget includes a mix of new road and highway investments to serve infill and greenfield growth areas. Road and highway projects concentrate on alleviating major bottlenecks and congestion points while other Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure. The result of these investments is a 2035 network that includes a doubling of total daily transit vehicle service hours, new or expanded roadways in growth and infill areas, and 396 miles of new Class I, and 722 miles of Class II 2 bicycle and pedestrian routes.

COMMUNITY TYPE AREAS: SUMMARY OF LAND USE AND TRANSPORTATION CHANGES

Center and Corridor Communities: Summary of Land Use & Transportation Changes

By 2035, Center and Corridor Communities are expected to see approximately 92,000 new housing units and 104,000 new jobs. This growth will consume approximately 4,400 acres. Region-wide, Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of new acres developed.

The compact and mixed use character of land uses in Centers and Corridors helps reduce vehicle miles traveled (VMT) by providing more opportunities for shorter trips by non-auto modes of travel. Center and Corridor communities are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel.

In addition, Center and Corridor Communities will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Center and Corridor Communities receive new and expanded bus and rail transit and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points. Blueprint supportive programs and TSM strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure in the Center and Corridor communities.

Established Communities: Summary of Land Use & Transportation Changes

Similar to Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. Housing units will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed

will pretty much maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by almost 20,000 for regional shares of 52 percent and 37 percent of the growth, respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Established Communities are mostly medium density residential, office parks, and strip retail. They are considered to be mostly built-out. Any development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses. Established Communities are typically adjacent to and surrounding Centers and Corridors, taking advantage of the higher densities and mixed uses. Established areas in the proposed MTP/SCS receive 52 percent of the employment growth, in an attempt to better balance the housing and job development.

The type of growth in Established Communities takes advantage of existing transportation infrastructure and surrounding land uses. However, Established Communities will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. As with Center and Corridor Communities, Established Communities receive new and expanded bus and rail transit and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points along major arterials and freeways leading to and from major employment centers in Sacramento, Rancho Cordova, and Roseville. Blueprint supportive programs and TSM strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

Developing Communities: Summary of Land Use & Transportation Changes

Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000 new housing units (42 percent of regional housing growth), and about 65,000 new jobs (18 percent of regional employment growth), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rate of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

Developing Communities contain less than three percent of the residential and less than two percent of the employment development in 2008. These areas receive approximately 42 percent of the residential growth in the proposed MTP/SCS. As these communities become more established with a mix of housing and commercial uses, residents will be able to travel shorter distances to reach most routine destinations.

Developing Communities will see a somewhat different mix of transportation projects in comparison to Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. Developing

Communities have little or no transit service in 2008, but with the proposed MTP/SCS, by 2035 some areas will include bus service every 30 minutes or less. These areas area will also include walk and bike facilities that are included in the new developments. Blueprint supportive programs and TSM strategies, including technology and demand management programs, allow for greater optimization of the transportation infrastructure supporting Developing Communities.

Rural Residential Communities: Summary of Land Use & Transportation Changes

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. The housing units are expected to increase by about 5,300 housing units and jobs are expected to increase by about 4,000, less than two percent of the regional housing and employment growth. This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

While the land uses in Rural Residential Communities staying largely the same in the proposed MTP/SCS, these communities benefit from changes in adjacent developing and Established Communities that bring important destinations closer and reduce the need to travel long distances on a regular basis. Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the plan area. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, with the focus on road maintenance and rehabilitation, safety projects and limited new or widened roadways or freeway improvements. Road projects in Rural Residential Communities focus on improving agricultural and goods movement travel as well as improving or maintaining accessibility for slow moving farm equipment. Rural Residential Communities will also benefit from improvements to lifeline and rural transit services that focus on bringing workers to job sites and providing access to crucial destinations such as hospitals, social services, and shopping. A number of road safety improvements in Rural Residential Communities, such as the addition of shoulders create a safer environment for pedestrians and bicyclists.

Lands Not Identified for Development: Summary of Land Use & Transportation Changes

The proposed MTP/SCS does not forecast or model growth in Lands Not Identified for Development during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, and public lands such as waste water treatment facilities, etc.). Since no growth is forecasted in the proposed MTP/SCS for this Community Type, there will be a very limited number of transportation investments in this Community Type by 2035. The focus for investments is on road maintenance, safety enhancements, and other roadway operational improvements.

Transit Priority Areas: Summary of Land Use And Transportation Changes

Placer County Transit Priority Areas: Summary of Land Use & Transportation Changes

The Placer County Transit Priority Areas (TPAs) include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and about 10,000 new jobs by 2035. Jobs are primarily focused in existing job centers and residential growth in the TPAs is 78 percent attached. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

The land use changes, together with the transportation investments in Placer County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Placer County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. The Placer TPAs are served by the Capital Corridor train, as well as high quality transit services in Roseville. These systems are connected to the larger regional transit network, making the Placer TPA a very accessible regional destination. The sum of the investments creates more efficient travel, as well as opportunities for non-auto modes of travel.

Sacramento County Transit Priority Areas: Summary of Land Use & Transportation Changes

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres. The Sacramento County TPAs see a large amount of residential and employment growth, approximately 30 percent of regional growth, in the proposed MTP/SCS. Residential growth averages 22 dwelling units per acre between 2008 and 2035, and 75 percent of all new residential products are attached.

The land use changes, together with the transportation investments in Sacramento County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of

complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Sacramento County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. The Sacramento TPA is served by light rail, Capital Corridor, and numerous bus routes. In 2035, the Sacramento TPA has a streetcar corridor in downtown, and bus rapid transit service. The transit in the Sacramento TPA is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel.

Yolo County Transit Priority Areas: Summary of Land Use & Transportation Changes

The Yolo County TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres. In the Yolo TPA, residential growth averages 20 dwelling units per acre, and 79 percent of all residential growth is attached. The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis.

The land use changes, together with the transportation investments in Yolo County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Yolo County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo TPA is served by Capital Corridor as well as numerous bus routes. In 2035, the area will include bus rapid transit and a streetcar in West Sacramento. These new transit services will be connected to new and existing regional transit service.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This analysis assesses the potential impacts to cultural and paleontological resources that could result from implementation of the proposed MTP/SCS. For each potential impact, implementation of the proposed MTP/SCS is analyzed on three levels. First, land use and transportation impacts are analyzed at the regional level. Second, the analysis breaks the region down into five Community Types. The five Community Types are: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is analyzed in terms of its impacts to the region's TPAs. TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, refer to Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

Cultural Resources

For cultural resources, the HRI and the DOE (as described in the Setting section) are the primary sources used to gather information on known significant archaeological and architectural/built environment properties in the MTP/SCS plan area. In general this data was gathered at the county and city level. The exact locations of significant cultural resources in or near specific proposed project areas related to the proposed MTP/SCS are not known at this time. Consequently, impacts below have been assessed at the program-level and take into consideration possible impacts that may occur to known and unknown cultural resources in the MTP/SCS plan area as a result of future ground-disturbing activities related to proposed transportation improvements, including new roads, interchanges, widenings, and rail transit alignments, and proposed land use changes, including residential and commercial construction.

Paleontological Resources

Unlike archaeological sites and historic buildings, which are narrowly defined, paleontological sites are defined by the entire extent of a unit or formation. In other words, once a unit is identified as containing vertebrate fossils or other rare fossils, the entire unit is considered a paleontological site (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995 and 2007).

The primary source of information used for assessing impacts to paleontological resources is from the paleontological database at the University of California, Berkeley. Impacts on paleontological resources were analyzed qualitatively on a large-scale level, based on professional judgment and the Society of Vertebrate Paleontology (SVP) guidelines below.

In response to a recognized need for standard guidance, the SVP published *Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources,* a set of standard guidelines that are widely followed (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995 and 2007). These guidelines represent the accepted standard of care for paleontological resources. The SVP guidelines identify two key phases in the process for protecting paleontological resources from project impacts.

- Assess the likelihood that the project's area of potential effect contains significant nonrenewable paleontological resources that could be directly or indirectly impacted, damaged, or destroyed as a result of the project.
- Formulate and implement measures to mitigate potential adverse impacts.

An important strength of the SVP's approach to assessing potential impacts on paleontological resources is that the SVP guidelines provide some standardization in evaluating a project area's paleontological sensitivity. Table 7.7 defines the SVP's sensitivity categories for paleontological resources and summarizes SVP's recommended treatments to avoid adverse impacts in each sensitivity category.

Table 7.7
Society of Vertebrate Paleontology's Definitions of Sensitivity Categories and Recommended Treatment for Paleontological Resources

Sensitivity Category	Definition	Recommended Mitigation Treatment
High	Areas underlain by geologic units from which vertebrate or significant invertebrate fossils or suites of plant fossils have been recovered	• Preliminary survey and surface salvage before construction begins • Monitoring and salvage during construction • Specimen preparation; identification, cataloging, curation, and storage of materials recovered • Preparation of final report describing finds and discussing their significance • All work should be supervised by a professional paleontologist who maintains the necessary collecting permits and repository agreements
Undetermined	Areas underlain by geologic units for which little information is available	• Preliminary field surveys by a qualified vertebrate paleontologist to assess the project area's sensitivity • Design and implementation of mitigation if needed, based on the results of field survey
Low	Areas underlain by geologic units that are not known to have produced a substantial body of significant paleontologic material	Protection and salvage generally are not required; however, a qualified paleontologist should be contacted if fossils are discovered during construction, in order to salvage finds and assess the need for further mitigation

Source: Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995 and 2007.

SVP's guidelines provide a working definition of significance as applied to paleontological resources. According to SVP, significant paleontological resources are those that fulfill one or more of the following criteria (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995 and 2007).

- Provide important information shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms.
- Provide important information regarding the development of biological communities.
- Demonstrate unusual circumstances in the history of life.
- Represent a rare taxon or a rare or unique occurrence; are in short supply and in danger of being destroyed or depleted.
- Have a special and particular quality, such as being the oldest of their type or the best available example of their type.
- Provide important information used to correlate strata for which it may be difficult to obtain other types of age dates.
- Significant paleontological resources may include vertebrate fossils and their associated taphonomic and environmental indicators; invertebrate fossils; and/or plant fossils.

Because most vertebrate fossils are rare, they are considered important paleontological resources.

Geologic units sensitive for paleontological resources are widespread in the project area, particularly in the valley and foothill areas. These units include the Riverbank Formation, the Modesto Formation, the Tehama Formation, and the Mehrten Formation. Even in some areas that are not directly underlain by units sensitive for paleontological resources, such as areas directly underlain by Holocene deposits, these deposits may only be a thin veneer over sensitive deposits.

If fossils are present in the project area, they could be damaged during project ground-disturbing activities, such as excavation and grading. The likelihood of damaging paleontological resources increases with the depth and extent of ground-disturbing activity. Ground-disturbing activities in undisturbed/undeveloped areas and projects that involve extensive grading or excavation have the greatest likelihood of damaging paleontological resources.

Substantial damage to or destruction of significant paleontological resources as defined by the SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995) would represent a significant impact.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to P.R.C. Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the proposed MTP policies, adoption of the proposed SCS, and adoption of the proposed transportation project list and proposed financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
3. Directly or indirectly destroy a unique paleontological resource or site.
4. Disturb any human remains, including those interred outside of formal cemeteries.
5. Eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines § 15065(a)(1)).

Impacts and Mitigation Measures

Impact CR-1: Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 as a result of the construction or ongoing operation.

A. Regional Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

This impact concerns potential impacts to architectural/built environment historical resources (i.e., historic structures) and historical archaeological resources. Non-historical archaeological resources are discussed below under Impact CR-2. The bulk of potential impacts to historic structures would occur during the construction of new land uses and new transportation improvements.

In general, the potential to impact historic resources varies by the development area type (or location of transportation improvement). Historical resources are more prevalent in areas that were initially developed more than 50 years ago, including historic downtown areas such as downtown Sacramento, Auburn, and Placerville. Concentrations of historic structures and the presence of historic districts is thus more likely in Center and Corridor Communities than in Developing Communities, which are more likely to be in previously undeveloped areas. However, historic structures can still be encountered in all Community Types, although they will be more prevalent in areas of older development. Historical resources can also be encountered outside of urban areas in the form of historic mines, mining camps, rural residences, and other historic features.

Within the MTP/SCS plan area, numerous historically significant built environment/ architectural historical resources are listed in and eligible for the NRHP or the CRHR, as well as recognized as locally significant under local governments. A number of properties containing buildings and structures 50 years old or older that have not been formally recorded or evaluated for the NRHP or CRHR. Consequently, it is possible that there are additional architectural/built environment historical resources located in the study area eligible for listing in the NRHP, CRHR, or eligible as locally designated historical resources.

Therefore, it is known that the MTP/SCS plan area contains significant built environment/architectural historical resources for the purposes of CEQA.

Construction due to land use and transportation changes may result in construction impacts to architectural/built environment historical resources. Ground-disturbing and other activities associated with construction may result in damage, physical demolition, destruction, relocation, or alteration of historical buildings or structures, which could result in a substantial adverse change to historically significant built environment/architectural historical resources. If architectural/built environment historical resources cannot be completely avoided by project design, impacts could be potentially significant (PS).

Construction planned in and around downtown city cores where historic districts may be located has a relatively higher potential to encounter architectural/built environment historic resources. If architectural/built environment historical resources cannot be completely avoided by project design and/or if ground-disturbing and other activities associated with construction of infrastructure improvements result in damage, physical demolition, destruction, relocation, or alteration of historical buildings or structures, there could be significant impacts.

While the projected regional increase in developed area would be small and would occur over the lifespan of the MTP/SCS, as discussed above and in the section immediately preceding the Impact and Mitigation section, both land use changes and transportation improvements resulting from implementation of the proposed MTP/SCS have the potential to cause in significant impacts on historical resources from construction and ongoing operations. When land use or transportation improvements require modification or removal of a historic structure, significant impacts will likely occur. In many cases, these impacts can be reduced to a less than significant (LS) level by avoiding the resource, minimizing alterations, and designing building use that retains its character-defining features. In cases involving entire removal of the historic structure and/or loss of the character-defining features, this impact would be significant and unavoidable (SU).

The only impacts to historical resources due to operations would be due to vibration. Some historic resources are more susceptible to damage from vibration than modern buildings depending on their materials and structure. Commercial, residential, and light industrial uses do not routinely involve large vibration sources that would affect neighboring building. Large industrial sources, such as blasting involved with mining, may involve substantial vibration sources that could affect neighboring historic structures. Traffic on roadways is rarely the source of vibration and groundborne noise because vehicles are supported on spring suspension and pneumatic tires. Rail operations however can be a source of vibration and groundborne noise. New or expanded rail operations have the potential to result in substantial vibration and groundborne noise and could expose historic structures to excessive groundborne vibrations or groundborne noise. For operations, land use and transportation changes may result in new vibration sources that could significantly affect historic buildings.

Over the lifespan of the proposed MTP/SCS, some land use changes and transportation improvements that are located within proximity to one another will be developed concurrently, which may increase the potential for construction of these development projects to result in damage, destruction, or alteration of historical buildings or structures.

Together, impacts on historical resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

B. Localized and C. Transit Priority Area Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS by Community Type and TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The regional impact section describes the conditions that may result in a potentially significant impact to historical resources. Because historical resources have a site specific impact, the potential to impact historical resources does not vary by the Community Type or location of transportation improvements. Therefore, the regional analysis also applies at the localized level.

Together, impacts on historical resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS at the localized and TPA level, with the exception of land use for Lands Not Identified for Development, are considered potentially significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

The exception is land use impacts of Lands Not Identified for Development in the Proposed MTP/SCS. The proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on historical resources related to the land use changes from construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact CR-1. No mitigation is required.

Together, the impacts on historical resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (PS) for Impact CR-1. Mitigation is required. Mitigation Measure CR-1 is described below.

Mitigation Measure CR-1: Conduct historical resource studies and identify and implement project-specific mitigation.

As part of planning, design and engineering for projects that result from the proposed MTP/SCS, the implementing agency should ensure that historic resources are treated in accordance with applicable federal, state and local laws and regulations. When a project has been identified as potentially affecting a historical resource, a historical resources inventory should be conducted by a qualified architectural historian. The study should comply with CEQA Guidelines section 15064.5(b), and, if federal funding or permits are required, with section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470 et seq.). If required, the study should consist of the following elements:

- a records search at the appropriate Information Center of the California Historical Resources Information System;
- contact with local historical societies, museums, or other interested parties as appropriate to help determine locations of known significant historical resources;
- necessary background, archival and historic research;
- a survey of built environment/architectural resources that are 50 years old or older that may be directly or indirectly impacted by project activities; and
- recordation and evaluation of built environment/architectural resources that are 50 years old or older that may be directly or indirectly impacted by project activities; buildings should be evaluated under CRHR and/or NRHP Criteria as appropriate and recorded on California Department of Parks and Recreation 523 forms.

These elements should be compiled into a Historical Survey Report that should be submitted to the appropriate Information Center and should also be used for SHPO consultation if the project is subject to NHPA section 106.

In the case of demolition or significant modification to physical characteristics creating the historical significance of a resource, the implementing agency should consider the completion of Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) Standards documents.

For projects that require NHPA Section 106 compliance, consultation with the State Office of Historic Preservation (SHPO) will be necessary to conduct effects analysis as well as to develop feasible and appropriate mitigation measures. Should analysis indicate that proposed changes to the historical resource will not impact the ability of the property to convey its significance, a Finding of No Adverse Effect Document can be produced and the project can proceed as planned or with agreed upon conditions (as detailed in an agreement document).

If no historical resources are identified in the Historical Survey Report, meaning there are no NRHP, CRHR or locally listed or evaluated resources in the project study area, then mitigation is complete, and there is no impact to historical resources for the project. The impact would be less than significant (LS).

If the Historical Survey Report indicates that NRHP, CRHR or locally listed or eligible historical resources exist in the project study area, the implementing agency should consider avoidance as the primary mitigation measure. If avoidance is possible, mitigation is complete, and the impact to historical resources would be less than significant (LS).

If avoidance of a significant architectural/built environment resource is not feasible, additional mitigation options include, but are not limited to, specific design plans for historic districts, or plans for alteration or adaptive re-use of a historical resource that follows the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings.* Adaptive re-use or other measures developed consistent with the Secretary of the Interior's Standards will reduce impacts to a less than significant level unless such measures are unable to avoid materially altering the

physical characteristics creating the resource's historical significance in an adverse manner. If the implementing agency determines these measures cannot avoid such material alterations to the physical characteristics creating the resource's historical significance, then the impact would remain potentially significant (PS).

For archaeological resources that meet the definition of historical resources, where in-place preservation is possible, the impact to the historic archaeological resources will be less than significant (LS). Additionally, where the implementing agency determines that an alternative mitigation method is superior to in place preservation, the agency may implement such alternative measures to reduce the impact to less than significant (LS). If neither in place preservation nor any superior measures are possible, then the impact would be significant and unavoidable (SU).

Creation of a Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) standards document will reduce the impact associated with the loss or modification of historically significant physical characteristics of effected resources. However, it would not reduce the impact to a less than significant level (LS); the impact would remain potentially significant (PS).

For projects that require NHPA section 106 compliance, consultation with the State Office of Historic Preservation (SHPO) will be necessary to conduct effects analysis, as well as to develop feasible and appropriate mitigation measures. Should analysis indicate that proposed changes to the historical resource will not impact the ability of the property to convey its significance, a Finding of No Adverse Effect Document can be produced and the project can proceed as planned or with agreed upon conditions (as detailed in an agreement document).

A Finding of Adverse Effect Document will be produced if there is no feasible way to avoid, minimize or mitigate adverse effects to the historical resource. In this case, a Memorandum of Agreement (MOA) or a Memorandum of Understanding (MOU) document must be prepared which will outline stipulations or conditions for treatment of the historical resources that must be followed for the project to continue. Under this scenario, the impact would be significant and unavoidable (SU).

Significance after Mitigation

This impact remains significant and unavoidable (SU) after mitigation for several reasons: the characteristics of any individual project and/or resource will variably affect the level of significance after mitigation, and even the feasibility of mitigation; and SACOG cannot require the implementing agency to adopt this mitigation measure because such agency ultimately is responsible to determine and adopt mitigation.

Impact CR-2: Cause a substantial adverse change in the significance of an unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 as a result of construction or ongoing operations

A. Regional Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource (CEQA Guidelines § 15064.5 (c)(1).). Refer to Impact CR-1 for a discussion of historical archaeological sites and mitigation.

As presented in the settings section of this document, there are numerous archaeological resources that are listed in and eligible for the NRHP or the CRHR. According to the Information Center databases (DOE), there are 160 significant archaeological resources in the plan area. It is likely that there are numerous prehistoric and historic-period archaeological resources that have not been located, recorded, or evaluated for the NRHP or CRHR. There are large areas of the plan area that have not been subjected to archaeological survey that may contain archaeological resources. Additionally, there are likely a large number of archaeological resources that have been located and recorded, but have not been evaluated for eligibility for listing in the CRHR or NRHP because that entails further study, including excavation, which is destructive to the resource. Therefore, it is known that MTP/SCS plan area contains significant archaeological resources for the purposes of CEQA.

In general, the potential to impact archaeological resources can vary by the Community Type or location of transportation improvement, as archaeological resources are more likely to be encountered within areas previously developed more than 50 years areas. These areas are more likely to be found within the Center and Corridor Communities than in Developing Communities (which tend to be undeveloped today). Prehistoric archaeological resources are likely to be encountered near areas of prior Native American occupation and activity, which includes areas both within and outside of areas of current development. Surficial archaeological deposits are more likely to be heavily disturbed within urban areas and more intact in rural settings; however this does not preclude the presence of buried archaeological resources that may be significant in urban settings.

Impacts to archaeological resources do not vary much in character between different land use types and transportation improvements when archaeological resources are encountered. When land use or transportation improvements require modification or removal of archaeological resources, significant impacts will likely occur. These impacts can be reduced to a less than significant level by avoiding the resource, minimizing disturbance and/or investigation and recovering resources and data about the resources when the resource is not avoidable.

Impacts from land use and transportation changes as a result of the proposed MTP/SCS to archaeological resources may result from ground disturbance associated with construction, such as grading and excavation. Disturbance of archaeological features or resources would

compromise the physical integrity and information potential of any archaeological deposits. Disturbance could result in a significant impact if the resource were eligible for listing in federal or state registers and the physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the CRHR, or in a local register or survey that meets the requirements of P.R.C. Sections 5020.1(k) and 5024.1(g) are demolished or substantially altered. If significant archaeological resources cannot be completely avoided by project design, ground-disturbing and other activities associated with construction of land use and transportation projects as a result of the proposed MTP/SCS may result in damage, or destruction of significant archaeological resources.

Impacts to archaeological resources are most often a result of construction, but operational impacts can result as well. For instance, installation of facilities that attract the public can result in increased illicit collecting from sites. Sites that had previously been hard to access are now available to larger numbers of people, who may collect artifacts.

Potential impacts from construction and ongoing operations associated with land use changes and transportation improvements resulting from implementation of the proposed MTP/SCS have the potential to cause significant impacts on archaeological resources.

Over the lifespan of the proposed MTP/SCS, some land use changes and transportation improvements that are located within proximity to one another will be developed concurrently, which may increase the potential for construction of these development projects to impact archaeological resources.

Together, impacts on archaeological resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS are considered potentially significant (PS) at the regional level for Impact CR-2. Mitigation Measures CR-2 and CR-3 are described below.

B. Localized and Transit Priority Area Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS by Community Type and TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The regional impact section describes the conditions that may result in a potentially significant impact to archaeological resources. Because archaeological resources have a site specific impact, the potential to impact archaeological resources does not vary by the Community Type or location of transportation improvements. Therefore, the regional analysis also applies at the localized level.

Together, impacts on archaeological resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS at the localized and TPA level, with the exception of land use within Lands Not Identified for Development, are considered potentially significant (PS) for Impact CR-2. Mitigation Measures CR-2 and CR-3 are described below.

The exception is Lands Not Identified for Development in the Proposed MTP/SCS. The proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on historical resources related to the land use changes from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (LS) for Impact CR-2. No mitigation is required.

Together, impacts on historical resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (PS) for Impact CR-2. Mitigation Measures CR-2 and CR-3 are described below.

Mitigation Measure CR-2: Conduct Archaeological Resource Studies and Identify and Implement Project-Specific Mitigation.

The implementing agency, prior to planning, design and engineering of specific projects in the proposed MTP/SCS, should ensure that archaeological resources are treated appropriately according to state, federal, and local laws and regulations, as applicable. If an archaeological resources is determined to be historically significant (CEQA Guidelines, § 15064.5(a).), then Mitigation Measure CR-1 should be applied. The mitigation measure below applies to non-historically significant archaeological resources.

When a project has been identified as potentially affecting a unique archaeological resource, an archaeological inventory should be conducted by a qualified archaeologist. The study should comply with P.R.C. section 21083.2 and CEQA Guidelines section 15064.5(c); and, if federal funding or permits are required, NHPA section 106. The study should consist of the following elements:

- a records search at the appropriate Information Center of the California Historical Resources Information System;
- contact with the Native American Heritage Commission (NAHC) to search their sacred lands database and provide a list of potentially interested Native American representatives;
- contact with Native American representatives;
- necessary background, archival and historic research;
- a pedestrian survey, unless it is not recommended by the Information Center, which will include locating previous sites and conducting a systematic survey of the area for previously unrecorded sites; and
- site records on appropriate Department of Parks and Recreation 523 forms, when sites are located.

These elements should be compiled into an Archaeological Survey Report that should be submitted to the appropriate Information Center and should also be used for SHPO consultation if the project is subject to NHPA section 106.

If no archeological resources are identified in the Archeological Survey Report, then mitigation is complete, and there is no impact to archeological resources for the project. The impact would be less than significant (LS).

If the archaeological survey and/or the records search indicate that unique archaeological resources, as defined (Pub. Resources Code, § 21083.2(g).), are located in the specific project area, mitigation measures shall be identified including avoidance through project redesign, data recovery excavation, and/or public interpretation of the resource.

If an archaeological resource is determined to be neither unique nor historical, and the determination and potential impacts are adequately documented, the effects of on those resources is less than significant (LS) (CEQA Guidelines, § 15064.5(c)(4).).

If archaeological materials are inadvertently discovered during construction, work should stop within 100 feet of the find. If avoidance is not feasible, a qualified archaeologist familiar with the local conditions should recommend further work necessary to determine importance in accordance with applicable local, state, and federal guidelines. If the archaeological resource is determined to be important under federal, state, or local guidelines, treatment measures should be developed consistent with its status as either an historical resource or unique archaeological resource as described above (see also Mitigation Measures CR-1 and CR-3).

Mitigation Measure CR-3: Reduce Visibility or Accessibility of Archaeological Resources

The implementing agency should determine whether or not implementation of a project will put an archaeological site in danger of damage via illicit collecting. If so, the implementing agency should take measures to reduce the visibility or accessibility of the archaeological resource to the public. Visibility of the resource can be reduced through the use of decorative walls or vegetation. Accessibility can be reduced by installing fencing or vegetation, particularly unwelcoming vegetation, such as poison oak or blackberry bushes. It is important to avoid creating an attractive nuisance when protecting sites. Conspicuous walls or signs indicating that an area is restricted may result in more attempts to access the area.

Significance after Mitigation

This impact remains significant and unavoidable (SU) after mitigation for several reasons: the characteristics of any individual project and/or resource will variably affect the level of significance after mitigation, and even the feasibility of mitigation; and SACOG cannot require the implementing agency to adopt this mitigation measure because such agency ultimately is responsible to determine and adopt mitigation.

Impact CR-3: Directly or indirectly destroy a unique paleontological resource or site as a result of construction or ongoing operations

A. Regional Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

This impact concerns potential impacts to paleontological resources. As discussed below, impacts to paleontological resources are limited to construction and no operational impacts are expected.

In general, the potential to impact paleontological resources does not vary by the Community Type or location of transportation improvements as paleontological resources are present due to the presence of sensitive geological units, not due to the overlying land use. Surficial resources are often disturbed and obscured in previously developed and agricultural areas, but deposits can still be intact at depth. When land use or transportation improvements involve disturbance of paleontological resources, significant impacts could occur. These impacts can be reduced to a less than significant level by avoiding the resource, minimizing disturbance and/or investigation and recovering resources and data about the resources when the resource is not avoidable.

The destruction of paleontological resources is typically caused by ground-disturbing activities associated with construction. Land use or transportation improvement operations would not cause any ground-disturbing activities or destruction of paleontological resources.

Available evidence indicates that the project area's strata, particularly its Pleistocene and Tertiary strata, preserve a rich vertebrate fauna.

Ground-disturbing activities such as excavation for building foundations, trenching for utility lines, and grading, could damage or destroy sensitive paleontological resources. Although individually many construction projects would involve smaller amounts of excavation resulting in a lower intensity of impact, the total extent of all excavation for these projects could result in the loss of a large number of important fossils.

Ground-disturbing activities in previously disturbed areas associated with improvements to existing facilities, such as road widenings, intersection or interchange improvements, intelligent transportation system upgrades, turn pockets, high-occupancy vehicle (HOV) lanes, and auxiliary and transition lanes, may be less intensive than impacts associated with new road and highway facilities, such as roads serving new development or high-growth areas, new interchanges, road extensions, and new river crossings. However, any construction in geologic units sensitive for paleontological resources could result in the damage or destruction of paleontological resources.

The potential impacts of construction and ongoing operations associated with land use changes and transportation improvements resulting from implementation of the proposed MTP/SCS have the potential to cause significant impacts on paleontological resources. Over the lifespan of the proposed MTP/SCS, some land use changes and transportation improvements that are located

within proximity to one another will be developed concurrently which may increase the potential for construction of these development projects to impact paleontological resources.

Together, impacts on paleontological resources from concurrent construction projects and ongoing operations relating to land use changes and transportation improvements, resulting from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact CR-3. Mitigation Measure CR-4 is described below.

B. Localized Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS by Community Type and TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The regional impact section describes the conditions that may result in a potentially significant impact to paleontological resources. Because paleontological resources have a site specific impact, the potential to impact paleontological resources does not vary by the Community Type or location of transportation improvements. Therefore, the regional analysis also applies at the localized level.

Together, impacts on historical resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS at the localized and TPA level, with the exception of land use within Lands Not Identified for Development, are considered potentially significant (PS) for Impact CR-3. Mitigation Measure CR-4 is described below.

The exception is land use impacts of Lands Not Identified for Development in the Proposed MTP/SCS. The MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on paleontological resources related to the land use changes from implementation of the proposed MTP/SCS on Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (LS) for Impact CR-3. No mitigation is required.

Together, impacts on historical resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed MTP/SCS at the on Lands Not Identified for Development, are considered potentially significant (PS) for Impact CR-3. Mitigation Measures CR-4 is described below.

Mitigation Measure CR-4: Conduct project-specific paleontological resource studies and identify and implement mitigation

As part of planning, design and engineering of projects that result from the proposed MTP/SCS, the implementing agency should ensure that paleontological resources are identified and appropriately mitigated. If a project is located within an area of high or moderate paleontological resource sensitivity or near a known unique geological feature, and would

remove at least 2,500 cubic yards of soil from a previously unearthed area, the implementing agency should retain a qualified paleontologist prior to construction to evaluate sensitivity for unique paleontological resources in their project area. When a project has been identified as potentially affecting a unique paleontological resource, a paleontological resources assessment should be prepared. This study should comply with standards in the industry such as the *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources* (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995 and 2007). Any area of known unique paleontological resources should be avoided during construction when feasible.

The implementing agency should establish construction protocols to ensure that contractors take appropriate measures to avoid destroying fossil materials discovered during construction.

If unique paleontological resources are discovered during construction and/or avoidance is not feasible, the property owner should be encouraged to allow excavation, identification, cataloging and/or other documentation by a qualified paleontologist. The property owner should be further encouraged to donate the resource to a local agency, state university, or other applicable institution, for curation and display for public education purposes.

Significance after Mitigation

This impact remains significant and unavoidable (SU) after mitigation for several reasons: the characteristics of any individual project and/or resource will variably affect the level of significance after mitigation, and even the feasibility of mitigation; the property owner has discretion over how to proceed if paleontological resources are discovered and/or avoidance is not feasible; and SACOG cannot require the implementing agency to adopt this mitigation measure because such agency ultimately is responsible to determine and adopt mitigation.

Impact CR-4: Disturb any human remains, including those interred outside of formal cemeteries.

A. Regional Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

This impact concerns potential impacts to human remains, including Native American remains. As discussed below, impacts to human remains are limited to construction and no operational impacts are expected. Burial sites are distinguished from cultural and paleontological resources because they only apply to those sites containing human remains.

As discussed under Impact CR-2, a search of previously recorded significant archaeological resources in the proposed MTP/SCS plan area using the HRI and DOE databases found 160 significant archaeological resources. However, it is not known how many of these sites are historic-period, prehistoric-period, or contain human remains. Both historic-period and prehistoric-period archaeological sites have the potential to include human remains. Some archaeological sites (such as prehistoric burial grounds and historic era cemeteries) only consist

of human remains and associated grave goods. Archaeological sites that contain human remains are typically determined to be significant.

Section 7050.5 of the California Health and Safety Code states that, when human remains are discovered, no further site disturbance shall occur until the county coroner has determined that the remains are not subject to the provisions of section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, in the manner provided in section 5097.98 of the Public Resources Code. If the coroner determines that the remains are not subject to his or her authority and the remains are recognized to be those of a Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.

Together, impacts on human remains from concurrent construction projects and ongoing operations related to land use and transportation changes resulting from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact CR-4. No mitigation is required.

B. Localized and Transit Priority Area Impacts

A summary of land use and transportation changes as a result of the proposed MTP/SCS by Community Type and TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The regional impact section describes the conditions that may result in a potentially significant impact to human remains. Because human remains are site-specific to burial sites, the potential to impact human remains does not vary by the Community Type or location of transportation improvements. Therefore, the regional analysis also applies at the localized level.

Together, impacts on human remains from concurrent construction projects and ongoing operations related to land use and transportation changes resulting from implementation of the proposed MTP/SCS at the localized and TPA level, are considered less than significant (LS) for Impact CR-4. No mitigation is required.

Impact CR-5: Eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines § 15065(a)(1).).

A. Regional Impacts

This impact is addressed in the discussion of Impacts CR-1, -2, -3 and -4 above, which address impacts to historical resources, archaeological resources, paleontological resources, and human remains. Mitigation Measure CR-5 addresses these impacts.

B. Localized Impacts

This impact is addressed in the discussion of Impacts CR-1, -2, -3 and -4 above, which address impacts to historical resources, archaeological resources, paleontological resources, and human remains. Mitigation Measure CR-5 addresses these impacts.

C. Transit Priority Areas Impacts

This impact is addressed in the discussion of Impacts CR-1, -2, -3 and -4 above, which address impacts to historical resources, archaeological resources, paleontological resources, and human remains. Mitigation Measure CR-5 addresses these impacts.

Mitigation Measure CR-5: Implement Mitigation Measures CR-1 through CR-4.

Significance after Mitigation

This impact remains significant and unavoidable (SU) after mitigation for several reasons: the characteristics of any individual project and/or resource will variably affect the level of significance after mitigation, and even the feasibility of mitigation; and SACOG cannot require the implementing agency to adopt this mitigation measure because such agency ultimately is responsible to determine and adopt mitigation.

CHAPTER 8 – ENERGY AND GLOBAL CLIMATE CHANGE

INTRODUCTION

This chapter evaluates the potential impacts on energy consumption and global climate change from greenhouse gas (GHG) emissions related to the implementation of the Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS) for 2035. The section describes the existing environmental conditions and regulatory structure at the federal, state, and local level as it relates to energy consumption and GHG emissions. The analysis provides existing and forecasted energy consumption and GHG emission inventories from all sources, and describes the methodology used to make those estimates.

The consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with the operation of passenger, public transit, and commercial vehicles results in GHG emissions that ultimately result in global climate change. Alternative fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change. An overview of global climate change, the anticipated impacts of climate change to California, and the climate change impacts of the proposed MTP/SCS are provided in the following sections.

Comments regarding GHG emissions, submitted by Rick Bettis, and Placer County Department of Public Works were received during circulation of the Notice of Preparation (NOP). The comment letters requested that particular emphasis be given to the potential impacts of GHG emissions on climate change, and a particular analysis of the impacts electric and hybrid technology will have on transportation-related emissions. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP. The following sections address GHG emissions, their sources, and impacts on climate change. The transportation GHG emission analysis does not estimate market absorption of electric or hybrid vehicles. Particular measures from the Scoping Plan that address vehicle fuel efficiency are included in the analysis.

SETTING

An Overview of Energy Consumption

Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 73 percent of the electrical power needed to meet California's demand is produced in the state. Approximately 27 percent of its electricity demand is imported from the Pacific Northwest and the Southwest (California Energy Commission, 2011). In 2008, California's electricity was derived from natural gas (46.5 percent), large hydroelectric resources (9.6 percent), coal (15.5 percent), nuclear sources (14.9 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (13.5 percent) (California Energy Commission, 2011).

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 228,038 GWh in 1990, which is an estimated annual growth rate of 3.66 percent. The statewide electricity consumption in 1997 was 246,225 GWh, reflecting an annual growth rate of 1.14 percent between 1990 and 1997 (California Energy Commission Energy Almanac, 2011). Statewide consumption was 274,985 GWh in 2010, an annual growth rate of 0.9 percent between 1997 and 2010. The SACOG region consumed 18,398 GWh in 2010 (ECDMS, 2011), roughly 6.7 percent of the state total.

Peak electricity demand, expressed in megawatts (MWh), measures the largest electric power requirement during a specified period, usually integrated over one hour. A single MWh is enough power to meet the expected electricity needs of 1,000 typical California homes. Peak demand is important in evaluating system reliability, determining congestion points on the electrical grid, and identifying potential areas where additional transmission, distribution, and generation facilities may be needed. California's peak demand typically occurs in August between 3:00 p.m. and 5:00 p.m. High temperatures lead to increased use of air conditioning, which in combination with industrial loads, commercial lighting, and office equipment comprise the major demand for electricity consumption in the peak demand period in the state. In 2013, peak electricity demand for California is predicted to be about 67,524 MWh (California Energy Commission, 2007).

Pacific Gas and Electric (PG&E), Roseville Electric and the Sacramento Municipal Utility District (SMUD) provide electricity in the plan area. Each of these electricity providers buys power from a diverse mix of generating sources, including fossil-fueled plants, hydroelectric powerhouses, wind farms, and nuclear power plants.

Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2009, world consumption of oil had reached 96 million barrels per day. The United States, with approximately five percent of the world's population, accounts for approximately 19 percent of world oil consumption, or approximately 18.6 million barrels per day (*The World Factbook 2009*, Washington, DC: Central Intelligence Agency, 2009). The transportation sector relies heavily on oil. In California, petroleum based fuels currently provide approximately 96 percent of the state's transportation energy needs (California Energy Commission, 2011).

California is currently ranked fourth in the nation among oil producing states. Crude oil production in California averaged 555,394 barrels per day in 2009, a decline of 3.4 percent from 2008. In 2009, the total oil supplied to refineries in California came from in-state oil production (39.5 percent), combined with oil from Alaska (15.1 percent), and foreign sources (45.4 percent) (ECDMS, 2011).

California's refineries, located in the San Francisco Bay Area, the Los Angeles area, and the Central Valley, produce approximately two million barrels of petroleum per day. Refiners that produce the largest amount of crude oil in California are British Petroleum West Coast Products LLC's Carson Refinery and Chevron U.S.A., Inc.'s El Segundo and Richmond refineries, which

produce over 240,000 barrels per day (California Energy Commission, 2006). Imported crude oil is received by tanker, barge, pipeline, rail, or truck at nearly 100 terminals. Most of those are marine terminals. The crude oil is then sent to refineries by pipeline for refining (California Energy Commission, 2007).

Natural Gas

In 2010, the SACOG region consumed 529.5 million therms of natural gas. Natural gas supplies are derived from underground sources and brought to the surface at gas wells. Once it is extracted, gas is purified and the odorant that allows gas leaks to be detected is added to the normally odorless gas. Natural gas suppliers, such as PG&E, then send the gas into transmission pipelines, which are usually buried underground. Compressors propel the gas through the pipeline system, which delivers it to homes and businesses.

The state produces approximately 13.5 percent of its natural gas, while obtaining 23.5 percent from Canada and 63 percent from the Rockies and the Southwest (California Energy Commission, 2011). In 2006, California produced 325.6 billion cubic feet of natural gas (California Energy Commission, 2011).
PG&E is the largest publicly-owned utility in California and provides natural gas for residential, industrial, and agency consumers within the plan area.

An Overview of Global Climate Change

Atmospheric GHGs and clouds within the Earth's atmosphere influence the temperature by absorbing most of the infrared radiation rising from the Earth's sun-warmed surface that would otherwise escape into space. This process is commonly known as the Greenhouse Effect. GHGs and clouds, in turn, radiate some heat back to the Earth's surface and some out to space. The resulting balance between incoming solar radiation and outgoing radiation from both the Earth's surface and atmosphere keeps the planet habitable.

However, anthropogenic emissions of GHGs into the atmosphere enhance the Greenhouse Effect by absorbing additional radiation that would otherwise escape to space, thereby trapping more radiation in the atmosphere and causing temperatures to increase. The human-produced GHG emissions responsible for increasing the Greenhouse Effect and their relative contribution to global climate change (based on their relative ability to trap heat in the atmosphere) are carbon dioxide (CO_2) (53 percent); methane (CH_4) (17 percent); near-surface ozone (O_3) (13 percent); nitrous oxide (N_2O) (12 percent); and chlorofluorocarbons (CFCs) (5 percent).

The increasing emissions of these GHGs—primarily associated with the burning of fossil fuels (during motorized transport, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.) and deforestation, as well as agricultural activity and the decomposition of solid waste—have led to a trend of anthropogenic warming of the Earth's average temperature, which is causing changes in the Earth's climate. This increasing temperature phenomenon is known as global warming and the climatic effect is known as climate change or global climate change.

The California State Legislature adopted the public policy position that global climate change is "a serious threat to the economic well-being, public health, natural resources, and the environment of California" (Health & Saf. Code, § 38501). Further, the State Legislature has determined that "the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems," and that "(g)lobal warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (and)…will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State" (Health & Saf. Code, § 38501).

Environmental Setting

Effects of Energy Consumption

Depending on the source and use of the fuel, the impacts of energy consumption can be far reaching. Electricity generation, and the extraction and consumption of fossil fuels affect air emissions, water quality, solid waste, and land resources. Each of these is described in more detail below.

Air Emissions

Fossil fuel related energy production can lead to sulfur dioxide, nitrogen oxide, and CO_2 emissions. These emissions can be responsible for smog, acid rain, and haze. These emissions can also increase the risk of climate change (EPA, 2009).

Water Quality

The production of energy can have an impact on water resources by the use of water for cooling and the creation of steam, the discharge of water after use, and the discharge of pollutants into natural water sources. The impact varies by the source of energy used, and technologies used in energy creation (EPA, 2009).

Solid Waste

Certain technologies used in the generation of energy create solid waste. While some of this can be disposed of in landfills, others like nuclear energy rods, oil sludge, and ash from coal and solid waste management require special handling as they may contain toxic materials (EPA, 2009).

Land Resources

Energy production usually requires the use of certain resources. While this varies by source and purpose, it usually entails the extraction of materials, like natural gas, coal, and oil, and/or the siting of large facilities, like nuclear and hydro-electric. The impacts vary from the erosion of

land from mining, to the destruction of natural habitat, to contamination and disruption of water systems (EPA, 2009).

Effects of Climate Change

In 1991, the United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several GHG emission outcomes of varying demographic, social, economic, technological, environmental, and policy futures. There have been four subsequent assessments of the initial scenarios, with the fifth assessment scheduled for the year 2014. The Fourth Assessment Report (AR4) builds upon prior IPCC work, adding new research findings from the prior six years of research. AR4 concludes that GHG emissions at or above current levels would cause "many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century" (IPCC, 2007).

The California Environmental Protection Agency (CalEPA), as directed by California Governor Arnold Schwarzenegger through Executive Order #S-3-05, is to prepare biennial science reports on the potential impact of continued global climate change on certain sectors of the California economy. The fourth of these reports, *Scenarios of Climate Change in California: An Overview* (Climate Scenarios report), was published in February 2006.

The Climate Scenarios report uses the IPCC work to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century: lower warming range (3.0-5.5°F); medium warming range (5.5-8.0°F); and higher warming range (8.0-10.5°F). The Climate Scenarios report then presents analysis of future climate in California under each warming range, for impacts on public health, water resources, agriculture, forests and landscapes, and rising sea levels. Each area is described in detail below.

Public Health

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase from 25 to 35 percent under the lower warming range, to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. It will also result in more GHG emissions from increased energy consumed from the use of air conditioners (EPA, 2011).

Water Resources

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The state's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major state fresh water supply. Global climate change is also projected to seriously affect agricultural areas, with California farmers projected to lose as much as 25 percent of the water supply they need; decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain); and seriously harm winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as one month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snow pack by as much as 70 to 90 percent. Under the lower warming scenario, snow pack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range. The actual amount of lost snow pack will depend in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snow pack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.
In addition, continued global climate change will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected

in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global climate change is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change is expected to intensify the threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. For example, if precipitation increases as temperatures rise, wildfires in southern California are expected to increase by approximately 30 percent toward the end of the century. In contrast, precipitation decreases could increase wildfires in northern California by up to 90 percent.

Moreover, continued global climate change will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global climate change.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Under the higher warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

Regulatory Setting

International Regulations

United Nations Framework Convention on Climate Change

The United States aligned with other countries around the world in 1994 by signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the convention, governments collaborate and share information on national based policies and best practices related to curbing GHG emissions and adapting to the impacts of climate change.

Federal Regulations

Energy Policy Act of 1992 (EPAct)

The EPAct (42 U.S.C. § 13201 note) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy and Conservation Act of 1975

The Energy Policy and Conservation Act of 1975 (42 U.S.C. § 6421) sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S.. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon (mpg). Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the U.S. Environmental Protection Agency (EPA), was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Additions to CAFE have been made in recent years. In 2010, President Obama signed a memorandum directing the EPA and the USDOT to create a policy to increase fuel efficiency and decrease GHG pollution from medium- and heavy-duty trucks for Model Years 2014-2018. Then, in 2011, President Obama reached an agreement with 13 auto manufacturers to increase fuel efficiency to 54.5 miles per gallon for cars and light-duty trucks by Model Year 2025. The EPA and National Highway Safety Traffic Administration are in the process of creating rules for these new standards.

Energy Policy Act of 2005 (EPAct 2005)

EPAct 2005 (42 U.S.C. § 15942) was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan

guarantees for a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Intermodal Surface Transportation Efficiency Act (ISTEA)

ISTEA (49 U.S.C. § 101 et seq.) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that metropolitan planning organizations (MPOs), such as SACOG, were to address in developing transportation plans and programs, including some energy-related factors. To meet the ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process was then to address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a criterion, along with cost and other values that determine the best transportation solution.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

SAFETEA-LU (23 U.S.C. § 507), renewed the Transportation Equity Act for the 21st Century (TEA-21) of 1998 (23 U.S.C.; 49 U.S.C.) through FY 2009. SAFETEA-LU authorized the federal surface transportation programs for highways, highway safety, and transit. SAFETEA-LU addressed the many challenges facing our transportation system today—such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment—as well as laying the groundwork for addressing future challenges. SAFETEA-LU promoted more efficient and effective federal surface transportation programs by focusing on transportation issues of national significance, while giving state and local transportation decision makers more flexibility to solve transportation problems in their communities. SAFETEA-LU was extended in March of 2010 for nine months, expired in December of the same year, and as of this writing has not been extended.

Endangerment and Cause or Contribute Findings for Greenhouse Gases

On December 7, 2009, the EPA made two findings regarding GHGs under section 202(a) of the Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.). While the findings did not create requirements for any industry, they were a means to finalize the GHG emission standards for light-duty vehicles the EPA and USDOT proposed in September of 2009.

The first finding states that the current and projected concentrations of GHGs in the atmosphere pose a risk to public health for current and future populations.

The second finding states that the combined GHG emissions from new motor vehicles contribute to the GHG concentrations that threaten public health and welfare.

California Greenhouse Gas Waiver

In December of 2005, the California Air Resources Board (ARB) requested, and on June 14, 2011, the EPA granted, an amendment to California's motor vehicle GHG emission standards beginning with model year 2009. EPA CAA standards require a waiver for states to enact emission standards for new cars. On June 14, 2011, the EPA confirmed that ARB's amendments to its motor vehicle GHG emission standards are within the scope of the existing waiver of preemption issued.

State Regulations

California Global Warming Solutions Act, Assembly Bill 32, enacted in 2006 (AB 32)

In September 2006, Governor Arnold Schwarzenegger signed into law Assem. Bill No. 32 (Stats. 2005, ch. 488) (AB 32). AB 32 set a statewide goal of reducing GHG emissions to 20 percent below 1990 levels by 2020. AB 32 was intended to effectively end the scientific debate in California over the existence and consequences of global climate change. In order to be effective, measures to reduce GHG will have to occur in connection with similar reductions by other states and countries. Through AB 32, California is attempting to assume a leadership role in the abatement of climate change and to offer a model for other states and countries to reduce GHG emissions.

AB 32 also takes into account the relative contribution of each source, or source category, to protect adverse impacts on small businesses and others by requiring the ARB to recommend a minimum threshold of GHG emissions below which emissions reduction requirements would not apply. AB 32 also allows the Governor to adjust the deadlines mentioned above for individual regulations or the entire state to the earliest feasible date in the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm.

As part of AB 32, in 2008 ARB created the Scoping Plan, which contains strategies to reduce GHG emissions. The Scoping Plan uses various actions including regulations, incentives, and market mechanisms to achieve reduction targets. In 2011, ARB approved an update of the expected GHG emissions reductions from each of the measures outlined in the Scoping Plan document. Table 8.1 shows the expected measures and statewide reductions. These measures are included in the Methods and Assumptions section of this chapter.

Table 8.1
GHG Reductions from Scoping Plan (million tons of Co2 equivalents)

Measures in Capped Sectors	**49.0**
Transportation	24.4
T-1 Advanced Clean Cars	3.8
T-2 Low Carbon Fuel Standards	15.0
T-3 Regional Targets (SB 375)	3.0
T-4 Tire Pressure Program	0.2
T-5 Ship Electrification	0.6
T-7 Heavy Duty Aerodynamics	0.9
T-8 Medium/Heavy Hybridization	0.0
T-9 High Speed Rail	1.0
Electricity and Natural Gas	24.6
E-1 Energy Efficiency and Conservation	7.8
CR-1 Energy Efficiency and Conservation	4.1
CR-2 Solar Hot Water	0.1
E-3 Renewable Energy Standards	11.4
E-4 Million Solar Roofs	1.1

Source: ARB, 2010

Emission Performance Standards, Senate Bill 1368, enacted in 2006 (SB 1368)

Sen. Bill No. 1368 (Stats. 2006, ch. 598) (SB 1638) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emissions performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the CEC was tasked with establishing a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The bill further requires that all electricity provided to California, including imported electricity, be generated from plants that meet the standards set by the CPUC and the CEC. In January 2007, the CPUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO_2 per megawatt-hour). A "new long-term commitment" refers to new plant investments (new construction), new or renewal contracts with a term of five years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the state's publicly-owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the CPUC of 1,100 pounds of CO_2 per megawatt hour.

California Renewables Portfolio Standard (RPS), Senate Bill 1078, enacted in 2002 (SB 1078)

Sen. Bill No. 1078 (Stats. 2002, ch. 516) (SB 1078) established a Renewable Portfolio Standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 1078 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least one percent each year. In 2011, Governor Brown signed the California Renewable Energy Resources Act of 2011, also known as Sen. Bill No. 2 (Stats. 2011, 1st Ex. Sess., ch. 1) (SB X1-2) that applies renewable energy standards to all energy providers, and requires a 33 percent renewable mix by 2020.

Clean Car Standards, Assembly Bill 1493, enacted in 2002 (AB 1493)

Assem. Bill No. 1493 (Stats. 2002, ch. 200) (AB 1493) required ARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state." To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations adding GHG emission standards to California's existing motor vehicle emission standards in 2004. Amendments to Title 13 of the CCR, sections 1900 and 1961, and adoption of section 1961.1, require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. Emission requirements adopted as part of Title 13, CCR, section 1961.1, are shown in Table 9.1. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than the during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

Table 8.2
Fleet Average GHG Exhaust Emission Requirements Included in CCR 13 1961.1
Fleet Average GHG Emissions (Grams per Mile CO_2 Equivalents)

Vehicle Model Year	All Passenger Cars; Light-Duty Trucks 0-3,750 Lbs Loaded Vehicle Weight (LVW)[1]	Light-Duty Trucks 3,751 Lbs LVW to 8.500 Lbs Gross Vehicle Weight (GVW); Medium-Duty Passenger Vehicles[1]
2009	323	439
2010	301	420
2011	267	390
2012	233	361
2013	227	355
2014	222	350
2015	213	341
2016	205	332

[1]Specific Characteristics of Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles are provided in Title 13, CCR, section 1900, as amended to comply with AB 1493.
Source: ARB, 2007.

Executive Order #S-3-05

On June 1, 2005, prior to enactment of AB 32, California Governor Arnold Schwarzenegger signed Executive Order #S-3-05. Executive Order calls for a reduction in total GHG emissions within California to 1990 levels by 2020 and for an 80 percent reduction below 1990 levels by 2050. The Executive Order also directs the Secretary of CalEPA to coordinate with a number of other state agencies in working to meet these targets. AB 32 was adopted in part to respond to the aspirations of Executive Order #S-3-05 by establishing a statewide GHG emissions limit for 2020 and beyond. Specifically, the legislature responded to Executive Order #S-3-05's goal of promoting longer-term emissions reductions by mandating that the 2020 emissions limit established by AB 32 "continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020," but the state legislature did not include the Executive Order's aspiration 2050 goal in AB 32. (Health & Saf. Code, § 38551(b).)

In 2008, the ARB adopted the Scoping Plan for AB 32—the main strategies California will use to reduce the GHGs that cause climate change. The Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation regulation to fund the program. The Scoping Plan recognizes that the Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375) regional GHG emissions reduction targets is the main action required to obtain the necessary reductions from the land use and transportation sectors in order to achieve the 2020 emissions reduction goals of AB 32. The Scoping Plan also notes that while "the measures needed to meet the [Executive Order] 2050 goal are too far in the future to define in detail, we can examine the policies needed to keep us on track through at least 2030."

As discussed below, SB 375 requires the MTP to include an SCS (or Alternative Planning Strategy) to meet the regional emissions reduction target for passenger vehicles. In adopting SB 375, the state legislature expressly found that improved land use and transportation systems are needed to achieve AB 32's 2020 GHG emissions reduction target. Thus the legislature drew a direct link between the SB 375 GHG emissions reduction targets and AB 32, and did not require that regional transportation plans (RTPs) or SCSs meet the Executive Order's 2050 goals.

The Executive Order does not require implementation measures, only that the Secretary of CalEPA be responsible for coordination of state agencies and progress reporting. At this time, it is not certain what role regional land use and transportation strategies can or should play in achieving the Executive Order's emissions reduction target for 2050. A recent California Energy Commission report concluded that primary strategies to achieve the target should be major "decarbonization" of electricity supplies and fuels, and major improvements in energy efficiency. (CEC, 2011.)

State of California Integrated Energy Policy Report

In 2002, the Legislature reconstituted the State's responsibility to develop an integrated energy plan for electricity, natural gas, and transportation fuels. The CEC adopts and transmits to the Governor and Legislature a report of findings every two years. At a Special Business Meeting on November 12, 2003, the CEC adopted the *2003 Integrated Energy Policy Report*. The *2004 Update to the Integrated Energy Policy Report* was adopted by the CEC on November 3, 2004. The *2005 Integrated Energy Policy Report* was adopted by the CEC on November 21, 2005. These reports make recommendations to increase California's energy supplies, reduce energy demand, broaden the range of alternatives to conventional energy sources, and improve the State's energy delivery infrastructure.

In January 2007, the CEC published the *2006 Integrated Energy Policy Report Update*, which was created after input from stakeholders and federal, state, and local agencies. The report contains a review of two areas: "Renewable Portfolio Standard activities and the potential relationship between sustainable land use planning, also called 'smart growth,' and energy saving opportunities." The report also discusses California's "minimal progress to date in meeting Renewable Portfolio Standard goals, identifies challenges the state faces in achieving those goals, and offers recommendations." Further, the report "details the lack of relationship between land use planning activities and energy concerns and offer recommendations for taking advantage of potential energy efficiencies that smart growth would offer" (California Energy Commission, 2007).

In the report, the CEC notes that California's population is expected to grow by 20 million people between 2000 and 2050 and that this growth will strain California's energy and infrastructure system. The CEC concludes that land use decisions have a profound effect on every aspect of energy, which necessitates a shift in approaches to land use and development in light of the coming growth in California. The recommendations in the report are based on the conclusion that California "needs to investigate approaches that go beyond decreasing transportation fuel use and relieving congestion to approaches that can serve as a nexus for developing distributed renewable generation and efficient transportation in communities to help

California meet its statewide energy and climate change goals." The report notes that the best opportunity for meeting this goal is to emphasize the principles of smart growth, which uses resources prudently and creates low-impact communities.

California Strategy to Reduce Petroleum Dependence, Assembly Bill 2076, Enacted in 2000 (AB 2076)

Assem. Bill No. 2076 (Stats. 2000, ch. 936) (AB 2076) requires the CEC and the ARB to develop and submit to the Legislature a strategy to reduce petroleum dependence in California. The statute requires the strategy to include goals for reducing the rate of growth in the demand for petroleum fuels. In addition, the strategy is required to include recommendations to increase transportation energy efficiency as well as the use of non-petroleum fuels and advanced transportation technologies including alternative fuel vehicles, hybrid vehicles, and high-fuel efficiency vehicles.

The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and ARB in 2003. The strategy recommends that California reduce inroad gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles (SUVs); and California increases the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Alternative Fuels Plan, Assembly Bill 1007, Enacted in 2005 (AB 1007)

The California Energy Commission adopted Assem. Bill No. 1007 (Stats. 2005, ch. 371) (AB 1007). The Plan is presented as an alternative fuels goal coupled with a series of implementing requirements. It contains the following goals for renewable fuel uses: nine percent by 2012, 11 percent by 2017, and 26 percent by 2022. This comes from an increase in alternative fuel vehicles, made possible by public sector investment as a catalyst for private sector involvement. The plan was published in 2007.

Bioenergy Action Plan, Executive Order #S-06-06

Executive Order #S-06-06, April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The Executive Order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The Executive Order also calls for the state to meet a target for use of biomass electricity.

Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)

Executive Order #S-01-07, January 18, 2007, establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through the

establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard shall be incorporated into the State Alternative Fuels Plan required by AB 1007 and is one of the proposed discrete early action GHG reduction measures identified by the ARB pursuant to AB 32.

California Environmental Quality Act (CEQA) GHG Emissions, Senate Bill 97, Enacted in 2007 (SB 97)

California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) was amended by Sen. Bill No. 97 (Stats. 2007, ch. 185) (SB 97). SB 97 provides that documents required by CEQA for transportation projects must analyze GHG impacts. The amendments to CEQA became effective on March 18, 2010.

Sustainable Communities and Climate Protection Act, Senate Bill 375, Enacted in 2008 (SB 375)

Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375) was built on AB 32 (California's 2006 climate change law). SB 375's core provision is a requirement for regional transportation agencies to develop a SCS in order to reduce GHG emissions from passenger vehicles. The SCS is one component of the existing RTP.

The SCS will outline the region's plan for combining transportation resources, such as roads and mass transit, with a realistic land use pattern, in order to meet a state target for reducing GHG emissions. The strategy must take into account the region's housing needs, transportation demands, and protection of resource and farmlands.

Additionally, SB 375 modified the state's Housing Element Law to achieve consistency between the land use pattern outlined in the SCS and the Regional Housing Needs Assessment allocation. The legislation also substantially improved cities' and counties' accountability for carrying out their housing element plans.

Finally, SB 375 amended the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) to ease the environmental review of developments that help reduce the growth of GHG emissions**.**

Climate Action Program at Caltrans

In December 2006, the California Department of Transportation, Business, Transportation, and Housing Agency, issued a Climate Action Program. The goal of the Climate Action Program is to promote clean and energy efficient transportation, and provide guidance for mainstreaming energy and climate change issues into business operations. The overall approach to lower fuel consumption and CO_2 from transportation is twofold: (1) reduce congestion and improve efficiency of transportation systems through smart land use, operational improvements, and Intelligent Transportation Systems; and (2) institutionalize energy efficiency and GHG emissions reduction measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

The reasoning underlying the Climate Action Program is the conclusion that "the most effective approach to addressing GHG reduction, in the short-to-medium term, is strong technology policy and market mechanisms to encourage innovations. Rapid development and availability of alternative fuels and vehicles, increased efficiency in new cars and trucks (light and heavy duty), and super clean fuels are the most direct approach to reducing GHG emissions from motor vehicles (emission performance standards and fuel or carbon performance standards)." Caltrans asserts that the state must maintain a consistent GHG reduction policy across all agencies to create a coordinated climate change program.

In the Climate Change Action Program, Caltrans recognizes the importance of regional planning in GHG emissions and notes that SACOG's Blueprint plan "would result in lowering 246,000 gallons of fuel each day. (Caltrans, 2006)"

Local Regulations

County and City General Plans

Several of SACOG's member agencies have general plan elements and policies that specifically address energy use and conservation. Those energy conservation measures contain goals, objectives, and policies aimed at reducing energy consumption. These include policies on energy retrofits to existing residential and commercial land uses, zoning and building ordinances for energy efficiency of new construction, and ways to reduce vehicle miles traveled (VMT) through land use and transportation priorities.

Local and Regional Climate Action Plans and Initiatives

Many of SACOG's member jurisdictions and partner agencies have climate action plans that set goals and targets on the reduction of GHG emissions, and outline policies to help achieve those goals. Yolo County has specific targets for 2020, 2030, 2040, and 2050, while Sacramento County has adopted a framework for addressing GHG emissions in the first phase of their Climate Action Plan. In addition, many of the member jurisdictions within the plan area have begun the Climate Action Plan process by conducting baseline emissions inventories, which establish a reference point for GHG emissions reduction. Plan area climate action plans are shown in Table 8.3 below.

Table 8.3
Climate Action Plans in the Proposed MTP/SCS Plan Area

	Base MMtCO2e
Citrus Heights	0.578
Davis	0.285
Elk Grove	0.719
Folsom	0.609
Galt	0.172
Isleton	0.020
Rancho Cordova	0.558
Roseville	1.202
Sacramento	4.553
Sacramento County	6.557
Sutter County	1.221
Yolo County	0.652

Source: SACOG, 2011.

Many of the completed climate actions plans in the area address similar issues related to emissions produced by transportation, energy usage, and operational emissions. The types and quantity of emissions produced in the SACOG region vary among county boundaries. For instance, Yolo and Sutter Counties have a higher proportion of emissions produced by agricultural activities that are not observed in more urban or less cultivated counties. Considering this, Yolo and Sutter Counties have established more policies for reducing emissions due to these activities. Some of the common GHG emissions reduction strategies among all jurisdictions are further described below.

For most jurisdictions, transportation and energy usage produce a majority of GHG emissions. Policies observed among climate action plans in the region establish a needed framework for improved circulation networks and energy conservation. Transportation policies aim to reduce VMT by offering more opportunities for alternative transportation modes, such as bicycling and transit use. In addition, many of the climate action plans frame policies to promote transit oriented development. Future residents in these developments will have close access to frequent local transit. In order to reduce emissions caused from energy usage, jurisdictions are committed to establishing policies that will provide energy efficiency for both residential and commercial land uses. Cities and counties include programs to improve energy efficiencies in old and new buildings and decrease the use of fossil fuels by providing incentives for renewable energy sources.

SACOG Metropolitan Transportation Plan

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system and is one of SACOG's primary statutory responsibilities. Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars for public

transit, streets/roads, bicycles, and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region built on the Sacramento Regional Blueprint.

The 2008 MTP outlines the region's transportation needs, sets principles and policies, and proposes specific strategies. It is a program of related actions designed to coordinate and manage future transportation improvements among the various jurisdictions and agencies operating within the region. The 2008 MTP covers a wide range of transportation issues, including how the land use pattern affects travel behavior, development of multiple modes of transportation, rush-hour congestion, special needs of people with limited mobility, goods movement, long-distance travel between the SACOG region and other areas, and the environmental impacts related to travel. The 2008 MTP is designed to guide future transportation investment decisions in a balanced manner, sufficient to make needed improvements in all modes of surface transportation, within the limits of resources.

The 2008 MTP contains a number of policies and strategies that relate to energy and climate change.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

Energy

Total energy use from the residential and commercial sectors, measured in gigawatt hours (GWh) of electricity, therms of natural gas, and gallons of gasoline, were estimated for the baseline (2008)[1], the project year (2035), and an interim year (2020). 2008 was used for the baseline due to the availability of data for this single year from state and local sources. This includes data on energy consumption from CEC, emission inventories from ARB, electricity profiles from SMUD, PG&E, and Roseville Electric, and land use and demographic estimates from HCD and SACOG. In addition, the lack of regional land use data for more recent years

[1] By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

makes forecasting energy consumption difficult as estimates not based on accurate small scale geographic land uses, like parcels, are less accurate. It is also the baseline for the proposed MTP/SCS. Table 8.4 shows the energy consumption for each year by source in the plan area.

Table 8.4
Electricity, Natural Gas, and Gasoline Consumption Estimates for 2008, 2020, and 2035 in the Proposed MTP/SCS Plan Area

	2008	2020	2035
Electricity (GWh)	18,398	21,100	25,724
Natural Gas (therms)	529,494,067	609,205,998	744,309,149
Gasoline (gallons)	752,673,000	831,687,000	957,177,000

Sources: California Energy Commission, ECDMS, 2011.
SACOG, 2011

The 2008 electricity and natural gas usage was obtained for the plan area from the California Energy Consumption Database (ECDMS, 2011). For 2020 and 2035, business as usual energy consumption was estimated by calculating the rate of consumption by single-family residential, multi-family residential, and employment in 2008. These rates were then applied to the growth in each category for each of the horizon years in the proposed MTP/SCS, 2020 and 2035. This method was used to align with 2005 data from the U.S. Energy Information Administration (EIA) showing that multi-family residential units, on average, are 44 percent more efficient on a per unit basis in terms of electricity consumption and 35 percent more efficient in terms of natural gas consumption (EIA, 2005). In the proposed MTP/SCS, residential land uses are split into the following categories: single family, multi-family with between two and four units and multi-family with more than five units. For this analysis, the two multi-family residential categories were combined to better align with the EIA data. Using the foregoing methodology, Table 8.5 below summarizes 2008 electricity and natural gas use, and business-as-usual consumption for 2020 and 2035. (Note: Due to rounding, the numbers may not sum to exact matching totals.)

Table 8.5
New Energy Use Calculations for the Proposed MTP/SCS in 2020 and 2035

	A		B		C		D		E		F		G
					A / B				C x D				C x F
2008 Electricity Use	Units		Use (GWh)		Use per Unit		2020 Unit Growth		2020 New GWh Use		2035 Unit Growth		2035 New GWh Use
Single Family:	656,555	/	5,982	=	0.009	x	37,650	=	343	x	94,201	=	858
Multi-Family:	183,974	/	820	=	0.004	x	94,185	=	419	x	111,941	=	498
Employee:	915,951	/	11,596	=	0.013	x	153,212	=	1,940	x	258,164	=	3,268
2008 Natural Gas Use	**Units**		**Use (thousand therms)**		**Use per Unit**		**2020 Unit Growth**		**2020 New thousands therm Use**		**2035 Unit Growth**		**2035 New thousands therm Use**
Single Family:	656,555	/	167,892	=	0.256	x	37,650	=	9,628	x	94,201	=	24,089
Multi-Family:	183,974	/	27,848	=	0.151	x	94,185	=	14,257	x	111,941	=	16,944
Employee:	915,951	/	333,753	=	0.364	x	153,212	=	55,827	x	258,164	=	94,070

Sources: 2008 Electricity and Natural Gas Use from California Energy Commission, ESDMS, 2011

As Table 8.5 shows, population growth in the plan area increases total business-as-usual electricity and natural gas consumption.

Gasoline consumption from passenger vehicles was estimated using outputs from EMFAC, developed by ARB to estimate emissions from on-road sources. Specifically, the analysis used the EMFAC Pavley I + LCFS postprocessor, also developed by ARB to adjust the carbon dioxide emissions from EMFAC outputs to account for the reductions from fuel efficiency improvements as directed by Assem. Bill No. 1493 (Stats. 2002, ch. 200) (AB 1493). From this output, total gallons of gasoline consumption were estimated.

Climate Change

Total GHG emissions, measured in million metric tons of CO_2 equivalents ($MMtCO_2e$), were estimated for the baseline, the project year (2035), and the interim year (2020) from the following sources: transportation operations, electricity generation, residential and commercial uses, industrial operations, and agricultural and forestry lands. The 2008 baseline and sectors were used as they match the Level 1 Sectors of the Third Edition ARB GHG inventory last updated in May of 2010, as described below. This inventory was the base for much of the regional inventory used in this analysis. Table 8.6 below shows the total GHG emissions for the plan area. The method and calculations are described in subsequent paragraphs.

Table 8.6
Proposed MTP/SCS Plan Area GHG Emissions in 2008, 2020, and 2035 ($MMtCO_2e$) By Sector

Sector	2008	2020	2035
Transportation	10.99	8.77	8.48
Electricity Generation	5.70	3.34	3.06
Residential/Commercial	2.81	2.24	2.06
Industrial	2.21	1.96	1.96
Agriculture & Forestry	1.05	1.02	0.99
TOTAL	**22.77**	**17.34**	**16.55**

Source: SACOG, 2011.

In 2010, the ARB updated its statewide GHG emissions inventory for 2008 (ARB, 2010). The inventory for CO_2, CH_4, and N_2O included emissions from the following sectors: Transportation, Industrial, Electricity Generation within the State, Electricity Generation Imported, Residential, Commercial, and Agriculture and Forestry. For this analysis, the Residential and Commercial sectors were combined into one sector, as were the two Electricity Generation sources. These data were used because no additional statewide or region-wide inventory data exists at the writing of this report.

AB 32 required ARB to estimate 2020 business-as-usual (BAU) GHG emissions (ARB, 2010). The BAU scenario assumed no additional measures to curb emissions would be taken by the forecast year. The forecast was used to estimate potential GHG emissions reductions from the Scoping Plan measures—the main strategies the state will use to implement for GHG emissions reductions under AB 32[2].

For 2020, BAU emissions were estimated by applying the formula set forth in the ARB 2020 forecast methodology. That forecast states, "In all cases, the forecasting calculations reflect economic data or some other activity patterns to estimate future emissions. The 2020 forecasts use the following general equations to estimate emissions by sector: 2020 Emissions = Base Year Emissions x 2020 Multiplier. 2020 Multiplier = 2020 Activity Data / Base Year Activity Data" (ARB, 2010). Base year is different from the baseline. Base year is used in the foregoing formula to calculate estimated emissions for a particular year in the future. Baseline, which for the purposes of this EIR is 2008 unless otherwise noted in a particular impact area analysis, is the year against which the potential impacts of the proposed project are measured. Activity and emission data from 2008 was used in the formula above to estimate 2020 emissions. This method forecasts emissions without employing any measures set forth in the Scoping Plan. To account for Scoping Plan measures, SACOG's share of statewide reductions was derived by calculating the plan area's share of forecasted statewide dwelling units in 2020. The statewide forecast of dwelling units was obtained from the California Department of Housing and

[2] Additional information on the 2020 forecast can be found at http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Community Development (HCD), and equaled 16,174,519 (HCD, 2011). SACOG's 2020 forecast was estimated to be 6.2 percent of the statewide number.

The same formula described above, with 2020 emissions and activity estimates as the baseline, was used to estimate 2035 GHG emissions. The year 2020 was used because it accounts for the Scoping Plan reductions. The Scoping Plan reductions for SB 375 regional targets were updated to reflect the modeled reductions from the proposed MTP/SCS, and not an estimate of the plan area's share of reductions.

Table 8.7 below shows the areas in which reductions were taken from the Scoping Plan in 2020, and SACOG's share of those reductions. Table 8.8 shows the estimates for 2020 and 2035 using the above stated formula. It shows what activity is being measured, the Scoping Plan reductions, and final $MMtCO_2e$.

Table 8.7
Proposed MTP/SCS Plan Area Share of Scoping Plan Measures ($MMtCO_2e$)

Transportation – Includes Fuel Efficiency, Low Carbon Fuels, etc.	1.902
Electricity Efficiency – Includes Million Solar Roofs, and Building and Appliance Efficiency	1.72
Natural Gas Efficiency – Includes Solar Hot Water, and Building and Appliance Efficiency	0.25

Sources: ARB, 2010, and SACOG, 2011

Table 8.8
Proposed MTP/SCS Plan Area GHG Calculations for 2020 and 2035 ($MMtCO_2e$)

2020 Estimates	Activity	Scoping Plan Reductions	2020 Emissions
Transportation	VMT/capita	-1.902	8.77
Residential Electricity Production	Percent of all units in single family	-0.860	2.58
Non-Residential Electricity Production	Relative percent of base emissions	-0.860	0.76
Residential Energy Use	Percent of all units in single family	-0.125	1.58
Non-Residential Energy Use	Relative percent of base emissions	-0.125	0.67
Industrial	Square feet per employee	0	1.96
Agriculture & Forestry	Millions of acres of Ag production	0	1.02
2035 Estimates	**Activity**	**Scoping Plan Reductions**	**2035 Emissions**
Transportation	VMT/capita	-1.838	8.48
Residential Electricity Production	Percent of all units in single family	0	2.06
Non-Residential Electricity Production	Relative percent of base emissions	0	1.00
Residential Energy Use	Percent of all units in single family	0	1.39
Non-Residential Energy Use	Relative percent of base emissions	0	0.67
Industrial	New industrial employees	0	1.96
Agriculture & Forestry	Millions of acres of Ag Production	0	0.99

Source: SACOG, 2011

Transportation Operations

Transportation operational impacts for the year 2008 were assessed by calculating the SACOG region's portion of statewide emissions for all forms of travel, including: aviation, on road, rail, and waterborne. For all years, on-road emissions from passenger cars, SUVs, and motorcycles were projected from the SACSIM travel model, replacing those obtained from the statewide data. The transportation impacts for years 2020 and 2035 were assessed using SACSIM and the land uses and transportation projects reflected in the proposed MTP/SCS. The activity used in forecasting future on-road impacts outside of passenger cars, SUVs, and motorcycles was total VMT per capita for 2008 and forecast years. All other forms of transportation emissions were estimated assuming their 2008 relative proportion of emissions as compared to on-road sources. Emissions were estimated using ARB's vehicle emissions model, EMFAC.

Energy Production and Consumption

Energy production and consumption impacts were assessed for all years as residential and non-residential electricity production, and natural gas consumption. Emission factors for electricity and natural gas were obtained from the EPA, and applied to the regional energy consumption estimates. For forecast years, using the calculation described above, the activity used to estimate emissions for all residential products was the percent of single-family residential units as compared to all residential units. This activity was used based on EIA findings that multi-family units consume less energy when compared to single-family units (EIA, 2005). Because the proposed MTP/SCS forecasts more single-family residential growth from than multi-family residential by 2035, this method best captures the changes in energy usage and the related GHG emissions from this shift in residential land use. For non-residential land uses, the proportion of consumption as compared to residential uses in 2008 was applied to the forecasted residential consumptions.

Industrial Operations

The impacts for the industrial sector were assessed for the baseline by calculating the SACOG region's share of industrial emissions from the statewide inventory. For the baseline, the share was based on the amount of economic activity from the Bureau of Economic Analysis (BEA) as measured by Gross Domestic Product (GDP) for industrial processing in the SACOG region as compared to the state of California (BEA, 2011). This share was then multiplied by the statewide emissions.

Agricultural and Forestry Lands

The impacts for agricultural and forestry operations were assessed for the baseline by calculating the SACOG region's share of agricultural and forestry land emissions from the statewide inventory. For the baseline, the share was based on the amount of economic activity from the BEA as measured by GDP for agriculture, forestry, fishing, and hunting in the SACOG region as compared to the state of California (BEA, 2011). This share was then multiplied by the statewide emissions. Future year activity was the acres of land in agricultural production or forests. The reduction of acres represents the loss of production land and emissions from processing activities.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Conflict with the goal of decreasing overall per capita energy consumption.
2. Conflict with the goal of decreasing reliance on natural gas and oil.
3. Conflict with the goal of increasing reliance on renewable energy sources.

4. Increase energy consumption from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.
5. Substantially interfere with achievement of AB 32 goals.
6. Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.
7. Conflict with applicable local GHG reduction plans.
8. Increase GHG emissions from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32

Impacts and Mitigation Measures

Impact ENE-1: Conflict with the goal of decreasing overall per capita energy consumption.

A. Regional Impacts

Implementation of the proposed MTP/SCS would not conflict with the goal of decreasing overall per capita energy consumption. For this analysis, energy consumption in the plan area was measured from three sources: kilowatt hours of electricity, therms of natural gas, and gallons of gasoline. In evaluating overall per capita energy consumption from the proposed MTP/SCS, unlike other sections in this chapter, land use and transportation impacts are considered together because segregating by energy source, as well as source of consumption, moves the analysis too far from overall per capita energy consumption. This analysis also does not include the 2020 horizon year, which is only necessary for the GHG analysis under SB 375.

Per capita annual energy consumption in the SACOG region is shown in Table 8.9. In 2008, annual per capita consumption was 8,305 kilowatt hours of electricity, 239.0 million therms of natural gas, and 339.8 gallons of gasoline. Assuming the growth in the proposed MTP/SCS, annual per capita energy consumption is expected to increase to 8,355 kilowatt hours of electricity, 241.8 million therms of natural gas, but decrease to 310.9 gallons of gasoline by 2035. This is a 0.6 percent increase in electricity, a 1.1 percent increase in therms of natural gas, and an 8.5 percent decrease in gallons of gasoline per capita as compared to 2008.

As discussed in the plan and in subsequent sections, this decrease in gallons of gasoline comes from many variables, including speed, fuel efficiency and a reduction in household-generated and total per capita VMT.[3]

[3] The reduction in gasoline assumes a slight shift of average fuel efficiency from 20.4 in 2008 to 21.0 in 2035. This does not include Pavley I fuel efficiency measures from AB 1493, as outlined in the Scoping Plan measures discussed below.

Table 8.9
Per Capita Energy Consumption in the Proposed MTP/SCS Plan Area

Source	2008	2035	Percent Change	2008 Residential	2008 Employment	2035 Residential	2035 Employment
Electricity	8,305	8,355	+0.6	3,071	5,235	2,897	5,458
Natural Gas	239.0	241.8	+1.1	88.3	150.7	84.7	157.1
Gasoline	339.8	310.9	-8.5				

Source: SACOG, 2011

The electricity and natural gas estimates include lower energy consumption for smaller-footprint residential products. Growth in attached residential products increases to 43 percent in 2035 as a proportion of overall residential product growth in the region under the proposed MTP/SCS as compared to 33 percent in 2008. This type of housing is more energy efficient per household and is the type of growth that helps decrease per capita VMT in the plan area because the vast majority of it also located near transit and employment opportunities.

Using the foregoing data, a BAU total per capita energy output from electricity, natural gas, and gasoline, expressed in millions of joules (J), was estimated for 2008 and 2035. This analysis shows approximately 99,883 J in 2008, and 99,065 J in 2035, a 0.8 percent overall reduction from 2008. Despite slight increases in natural gas and electricity consumption overall per capita consumption of energy declines as a result of the implementation of the proposed MTP/SCS.

Therefore, implementation of the proposed MTP/SCS does not conflict with the goal of decreasing overall per capita energy consumption. It should be noted, however, that the foregoing does not include an analysis of the impact of the AB 32 Scoping Plan measures on per capita energy consumption. Although the Scoping Plan includes measures and strategies to achieve GHG emissions reductions, at least three of the measures achieve reductions through a decrease in energy consumption. Specifically, the following measures from the Scoping Plan would further reduce energy consumption per capita through 2035:

- E-1 Energy Efficiency and Conservation–More stringent building & appliance standards help reduce electricity consumption. Projected reductions: 7.8 $MMtCO_2e$ statewide; 0.48 $MMtCO_2e$ plan area.
- CR-1 Energy Efficiency and Conservation–More stringent building & appliance standards help reduce natural gas consumption. Projected reductions: 4.1 $MMtCO_2e$ statewide; 0.25 $MMtCO_2e$ plan area.
- T-1 Pavley I and Pavley II Light-Duty Vehicle GHG Standards More fuel efficient vehicles reduce gasoline consumption. Projected reductions: 26.0 $MMtCO_2e$ statewide; 1.6 $MMtCO_2e$ plan area.

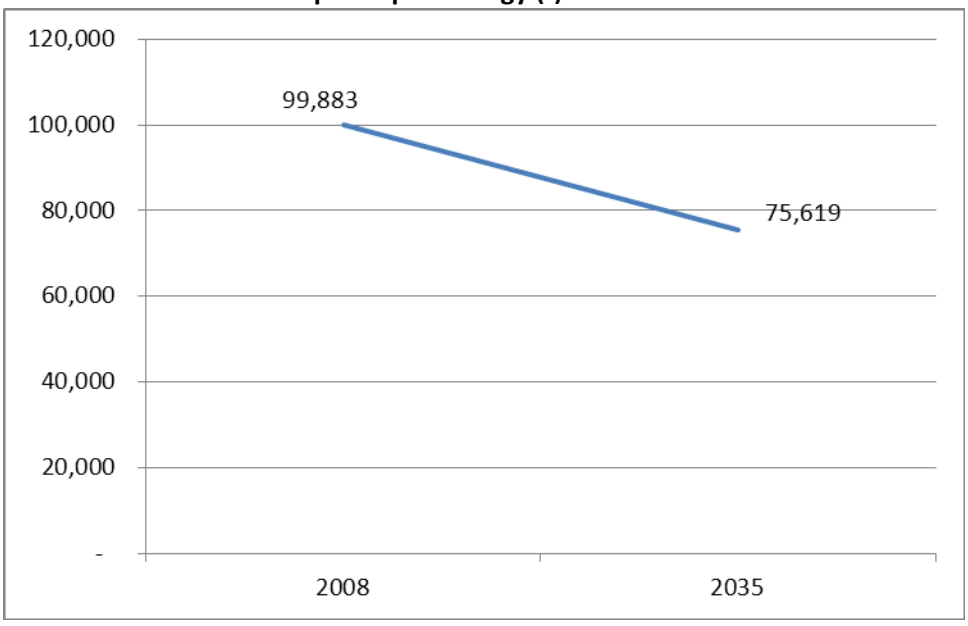
Combined, these measures equal a reduction of approximately 38 $MMtCO_2e$, nearly half of the reductions for natural gas, electricity, and transportation emissions in the Scoping Plan (ARB,

2010). Factored into the energy consumption for the plan area, these measures result in a further per capita decrease in energy consumption. Assuming 6.2 percent share of the Scoping Plan for the plan area, based on the region's share of statewide dwelling units and using the 2008 emission factors for natural gas and electricity, an estimate of energy savings is calculated below.

The emission rates for 2008 are 5.313E-09 $MMtCO_2e$ per therm and 3.1E-04 $MMtCO_2e$ per GWh. This equals a total decline of roughly 48 million therms of natural gas and 1,500 GWh of electricity in the plan area as a result of these Scoping Plan measures and a per capita decline of 15.3 therms and 620 kilowatt hours. The result brings the proposed MTP/SCS per capita consumption of natural gas to 223.7, 6.4 percent below 2008, and per capita consumption of electricity to 7,685 kilowatt hours, 7.5 percent below 2008 by 2020.

Estimates for 2035 gasoline consumption include a reduction in VMT from the proposed MTP/SCS, and increased vehicle efficiency from the Pavley post-processor to EMFAC (see the Methods section of this chapter). The electricity and natural gas consumption estimates are calculated using the calculation in the Methods section of this chapter, and include the Scoping Plan measures described above. As shown in Figure 8.1 below, total per capita energy use is estimated to be 99,883 J in 2008, and 75,619 J in 2035, a reduction of 24 percent from 2008 levels.

Figure 8.1
Plan Area per Capita Energy (J) in 2008 and 2035



Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

B. Localized Impacts

Although all communities, with the exception of Lands Not Identified for Development, receive growth, as demonstrated above, there is no negative change in relative per capita energy consumption. As described in Chapter 2 – Project Description, the proposed MTP/SCS accommodates the population and employment growth in the region through a mix of housing options, proximity of housing to jobs and transit, utilization of existing infrastructure and building assets, and development in a compact form. The proposed MTP/SCS is built with the goal of decreasing overall and per capita energy consumption. A regional evaluation of energy consumption was done using the methodology described in the Methods and Assumptions section of this chapter. Additional measures from the Scoping Plan aimed at reducing GHG emissions from electricity and natural gas consumption, as described in the regional impacts section above, also were considered. Impacts are described in more detail below.

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to receive 209,000 new people, 92,000 new housing units, and 104,000 new jobs. This growth will consume approximately 4,400 acres. Region wide, Center and Corridor Communities will account for 24 percent of regional population growth 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of acres developed.

The Centers and Corridor Communities contain a significant amount of attached, multi-family residential products, 83 percent of all new housing units, as compared to a regional total of 43 percent. EIA data shows multi-family residential units, when compared to single family residential units, are 44 percent more efficient on a per unit basis in terms of consumption of electricity and 35 percent more efficient with natural gas consumption (EIA, 2005). Center and Corridor Communities are typically higher density and contain more mixing of uses as compared to surrounding areas. This type of growth is more conducive to additional multi-family residential development, and helps reduce energy from travel by giving more opportunities for shorter trip lengths. In addition, Center and Corridor Communities will include a variety of new transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects, thereby reducing energy consumption.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Established Communities

The population in Established Communities will increase by 271,000, but their share of regional population will drop from 79 percent to 66 percent. Employment growth and acres developed will generally maintain their proportional shares, with jobs increasing by 187,000 and acres developed increasing by 20,000 for regional shares of 59 percent and 34 percent, respectively. This growth pattern indicates that population, housing, and employment growth will occur in

established communities. However, the growth rate in Established Communities will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which will have a much higher rate of growth.

Established Communities are mostly medium-density residential, office parks, and strip retail. They are considered to be mostly built-out, with little or no vacant land to develop. Any development that occurs is to build out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses. Established Communities are typically adjacent to, and surrounding, Center and Corridor Communities, taking advantage of the higher densities and mixed uses. Established Communities in the proposed MTP/SCS receive 52 percent of the employment growth, in an attempt to better balance the housing and job development. Established Communities will include a variety of new transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. This helps reduce trip length and offers more opportunities for non-vehicular forms of travel. Therefore, per capita energy consumption is expected to decline in these areas.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Developing Communities

Developing Communities are expected to include a high rate of growth during the MTP/SCS plan period. They will have 364,000 new residents, 127,000 new housing units, and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

While Developing Communities will serve a substantial portion of the growth in residential units and employment, the housing type will see a significant shift during the planning period from large lot detached, which constitutes 78 percent of the housing in Developing Communities in 2008, to small lot detached and attached housing, which will constitute 45 percent of the total housing in Developing Communities in 2035 (compared to only 15 percent in 2008). This new housing stock, therefore, will not only be in a form which is shown to be more energy efficient (EIA, 2005), but as it develops will present opportunities to implement the energy efficiency measures in the Scoping Plan.

Developing Communities will not necessarily have the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities include more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. Developing Communities have little or no transit service today, but at build-out some areas will include bus service every 30 minutes or less. These areas also often include walk and bike facilities via trails. This will help reduce energy consumption from travel.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Rural Residential Communities

These communities are expected to receive very limited growth by 2035. The population is expected to increase by about 16,500 people (10 percent), 5,300 housing units (seven percent) and 4,000 jobs (12 percent). This development will consume approximately 5,000 acres. This Community Type is expected to have the lowest rate of growth, resulting in a decreasing share of regional population, housing units, and employment.

Rural Residential communities, which receive less than two percent of the residential and employment growth in the proposed MTP/SCS, are dominated by houses sitting on one-to 20 acre parcels. These areas are mostly auto-oriented, with little or no transit service. The growth that occurs in these areas, however, does not change in density or building type from 2008 to 2035. The limited amount and types of growth in Rural Residential Communities maintains the rural nature of the area over time and has the effect of also maintaining per capita energy consumption. Although Rural Residential Communities receive a small proportion of growth, any new development would have the ability to reduce building energy consumption by implementing measures outlined in the Scoping Plan.

Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic, with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements in the Rural Residential Communities of the proposed MTP/SCS are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Lands Not Identified for Development

No growth is assumed in the proposed MTP/SCS in this Community Type. The proposed MTP/SCS will make a very limited number of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. With no population growth, and therefore no increase in energy consumption, per capita energy consumption is unchanged by the proposed MTP/SCS.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

C. Transit Priority Area Impacts

Transit Priority Areas (TPAs) are areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor included in the proposed MTP/SCS. (See Chapter 2 – Project Description for more details on TPAs.) These areas contain higher densities, more mixing of uses, and existing or planned transit infrastructure, making them more efficient from a land use and transportation standpoint. A regional evaluation of energy consumption was done using the methodology described in the Methods and Assumptions section of this chapter. Additional measures from the Scoping Plan aimed at reducing GHG emissions from electricity and natural gas consumption, as described in the regional impacts section above, also were considered. Impacts are described in more detail below.

Placer County Transit Priority Areas
Placer County TPAs will receive 2,600 new housing units and 10,000 new jobs by 2035. This development will occur on about 315 acres.

The growth in these TPAs is consistent with regional goal of reducing energy consumption. Most of the growth in the areas is employment to match the existing jobs centers. The residential growth is 78 percent attached between 2008 and 2035. As noted, EIA data shows multi-family residential units are 44 percent more efficient on a per unit basis in terms of consumption of electricity, and 35 percent more efficient with natural gas consumption (EIA, 2005), than single family units. The residential growth averages 23 dwelling units per net acre, making it a more efficient density as compared to surrounding areas.

Placer County TPAs will receive a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. Placer TPAs are served by the Capital Corridor train, as well as high-quality transit service in Roseville. These systems are connected to the larger regional transit network, making Placer TPAs very accessible regional destinations. This creates more opportunities for non-auto modes of travel, reducing energy consumption per capita for travel.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Sacramento County Transit Priority Areas
Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. Sacramento County TPAs will receive 92,000 new housing units and 108,000 new jobs. This development will occur on about 5,000 acres.

Sacramento County TPAs receive a large amount of residential and employment growth, approximately 30 percent of regional growth, in the proposed MTP/SCS. The types and densities of residential growth in the area are consistent with the goal of reducing energy consumption. Residential growth averages 22 dwelling units per acre between 2008 and 2035, and 75 percent of all new residential products are attached. Again, as noted, EIA data shows multi-family residential units, compared to single family units, are 44 percent more efficient on a per unit basis in terms of consumption of electricity and 35 percent more efficient with natural gas consumption (EIA, 2005).

Sacramento County TPAs will receive a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. In addition, Sacramento TPAs are served by light rail, Capital Corridor, and numerous bus routes. In 2035, Sacramento TPAs have a streetcar corridor in downtown, and bus rapid transit service. Transit in Sacramento TPAs is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel, thus reducing travel related energy consumption.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Yolo County Transit Priority Areas

Yolo County TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will receive 20,000 new housing units and 22,000 new jobs. This development will occur on about 1,250 acres.

In Yolo County TPAs, residential growth averages 20 dwelling units per acre, and 79 percent of all residential growth is attached which, as noted, are shown to be more energy efficient (EIA, 2005). The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis.

Yolo County TPAs will receive a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, Yolo County TPAs are served by Capital Corridor as well as numerous bus routes. In 2035, the areas will include bus rapid transit and a streetcar in West Sacramento. These new transit services will be connected to new and existing regional transit service. This will reduce travel related energy consumption by offering non-auto modes of travel.

Therefore, per capita energy consumption impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact ENE-1. No mitigation is required.

Impact ENE-2: Conflict with the goal of decreasing reliance on natural gas and oil.

A. Regional Impacts

Implementation of the proposed MTP/SCS would not conflict with the goal of decreasing reliance on natural gas and oil. As described in Chapter 2 – Project Description, and as discussed above, the proposed MTP/SCS accommodates the population and employment growth in the region through a mix of housing options, proximity of housing to jobs and transit, utilization of existing infrastructure and building assets, and development in a compact form. The proposed MTP/SCS is built with the goal of decreasing overall and per capita energy consumption. The proposed growth also includes a large proportion of attached and multi-family residential growth, 71 percent in 2035 as a proportion of overall residential growth in the region under the proposed MTP/SCS as compared to 35 percent in 2008. This type of residential product has been shown to be more energy efficient (EIA, 2005).

As demonstrated above, per capita energy consumption in the plan area decreases by 2035. While these data do not represent a decline in total natural gas and oil consumption as compared to 2008 (see Table 8.4), they represent a declining trend in reliance on these sources of energy (see Figure 8.1).

The overall increase in total natural gas and oil consumption is driven by a forecasted 39 percent growth in population in the region, along with the housing, employment, and transportation needed to serve that population. The proposed MTP/SCS neither generates nor induces that growth—it provides a plan to serve that forecasted growth in an energy efficient manner which helps achieve the goal of decreasing reliance on natural gas and oil.

Therefore, the proposed MTP/SCS does not conflict with the goal of reducing reliance on natural gas and oil. Again, however, it should be noted that the foregoing does not include an analysis of the impact of the AB 32 Scoping Plan measures on energy consumption. Although the Scoping Plan focuses on GHG emission reductions, many of the measures achieve reductions through a decrease in energy consumption. The following measures from the Scoping Plan are expected to further reduce natural gas and oil consumption from land use through 2035:

- E-1 Energy Efficiency and Conservation–More stringent building & appliance standards help reduce electricity consumption. Projected reductions: 7.8 $MMtCO_2e$ statewide; 0.48 $MMtCO_2e$ plan area.
- CR-1 Energy Efficiency and Conservation–More stringent building & appliance standards help reduce natural gas consumption. Projected reductions: 4.1 $MMtCO_2e$ statewide; 0.25 $MMtCO_2e$ plan area.

- CR-2 Solar Hot Water – Goals of Assem. Bill No. 1470 (Stats. 2007, ch. 536) (AB 1470) to move from natural gas to solar for heating water. Projected reductions: 0.1MMtCO_2e statewide; 0.006 MMtCO_2e plan area.
- E-3 Renewable Electricity Standard (33 percent)–Achieve 33 percent renewables by 2020. Projected reductions: 21.3 MMtCO_2e statewide; 1.32 MMtCO_2e plan area.
- E-4 Million Solar Roofs–Conversion of natural gas sources of energy to solar. Projected reductions: 1.32 MMtCO_2e statewide; 0.13 MMtCO_2e plan area.

Assuming 6.2 percent share of the Scoping Plan for the plan area, and using the 2008 emission factors for natural gas and electricity, an estimate of energy savings is calculated below.

The emission rates for 2008 are 5.313E-09 MMtCO_2e per therm and 3.1E-04 MMtCO_2e per GWh. This equals a total decline of roughly 48.2 million therms of natural gas and 6,200 GWh of electricity from the BAU for the plan area as a result of these Scoping Plan measures. The natural gas estimates with these reductions drops to roughly 574 million therms in 2035 as compared to 529 million therms in 2008. However, the mix of energy sources for the three electricity providers in the region contains a large share of natural gas. The power content labels for SMUD, PG&E and Roseville Electric in 2010 show a range of natural gas as a percentage of all sources between 35 percent and 56 percent. While it is unknown what the percentages will be in 2035, unless they eliminate all natural gas as a source of electricity, the Scoping Plan measures will further decrease the reliance of natural gas in the plan area.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

The proposed MTP/SCS is based on a regional employment and population forecast, and accommodates this growth through land use and transportation projects. It does not create the growth, but develops a plan to accommodate it in a manner that helps achieve the goal of decreasing reliance on natural gas and oil. As shown in Impact ENE-1, total energy consumption per capita decreases from 2008 to 2035 with the implementation of the proposed MTP/SCS. The proposed MTP/SCS includes transportation projects that, in conjunction with the surrounding land use, would decrease VMT per day per capita by 5.2 percent by 2035 (SACOG, 2011).

In addition, Impact ENE-5 concludes that the implementation of the proposed MTP/SCS would not conflict with the goals of AB 32, which is implemented by the Scoping Plan. Although the Scoping Plan focuses on GHG emission reductions, many of the measures achieve reductions through a decrease in energy consumption. The following measures from the Scoping Plan are expected to further reduce natural gas and oil consumption from transportation through 2035:

- T-1 Pavley I and Pavley II– Light-Duty Vehicle GHG Standards – More fuel efficient vehicles reduce gasoline consumption.

Given these reductions, the consumption of gasoline from transportation would decline 10 percent from 2008 to 674,319,350 gallons. This is estimated using the Pavley post processor to the Emission Factors model (EMFAC) 2007.

Additional transportation-related energy is consumed from use in the Port of Sacramento, airports in the region, and construction and agricultural uses. However, the proposed MTP/SCS does not influence these modes of transportation and, therefore, they are not included in this analysis. Nor are measures from the AB 32 Scoping Plan discussed that would reduce the energy consumption related to such transportation. (See, e.g., Scoping Plan measures T-5, T-7, and T-8.)

Therefore, the impacts on natural gas and oil consumption related to the transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

B. Localized Impacts

The growth in the proposed MTP/SCS, as described in Chapter 2 – Project Description, provides a mix of housing options, located closer to jobs and transit. The proposed growth is more compact in form and more effectively utilizes existing infrastructure. A regional evaluation of energy consumption was completed using the formula described in the Methods and Assumptions section of this chapter. Additional measures from the Scoping Plan aimed at reducing GHG emissions from electricity and natural gas consumption, as described in the regional impacts section above, were considered. Impacts at a localized level are described in more detail below.

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to include 209,000 new people, 92,000 new housing units, and 104,000 new jobs. This growth will consume approximately 4,400 acres. Region wide, Center and Corridor Communities will account for 24 percent of regional population growth, 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of acres developed.

The Center and Corridor Communities contain a significant amount of attached, multi-family residential products—83 percent of all new housing units—as compared to a regional total of 43 percent. As noted, EIA data shows multi-family residential units to be significantly more efficient than their single family counterparts (EIA, 2005). Center and Corridor Communities are typically higher density and contain more mixing of uses as compared to surrounding areas. This type of growth is more conducive to additional multi-family residential development.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

The higher density and mixed uses in centers and corridors helps reduce energy consumption from travel by giving more opportunities for shorter trip lengths. In addition, Center and

Corridor Communities will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects, thereby reducing natural gas and oil consumption.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Established Communities

As noted above, the population in Established Communities will increase by 271,000, but their share of regional population will drop from 79 percent to 66 percent. Similarly, housing units will increase by 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed generally will maintain their proportional shares, with jobs increasing by 187,000 and acres developed increasing by fewer than 20,000 for regional shares of 52 percent and 37 percent of the growth, respectively. This growth pattern indicates that while Established Communities will have population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which will have a much higher rate of growth.

Established Communities are mostly medium density residential, office parks, and strip retail. They are considered to be mostly built-out, with little or no vacant land to develop. Any development that occurs is to build out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses. Established Communities are typically adjacent to and surrounding Center and Corridor Communities, taking advantage of the higher densities and mixed uses. Established Communities in the proposed MTP/SCS receive 52 percent of the employment growth, better balancing the housing and job development. This helps reduce trip length and offers more opportunities for non-vehicular forms of travel.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

For the same reasons noted above, including the ability to take advantage of existing transportation infrastructure and surrounding land uses, higher densities and mixed uses, and a better balance of housing and job development, the transportation network in Established Communities is characterized by reduced trip lengths and more opportunities for non-vehicular forms of travel. The transportation improvements by 2035 include new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Developing Communities
As noted above, Developing Communities are expected to have a high rate of growth during the MTP/SCS plan period, including 364,000 new residents, 127,000 new housing units, and 65,000 new jobs, developing approximately 24,000 acres to accommodate the growth.

As also noted above, although Developing Communities will serve a substantial portion of the growth in residential units and employment, the housing type will experience a significant shift from large lot detached to small lot detached and attached housing. This new housing stock will not only be in a form which is shown to be more energy efficient (EIA, 2005), but will present opportunities to implement the energy efficiency measures in the AB 32 Scoping Plan. Nevertheless, with little existing development in these areas, any growth will increase reliance on natural gas and oil. The type of growth typical to these areas, lower density residential and employment uses more energy.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact ENE-2. Mitigation Measure ENE-1 is described below.

Additionally, Developing Communities will not necessarily include the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities typically will receive more road widening projects and newly constructed road projects than other Community Types to serve the new residential and employment developments to be built by 2035. Developing Communities have little or no transit service today, but at build-out some areas will include bus service every 30 minutes or less. These areas also often include walk and bike facilities via trails.

With little existing transit service, however, growth in these areas will increase reliance on automobile use and, therefore, increase reliance on natural gas and oil for travel.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact ENE-2. Mitigation Measure ENE-1 is described below.

Rural Residential Communities
As discussed above, these communities are expected to have very limited growth by 2035. The population is forecasted to increase by about 16,500 people, 5,300 housing units, 4,000 jobs, and will consume approximately 5,000 acres. This is the lowest growth rate of any Community Type, resulting in a decreasing share of regional population, housing units, and employment.

Rural Residential Communities, which receive less than two percent of the residential and employment growth in the proposed MTP/SCS, are dominated by houses on one to 20 acre parcels. As noted, however, the growth that occurs in these areas changes little from 2008 to 2035. Rural residential products remain the largest share of housing type in these areas. Increases in the growth of large lot and small lot detached products (a 46 percent increase in

large lot and 78 percent increase in small lot), and smaller building footprints as compared to existing rural residential housing, actually reduce energy consumption on a per unit basis. By limiting the amount of growth and slightly changing the types of residential products, the rural character of the areas is maintained over time and reliance on natural gas and oil for energy is decreased. In addition, any new development in Rural Residential Communities would have the ability to reduce building energy consumption by implementing measures outlined in the AB 32 Scoping Plan.

Therefore, although any development that occurs in this Community Type generally could increase the use of energy, the slight shift in the type of residential products, the opportunities for more efficient buildings, and generally modest growth in these areas result in little or no impact on the goal of decreasing reliance on natural gas and oil.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. Limited improvements to transit service are projected in these areas, which are mostly auto-oriented. Although these areas receive few transportation improvements in the proposed MTP/SCS, any development will increase reliance on the use of natural gas and oil as it relates to travel.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact ENE-2. Mitigation Measure ENE-1 is described below.

Lands Not Identified for Development

Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS will make a very limited number of transportation investments in this Community Type by 2035. With no population growth and, therefore, no increase in the consumption of natural gas and oil consumption is expected as a result of the proposed MTP/SCS.

Therefore, the impacts on natural gas and oil consumption related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

C. Transit Priority Area Impacts

Transit Priority Areas (TPAs) are areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality

transit corridor included in the proposed MTP/SCS. (See Chapter 2 – Project Description for more details on TPAs.) As noted, these areas contain higher densities, more mixing of uses, and existing or planned transit infrastructure, making them more efficient from a land use and transportation standpoint. A regional evaluation of energy consumption was done using the formula described in the Methods and Assumptions section of this chapter, and additional measures from the Scoping Plan were considered. Impacts are described in more detail below.

Placer County Transit Priority Areas

Placer County TPAs will include 2,600 new housing units and 10,000 new jobs by 2035. This development will occur on about 315 acres.

The growth in Placer County TPAs is consistent with the regional goal of reducing energy consumption. Most growth in these areas is employment to match the existing jobs centers. The residential growth is 78 percent attached product between 2008 and 2035, which is more energy efficient than single family (EIA 2005). The residential growth averages 23 dwelling units per acre, making it a more efficient density as compared to surrounding areas.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Placer County TPAs will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. Placer County TPAs are served by the Capital Corridor train, as well as high-quality transit service in Roseville. These systems are connected to the larger regional transit network, making Placer County TPAs very accessible regional destinations. This creates more efficient travel, as well as opportunities for non-auto modes of travel.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Sacramento County Transit Priority Areas

Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. Sacramento County TPAs will include 92,000 new housing units and 108,000 new jobs. This development will occur on about 5,000 acres.

As discussed above, Sacramento County TPAs will have large residential and employment growth, approximately 30 percent of regional growth. However, both the types and densities of the residential growth are consistent with the goal of reducing energy consumption. Residential growth averages 22 dwelling units per acre between 2008 and 2035, and 75 percent of all new residential products are attached.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Sacramento County TPAs will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. Sacramento County TPAs are served by light rail, Capital Corridor, and numerous bus routes. In 2035, Sacramento County TPAs have a streetcar corridor in downtown, and bus rapid transit service. Transit in Sacramento County TPAs is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Yolo County Transit Priority Areas

Yolo County TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will receive 20,000 new housing units and 22,000 new jobs. This development will occur on about 1,250 acres.

Residential growth in Yolo County TPAs averages 20 dwelling units per acre, and 79 percent of all residential growth is in energy efficient attached types (EIA, 2005). The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis.

Therefore, the impacts on natural gas and oil consumption related to the land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Yolo County TPAs will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo County TPAs are served by Capital Corridor as well as numerous bus routes. In 2035, the TPAs will include bus rapid transit and a streetcar in West Sacramento. These new transit services will be connected to new and existing regional transit service.

Therefore, the impacts on natural gas and oil consumption related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered less than significant (LS) for Impact ENE-2. No mitigation is required.

Mitigation Measure ENE-1: Require new development to comply with local GHG reduction plans that contain measures identified in the Scoping Plan.

The implementing agency should require development and transportation projects to comply with locally-adopted GHG reduction plans that, at a minimum, specifically address measures in the Scoping Plan aimed at reducing GHG emissions. Local plans should include local targets to help the state achieve the AB 32 goal of reducing 5 $MMtCO_2e$ from cities and counties, which also will result in reduced reliance on oil and natural gas from residential, commercial, industrial, and public land uses, as well as transportation.

If a local GHG reduction plan does not exist, the jurisdiction should adopt a plan with the foregoing features and apply such plan to new development projects.

Significance after Mitigation

Implementation of this mitigation measure as a part of the proposed MTP/SCS will reduce reliance on natural gas and oil from new development and transportation projects in the Developing Communities and from transportation projects in Rural Residential Communities. If the implementing agency adopts this mitigation measure, the impact would be reduced to less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

Impact ENE-3: Conflict with the goal of increasing reliance on renewable energy sources.

A. Regional Impacts

The land uses in the proposed MTP/SCS have no impact on the implementation of renewable energy sources. While different land uses may consume more energy, this does not exclude them from being part of a larger renewable energy source, or having on-site renewable energy. Most of the impacts of renewable energy will be from the energy providers, who set the mix of energy sources, including renewable sources. In 2008, PG&E had a portfolio that included 15 percent renewables, Roseville Electric was at nine percent, and SMUD at 20 percent. All of these providers are expected to utilize 33 percent renewable by 2020, as outlined in SB X1-2. In addition, the AB 32 Scoping Plan identifies several renewable energy measures. Although these measures are intended to reduce GHG emissions, they will also impact the use of renewable energy sources. Below are the Scoping Plan measures aimed at the use of renewable energy sources. These measures are expected to last through 2035.

- CR-2 Solar Hot Water–Goals of AB 1470, use of renewable energies for water heaters.
- E-3 Renewable Electricity Standard–Reach 33 percent renewables by 2020; PG&E, SMUD, and Roseville Electric have all adopted these standards.
- E-4 Million Solar Roofs–Move away from natural gas and electricity to on-site renewables.

While transportation relies on different sources of energy, the transportation projects in the proposed MTP/SCS would have no impact on the technology needed to use renewable energy sources.

Therefore, the impact on the goal of increasing reliance on renewable energy sources related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact ENE-3. No mitigation is required.

B. Localized Impacts

Implementation of Scoping Plan measures aimed at renewable energy, as described in the regional impacts section above, will not be impacted by the proposed MTP/SCS either at a regional scale or at a localized scale, irrespective of Community Type. Electricity providers are required to have 33 percent renewable energy sources by 2020, pursuant to Scoping Plan measure E-3, without regard for land use or transportation projects. Scoping Plan measures CR-2 and E-4 can be adopted in any Community Type.

Therefore, the impact on the goal of increasing reliance on renewable energy sources related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the localized level is considered less than significant (LS) for Impact ENE-3. No mitigation is required.

C. Transit Priority Area Impacts

Identical to the localized impacts on the goal of increasing reliance on renewable energy sources, implementation of Scoping Plan measures aimed at renewable energy will not be impacted by the proposed MTP/SCS either regionally, locally, or at the TPA scale. The Scoping Plan measures are unaffected by the implementation of the land uses or transportation projects in these areas.

Therefore, the impact on the goal of increasing reliance on renewable energy sources related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the transit priority area level is considered less than significant (LS) for Impact ENE-3. No mitigation is required.

Impact ENE-4: Increase energy consumption from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.

A. Regional Impacts

The impact construction projects have on energy consumption is considered significant if the projects in the proposed MTP/SCS are implemented in a manner that is not consistent with the GHG emissions reduction goals set forth in AB 32. Construction energy consumption includes operation of equipment, and travel to and from the worksite.

The population and employment growth in the proposed MTP/SCS by 2035 is facilitated by the development of new housing, commercial, industrial, and public uses; as well as the construction of new, and the expansion of existing, roads, rail, and other related transportation projects. In addition, new infrastructure such as water, wastewater treatment, and storm water management will need to be constructed to accommodate this growth. A 2005 study by SACOG found that the more compact development found in the 2050 Blueprint has less infrastructure need, as compared to the more sprawled pattern of growth previously projected for the region (SACOG, 2005). Because the proposed MTP/SCS generally is consistent with the Blueprint preferred scenario, while construction of the land uses in the plan area should increase energy consumption, by limiting the need for additional infrastructure, construction related energy consumption should decrease overall.

Travel energy consumption from construction is captured as part of the regional travel model. The benefits of the land use and transportation projects in the proposed MTP/SCS—higher densities, mixed uses, and transit options—are captured as well. The reduced per capita VMT by 2035, as discussed in Chapter 16 –Transportation, results in less construction-related travel as compared to 2008.

In addition, as discussed above, per capita energy consumption from the implementation of the proposed MTP/SCS from both land use and transportation-related projects decreases between 2008 and 2035.The reduction of energy use per capita is part of the reason overall GHG emissions decrease with the implementation of the proposed MTP/SCS, and the proposed MTP/SCS does not conflict with the achievement of the goals of AB 32.

Therefore, the impacts on energy consumption related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-4. No mitigation is required.

B. Localized Impacts

The localized impact of the energy consumption related to the land use changes and transportation improvements from construction of the proposed MTP/SCS is the same as the regional impact and is considered less than significant (LS) for Impact ENE-4. No mitigation is required.

C. Transit Priority Area Impacts

The TPAs impact of the energy consumption related to the land use changes and transportation improvements from construction of the proposed MTP/SCS is the same as the regional impact and is considered less than significant (LS) for Impact ENE-4. No mitigation is required.

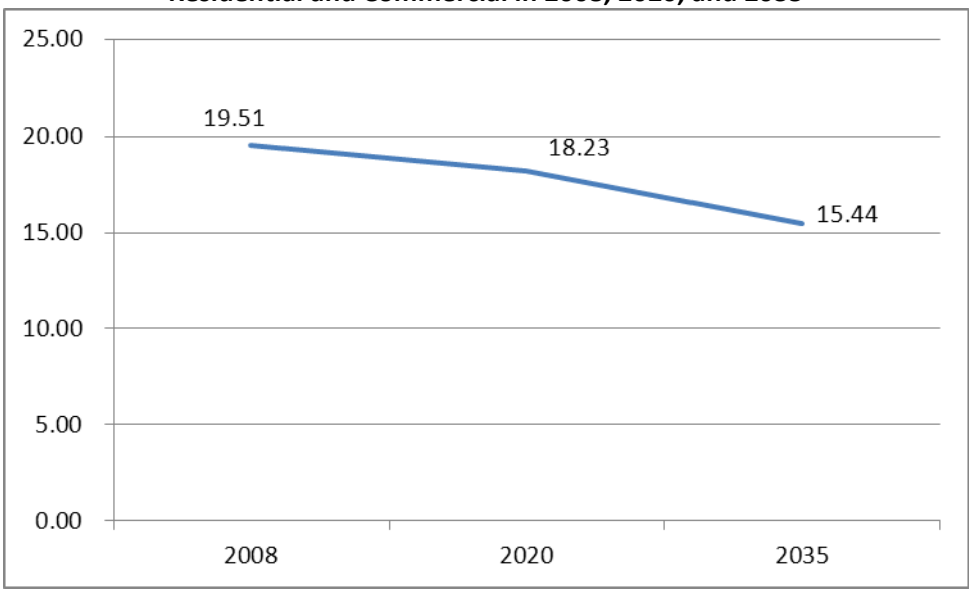
Impact ENE-5: Substantially conflict with achievement of AB 32 Goals.

A. Regional Impacts

Implementation of the proposed MTP/SCS will not interfere with achievement of AB 32 goals. In fact, it is an integral part of achieving those goals within the SACOG region. AB 32 calls for the State of California to reach 1990 levels of GHG emissions from all sources by the year 2020. For purposes of this analysis, 1990 levels were estimated to be 15 percent below the 2008 levels. The 2008 baseline was used as it matches the Third Edition ARB GHG inventory last updated in May 2010. A 15 percent reduction below 2008 was used as a proxy for 1990 because there is no 1990 GHG emissions data for the plan area, and the Scoping Plan states that 15 percent reduction in emissions from 2008 is an approximate estimate of 1990 levels (ARB, 2010).

As described in the Methods and Assumptions section of this chapter, GHG emissions were measured in $MMtCO_2e$ from transportation, electricity generation, residential and commercial uses, industrial operations, and agricultural and forestry lands. These sectors match the Level 1 Sectors of the Third Edition ARB GHG inventory. However, since the proposed MTP/SCS only impacts land use and transportation, the initial analysis only included emissions from the transportation, electricity generation, and residential and commercial sectors. Figure 8.2 below shows total GHG emissions from these sectors in 2008, 2020, and 2035.

Figure 8.2
Plan Area $MMtCO_2e$ Emissions from Transportation, Electricity Generation, and Residential and Commercial in 2008, 2020, and 2035



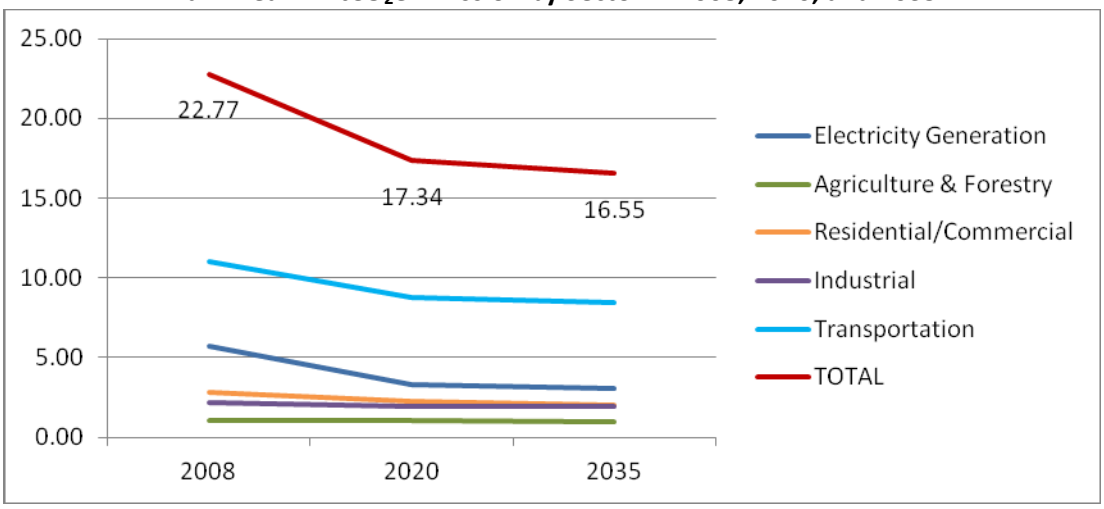
Based on the implementation of the proposed MTP/SCS, GHG emissions drop from 19.51 $MMtCO_2e$ in 2008 to 15.44 $MMtCO_2e$ in 2035 from the transportation, electricity generation, and residential and commercial sectors.

Although the proposed MTP/SCS only impacts GHG emissions from sources covered in the plan, mainly from the on-road portion of the regional transportation network and land use decisions—where people live and work—in order to better illustrate the full picture of GHG emissions in the region, SACOG's analysis considered emissions from the other sectors, including industrial, and agriculture and forestry.

For the region, 2008 GHG emissions totaled 22.77 $MMtCO_2e$ (See Table 8.6.) Therefore, to achieve AB 32's goals, the plan area emissions must reach 19.36 $MMtCO_2e$ by 2020. With implementation of the proposed MTP/SCS and the Scoping Plan measures, 2020 emissions are forecasted to be 17.34 $MMtCO_2e$, 12 percent below that target, or a total of 24 percent below 2008 (See Table 8.6.) Measures from the Scoping Plan, as described in the Methods and Assumptions section of this chapter, include: low carbon fuels, fuel efficiency, building efficiency, appliance efficiency, million solar roofs, and renewable electricity standards.

Although not part of AB 32, since 2035 was the forecast year of the proposed MTP/SCS it was also analyzed in terms of total GHG emission. With the implementation of the proposed MTP/SCS and continuation of the benefits from the 2020 Scoping Plan measures, 2035 emissions are forecasted to be 16.55 $MMtCO_2e$. This downward trajectory beyond the timeframe set in AB 32 is illustrated in Figure 8.3 which shows emissions for 2008, 2020, and 2035 by the sectors described in the Methods and Assumptions section of this chapter.

Figure 8.3
Plan Area $MMtCO_2e$ Emission by Sector in 2008, 2020, and 2035



Source: SACOG, 2011.

The Executive Order, as described in the Settings section of this chapter, calls for reductions in GHGs of 80 percent below 1990 levels. For the SACOG region, this would constitute a goal of 3.87 $MMtCO_2e$ by 2050. However, the Executive Order does not include any specific measures to achieve these reductions, and instead merely places oversight for reporting from all state

agencies with CalEPA. As noted above, AB 32 and the Scoping Plan–as informed but not mandated by Executive Order #S-3-05–establish the statewide standards and implementation measures for emissions reductions applicable to regional planning agencies such as SACOG. It is anticipated, however, that additional measures for reducing GHG emissions, in all sectors, will be made beyond AB 32. As AB 32 states, ARB can make recommendations to the Governor and the Legislature on how to continue GHG reductions beyond 2020.

The Scoping Plan Appendix C outlines some technology advances that are likely to help continue GHG reductions beyond 2020. These include: new renewable energy standards and smart grid; new heavy duty truck standards; new building and appliance standards; carbon capture and storage; new waste standards; new CAFE standards; and another round of SB 375 type land use and transportation targets.

Because AB 32 and the Scoping Plan establish the statewide standards and implementation measures (including SB 375) for GHG emissions reductions, there is no statewide guidance on assumptions, strategies, or measures to calculate achievement of the Executive Order's aspirational goal. Nevertheless, SACOG conducted a preliminary analysis estimate of GHG emissions for 2050 for the plan area. This preliminary analysis is for informational purposes only.

First, a BAU GHG scenario was estimated for 2050 by deriving an average annual reduction in GHGs from the proposed MTP/SCS (-0.23 $MMtCO_2e$ annually between 2008 and 2035), multiplying it by the number of years from the 2035 horizon of the plan to 2050 (15), and adding it to 2035 GHG estimates (16.55 $MMtCO_2e$). The result is a BAU GHG estimate for 2050 of 13.10 $MMtCO_2e$.

In order to complete the 2050 estimate, and in the absence of any guidance, some assumptions must be made regarding the GHG reduction measures that will be implemented for the period after 2020. Appendix C to the Scoping Plan is a starting point. If new GHG reduction measures, as described above, were implemented for the Executive Order, additional reductions could be realized. As the California Energy Commission acknowledges, the primary strategies for achieving the Executive Order's goal must come from the decarbonization of electricity supplies and fuels, and major improvements in energy efficiency.

The 2050 scenario with additional emissions reduction measures could be as low as 3.72 $MMtCO_2e$ for the plan area, or four percent below the target set by the Executive Order. This includes the following reductions, most of which already are included in the Scoping Plan, Appendix C, and which are just examples of reductions that could be implemented by the state:

- Electricity Generation:
  - Increase renewable energy standards to 66 percent. Estimated reduction of 0.71 $MMtCO_2e$ based on SACOG's share of 11.4 $MMtCO_2e$ from Scoping Plan reduction to 33 percent renewable energy standard.

- Agriculture & Forestry:
  - 20 percent further market penetration of hybrid heavy-duty and above trucks. Estimated reduction of 0.06 $MMtCO_2e$ based on SACOG's share of 1.0 $MMtCO_2e$ from Scoping Plan reduction for heavy-duty hybrids.
- Residential/Commercial:
  - Additional 50 percent increase in building and energy efficiency from Scoping Plan. Estimated reduction of 0.41 $MMtCO_2e$ based on one half of SACOG's share of Scoping Plan reductions.
- Industrial:
  - Additional 50 percent increase in industrial process efficiency from non-capped portions of the Scoping Plan. Estimated reduction of 0.2 $MMtCO_2e$ based on one half of SACOG's share of Scoping Plan reductions. This can include carbon capture and storage.
- Transportation:
  - Improved CAFE standards to a fleet average of 54.5 MPG from federal estimates of 250 $MMtCO_2e$ reductions nationally (EPA, 2011), of which the plan area is 0.41 percent. Estimated reduction of 1.04 $MMtCO_2e$ for the plan area in 2050.
  - Additional rounds of regional targets results in a 0.31 $MMtCO_2e$ reduction based on region's share of reductions from the Scoping Plan.
  - A 3.5 $MMtCO_2e$ reduction from implementation of additional transportation-related technologies. This includes, but is not limited to: high speed rail in the plan area, truck stop electrification, catalytic improvements for gasoline and diesel engines, reduction of cold starts, and enhanced fuel combustion through improved engine design.

Of course, as noted, it is unknown whether these, or other, measures will be implemented by the state to achieve the Executive Order goals, or some other state mandate, past 2020. These measures are merely illustrative of how the region could meet, and exceed, the Executive Order's goals with the support of other statewide emissions reduction measures.

In any event, even if no additional reduction measures beyond 2035 come from the Executive Order or other state mandate, total GHG emissions for the plan area would decrease from 22.77 in 2008 to 16.55 $MMtCO_2e$ in 2035, and would be on a declining trajectory beyond, with the implementation of the proposed MTP/SCS.

It should also be noted that while AB 32 sets total GHG reduction targets and does not specify per capita GHG reduction targets, per capita reductions are equally important to limit the impact GHG emissions have on climate change. Achieving overall GHG emissions reductions is difficult with the 39 percent population growth expected in the plan area by 2035, yet the land use and transportation projects in the proposed MTP/SCS strive to reduce both total and per capita GHG emissions. In 2008, GHG emissions per one-million people are estimated to be 10.28 $MMtCO_2e$. Assuming the same AB 32 targets of 1990 levels by 2020, and assuming 15 percent below 2008 approximates 1990 levels, the reduction target per one-million people would be 8.74 by 2020. With implementation of the proposed MTP/SCS, 2020 emissions drop to 6.88

$MMtCO_2e$ per one-million people. In 2035 that number drops to 5.38 $MMTCO_2e$ per on-million people.

Therefore, this impact on the achievement of AB 32 goals related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-5. No mitigation is required.

B. Localized Impacts

For all Community Types in the proposed MTP/SCS, an aggregated evaluation of emissions from all sectors was done using the formula described in the Methods and Assumptions section of this chapter. The measures from the Scoping Plan aimed at reducing emissions, as described in the regional impacts section above, were considered. Impacts are described below.

Center and Corridor Communities
By 2035, Center and Corridor Communities are expected to include 209,000 new people, 92,000 new housing units, and 104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 24 percent of regional population growth, 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of acres developed.

The Center and Corridor Communities contain a significant amount of more energy efficient attached, multi-family residential products—83 percent of all new housing units—as compared to a regional total of 43 percent (EIA, 2005). This lowers emissions for the residential sector.

In addition, Center and Corridor Communities will include a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects, that are expected to reduce GHG emissions.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

Established Communities
As noted, the population in Established Communities will increase by 271,000, but their share of regional population will drop from 79 percent to 66 percent. Similarly, housing units in Established Communities will increase by 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed generally will maintain their proportional shares, with jobs increasing by 187,000 and acres developed increasing by 20,000 for regional shares of 52 percent and 37 percent, respectively. This growth pattern indicates that while Established Communities will have population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which will have a much higher rate of growth.

Established Communities are mostly lower density residential, office parks, and strip retail. They are considered to be mostly built-out, with little or no vacant land to develop. With little or no growth occurring, GHG emissions will remain constant, or even decrease slightly with the implementation of the Scoping Plan measures outlined in the regional impacts section above. Established Communities will include a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in Established Communities is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

Developing Communities

As noted, Developing Communities are expected to have a high rate of growth during the MTP/SCS plan period, including 364,000 new residents, 127,000 new housing units, and 65,000 new jobs, developing nearly 24,000 acres to accommodate the growth.

As also noted, although Developing Communities will serve a substantial portion of the growth in residential units and employment, the housing type will experience a significant shift from large lot detached to small lot detached and attached housing, increasing energy efficient and, therefore, emissions reductions. However, because Developing Communities contain little or no development in 2008, projected growth of lower density residential with supporting retail and public uses, will likely result in some increased GHG emissions.

Developing Communities will not necessarily include the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will include more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. In addition, while Developing Communities have little or no transit service today, at build-out they may include bus service every 30 minutes or less. These areas also often include walk and bike facilities via trails. This will reduce emissions from travel.

The measures from the Scoping Plan, as described above in the regional impacts section, should be largely implemented in Developing Communities. These areas have more opportunities to implement measures like on-site renewable energy sources, building efficiency, and appliance efficiency as they are being built within the timeframe of AB 32. This will help to reduce the emissions from the growth that occurs in the Developing Communities.

Therefore, the impact on achieving AB 32's goals in the Developing Communities of the proposed MTP/SCS is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

Rural Residential Communities

These communities are expected to receive very limited growth by 2035. The population is forecasted to increase by about 16,500 people, 5,300 housing units and 4,000 jobs. This

development will consume about 5,000 acres. This is the lowest growth rate of any Community Type, resulting in a decreasing share of regional population, housing units, and employment.

Rural Residential Communities are dominated by single family houses sitting on one to 20 acre parcels which, according to EIA data, are less efficient in terms of electricity and natural gas consumption when compared to multi-family products (EIA, 2005) and, therefore, should reduce GHG emissions. These areas are mostly auto-oriented, with little or no transit service. Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service, thus maintaining the auto-dependent nature of these areas.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities is considered potentially significant (PS) for Impact ENE-5. Mitigation Measure ENE-1 is described above and ENE-2 is described below.

Lands Not Identified for Development
Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS will make a very limited number of transportation investments in this Community Type by 2035.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

C. Transit Priority Area Impacts

For all TPAs in the proposed MTP/SCS, an aggregated evaluation of energy consumption was done using the formula described in the Methods and Assumptions section of this chapter. Additional measures from the Scoping Plan aimed at reducing emissions from electricity and natural gas consumption, as described in the regional impacts section above, were considered. Impacts are described below.

Placer County Transit Priority Areas
Placer County TPAs will include 2,600 new housing units and 10,000 new jobs by 2035. This development will occur on about 315 acres.

About 78 percent of all housing growth in Placer County TPAs between 2008 and 2035 is attached (see the Product Description chapter). As discussed, EIA data shows this housing type to be more efficient than its single family counterpart on a per unit basis in terms of consumption of electricity and natural gas (EIA, 2005). This will support the plan's GHG emissions reduction goals.

Placer County TPAs will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. In addition, Placer County TPAs are served by the Capital Corridor train, as well as high-quality transit service in Roseville. This creates more non-auto modes of travel, reducing emissions from travel.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

Sacramento County Transit Priority Areas

Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. Sacramento County TPAs will include 92,000 new housing units and 108,000 new jobs on about 5,000 acres.

Between 2008 and 2035, 75 percent of all new residential products are attached (see the Product Description chapter), and residential densities are generally high, which will support a more energy efficient housing supply and will help reduce GHG emissions.

Sacramento County TPAs will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. In addition, the Sacramento TPA is served by light rail, Capital Corridor, and numerous bus routes. In 2035, the Sacramento TPA has a streetcar corridor in downtown, and bus rapid transit service. This offers more non-auto modes of travel, reducing travel related emissions.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

Yolo County Transit Priority Areas

Yolo County TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will include 20,000 new housing units and 22,000 new jobs. This development will occur on about 1,250 acres.

As noted, residential growth in Yolo County TPAs is dominated by attached housing at generally high densities (see the Product Description chapter). These housing types support the plan's goals of reducing energy consumption and GHG emissions.

Yolo County TPAs will include a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo County TPAs are served by Capital Corridor as well as numerous bus routes. In 2035, the area will include bus rapid transit and a streetcar in West Sacramento. This will reduce travel related emissions by offering non-auto modes of travel.

Therefore, the impact on achieving AB 32 goals related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs is considered less than significant (LS) for Impact ENE-5. No mitigation is required.

Mitigation Measure ENE-2: Local jurisdictions should work with other local, regional, and state agencies to implement GHG reduction and energy efficiency programs in rural areas.

The implementing agency should work with other local, regional, and state agencies to create or join programs focused on reducing GHG emissions through energy efficiency improvements to new and existing development in Rural Residential Communities. This should include targeted outreach to these areas.

An example of such programs is the Placer County mPower program, which allows homeowners to make energy efficiency upgrades to their property and pay for it through an easement on their property. Similar programs are being explored in other cities and counties, as well as a statewide program. Many of these efforts, however, do not focus in rural communities. Continued outreach to property owners in Rural Residential Communities regarding these programs should be conducted by the local jurisdictions to increase energy efficiency upgrades and reduce emissions associated with existing and future development in those areas.

Significance after Mitigation

Implementation of these mitigation measures as a part of the proposed MTP/SCS will reduce GHG emissions from new development and transportation projects in the rural residential communities. If the implementing agency adopts these mitigation measures, the impact would be reduced to less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

Impact ENE-6: Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.

A. Regional Impacts

Pursuant to SB 375, ARB has established regional on-road GHG per capita emissions reduction targets from light-duty trucks and passenger vehicles. This section describes the regional impact from the land use and transportation projects in the proposed MTP/SCS as they relate to SB 375 and the regional targets. Since this impact relates to a regional target, smaller area impacts are only considered in aggregation. Therefore, no separate analyses of local Community Types or TPAs are conducted.

SACOG used a regional travel demand model to estimate travel for the proposed MTP/SCS, the 2008 baseline and, for the purpose of SB 375, 2005. SACOG's primary model is the "Sacramento Regional Activity-Based Simulation Model" or "SACSIM." SACSIM analyzes travel for weekday conditions during a non-summer month. There are four demand periods within the typical weekday: AM peak period (7:00AM to 10:00AM); midday period (10:00AM to 3:00PM); PM peak period (3:00PM to 6:00PM); and the late evening/overnight period (6:00PM to 7:00AM). See Chapter 16 - Transportation for more details of the modeling used to create the final reductions.

One of the goals of SB 375 is to reach the GHG emissions reduction targets set by ARB through an integrated land use, transportation, and housing plan. Achievement of this goal is an objective of the proposed MTP/SCS. The growth in the proposed MTP/SCS, as described in Chapter 2 – Project Description, provides a mix of housing options, located closer to jobs and transit. The proposed growth is more compact in form and more effectively utilizes existing infrastructure. In addition, the proposed transportation projects include expansion of existing rail and bus service, increased headways to reduce wait time between transit service, increased bicycle and pedestrian improvements, and targeted roadway and highway improvement and expansion.

Chapter 16 – Transportation, includes an analysis of the relationship between land use and travel behavior, often referred to as the "D's." These variables describe the land use through a set of measures that impact the amount and type of travel in a region. These measures include regional accessibility, street pattern, mix of use, distance to nearest transit, and residential density. Through the development of the proposed MTP/SCS, SACOG has applied the "D's" in the development of the land use growth allocations, and the transportation projects and improvements in the plan area. The results in Table 8.10 reflect the travel benefits from this type of growth. The benefits measured by the D's not only impact VMT, but also increase walk and bike trips, as well as transit ridership. (See Chapter 16 – Transportation for more information on travel improvements in the proposed MTP/SCS.)

For the SACOG region, the targets set by ARB are seven percent below 2005 emissions levels by 2020 and 16 percent below 2005 levels by 2035. The 2005 GHG per capita emissions were modeled for the plan area to be 23.0 pounds per day. With the proposed MTP/SCS, the 2020 GHG per capita emissions were modeled for the plan area to be 21.0 pounds per day, a reduction of 10 percent from 2005, and the 2035 emissions levels were modeled to be 19.3 pounds per day, a 16 percent reduction from 2005.

Table 8.10
CO2 Equivalent Emission Estimates for 2005, 2020 and 2035 in the Proposed MTP/SCS Plan Area

	CO2 per Capita (lbs per day)	Modeled CO2 Reductions	Off-Model Reductions*	Total Reductions from 2005
2005	23.0	n/a	n/a	n/a
2020	21.5	-9 percent	-1.0 percent	-10 percent
2035	20.2	-14 percent	-2.0 percent	-16 percent

Source: SACOG, 2011

* Off model reductions account for effects of TSM, ITS, and TDM projects not accounted for in SACSIM. See Chapter 16 – Transportation for more information on modeling.

These projections do not include any additional measures from the Scoping Plan to further reduce GHG emissions and is, therefore, conservative. Application of Pavley fuel efficiency standards and low carbon fuel standards, both AB 32 Scoping Plan measures, are anticipated to reduce levels even further to 15.9 in 2020 and 13.0 pounds per day in 2035.

Therefore, the impact on achieving the SB 375 GHG emissions reduction targets related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact ENE-6. No mitigation is required.

Impact ENE-7: Conflict with applicable local GHG reduction plans.

A. Regional Impacts

In the development of the proposed MTP/SCS, SACOG considered local plans that included targets for GHG reductions and made efforts to address policies within the plans. The local GHG reduction plans are adopted in an effort to comply with the goals set for local governments in the AB 32 Scoping Plan. While the land use and transportation projects of the proposed MTP/SCS are consistent with the goals of AB 32 (see ENE-5) and SB 375 (see ENE-6), ultimately it is the local jurisdictions that have authority to determine if projects are consistent with local plans. SACOG, and the proposed MTP/SCS, have no jurisdiction in approval of development within the plan area.

In addition, the proposed MTP/SCS does not address all of the potential reduction measures, goals, and GHG targets from various local agencies. Climate Action Plans, general plans, and other plans that address climate change and GHG emissions will set targets based on state, regional, or local conditions. Not all plans will have similar reduction goals and implementation measures. The proposed MTP/SCS was planned to take advantage of the benefits dense, compact development have when coupled with an efficient and diversified transportation network. It attempts to reduce overall and per capita energy consumption and related GHG emissions from all sources.

Entities in the SACOG region are in different stages of the Climate Action Plan process. Table 8.3 in the Local Regulations section of this chapter outlines the jurisdictions in the plan area that are engaged in the climate action planning process. As emissions inventories near completion, jurisdictions will set benchmarks to evaluate the implementation of their plan.

Therefore, the impacts on local GHG reduction plans related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-7. No mitigation is required.

Impact ENE-8: Increase GHG emissions from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.

A. Regional Impacts

The impact construction projects have on energy consumption is considered significant if the projects in the proposed MTP/SCS are implemented in a manner that is not consistent with the GHG emissions reduction goals set forth in AB 32. Construction energy consumption includes operation of equipment, and travel to and from the worksite.

The population and employment growth in the proposed MTP/SCS by 2035 requires the development of new housing, commercial, industrial, and public uses, as well as the construction of new, and the expansion of existing, roads, rail, and other related transportation projects. In addition, new infrastructure such as water, wastewater treatment, and storm water management will need to be constructed to accommodate this growth. A 2005 study by SACOG found that the more compact development found in the 2050 Blueprint has less infrastructure need, as compared to the more sprawled pattern of growth previously projected for the region (SACOG, 2005). Because the proposed MTP/SCS generally is consistent with the Blueprint preferred scenario, construction of the land uses in the plan area would increase energy consumption but should reduce energy needs by limiting the need for additional infrastructure.

Travel energy consumption from construction is captured as part of the regional travel model. The benefits of the land use and transportation projects in the proposed MTP/SCS—higher densities, mixed uses, and transit options—are captured as well. The reduced per capita VMT by 2035, as discussed in Chapter 16 – Transportation reflects construction-related travel as compared to 2008.

In addition, as discussed above, per capita energy consumption from the implementation of the proposed MTP/SCS from both land use and transportation-related projects decreases between 2008 and 2035. The reduction of energy use per capita is part of the reason overall GHG emissions decrease with the implementation of the proposed MTP/SCS, and the proposed MTP/SCS does not conflict with the achievement of the goals of AB 32.

Therefore, the impacts on construction-related GHG emission related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact ENE-8. No mitigation is required.

B. Localized Impacts

The localized impact of the energy consumption of the construction of the proposed MTP/SCS is the same as the regional impact and is considered less than significant (LS) for Impact ENE-8. No mitigation is required.

C. Transit Priority Area Impacts

The TPAs impact of the energy consumption of the construction of the proposed MTP/SCS is the same as the regional impact and is considered less than significant (LS) for Impact ENE-8. No mitigation is required.

CHAPTER 9 – GEOLOGY, SEISMICITY, SOILS AND MINERAL RESOURCES

INTRODUCTION

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the regional geology, seismicity, soils, and mineral resources within the MTP/SCS plan area. This chapter evaluates potential impacts to geology, seismicity, soils, and mineral resources that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The MTP/SCS plan area consists of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties, excluding the Lake Tahoe Basin.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data provided in this section should be considered preliminary and appropriate for general policy planning and tiering of subsequent environmental documents. Site-specific evaluations may be necessary to determine future project-level environmental effects and appropriate mitigation.

Two comments regarding geology, soils, and mineral resources were submitted during circulation of the Notice of Preparation.

The Placer County Flood Control and Water Conservation District commented that the Program Environmental Impact Report (Program EIR) should address geology and soils impacts associated with transportation improvements (such as potential increases in peak flow runoff downstream of the project site; overloading of the actual or designed capacity of existing stormwater and flood-carrying facilities; the alteration of 100-year floodplain boundaries) and the need for future EIRs to quantify the incremental effects of these project-specific impacts and to propose mitigation measures if necessary.

Rick Bettis commented that the evaluation of potential flooding impacts should take into account both the location and design of transportation facilities as well as changes in land use induced or facilitated by the transportation projects. Rick Bettis also submitted a comment related to mineral resources, suggesting that secondary impacts of induced or facilitated land use changes should be considered.

Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

SETTING

Environmental Setting

Geology and Topography

This section addresses the geology and topography of the MTP/SCS plan area. Figure 9.1 provides a geologic map of the SACOG region. The project area is located in El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties within the Great Valley geomorphic province and the Sierra Nevada geomorphic province. Both geomorphic provinces are discussed below.

Regional Physiographic Setting of the MTP/SCS Plan Area

The Great Valley of California, also called the Central Valley of California, is a nearly flat alluvial plain extending from the Tehachapi Mountains at the south to the Klamath Mountains at the north, and from the Sierra Nevada on the east to the Coast Ranges on the west. The Valley is about 450 miles long and has an average width of about 50 miles. Elevations of the alluvial plain are generally just a few hundred feet above mean sea level (MSL), with extremes ranging from a few feet below MSL to about 1,000 feet above MSL (Hackel, 1966).

The Sierra Nevada is a strongly asymmetric mountain range with a long gentle western slope and a high and steep eastern escarpment. It averages 50 to 80 miles wide, and it runs west of north through eastern California for more than 400 miles – from the Mojave Desert on the south to the Cascade Range and the Modoc Plateau on the north (Bateman and Wahrhaftig, 1966).

Geology and Topography of the MTP/SCS Plan Area

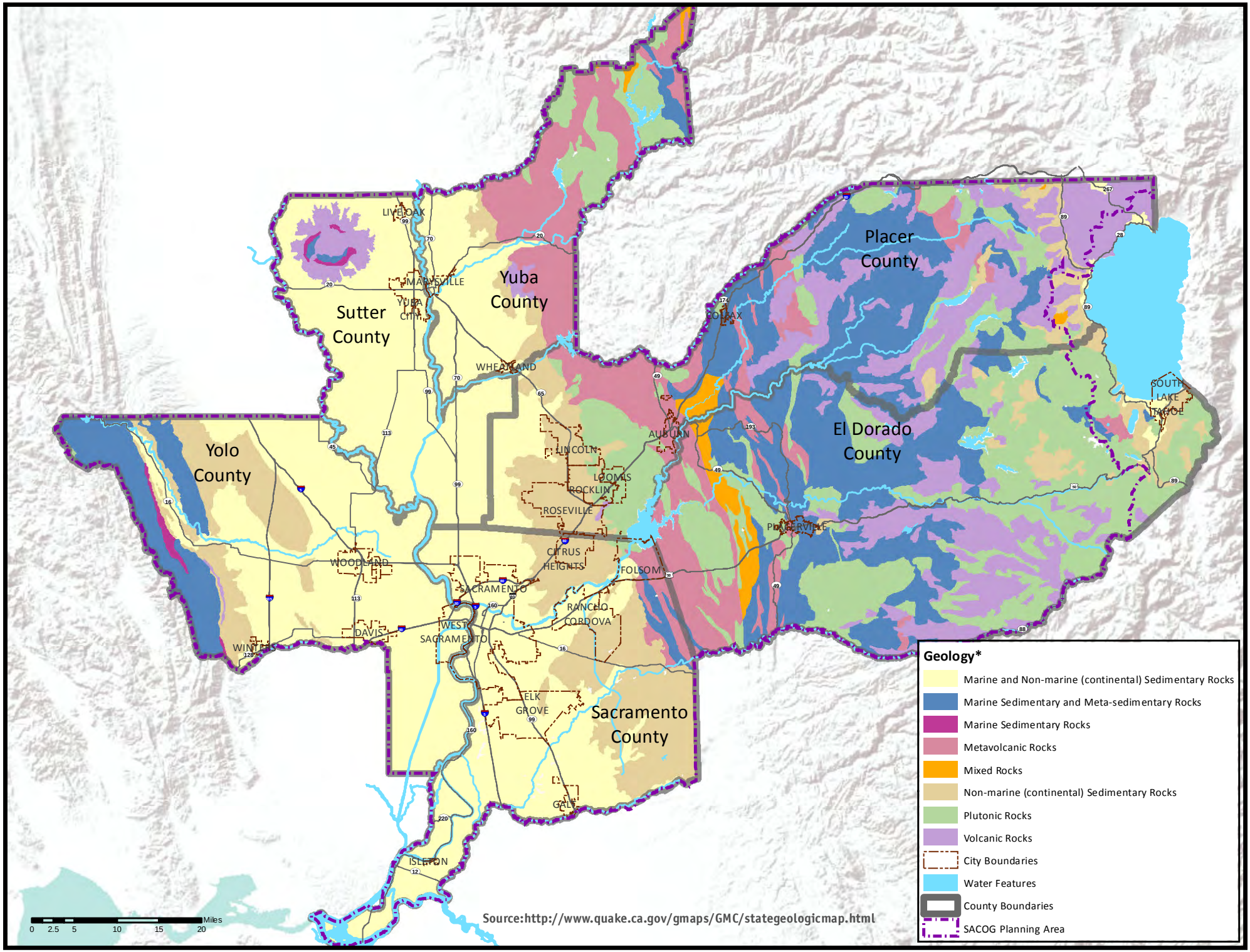
Geologically, the Great Valley geomorphic province is a large, elongate, northwest-trending asymmetric structural trough filled with an extremely thick sequence of predominantly alluvial sediments ranging in age from Jurassic to Recent. This asymmetric geosyncline has a long stable eastern shelf supported by the subsurface continuation of the granitic Sierran slope and a short western flank expressed by the upturned edges of the basin sediments (Hackel, 1966).

The Sierra Nevada geomorphic province is a massive block of the earth's crust that has broken free on the east along the Sierra Nevada fault system and tilted westward. It is overlapped on the west by sedimentary rocks of the Great Valley geomorphic province and on the north by volcanic sheets extending south from the Cascade Range. A blanket of volcanic material caps large areas in the north part of the range (Bateman and Wahrhaftig, 1966).

Most of the south half of the Sierra Nevada and the eastern part of the north half are composed of plutonic (chiefly granitic) rocks of Mesozoic age. These rocks constitute the Sierra Nevada batholith. In the north half of the range, the batholith is flanked on the west by the western metamorphic belt, a terrain of strongly deformed, but weakly metamorphosed sedimentary and volcanic rocks of Paleozoic and Mesozoic age. The batholith extends eastward to the east edge of the range (Bateman and Wahrhaftig, 1966).

The topographic features of the MTP/SCS plan area vary, depending upon physiography. The topography of the western MTP/SCS plan area is generally typical of an alluvial valley influenced by sediment introduction from the Sierra Nevada and its foothills. From southwest to northeast, topographic features consist of the Sacramento-San Joaquin Delta (Delta), flat alluvial valleys, river floodplains and channels, low alluvial plains and fans, and dissected uplands.

Figure 9.1 Geologic Map of the SACOG Region



The eastern portion of the MTP/SCS plan area generally consists of rocky foothills that increase in elevation to the east to become the Sierra Nevada crest. Elevations in the MTP/SCS plan area presently range from approximately below sea level on the western edge of the MTP/SCS plan area, to over 10,000 feet on the Sierra Nevada crest of the eastern edge of the MTP/SCS plan area.

Seismicity

Seismic hazards are earthquake fault ground rupture and ground shaking (primary hazards), and liquefaction and earthquake-induced slope failure (secondary hazards). When compared to other areas of the state (e.g. the San Francisco Bay Region), the MTP/SCS plan area is not located in a very seismically active region. However, with respect to fault rupture, earthquakes have occurred in the vicinity of the MTP/SCS plan area, and are expected to occur again. Accordingly, ground shaking and liquefaction are the most critical seismic hazards in the MTP/SCS plan area.

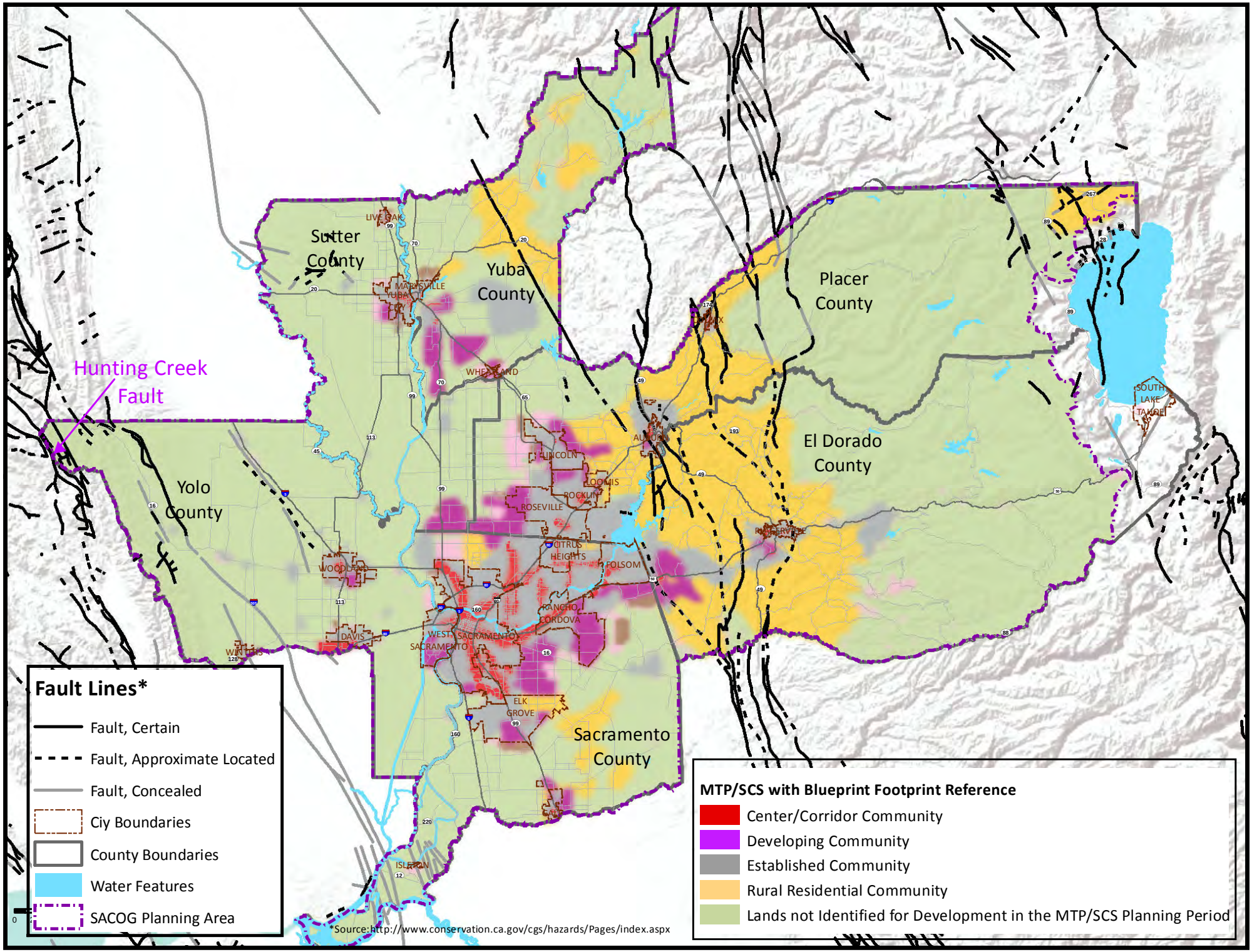
Surface Rupture and Faulting

The purpose of the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) of 1971 (Pub. Resources Code § 2621 et seq.) is to regulate development near active faults to mitigate the hazard of surface rupture. Faults in an Alquist-Priolo Earthquake Fault Zone are typically active faults. As defined under the Alquist-Priolo Act, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). An early Quaternary fault is one that has had surface displacement during Quaternary time (the last 1.6 million years). A Pre-Quaternary fault is one that has had surface displacement before the Quaternary period. Only faults officially recognized by the State of California under the Alquist-Priolo Act or faults recognized by the Uniform Building Code (UBC) are subject to mitigation (Hart and Bryant, 1997).

According to the general plans for the counties in the region, several faults are located within the MTP/SCS plan area; however, only a small number of those are active. Figure 9.2 depicts fault lines within the SACOG region. El Dorado County does not have any active faults; however, one fault that is part of the Rescue Lineament-Bear Mountain fault zone is potentially active. In Yolo County, The Hunting Creek Fault is an active fault located in the extreme northwestern corner of the County, with only a very short section of the fault occurring within the County; most of the trace is located in Lake and Napa counties. The Hunting Creek Fault, as the only fault with an identified potential to generate a surface rupture within the project area, is delineated as a sufficiently active fault (Holocene) in an Alquist-Priolo Earthquake Fault zone. The Dunnigan Hills Fault is the only other potentially active fault within Yolo County. It is located to the west of Interstate 5, between Dunnigan and northwest of Yolo in the unincorporated area of Yolo County.

However, recent evidence suggests that buried thrust faults and inferred faults are located in the boundaries of the MTP/SCS plan area. Currently, these faults do not have surface ruptures and are not officially recognized by the State of California or the UBC, but they are potential seismic sources.

Figure 9.2 Fault Lines



Ground-Shaking Hazard

As mentioned above, the MTP/SCS plan area is located in a region of California characterized by historically low seismic activity. The measurement of the energy released at the point of origin, or epicenter, of an earthquake is referred to as the magnitude, which is generally expressed in the Richter Magnitude Scale or as moment magnitude. The scale used in the Richter Magnitude Scale is logarithmic so that each successively higher Richter magnitude reflects an increase in the energy of an earthquake of about 31.5 times. Moment magnitude is the estimation of an earthquake magnitude by using seismic moment, which is a measure of an earthquake size utilizing rock rigidity, amount of slip, and area of rupture.

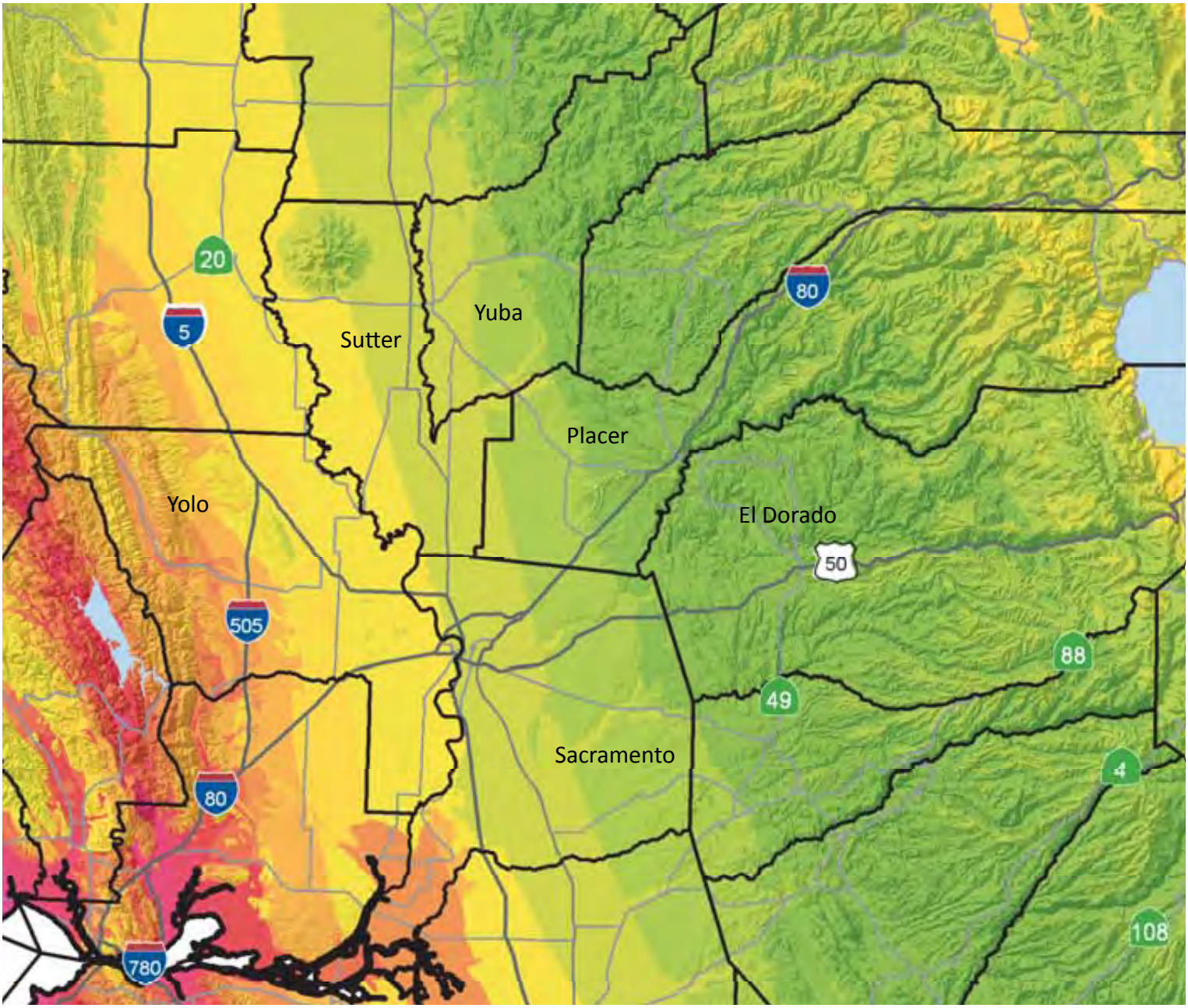
The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Earthquake energy is most intense at the fault epicenter; the farther an area from an earthquake epicenter, the less likely that ground shaking will occur. Geologic and soil units comprising unconsolidated, clay-free sands and silts can reach unstable conditions during ground shaking, which can result in extensive damage to structures built on them (see "Liquefaction and Related Hazards" below).

Ground shaking is described by two methods: ground acceleration as a fraction of the acceleration of gravity (g) or the Modified Mercalli scale, which is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

The intensity of ground shaking that would occur in the MTP/SCS plan area as a result of an earthquake is partly related to the size of the earthquake, its distance from the MTP/SCS plan area, and the response of the geologic materials within the MTP/SCS plan area. As a rule, the greater an earthquake's magnitude and the closer the fault rupture to the site, the greater the intensity of ground shaking. When various earthquake scenarios are considered, ground-shaking intensities will reflect both the effects of strong ground accelerations and the consequences of ground failure.

Estimates of Earthquake Shaking

The MTP/SCS plan area is located in a region of California characterized by a generally low ground-shaking hazard. Based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded with a 10 percent probability in 50 years (Cao et al., 2003; California Geological Survey, 2006), the probabilistic peak horizontal ground acceleration values in the MTP/SCS plan area range from less than 0.1 to 0.3*g*, where one *g* equals the force of gravity, thus indicating that the ground-shaking hazard in the MTP/SCS plan area is low (Figure 9.3). The highest *g* values occur in the extreme western portions of Sacramento and Yolo counties. Farther to the east (i.e., the majority of the MTP/SCS plan area), the ground-shaking hazard decreases, coinciding with the decrease in abundance of associated faults and fault complexes. Ground-shaking hazard then increases toward the easternmost portions of the MTP/SCS plan area, specifically the eastern portions of Placer and El Dorado counties.



Level of Earthquake Hazard*

Increasing Intensity

These regions are near major, active faults and will on the average experience stronger earthquake shaking more frequently. This intense shaking can damage even strong, modern buildings.

These regions are distant from known, active faults, and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking here.

Figure 9.3 Faults Shaking Hazard Map

*Source:California Geological Survey, United States Geological Survey

Liquefaction and Related Hazards

Liquefaction is a phenomenon in which the strength and stiffness of unconsolidated sediments are reduced by earthquake shaking or other rapid loading. Poorly consolidated, water-saturated fine sands and silts having low plasticity and located within 50 feet of the ground surface are typically considered to be the most susceptible to liquefaction. Based on the sedimentological characteristics of the soils and the depth to groundwater, liquefaction hazard is expected to be moderate for the portion of the MTP/SCS plan area within the Great Valley geomorphic province and low for the portion of the MTP/SCS plan area within the Sierra Nevada geomorphic province.

Two potential ground failure types associated with liquefaction in the Great Valley geomorphic province are lateral spreading and differential settlement (Association of Bay Area Governments, 2001). Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a gently sloping surface toward a river channel or other open face. Lateral spreading is common in the Great Valley geomorphic province (especially in the Delta) and poses a moderate to significant hazard (Association of Bay Area Governments, 2001).

Another common hazard in the Great Valley geomorphic province (specifically the Delta) is differential settlement (also called ground settlement and, in extreme cases, ground collapse) as soil compacts and consolidates after the ground shaking ceases. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Settlement can range from one to five percent, depending on the cohesiveness of the sediments (Tokimatsu and Seed, 1984).

Other Geologic Conditions

Land Subsidence

Portions of the MTP/SCS plan area are located in the Sacramento-San Joaquin Delta, including the southwestern portion of Sacramento County. Land subsidence is a decrease in land-surface elevation and is a significant concern within this region of the Delta, referred to as the north Delta. Land subsidence occurs in three ways in the entire Delta region: as a result of compaction and oxidation of peat soils, hydrocompaction, and groundwater overdraft. In the portion of the Sacramento-San Joaquin Delta within the MTP/SCS plan area (e.g., the north Delta), compaction and aerobic decomposition (oxidation) of peat soils is the most relevant. In the past 200 years, land subsidence has been a significant problem in the south Delta; however, it is also of concern in the north Delta.

Compaction and Oxidation of Peat Soils

Land subsidence can occur as a result of farming and cessation of flooding. Most of the north Delta islands and tracts in the MTP/SCS plan area are covered in thick layers of peat soil which is a highly organic soil. Tillage of the peat soil, combined with removal of flooding from the islands and tracts and construction of drainage ditches, exposes the peat soils to oxygen. This

creates a chemical reaction that causes the soil to oxidize and consolidate, lowering the land level. Wind erosion further exacerbates this condition.

Hydrocompaction

Hydrocompaction, as it relates to the MTP/SCS plan area, is the loss of water between peat particles as a result of compaction from farming practices. The loss of water works to lower the land level.

Subsidence of this type is not well documented in the MTP/SCS plan area; however, because this process is closely related to compaction of peat soils and associated chemical reactions, it is assumed that it is a significant concern.

Groundwater Overdraft

Groundwater overdraft occurs when groundwater extraction results in so much compression of a clay bed in an aquifer that it no longer expands to its original thickness after groundwater recharge. Clay beds often compress when wells pump groundwater and expand after pumping stops. Clay beds contain individual clay particles and small pores that fill with groundwater in saturated conditions. Groundwater maintains the pore space, expands the clay particles, and helps the bed maintain its thickness. A clay bed will yield a certain volume of groundwater (i.e., safe yield) without losing storage capacity. If safe yield is not exceeded, the clay bed will compress and expand as the pores shrink and swell. This can lead to elastic land subsidence at the ground surface, where elevation decreases when water is extracted then increases when water is recharged. If the safe yield of a clay bed is exceeded, its pores will collapse and the surrounding clay particles will settle in their place. When the clay particles settle, the clay bed is effectively thinned, resulting in permanent land subsidence at the ground surface. Subsidence caused by groundwater pumping for agriculture is a common problem throughout the entire Delta region; however, it is more common upstream in the San Joaquin River hydrologic region and is not a major concern in the MTP/SCS plan area.

Landslides

The risk of naturally occurring large landslides within the limits of the MTP/SCS plan area varies depending upon slope, soils, and the potential for ground shaking. Most of the region is relatively flat with foothills located in the eastern part of the region. Landslide hazards and occurrences are more common in the coastal mountainous areas of California.

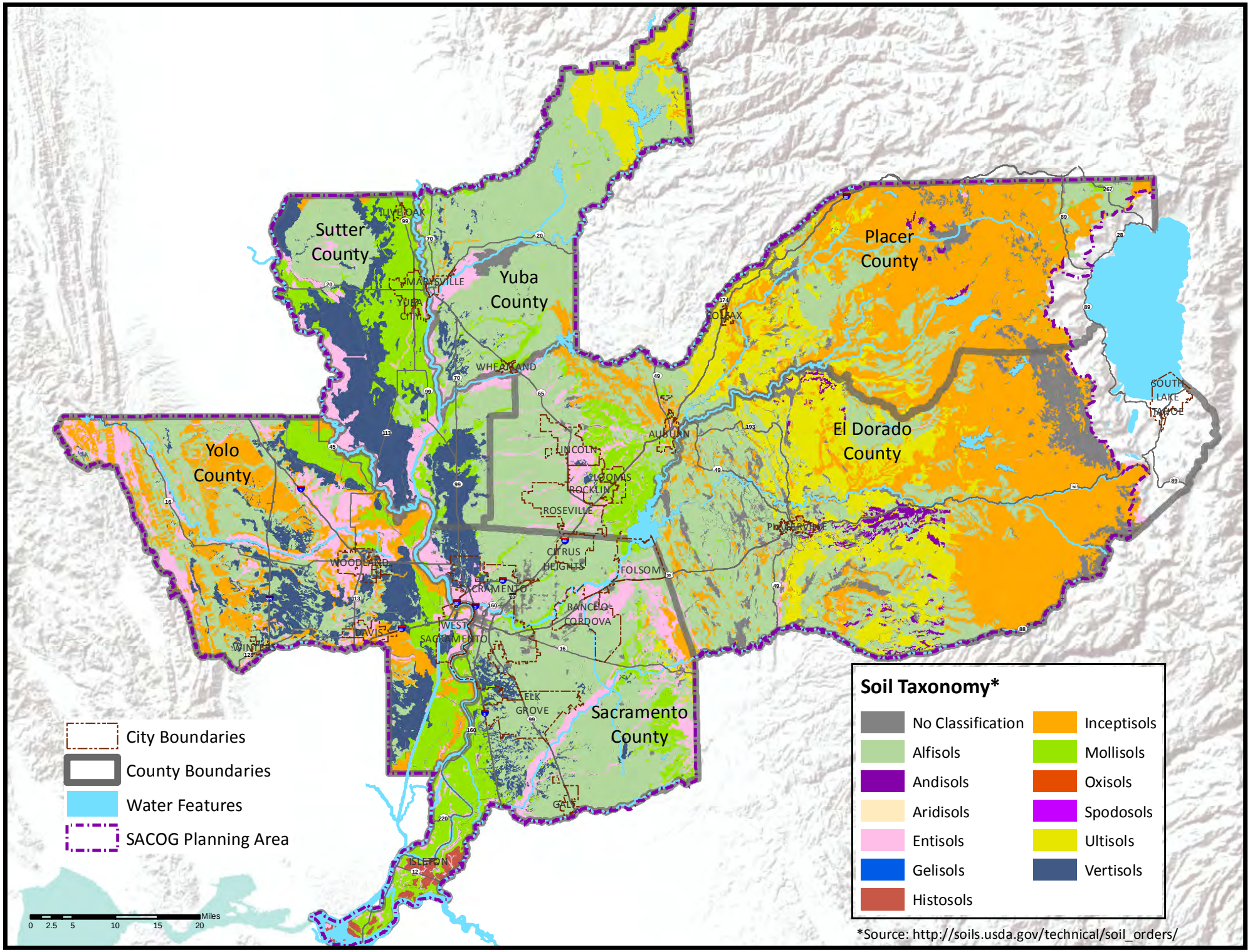
Soils

The soils in the MTP/SCS plan area are extensively mapped by the Natural Resources Conservation Service, and are described in the following soil surveys:

- El Dorado Area (1974);
- El Dorado County, Western Part (1968);
- El Dorado National Forest Area (1984);
- Placer County, Western Part (1980);
- Placerville Area (1932);
- Sacramento and San Joaquin Delta Area (1941);
- Sacramento Area (1904) (map only);
- Sacramento Area (1954);
- Sacramento County (1993);
- Sacramento Valley Reconnaissance (1913);
- Sutter County (1988);
- Yolo County (1972); and
- Yuba County (1998).

Soil information is also available through the National Soil Survey Geographic (SSURGO) and State Soil Geographic (STATSGO) databases. Figure 9.4 depicts soil taxonomy in the SACOG region.

Figure 9.4 Soil Taxonomy



*Source: http://soils.usda.gov/technical/soil_orders/

Expansive Soils

During cycles of wetting/swelling and drying/shrinking, expansion and contraction of volume can occur. Expansive soils can damage property and structures if these conditions are not considered during building design and construction.

Geographic Relationships and Distribution of Soils in Major Land Resource Areas

Due to the large size of the MTP/SCS plan area, characterization of soils has been inferred using major land resource area (MLRA) information.

An MLRA is a geographically associated land resource unit (LRU). An LRU is a geographic area, usually several thousand acres in extent, that is characterized by a particular pattern of soils, climate, water resources, and land uses. A unit can be one continuous area or several separate nearby areas.

An LRU is the basic unit from which an MLRA is determined. It is also the basic unit for state land resource maps. It is coextensive with state general soil map units, but some general soil map units are subdivided into land resource units because of significant geographic differences in climate, water resources, and land use (U.S. Department of Agriculture, Natural Resources Conservation Service, 2005).

The MTP/SCS plan area falls within two MLRAs identified by the USDA (Earth System Science Center, 1998). Most of the plan area is located within MLRA 17, the Sacramento and San Joaquin Valleys. Descriptions of soil texture and erosion, runoff, and expansion hazards are described for the surface horizon of the soils only.

Sacramento Valley

The western portion of the MTP/SCS plan area is located within MLRA 17, the Sacramento and San Joaquin Valleys. The soils are nearly level, and are alluvial, occurring on low terraces, fans, floodplains, and basins. Soil textures are generally clayey to loamy sand. Soils in the northern portion of the plan area are organic and very deep.

Erosion hazard is slight to none, runoff is very slow, and soil expansiveness is low to high, depending on geographic location and texture.

Sierra Nevada Foothills

The eastern portion of the MTP/SCS plan area is located within MLRA 18, the Sierra Nevada Foothills. The soils are nearly level to moderately sloping, and are primarily alluvial, although soils are residual at the highest elevations. Soil textures are generally loamy to sandy-textured, and some soils are gravel-like and cobble-like in texture; in addition, soils are shallow to deep.

The erosion hazard is moderate due to the presence of poorly aggregated volcanic and igneous rocks. Runoff is moderate to rapid, and soil expansiveness is low moderate.

Mineral Resources

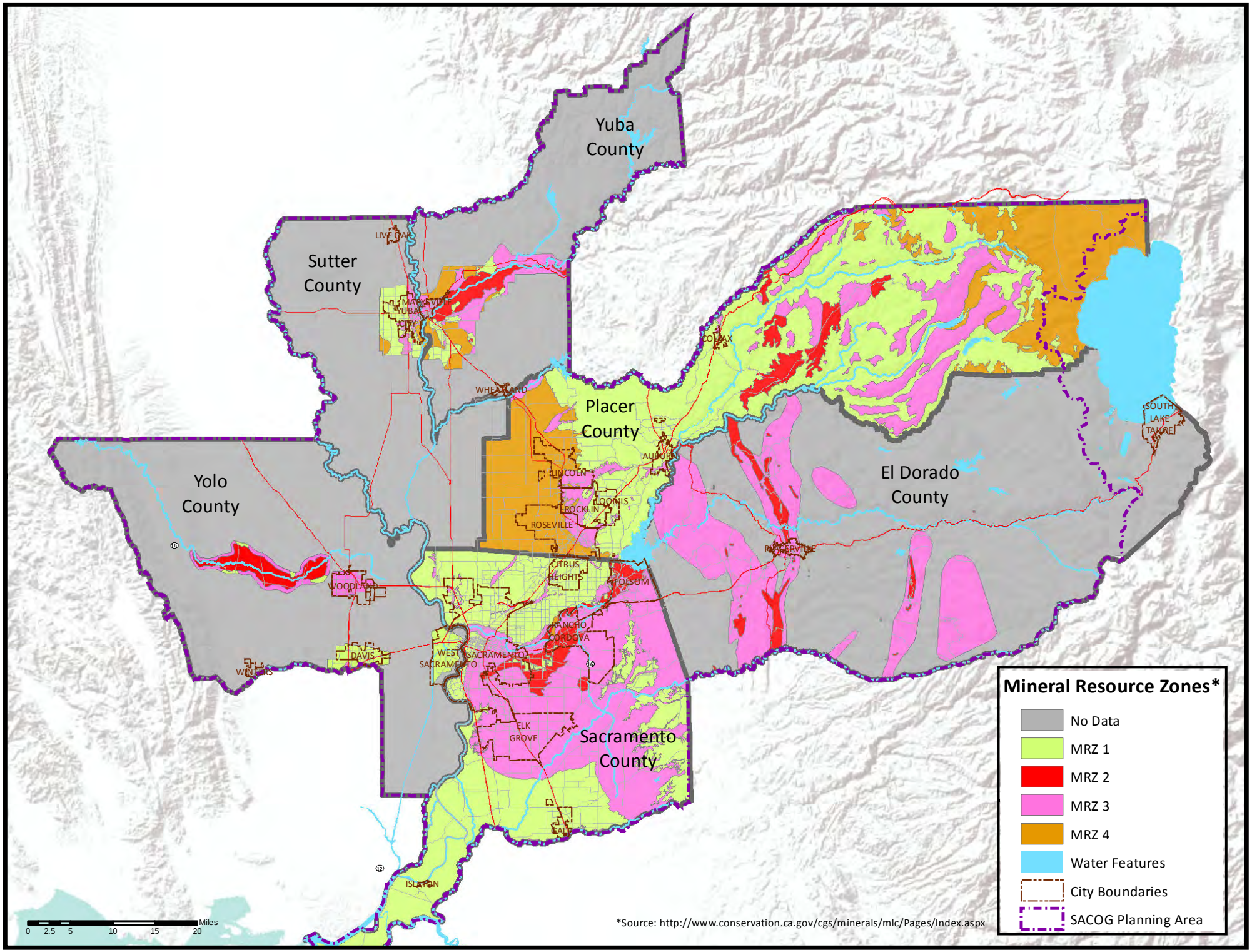
A number of mineral resources can be found within the region, including construction aggregate (sand, gravel, and crushed stone), clay, gold, etc. Mineral Resource Zone (MRZ) classifications are provided in accordance with the California's State and Surface Mining and Reclamation Act (SMARA) of 1975 (Pub. Resources Code §2710-2796) described in further detail in the Regulatory Setting. MRZ-2 locations indicate the presence of or high likelihood of high-quality mineral resources (See Figure 9.5).

MRZs are classified as follows:

> MRZ-1 – Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
>
> MRZ-2 – Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
>
> MRZ-3 – Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
>
> MRZ-4 – Areas where available information is inadequate for assignment into any other MRZ.

Information regarding MRZ-2 locations was obtained from each county's general plan. Sacramento County includes MRZ-2 locations in the north-central part of the county near the Jackson Corridor and in northeastern part of the county north of the Eaton area. Sutter County includes MRZ-2 locations east of Yuba City and within the Sutter Buttes. Yolo County includes MRZ-2 location in the central part of the county surrounding Highway 16, west of Interstate 5 and east of the Capay Valley. Yuba County includes MRZ-2 locations west of Highway 70 along the south side of Highway 20. Additional MRZ-2 and other MRZs are depicted in Figure 9.5.

Figure 9.5 Mineral Resource Zones



Regulatory Setting

Federal Regulations

Clean Water Act 402/National Pollutant Discharge Elimination System

The Clean Water Act (CWA) of 1972 (33 U.S.C. §1251 et seq.) is discussed in detail in Chapter 11 – Hydrology and Water Quality. However, because CWA section 402 is directly relevant to excavation and grading, additional information is provided below.

Amendments in 1987 to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. The Environmental Protection Agency (EPA) has delegated to the State Water Resources Control Board (SWRCB) the authority for the NPDES program in California, which is implemented by the State's nine Regional Water Quality Control Boards (RWQCBs). Under the NPDES Phase II Rule, construction activity disturbing one or more acres must obtain coverage under the State's General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit). Proponents of specific projects under the proposed MTP/SCS that would disturb one or more acres are required to obtain a General Construction Permit, prepare a Notice of Intent and a Storm Water Pollution Prevention Plan (SWPPP), and implement and maintain Best Management Practices (BMPs) to avoid adverse effects on water quality as a result of construction activities, including earthwork.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act (EHRA) of 1977 (42 U.S.C. § 7701 et. seq.) established the National Earthquake Hazards Reduction Program as a long-term earthquake risk reduction program for the United States which focuses on: developing effective measures to reduce earthquake hazards; promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, building standards and model building code organizations, engineers, architects, building owners, etc.; improving the understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and developing and maintaining the Advanced National Seismic System, the George E. Brown Jr. Network for Earthquake Engineering Simulation, and the Global Seismic Network (Folger, 2011).

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Act, originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (Earthquake Fault Zones). It also defines criteria

for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for the purposes of the Act as within the last 11,000 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant, 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (Pub. Resources § 2690–2699.6), is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. In addition to the Seismic Hazards Mapping Act, the California Geologic Survey (CGS) provides guidelines (*Guidelines for Evaluating and Mitigating Seismic Hazards in California)* for evaluating seismic hazards other than surface fault rupture, and for mitigation measures as required by Public Resource Code (PRC) 2695(a) (California Geologic Survey, 2008). The most current guidelines are provided in Special Publication 117A of 2008.

California Building Code

The State of California's minimum standards for structural design and construction are given in the California Building Code (CBC) (C.C.R. Title 24). The CBC is based on the UBC (International Code Council, 1997), which is used widely throughout United States (generally adopted on a state-by-state or district-by-district basis) and has been modified for California with numerous, more detailed or more stringent regulations. The CBC provides standards for various aspects of construction, including excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In addition, to limit and prevent damage from earthquake motion, the CBC requires structures for human occupancy, with limited exceptions, to be designed and constructed to resist these motions based upon engineering properties and soil-type of the proposed site.

Caltrans Seismic Design Criteria

The California Department of Transportation (Caltrans) provides Seismic Design Criteria (SDC), which is an encyclopedia of new and currently practiced seismic design and analysis methodologies for the design of new bridges in California. The SDC adopts a performance-

based approach specifying minimum levels of structural system performance, component performance, analysis, and design practices for ordinary standard bridges. The SDC has been developed with input from the Caltrans Offices of Structure Design, Earthquake Engineering and Design Support, and Materials and Foundations. Memo 20-1 outlines the bridge category and classification, seismic performance criteria, seismic design philosophy and approach, seismic demands and capacities on structural components and seismic design practices that collectively make up Caltrans' seismic design methodology.

State and Surface Mining and Reclamation Act of 1975

California's State and Surface Mining and Reclamation Act (SMARA) of 1975 (Pub. Resources Code §§ 2710-2796) was enacted in response to land use conflicts between urban growth and essential mineral production. The stated purpose of SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that adverse environmental effects of mining are prevented or minimized; that mined lands are reclaimed and residual hazards to public health and safety are eliminated; and that consideration is given to recreation, watershed, wildlife, aesthetic, and other related values. Notice requirements of permitting a use that would preclude future extraction of identified mineral resources, defined as either the potential to extract minerals in MRZ-2 lands, or land designated in a lead agency's general plan as having important mineral resources, to be protected. In addition, these noticing requirements are subject to CEQA public review requirements.

MRZ classifications are based upon known or inferred presence and significance of a given mineral resource from available geologic information. SMARA requires all cities and counties to incorporate the mapped designations that are approved by the Division of Mines and Geology.

Local Regulations

Geotechnical Investigations

Local jurisdictions in the MTP/SCS plan area typically regulate construction activities through a process that may require the preparation of a site-specific geotechnical investigation, as required in the California Building Code, Title 24, Part 2, Chapter 18. The purpose of a site-specific geotechnical investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and the previous history of excavation and fill placement. Proponents of specific projects in the proposed MTP/SCS that require design of earthworks and foundations for proposed structures will need to prepare geotechnical investigations on the physical properties of soil and rock at the site prior to project design.

Local Grading and Erosion Control Ordinances

Many counties and cities in the MTP/SCS plan area have grading and erosion control ordinances. These ordinances are intended to control erosion and sedimentation caused by construction activities. A grading permit is typically required for construction-related projects.

As part of the permit, project applicants usually must submit a grading and erosion control plan, vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include a description of BMPs similar to those contained in a SWPPP.

City and County General Plans

The seismic elements of the various city and county general plans of the MTP/SCS plan area contain goals, objectives, and policies aimed at reducing the seismic risk to people and property. Proponents of specific projects in the MTP/SCS plan area would be required to consult the applicable general plans and design the projects consistent with the applicable guidelines of the jurisdictions in which the projects are located.

Septic Tanks

County general plans include polices for the construction, re-construction, repair, or abandonment of a septic system. To implement such policies the environmental health department for each county requires permits to dispose of sewage where sewer systems do not exist. In addition, the CBC also includes requirements for septic standards.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact geology, seismicity, soils and mineral resources. The analysis is programmatic and considers potential impacts on the regional level in terms of both land use and transportation impacts.

By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

The land use analysis requires assessing the amount of growth (population, housing, and employment) projected for the region by 2035, and considering how that growth will impact geology, seismicity, soils, and mineral resources in the region. A brief description of the types of typical geological, mineral resources, seismicity, and soils issues found within the region are discussed above in the settings section.

The proposed MTP/SCS contains $35.2 billion (in current year dollars) worth of roadway and transit investments by 2035. Roadway transportation projects consist of freeway, high-occupancy vehicle (HOV) lanes, auxiliary, arterial/expressway miles, collector and local streets, Class I bicycle and pedestrian facilities, and Class II bicycle lanes. Different project types will likely have different impacts on geology, seismicity, soils, and mineral resources.

The evaluation of geology, seismicity, soils and mineral resource impacts in this section assumes that construction and development in the MTP/SCS plan area will adhere to the latest federal, state, and local regulations, and conforms to the latest standards in the industry, as appropriate for individual projects.

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, see Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

Criteria for Determining Significance

Numerous sources were evaluated in order to develop significance criteria. Major sources included city and county general plans in the MTP/SCS plan area, Appendix G of the State California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.) Guidelines, and state and federal regulations.

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

    i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42;

    ii) Strong seismic ground shaking;

iii) Seismic-related ground failure, including liquefaction; or

iv) Landslides.

2. Result in substantial soil erosion or the loss of topsoil.
3. Located a project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
4. Be located on expansive soil, as defined in Table 18-1-B of the UBC (International Conference of Building Officials, 1994), creating substantial risks to life or property.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.
6. Result in impacts to geology, seismicity, and soils from construction of the proposed MTP/SCS projects.
7. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
8. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.
9. Result in impacts to mineral resources from construction of the proposed MTP/SCS projects.

Impacts and Mitigation Measures

Impact GEO–1a: Expose people or structures to substantial risk related to fault rupture.

A. Regional Impacts

Development within the region will include a variety of land uses, ranging from residential to commercial or industrial, that will increase the number of people, structures, and density in the MTP/SCS plan area; fault rupture, strong seismic ground shaking, seismic-related ground failure, and landslides could be impacted as a result of these land uses and development.

Fault rupture has the potential to compromise the structural integrity of new facilities from the proposed land uses. Buried thrust faults and inferred faults are located within the boundaries of the proposed MTP/SCS; however they do not have surface ruptures and are not officially recognized. The only officially recognized fault in the current Alquist-Priolo Map is the Hunting Creek Fault (see Figure 9.2) in the extreme eastern portion of Yolo County. The Hunting Creek Fault is in a predominately agricultural and open space area where no development is planned. As a result, implementation of the proposed MTP/SCS would not likely expose people or structures to a known fault rupture.

Therefore, the potential for adverse fault impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1a. No mitigation is required.

A variety of transportation improvements are included in the proposed MTP/SCS such as new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. The proposed MTP/SCS projects involve the expansion or extension of the transportation system, which may expose people or structures to a fault rupture, strong seismic ground shaking, seismic-related ground failure, and landslides.

Based on available knowledge of fault locations and locations of earthquake epicenters, the risk of surface fault rupture in the MTP/SCS plan area is generally low because of the scarcity of active faults. The Alquist-Priolo Act strictly regulates where development and road projects can occur in relation to faults. The only fault delineated on an Alquist-Priolo Map is the Hunting Creek Fault in Yolo County, and no transportation improvements are proposed within or near this known fault line.

Therefore, the potential for adverse fault impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1a. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to expose people or structures to substantial risk related to fault rupture.

Therefore, the potential for adverse fault impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-1a. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to expose people or structures to substantial risk related to fault rupture.

Therefore, the potential for adverse fault impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-1a. No mitigation is required.

Impact GEO–1b: Expose people or structures to substantial risk related to ground shaking.

A. Regional Impacts

The MTP/SCS plan area is not very seismically active; however, ground shaking has occurred in the region and will likely occur again. The possibility of widespread exposure to people and structures from ground shaking can vary across an area and depends on such factors as earthquake intensity and fault mechanism, duration of shaking, soil conditions, type of building, and other factors. Figure 9.3 shows the levels of earthquake hazard and the related intensity that areas within the region may experience. The western part of the region has a higher expected level of earthquake hazard (low to moderate) compared with the rest of the region, which is expected to experience lower levels of shaking, less frequently. However, very infrequent earthquakes could potentially cause strong ground shaking within the region.

Development of the proposed land uses would be required to conform to the current seismic design provisions of the UBC and CBC through Title 24 of the CCR, to provide for the latest in earthquake safety and mitigate losses from an earthquake. Proposed developments would adhere to the local building code requirements that contain seismic safety requirements to resist ground shaking through modern construction techniques. In addition, development would comply with local general plans, and in accordance with standard industry practices and State provided guidance, such as CGS Special Publication 117A, which provides guidance for the evaluation and mitigation of earthquake-related hazards.

Therefore, the potential for adverse ground shaking impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

Adverse impacts from implementation of transportation improvements from ground shaking as a result of an earthquake is low in most parts of the region. Figure 9.3 depicts the ground shaking hazard; the level of risk to people and structures, including transportation facilities, would depend on the magnitude and location of ground shaking.

The implementation of roadway improvements would be required to follow design provisions through the UBC and CBC, and local building standards, to employ design standards that consider seismically active areas in order to safeguard against major structural failures or loss of life. Similarly, bridge design would be required to comply with Caltrans design criteria. Caltrans provides SDC for the design of new bridges in California, specifying minimum levels of structural system performance, component performance, analysis, and design practices for bridges.

Therefore, the potential for adverse ground shaking impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to expose people or structures to substantial risk related to ground shaking.

Therefore, the potential for adverse ground shaking impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to expose people or structures to substantial risk related to ground shaking.

Therefore, the potential for adverse ground shaking impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-1b. No mitigation is required.

Impact GEO–1c: Expose people or structures to substantial risk from seismic-related ground failure, including liquefaction.

A. Regional Impacts

Ground failure, including liquefaction, as a result of an earthquake could occur in the MTP/SCS plan area, potentially damaging structures and property from the sudden loss in strength of unconsolidated sediments. However, since the region is not very seismically active, the potential for substantial seismic-related ground failure is low.

The impacts from ground failure, including liquefaction, from development of the proposed land uses would be addressed through site-specific geotechnical studies prepared in accordance with standard industry practices and State provided guidance, such as CGS Special Publication 117A, which would specifically address liquefaction. In addition, development would conform to the current seismic design provisions of the UBC and CBC to mitigate losses from ground failure as a result of an earthquake. Proposed developments would also adhere to the local general plans, and local building code requirements that contain seismic safety requirements to resist ground failure through modern construction techniques.

Therefore, the potential for adverse ground failure impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

Implementation of transportation improvements in the proposed MTP/SCS and the related risk from ground failure including liquefaction as a result of an earthquake could occur in the MTP/SCS plan area. However, since the region is not very seismically active, the potential for substantial seismic-related ground failure is low.

Adverse impacts as a result of ground failure, including liquefaction, from implementation of the proposed transportation improvements would be addressed through site-specific geotechnical studies prepared in accordance with standard industry practices and State provided guidance, such as CGS Special Publication 117A. Proposed transportation improvements would conform to the current seismic design provisions of the UBC and CBC to mitigate losses from ground failure as a result of an earthquake. Proposed developments would also comply with local general plans, and local building code requirements that contain seismic safety requirements to resist ground failure through modern construction techniques.

Therefore, the potential for adverse ground failure impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to expose people or structures to substantial risk from seismic-related ground failure, including liquefaction.

Therefore, the potential for adverse ground failure impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to expose people or structures to substantial risk from seismic-related ground failure, including liquefaction.

Therefore, the potential for adverse ground failure impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-1c. No mitigation is required.

Impact GEO–1d: Expose people or structures to substantial risk related to landslides.

A. Regional Impacts

The MTP/SCS plan area is relatively flat, with the exception of foothills located in the eastern region, and a small mountain range located in the northwestern region. Because the region is relatively flat and not seismically active, and because the probability of ground shaking is low (see Figure 9.3), the risk of landslides is also low in most parts of the region.

Development is subject to local building codes and the UBC, and CBC, to employ design standards that consider seismically-active areas in order to safeguard against major structural failures or loss of life. A site-specific geologic investigation and analysis in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, will minimize risk associated with landslides.

Therefore, the potential for adverse landslide impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

The proposed MTP/SCS includes transportation projects that could be located in areas with potential for landslides, exposing people and structures to landslides. However, because the MTP/SCS plan area is relatively flat and not seismically active, and because the probability of ground shaking is low (see Figure 9.3), the risk of landslides is also low in most parts of the region.

Transportation improvements are subject to local building codes and the UBC, and CBC, to employ design standards that consider seismically-active areas in order to safeguard against major structural failures or loss of life. Landslide hazards from sloping, soils, and seismic ground shaking may occur in the MTP/SCS region, and site-specific geologic investigation and analysis by a licensed professional and conducted in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, will minimize risk associated with landslides.

Therefore, the potential for adverse landslide impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for

Development are not likely to expose people or structures to substantial risk related to landslides.

Therefore, the potential for adverse landslide impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to expose people or structures to substantial risk related to landslides.

Therefore, the potential for adverse landslide impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-1d. No mitigation is required.

Impact GEO-2: Result in substantial soil erosion or the loss of topsoil.

A. Regional Impacts

New land uses and development as a result of implementing the proposed MTP/SCS could result in soil erosion or the loss of topsoil because of a greater degree of exposed graded surfaces, excavation, stock piling, or boring which are necessary during development. Development may disturb previously undisturbed soils, and new development may increase water runoff, causing erosion problems, and potentially, slope failure.

The Sacramento Valley consists of soils that are determined to have slight to no erosion hazard. The Sierra Nevada Foothills consist of soils that are determined to have moderate erosion hazard. The UBC regulates slope instability or erosion problems, and requires certain foundation engineering and investigation of soils on sites proposed for development in geologic hazard areas. The reports from these investigations must demonstrate the hazard from the project will be eliminated or there is no danger for the intended use of the site. All major earthwork requires a grading permit, in order to minimize erosion, and local grading ordinances ensure that development in geologic hazard areas does not pose a threat to human life and property.

In addition, development and uses may be subject to compliance with a NPDES permit, including the implementation of BMPs, some of which are specifically implemented to reduce soil erosion or loss of topsoil, and the implementation of a SWPPP through the local jurisdiction. However, preventing soil erosion or the loss of topsoil through local grading ordinances and other local controls are under the implementing agency's jurisdiction. In light of the regional nature of the MTP/SCS, it is unknown whether the implementation of state and local controls and measures will eliminate soil erosion or the loss of topsoil to a less than significant level.

Therefore, the potential for adverse soil impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered potentially significant (PS) for Impact GEO-2. See Mitigation Measure GEO-1.

Transportation improvements in the proposed MTP/SCS include new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Soil erosion and loss of topsoil could result from implementation of the proposed MTP/SCS projects that involve the expansion or extension of the transportation system into previously undeveloped land.

Soil erosion and loss of topsoil could be impacted through transportation network improvements, since these usually involve grading or earthwork, and increased impervious surfaces and removal of vegetative cover. However, with the exception of the Sierra Nevada Foothills where moderate erosion hazards may be present, the MTP/SCS plan area is located in areas that have slight to no erosion hazard. As with land use projects discussed above, the transportation network improvements would be subject to a variety of state and local regulations, including the UBC and CBC requirements and local ordinances and regulations, which are designed to avoid potential hazards associated with soil erosion. However, as with the land use projects, it is unknown whether the implementation of these regulatory controls and measures will reduce the impacts to a less than significant level.

Therefore, the potential for adverse soil impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered potentially significant (PS) for Impact GEO-2. See Mitigation Measure GEO-1.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in substantial soil erosion or the loss of topsoil.

Therefore, the potential for adverse soil impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities is considered potentially significant (PS) for Impact GEO-2. See Mitigation Measure GEO-1.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in substantial soil erosion or the loss of topsoil.

Therefore, the potential for adverse soil impacts related to land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-2. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in substantial soil erosion or the loss of topsoil.

Therefore, the potential for adverse soil impacts related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered potentially significant (PS) for Impact GEO-2. See Mitigation Measure GEO-1.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs have the potential to result in substantial soil erosion or the loss of topsoil.

Therefore, the potential for adverse soil impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered potentially significant (PS) for Impact GEO-2. See Mitigation Measure GEO-1.

Mitigation Measure GEO-1: Reduce soil erosion and loss of topsoil through erosion control mitigation and SWPPP.

The implementing agency should require the development and implementation of detailed erosion control measures, consistent with the CBC and UBC regulations and guidelines and/or local NPDES, to address erosion control specific to the project site; revegetate sites to minimize soil loss and prevent significant soil erosion; avoid construction on unstable slopes and other areas subject to soil erosion where possible; require management techniques that minimize soil loss and erosion; manage grading to maximize the capture and retention of water runoff through ditches, trenches, siltation ponds, or similar measures; and minimize erosion through adopted protocols and standards in the industry. The implementing agency should also require land use and transportation projects to comply with locally adopted grading, erosion, and/or sediment control ordinances beginning when any preconstruction or construction-related grading or soil storage first occurs, until all final improvements are completed.

If a local grading, erosion, and/or sediment control ordinance or other applicable plans or regulations do not exist, the jurisdiction should adopt ordinances substantially addressing the foregoing features and apply those ordinances to new development projects.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact GEO-2 would be reduced to less than significant (LS). However, SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the lead agency to determine and adopt mitigation. Therefore, Impact GEO-2 is considered significant and unavoidable (SU).

Impact GEO-3: Locate a project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

A. Regional Impacts

The development forecast in the proposed MTP/SCS could be located on geologic units or soils that are unstable, or that could become unstable and result in geologic hazards. Structures, including residential units and commercial buildings, could be damaged as a result of a landslide or mudslide from unstable soils or geologic units. Slope failure can occur naturally through rainfall or seismic activity, or through earthwork and grading related activities.

Soils in the Sacramento Valley are relatively level, and soils in the Sierra Nevada Foothills are relatively level to moderately sloping. Most of the new development would primarily occur adjacent to existing development that may have already been tested for slope failure. New development would also include earthwork and grading which may cause soils to become unstable and cause slope failure.

This impact is addressed largely through the integration of geotechnical information in the planning and design process for projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, used to minimize the risk associated with these hazards. These measures generally are enforced through compliance with the UBC and CBC requirements, and local building codes and ordinances, to avoid or reduce hazards relating to unstable soils and slope failure.

Therefore, the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

Transportation improvements in the proposed MTP/SCS include new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects that could be located on unstable soil from the expansion or extension of the transportation system.

Impacts from transportation network improvements are addressed through the same laws and regulations applicable to development projects.

Therefore, the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to the transportation improvements in the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to result in landslide, lateral spreading, subsidence, liquefaction, or collapse.

Therefore, the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to result in landslide, lateral spreading, subsidence, liquefaction, or collapse.

Therefore, the potential landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-3. No mitigation is required.

Impact GEO-4: Result in development on expansive soil, creating substantial risks to life or property.

A. Regional Impacts

Expansive soil in the MTP/SCS plan area is variable, ranging from low to high (California Geological Survey). Expansive soils have the potential to compromise the structural integrity of proposed new structures including foundations and pavement. This type of damage can also occur over an extended period of time.

As discussed under Impact GEO-3, this impact is addressed largely through the integration of geotechnical information in the planning and design process for development projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, used to minimize the risk associated with these hazards. These measures generally are enforced through

compliance with the UBC and CBC requirements, and local building codes and ordinances, to avoid or reduce hazards relating to unstable soils and slope failure.

Therefore, the potential for expansive soil impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

Transportation improvements in the proposed MTP/SCS include new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects that could be located on unstable soil from the expansion or extension of the transportation system.

Impacts from transportation network improvements are addressed through the same laws and regulations applicable to development projects.

Therefore, the potential for expansive soil impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to result in development on expansive soil that would create substantial risks to life or property.

Therefore, the potential for expansive soil impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to result in development on expansive soil that would create substantial risks to life or property.

Therefore, the potential for expansive soil impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-4. No mitigation is required.

Impact GEO-5: Have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems where sewers are not available for the disposal of waste water.

A. Regional Impacts

Land uses and development in the proposed MTP/SCS include a mix of projects ranging from low to high-density in the urbanized areas to low-density projects in the Rural Residential Communities. Sewer systems are required for the most of the areas in the proposed MTP/SCS; however, the maximum density for most Rural Residential Communities is one unit/acre, which provides adequate size for a traditional septic tank or alternative septic system.

Local jurisdictions have general plans that contain policies and implementation measures, including Best Management Practices relevant to the use of septic tanks or alternative water disposal systems, and county environmental health departments regulate septic tanks through measures such as requiring a Sewage Disposal Permit for construction, re-construction, repair, or abandonment of septic tanks. In terms of alternative water disposal systems, the same measures would be enforced.

Therefore, the potential for soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

Transportation projects in the region will include expansion and extension of the network; however, transportation projects in the proposed MTP/SCS will not include projects that require septic tanks or alternative water disposal systems.

Therefore, the potential for soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems.

Therefore, the potential for soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential

Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems.

Therefore, the potential for soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems impacts related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-5. No mitigation is required.

Impact GEO-6: Result in a substantial impact to geologic resources during construction.

A. Regional Impacts

The proposed land uses and developments will include impacts related to geologic resources during normal construction activities such as grading excavation, clearing, removal of vegetation cover, soil removal, etc. that could temporarily increase runoff, erosion, and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas.

Construction activities are regulated by the UBC, CBC, and local building codes. Any major earthwork requires a grading permit that complies with local grading ordinances. In addition, construction activities may be subject to compliance with a NPDES permit including the implementation of BMPs, some of which are specifically implemented to reduce soil erosion or loss of topsoil, and implementation of a SWPPP. However, preventing or mitigating construction-related impacts through state and local ordinances or other local controls are under the implementing agency's jurisdiction. In light of the regional nature of the MTP/SCS, it is unknown whether the implementation of state and local controls and measures will eliminate construction-related impacts to a less than significant level.

Therefore, the potential for substantial impact to geologic resources during construction related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered potentially significant (PS) for Impact GEO-6. See Mitigation Measure GEO-2.

Construction activities required to implement the proposed MTP/SCS transportation projects also would include impacts to geologic resources from grading, excavation, clearing, removal of vegetation cover, soil removal, etc., that could temporarily increase runoff, erosion, and sedimentation. Construction of the proposed MTP/SCS transportation projects also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the

revegetation potential at construction sites and staging areas. The extent of these impacts will depend on the project size and location.

As with the land use projects in the MTP/SCS, construction activities for transportation projects are regulated by the UBC, CBC, and local building codes, and it is also unknown whether the implementation of state and local controls and measures will eliminate construction-related impacts to a less than significant level.

Therefore, the potential for substantial impact to geologic resources during construction related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered potentially significant (PS) for Impact GEO-6. See Mitigation Measure GEO-2.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in a substantial impact to geologic resources during construction.

Therefore, the potential for substantial impact to geologic resources during construction related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities is considered potentially significant (PS) for Impact GEO-6. See Mitigation Measure GEO-2.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in a substantial impact to geologic resources during construction.

Therefore, the potential for substantial impact to geologic resources during construction related to land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-6. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in a substantial impact to geologic resources during construction.

Therefore, the potential for substantial impact to geologic resources during construction related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered potentially significant (PS) for Impact GEO-6. See Mitigation Measure GEO-2.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs have the potential to result in a substantial impact to geologic resources during construction.

Therefore, the potential for substantial impact to geologic resources during construction related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered potentially significant (PS) for Impact GEO-6. See Mitigation Measure GEO-2.

Mitigation Measure GEO-2: Implement Mitigation Measure GEO-1.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact GEO-6 would be reduced to less than significant (LS). However, SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the lead agency to determine and adopt mitigation. Therefore, Impact GEO-6 is considered significant and unavoidable (SU).

Impact GEO-7: Result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

A. Regional Impacts

Land use development associated with implementation of the proposed MTP/SCS could result in a reduction in availability of important designated mineral resources to the region by making certain mineral resources inaccessible for future extraction. However, many MRZ-2 areas in the proposed MTP/SCS may already be developed, and the proposed MTP/SCS emphasizes further development within these already developed areas. The proposed MTP/SCS would not likely interfere with existing or new mineral resource production activities in those areas.

Local jurisdictions have policies to manage mineral resources through general plans, and are required to respond to mineral resource recovery areas that have been designated MRZ-2 locations (Figure 9.5) under SMARA, indicating that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists, thus reducing the impact to a designated mineral resource. However, local policies will not prevent the potential loss of availability of such mineral resources that would be of value to the region and the residents of the state because the decision to permit uses and developments or to protect designated mineral resources is a local decision.

Therefore, the potential for loss of availability of a designated mineral resource related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered potentially significant (PS) for Impact GEO-7. See Mitigation Measure GEO-3.

Implementation of proposed MTP/SCS transportation projects could result in transportation improvements including expansion and extension into MRZ-2 locations that would result in the loss of availability of a designated mineral resource in the region.

Transportation improvements that occur in the federal or state right-of-way must comply with the Caltrans encroachment permit process, and provide information on the location of mineral resources. In addition, local general plans provide policies to respond to mineral resource recovery areas designated as MRZ-2 locations under SMARA, reducing the impact to a designated mineral resource. However, local policies will not prevent the potential loss of availability of such mineral resources that would be of value to the region and the residents of the state because the decision to permit uses and developments or to protect designated mineral resources is a local decision.

Therefore, the potential for loss of availability of a designated mineral resource related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered potentially significant (PS) for Impact GEO-7. See Mitigation Measure GEO-3.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

Therefore, the potential for loss of availability of a designated mineral resource related to land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities is considered potentially significant (PS) for Impact GEO-7. See Mitigation Measure GEO-3.

The one Community Type excepted from the foregoing is Lands Not Identified for Development. Since the MTP/SCS does not forecast any development in these areas, there is no potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

Therefore, the potential for loss of availability of a designated mineral resource related to land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-7. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for

Development have the potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

Therefore, the potential for loss of availability of a designated mineral resource related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered potentially significant (PS) for Impact GEO-7. See Mitigation Measure GEO-3.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs have the potential to result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.

Therefore, the potential for loss of availability of a designated mineral resource related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered potentially significant (PS) for Impact GEO-7. See Mitigation Measure GEO-3.

Mitigation Measure GEO-3: Reduce the loss of availability of a designated mineral resource.

The implementing agency should protect against the loss of availability of a designated mineral resource through identification of locations with designated mineral resources and adoption and implementation of policies to conserve land that is most suitable for mineral resource extraction from development of incompatible uses.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact GEO-7 would be reduced to less than significant (LS). However, SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the lead agency to determine and adopt mitigation. Therefore, Impact GEO-7 is considered significant and unavoidable (SU).

Impact GEO-8: Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

A. Regional Impacts

Implementation of the proposed land uses and developments in the proposed MTP/SCS would include new residential, commercial, and other land uses and include infill development.

Local general plans, specific plans, and other land use plans include policies to protect existing and future mineral production and extraction activities from surrounding uses, and require that future projects near mining activities have compatible land uses. In addition, compliance with

SMARA requirements for mineral resource sites and notice requirements would further minimize impacts to locally-important mineral resource sites.

Therefore, the potential for an impact that results in the loss of availability of a locally-important mineral resource recovery site related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

Expansion or extension of the roadway network from implementing proposed MTP/SCS projects would require the need for additional land. Any improvements proposed in federal or state right-of-ways are required to obtain an encroachment permit from Caltrans and provide information on mineral resources.

Projects and uses near locally-important resources are regulated by local jurisdictions through policies incorporated into general plans, specific plans, and other land use plans; these policies provide protection of mineral resource production and extraction activities. In addition, compliance with SMARA requirements for mineral resource sites and notice requirements would further minimize impacts to locally-important mineral resource sites.

Therefore, the potential for an impact that results in the loss of availability of a locally-important mineral resource recovery site related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to result in the loss of availability of a locally-important mineral resource recovery site.

Therefore, the potential for an impact that results in the loss of availability of a locally-important mineral resource recovery site related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to result in the loss of availability of a locally-important mineral resource recovery site.

Therefore, the potential for an impact that results in the loss of availability of a locally-important mineral resource recovery site related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-8. No mitigation is required.

Impact GEO-9: Result in a substantial impact to mineral resources during construction.

A. Regional Impacts

Construction activities associated with implementation of proposed MTP/SCS projects and uses would require the use of mineral resources such as aggregate (sand, gravel, and crushed stone) and other mineral resources. However, the production and conservation of mineral resources is provided through a comprehensive surface mining and reclamation policy under SMARA. Additionally, local land use plans provide policies that protect mineral resources within their jurisdiction. Compliance with these policies will avoid or minimize substantial impact to mineral resources during construction of the proposed land uses and developments.

Therefore, in reliance on that regulatory environment, the potential for adverse mineral resource impacts during construction related to land use changes from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-9. No mitigation is required.

Implementation of proposed MTP/SCS transportation improvements will include construction activities that involve mineral resources such as aggregate and other mineral resources used in normal activities. However, SMARA provides policies regarding surface mining and reclamation, and compliance with these policies through local land use plans will avoid or minimize substantial impact to mineral resources during construction of transportation improvements.

Therefore, the potential for adverse mineral resource impacts during construction related to transportation improvements from implementation of the proposed MTP/SCS at the regional level is considered less than significant (LS) for Impact GEO-9. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are not likely to result in a substantial impact to mineral resources during construction.

Therefore, the potential for adverse mineral resource impacts during construction related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing

Communities, Rural Residential Communities, and Lands Not Identified for Development is considered less than significant (LS) for Impact GEO-9. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in the TPAs are not likely to result in a substantial impact to mineral resources during construction.

Therefore, the potential for adverse mineral resource impacts during construction related to the land use changes and transportation improvements from implementation of the proposed MTP/SCS in the TPAs is considered less than significant (LS) for Impact GEO-9. No mitigation is required.

CHAPTER 10 – HAZARDS AND HAZARDOUS MATERIALS

INTRODUCTION

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the hazards and hazardous materials environment within the MTP/SCS plan area. In addition, this chapter discusses emergency services and emergency plans. This chapter evaluates potential impacts on hazards and hazardous materials that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

One comment regarding public exposures from hazards and hazardous materials, submitted by Rick Bettis, was received during circulation of the Notice of Preparation (NOP), requesting that the potential public exposure to hazardous materials resulting from the location of transportation facilities and related land use is addressed. Refer to Appendix PD-1 for more details.

SETTING

Environmental Setting

Hazardous Materials

Hazardous materials exist in many forms such as liquids, solids, or contained gases, and can be man-made or naturally occurring. These materials can be found in many places such as in groundwater, used materials, rocks (asbestos), and as a result of an accident; they can also be an input into industrial processes, and a normal part of business operations for some industries.

The land uses associated with hazardous materials, and the transportation of hazardous materials and wastes, are significant issues that will be discussed in this chapter. Worker health and safety, administered by the United States Occupational Safety and Health Administration (OSHA), and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during the construction of projects in the proposed MTP/SCS.

Naturally occurring asbestos (NOA) can be found in rock formations in 44 of California's 58 counties. In the SACOG region, NOA is primarily found in western El Dorado County, with most concentrations in the El Dorado Hills area. NOA can also be found in a few scattered parts of western Placer County and a small number of sites in eastern Sacramento County. Maps of known and likely occurrences of NOA are shown in Figures 10.1, 10.2, and 10.3. The State Air Resources Board and all three counties have adopted measures to limit exposure to NOA, since exposure to asbestos fibers through inhalation or ingestion can, over time, result in lung-tissue damage. In general, NOA fibers do not pose a threat unless disturbed and/or introduced into the air as fugitive dust.

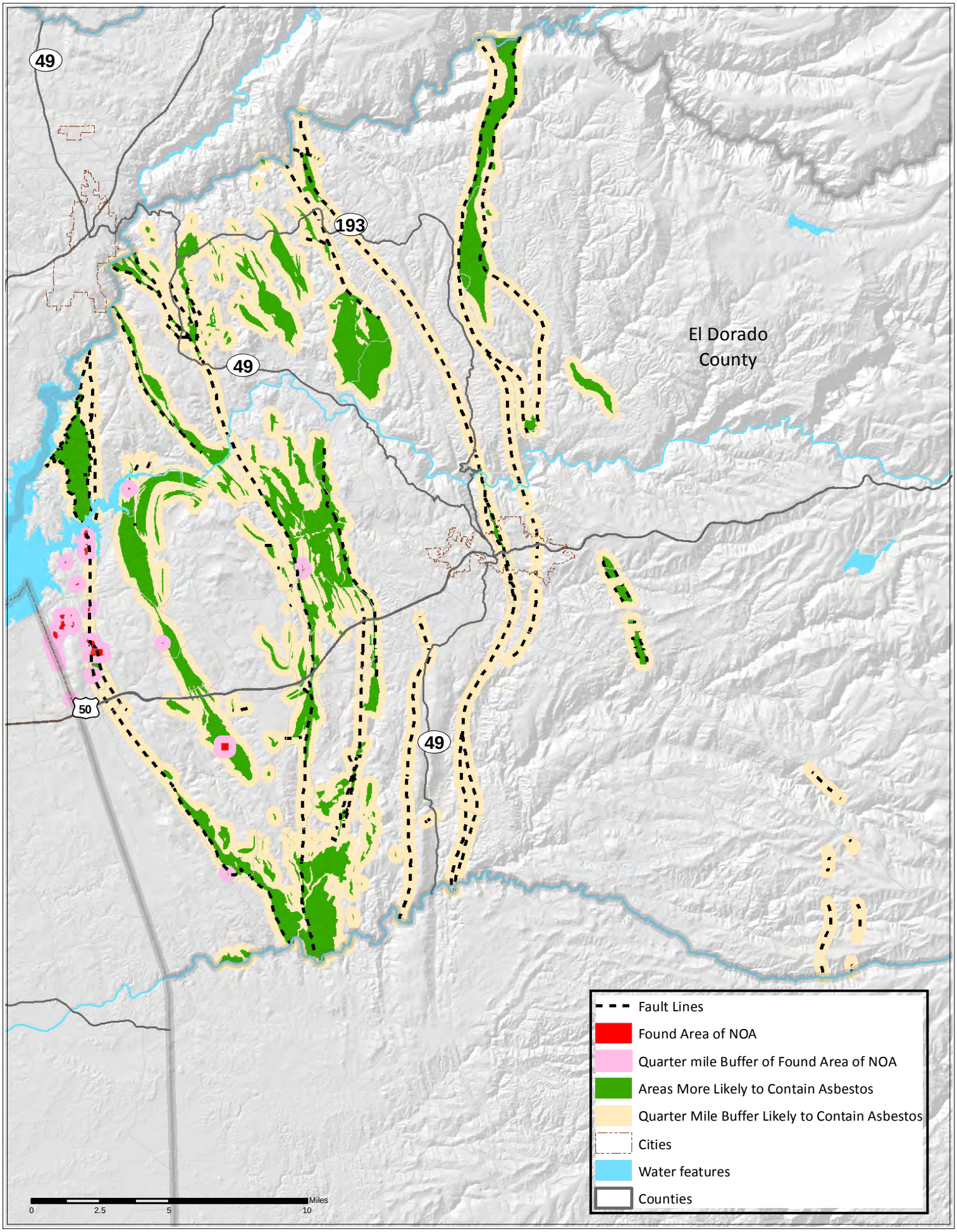
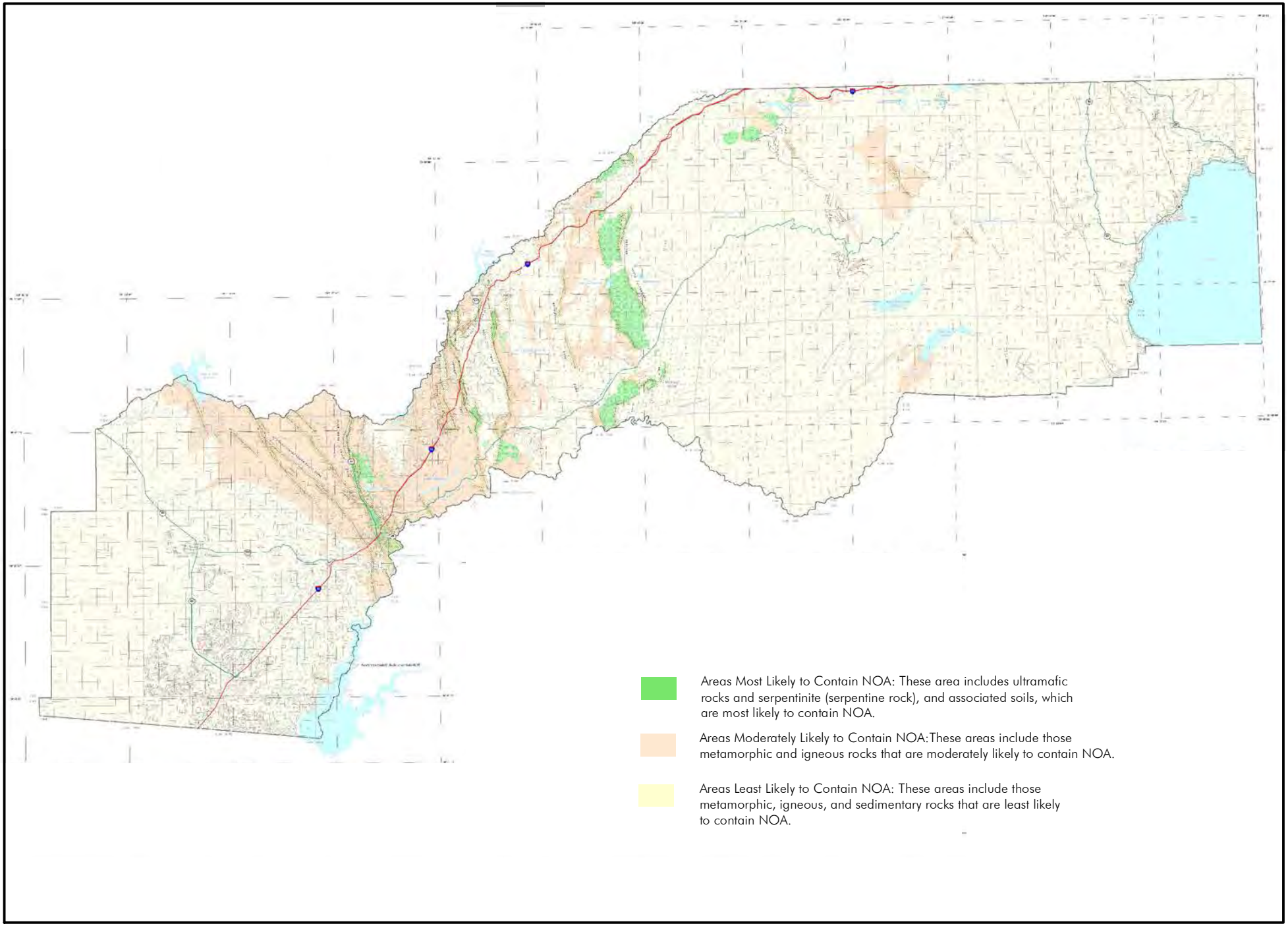


Figure 10.1 Naturally Occuring Asbestos in El Dorado County

Figure 10.2- Naturally Occuring Asbestos in Placer County



Source: El Dorado County Survey/GIS Division

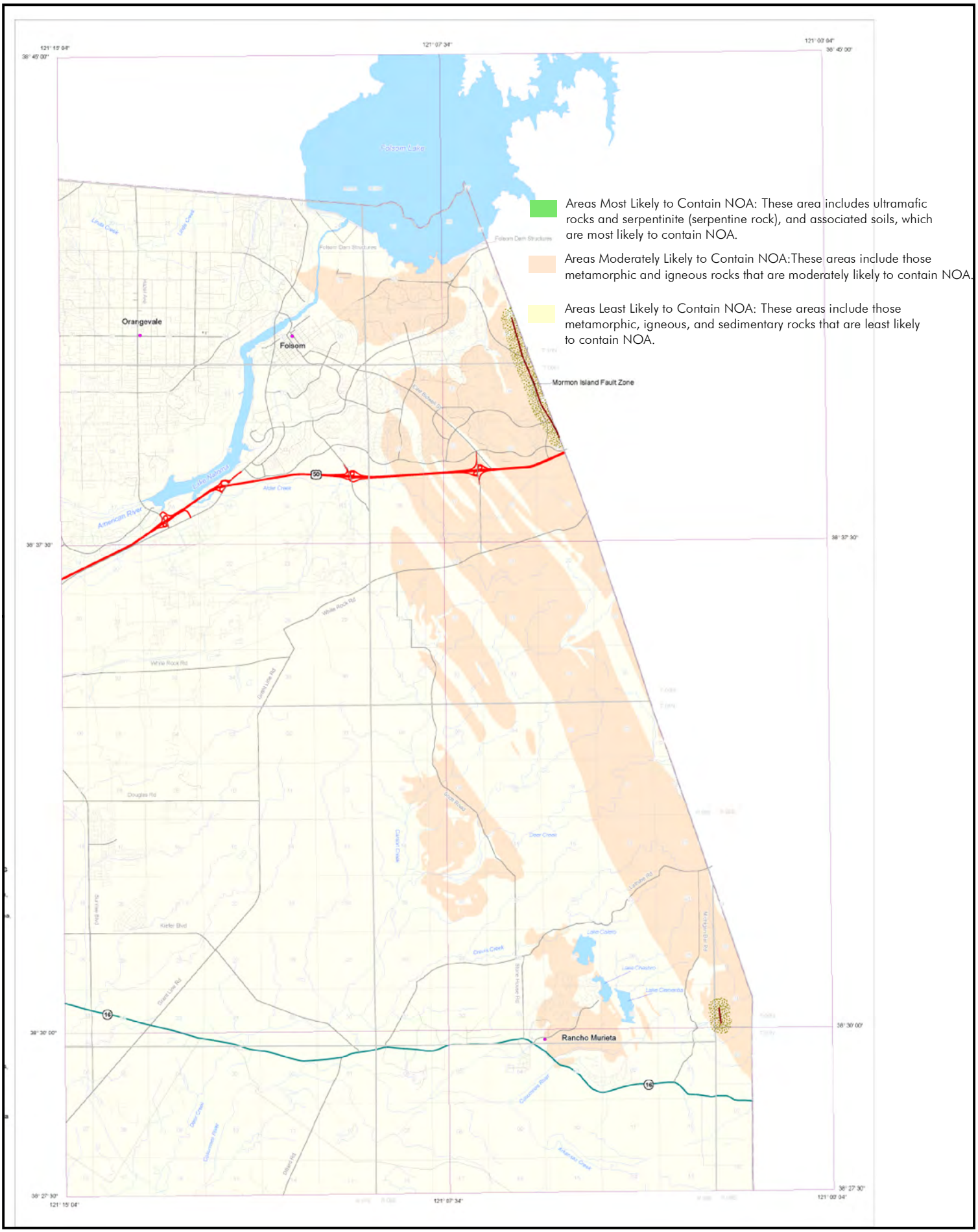


Figure 10.3- Naturally Occuring Asbestos in Sacramento County

Source: California Geological Survey http://www.consrv/ca/gov/cgs

Hazardous Waste Generation and Management

There are four general categories of waste management: source reduction, recycling, treatment, and residuals disposal. All of these activities can occur on-site at the location where they are generated. Recycling, treatment, and disposal can also occur off-site but require additional intermediate support to store and transport waste.

The generation and handling of hazardous waste in the region is monitored by the U.S. Environmental Protection Agency (EPA); Central Valley Regional Water Quality Control Board; Sacramento Metropolitan Air Quality Management District; and the Environmental Health and Hazardous Materials Control divisions of the six counties in the plan area. Businesses that generate hazardous waste are either Large-Quantity Generators (e.g., heavy industrial or commercial facilities) or Small-Quantity Generators (e.g., dry cleaners, automotive repair shops, etc.); these businesses require an EPA identification number used to monitor and track hazardous waste activities.

Certain land uses may also serve as an indication that there is a potential for generating hazardous materials or waste, or existing hazardous materials or waste may be present. Hazardous wastes can be generated during a transportation project's construction activities. Common examples include oil, transmission fluids, fuels, solvents, and adhesives. Unless standard precautions are taken during construction, these wastes can be released into the environment.

Transport of Hazardous Materials

The potential harm that hazardous waste can cause to people and the environment has warranted concern by national, state, and local governments on the safe transport of hazardous materials. Since hazardous materials are transported primarily on facilities shared by the public such as highways, rail lines and local roads, there is greater public exposure to these materials.

The proposed MTP/SCS addresses the movement of goods and people throughout the region. Within the context of the proposed MTP/SCS, the transportation of hazardous materials can take place by motor vehicle, pipeline, rail, ship, and air. As with the movement of goods and people in general, the movement of hazardous materials can be defined by trips and modes. Any given "trip" from origin to destination can involve one or more "modes." In other words, a shipment may begin on a truck and be transferred to a train and then again to another truck to reach its final destination. Table 10.1 describes a rough estimate of the volume of hazardous materials shipped in the region and the mode of transportation used.

The U.S. Department of Transportation (USDOT) regulates the transportation of hazardous materials by truck and rail, and the California Health Services Department regulates the haulers of hazardous waste.

A valid registration issued by the California Department of Toxic Substances Control (DTSC) is required, unless specifically exempted, to transport hazardous wastes. The California Department of Motor Vehicles (DMV) requires all hazardous materials transporters to possess a

commercial driver's license with a hazardous materials endorsement under the following circumstances:

- Hazardous materials shipments (unless specifically exempted) for which the display of placards is required per California Vehicle Code Section 27903.
- Hazardous materials shipments in excess of 500 lbs., transported for a fee, which would require placarding if shipped in greater amounts in the same manner.

Table 10.1
Shipment Characteristics by Mode of Transportation for CBSA of Origin:
2007 Sacramento—Arden Arcade—Yuba City, CA-NV (CA part)
Shipment Characteristics by Mode of Transportation for the United States: 2007

Mode of transportation	Tons All Freight 2007 (thousands)	Tons (percent of Total)	Hazardous Materials Estimate by Mode (thousands)	Percent Share of All Freight
All modes	**63,705**	**100.0**	**11,339**	**17.8**
Single modes	**53,677**	**84.3**	**9,716**	**18.1**
Truck (3)	52,641	82.6	**7,212**	13.7
Rail	949	1.5	**66**	7.0
Multiple modes	**876**	**1.4**	**170**	**19.4**
Parcel, U.S.P.S. or courier	237	0.4	**2**	0.7
Other multiple modes	52	0.1	**26**	49.9
Other and unknown modes	**S**	**S**	**-**	**-**

Key: S = Estimate does not meet publication standards because of high sampling variability or poor response quality. Estimates are based on final data from the 2007 Commodity Flow Survey. Because of rounding, estimates may not be additive.

Hazardous Materials Estimate by Mode is based upon the percentage of Hazardous Material Shipment Characteristics by Mode of Transportation: 2007 & Shipment Characteristics by Mode of Transportation for the United States: 2007

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics and U.S. Department of Commerce, U.S. Census Bureau, 2007 Economic Census: Transportation Commodity Flow Survey, December 2009.

Title 49 of the Code of Federal Regulations

Requirements per Title 49 of the Code of Federal Regulations (C.F.R.) Hazardous Materials Regulations (HMR) include the classification of materials, packaging (including manufacture, continuing qualification, and maintenance), hazard communication (e.g., package marking, labeling, placarding, and shipping documentation), transportation, handling, HAZMAT employee training, and incident reporting. These requirements are described in further detail below.

Packaging and Securement

Many hazardous materials can injure or kill on contact. In order to protect drivers and others, the rules advise shippers how to package safely. Loading, securement, stabilization, and segregation rules tell drivers how to load, transport, and unload their cargo.

Communicate the Risk

Shippers must warn drivers and others about a material's hazardous qualities. They must put warning labels and markings on packages and describe materials on the shipping paper in a way that clearly warns of the risk. Similarly, rules govern drivers. If there is an accident or a leak, the driver must warn others of danger. Placards and package markings are examples of effective tools to communicate the risk.

Division 1.1, 1.2, or 1.3 Explosives

The rules prohibit parking vehicles carrying Division 1.1 (mass explosive hazard), 1.2 (projection hazard), or 1.3 (mass fire hazard) explosives within five feet of the traveled part of the road. Except for short periods of time needed for vehicle operation necessities (e.g., fueling), parking is prohibited within 300 feet of a bridge, tunnel, or building; a place where people gather; or an open fire.

Vehicles may be parked unattended in a safe haven. A safe haven is a government-approved place for parking unattended vehicles loaded with explosives. Authorized safe havens are usually designated by local authorities. In California, safe havens are designated by the California Highway Patrol (CHP) and referred to as "safe parking places." The CHP has identified several routes as safe stopping places and safe parking places on the state highway system within or near the TMP/SCS plan area. They are listed in Table 10.2.

California General Hazardous Materials Routing Requirements

The following general routing and parking restrictions (Veh. Code, § 31303) apply to hazardous material and hazardous waste shipments for which the display of vehicle placards and/or markings is required per Vehicle Code Section 27903 *(except shipments subject to, and in conformance with, special routing and related requirements*):

- Unless specifically restricted or prohibited, use state or interstate highways which offer the least transit time whenever possible (Veh. Code, § 31304).
- Avoid, whenever practicable, congested highways, places where crowds are assembled, and residential districts (Veh. Code, § 515).
- Deviation from designated routes is not excusable on the basis of operating convenience.
- A loaded vehicle is not to be left unattended or parked overnight in a residential district.

- Except for specifically restricted or prohibited highways, other highways may be used that provide necessary access for pickup or delivery consistent with safe vehicle operation.
- Highways that provide reasonable access to fuel, repairs, rest, or food facilities that are designed to and intended for commercial vehicle parking may be used, when that access is safe and when the facility is within one-half mile of the points of exit and/or entry to the designated route.
- Restricted or prohibited routes may only be used when no other lawful alternative exists. The CHP also publishes a list of restricted or prohibited highways (Veh. Code, § 31304).

Table 10.2
Safe Stops and Parking Places for Explosive Materials Transporters and Inhalation Hazard Shipments

Routes	Location	Type
Explosive Materials Transporters		
I-5	Dunnigan	Dunnigan Truck Service
I-80	Sacramento County	Inspection Stop (both directions) - State of California platform scales, 0.8 miles west of Antelope Road. Safe stopping place when the driver is given specific instruction by a CHP officer.
I-80	City of Sacramento	49er Auto/Truck Plaza 2828 El Centro Road
I-80	Donner Summit	Required inspection stop
I-80	Blue Canyon (westbound vehicles)	Required inspection stop
I-80	Alta	Old Baxter's Café, North frontage road between Crystal Springs Road Overpass and Baxter Road overpass.
I-80.	Nyack	Nyack Garage, 1 Nyack Road
State Route 50	Echo Summit	Required inspection stop
Inhalation-Hazard Shipments		
I-5	Sacramento (southbound only)	Elkhorn Rest Area near Sacramento International Airport
I-80	Sacramento	49er Auto/Truck Plaza, 2828 El Centro Road

Source: California Highway Patrol – Explosives Routes and Stopping Places

In addition to regulating the transport of hazardous materials, the USDOT provides grants to local agencies for preparation and training relating to hazardous materials incidents through its Hazardous Materials Emergency Preparedness Program. The administrator of this program in the State of California is the Office of Emergency Services (OES). Another responsible agency at the federal level is the Federal Motor Carrier Safety Administration (FMCSA). FMCSA maintains a Hazmat Route Registry that describes the highway routes that must be utilized for the transport of certain types of hazardous materials. In California, this is monitored and regulated by the CHP and the California FMCSA Field Office. These routes are listed in Table 10.3 and depicted in Figure 10.4.

Table 10.3
Designated Routes for Hazardous Materials Transport

Radioactive Hazmat Preferred Routes
Interstate 5 (all segments within the region)
Interstate 80 (all segments within the region)
Non-Radioactive Hazmat Designated Routes
Interstate 5
Interstate 80
Interstate 80 Business (Capital City Freeway)
Prairie City Road (East of Sacramento) from US 50
State Route 16 from US 50 to State Route 49
State Route 49 from State Route 70 to State Route 140
State Route 70 (all segments within region)
State Route 99 from US 50 to Interstate 5
State Route 193 from State Route 65 to Interstate 80
Twin Cities Road from State Route 99 to Interstate 5
US 50 from Interstate 80 to Nevada
West El Camino Avenue from Interstate 80 to Interstate 5

Source: Federal Register, Volume 65, Number 233, December 4, 2000: Federal Motor Carrier Safety Administration Hazmat Route Registry, pp. 75772- 75779

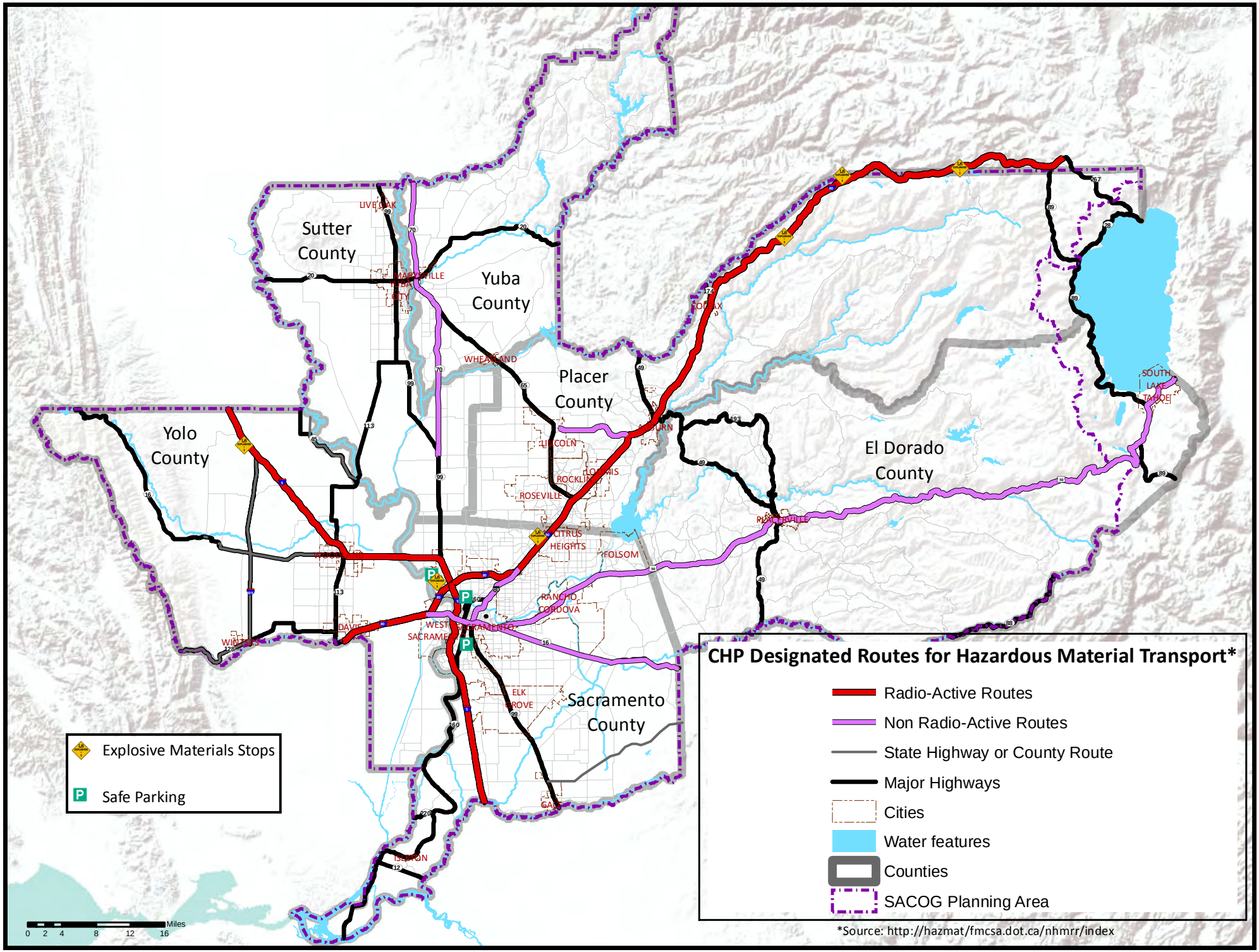
Use of Hazardous Materials in the Construction, Operation, and Maintenance of the Transportation System

A variety of hazardous materials are used in the construction and maintenance of the transportation system, such as solvents and architectural coatings (paints). The use and storage of these materials is governed by the California Occupational Safety and Health Administration (Cal OSHA) and by local fire departments. Disposal of these materials is then regulated by the DTSC.

Sites Contaminated by Hazardous Materials

Numerous sites throughout the SACOG region have become contaminated over the years by the land uses on those sites and by improper disposal of hazardous waste, both legally and illegally. These wastes have affected groundwater and soils throughout the area.

Figure 10.4 CHP Designated Routes for Hazardous Material Transport



Until the 1980's, the disposal of most chemical wastes on land was unregulated. As a result, many landfills and industrial sites became contaminated with toxic wastes. The largest and most contaminated of these became designated by the federal government as "Superfund" sites.

The EPA maintains the list of national Superfund sites. In the state of California, the DTSC maintains a list of contaminated sites, and a number of tools, for tracking and monitoring the generation, transportation, and disposal of hazardous waste. DTSC reports and databases include:

EnviroStor Database – This database includes known contaminated properties throughout the state. It also includes information on prior clean-up efforts, and planned clean-up activities.

Deed Restricted Sites – These are properties restricted by DTSC to certain uses or activities that will not compromise prior clean-up efforts or expose encapsulated hazardous waste.

GeoTracker Database – This database maintained by the State Water Resources Control Board, provides information in graphical form on underground storage tanks, Department of Defense sites, landfills, and Spills-Leaks-Investigations-Cleanups sites.

The Hazardous Waste Summary Report (Tanner Report) – This report is compiled from the hazardous waste manifests received each year by DTSC. It typically includes 900,000 – 1,000,000 manifests, representing 450,000 – 500,000 shipments.

The Hazardous Waste Transporter Database – Provides basic information about DTSC-registered hazardous waste transporters.

Two of the largest and most well-known contaminated sites in the region are the downtown Sacramento railyards and the GenCorp (Aerojet) property south of the intersection of Folsom Boulevard and Hazel Avenue. Both of these sites, as well as other Superfund sites, are being remediated. The railyards site is in the process of reuse in the form of a major redevelopment project adhering to the safety statutes in place to protect public health and safety. Table 10.4 shows a listing of sites in the SACOG region from DTSC's EnviroStor database.

Schools

Children are particularly susceptible to long-term impacts from exposure to hazardous materials. The CEQA Guidelines require EIRs to assess whether a project would emit hazardous air emissions or involve the handling of extremely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (see Pub. Resources Code, § 21151.4; Appendix G of the CEQA Guidelines). Figure 10.5 shows the one-quarter mile school buffer zones in the SACOG region.

Airports

Potential hazards in relationship to airport operations are generally regulated by the Federal Aviation Administration (FAA), with local planning and evaluation of proposed projects (in terms of a proposed project's compatibility in relationship to air and ground operations and the safety of the public) under the authority of the Airport Land Use Commission (ALUC) through Airport Land Use Compatibility Plans (ALUCPs). Figure 10.6 shows the airport buffer zones in the SACOG region; Table 10.5 lists the Airports in the SACOG region. The private airports in the region are depicted in Figure 10.7.

Table 10.5
Airports in the SACOG Region

El Dorado County Transportation Commission ALUC
Cameron Park Airport
Georgetown Airport
Placerville Airport
Placer County Transportation Planning Agency ALUC
Auburn Municipal Airport
Blue Canyon Airport
Truckee-Tahoe Airport (the airport is primarily in Nevada County, with a small portion in Placer County; however, it is represented by both counties through a special ALUC)
SACOG ALUC
Sacramento County
Franklin Field
Mather Airport
McClellan Airpark
Rio Linda Airport
Sacramento Executive Airport
Sacramento International Airport
Sunset Skyranch
Sutter County
Sutter County Airport
Yolo County
Borges-Clarksburg Airport
Watts-Woodland Airport
Yolo County Airport
Yuba County
Beale Air Force Base
Brownsville Airport
Yuba County Airport
University of California
UC Davis Airport (self-regulated)

Source: SACOG 2011

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
El Dorado County					
LAKEVIEW ELEMENTARY SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	3371 BRITTANY WAY	EL DORADO HILLS	EL DORADO
OAK RIDGE HIGH SCHOOL	SCHOOL CLEANUP	ACTIVE	1120 HARVARD WAY	EL DORADO HILLS	EL DORADO
VALLEY VIEW ELEMENTARY	SCHOOL CLEANUP	ACTIVE	LATROBE ROAD	EL DORADO HILLS	EL DORADO
Placer County					
AMERICAN FOREST PRODUCTS - FORESTHILL	VOLUNTARY CLEANUP	CERTIFIED	23801 AUBURN-FORESTHILL ROAD	FORESTHILL	PLACER
AMERICAN OLEAN TILE COMPANY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	8250 INDUSTRIAL AVENUE	ROSEVILLE	PLACER
BICKFORD RANCH PROPERTY	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	E. OF SIERRA COLLEGE BLVD & S.OF HWY 193	PENRYN	PLACER
BOHEMIA SUBDIVISION	VOLUNTARY CLEANUP	NO FURTHER ACTION	CANAL STREET - NORTH OF LUTHER ROAD	AUBURN	PLACER
BRENNAN'S POINT	VOLUNTARY CLEANUP	ACTIVE	2360 BRENNAN ROAD	NEWCASTLE	PLACER
BUNCH CREEK	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	APPROXIMATELY 2 MILES EAST OF HWY 80 BETWEEN THE TOWNS OF WEIMER AND COLFAX	COLFAX	PLACER
COOPER PROPERTY	STATE RESPONSE	CERTIFIED	3025 VISTA WAY	MEADOW VISTA	PLACER
ENGLISH COLONY ESTATES	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	1797 ENGLISH COLONY WAY APN(S) 032-051-004 AND 032-051-005	PENRYN	PLACER
FERRARI LEAVELL AND GREY PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	ONE-FOURTH MILE SOUTHEAST OF LINCOLN	LINCOLN	PLACER
FOREST PRODUCTS MANUFACTURING, PARCEL 5	STATE RESPONSE	CERTIFIED	ANTHONY COURT	ROCKLIN	PLACER
FORESTHILL - ROBINSON PROPERTY	VOLUNTARY CLEANUP	CERTIFIED	22990 FORESTHILL ROAD	FORESTHILL	PLACER
FOX HILL LANE	VOLUNTARY CLEANUP	ACTIVE	APN #S: 031-161-006-000, 031-161-007-000, 031-470-020-000	NEW CASTLE	PLACER
FRENCH MEADOWS POWERHOUSE	VOLUNTARY CLEANUP	NO FURTHER ACTION	1 MILE NORTH OF HELL HOLE DAM	HELL HOLE	PLACER
GROVE SUBDIVISION	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	3342 HUMPHREY ROAD	LOOMIS	PLACER
GRUBER MOUNTAIN ESTATES	VOLUNTARY CLEANUP	NO FURTHER ACTION	450 UNCLE JOE'S LANE	NEWCASTLE	PLACER
HAAG PROPERTY	STATE RESPONSE	NO FURTHER ACTION	9232 BARTON ROAD	GRANITE BAY	PLACER

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
LAIRD PROPERTY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	6287 LAIRD ROAD	LOOMIS	PLACER
LAKE AT GRANITE BAY	VOLUNTARY CLEANUP	NO FURTHER ACTION	5867 EUREKA ROAD	GRANITE BAY	PLACER
LIFEHOUSE CHURCH	VOLUNTARY CLEANUP	NO FURTHER ACTION	3055 AND 3131 DELMAR AVENUE	LOOMIS	PLACER
LINCOLN AUXILIARY FIELD (J09CA0852)	STATE RESPONSE	NO FURTHER ACTION	1420 FLIGHTLINE DRIVE	LINCOLN	PLACER
LINCOLN RADIO ANX (J09CA0854)	STATE RESPONSE	NO FURTHER ACTION	6010 NICOLAUS ROAD AT MAVERICK LANE	LINCOLN	PLACER
LOOMIS HILL ESTATES	VOLUNTARY CLEANUP	CERTIFIED	5337 LONE PINE LAND	LOOMIS	PLACER
MAGGI ESTATES	VOLUNTARY CLEANUP	NO FURTHER ACTION	3918 AUBURN FOLSOM BLVD.	LOOMIS	PLACER
MG PENRYN PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	2851 & 2881 TAYLOR ROAD	PENRYN	PLACER
MICHERRA PLACE	VOLUNTARY CLEANUP	NO FURTHER ACTION	SOUTHWESTCORNER OF EUREKA ROAD AND AUBURN FOLSOM ROAD	GRANITE BAY	PLACER
MORGAN'S ORCHARD	VOLUNTARY CLEANUP	NO FURTHER ACTION	SOUTH OF INTERSTATE HWY 80, APPROXIMATELY 1 MILE NORTHEAST OF THE CENTRAL BUSINESS DISTRICT	LOOMIS	PLACER
NELLIE JO RANCH	VOLUNTARY CLEANUP	NO FURTHER ACTION	SPRING GARDEN ROAD	FORESTHILL	PLACER
NORTH RAVINE ESTATES	VOLUNTARY CLEANUP	NO FURTHER ACTION	KEMPER ROAD AND BEAN ROAD	AUBURN	PLACER
OLIVE RANCH	VOLUNTARY CLEANUP	NO FURTHER ACTION	4977 OLIVE RANCH ROAD	GRANITE BAY	PLACER
POND MINE	STATE RESPONSE	ACTIVE	NEAR 6501 PATENT ROAD (SITE OF FORMER HYDRAULIC MINING OPERATION)APN: 255-110-018, 255-110-020, 255-100-046	FORESTHILL	PLACER
QUALL RESIDENCE	VOLUNTARY CLEANUP	NO FURTHER ACTION	6303 EMERALD DRIVE	ROCKLIN	PLACER
RANCHO DEL ORO	VOLUNTARY CLEANUP	NO FURTHER ACTION	OLIVE RANCH ROAD APN 046-090-012	GRANITE BAY	PLACER
RIOLO VINEYARD SPECIFIC PLAN	VOLUNTARY CLEANUP	INACTIVE - ACTION REQUIRED	5280 PFE ROAD	ROSEVILLE	PLACER
ROCKLIN FORMICA	VOLUNTARY CLEANUP	ACTIVE	3500 CINCINNATI AVENUE	ROCKLIN	PLACER

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
ROLLING GREENS GOLF COURSE	VOLUNTARY CLEANUP	NO FURTHER ACTION	5572 EUREKA ROAD	GRANITE BAY	PLACER
SIERRA CENTER IMPROVEMENTS PROJECT	VOLUNTARY CLEANUP	ACTIVE	240 FERGUSON ROAD, NORTHEAST AUBURN	AUBURN	PLACER
SILVER CREEK	VOLUNTARY CLEANUP	NO FURTHER ACTION	4300 PFE ROAD AND 9245 WALERGA ROAD (ADJOINING PROPERTIES)	ROSEVILLE	PLACER
SNOW RANCH	VOLUNTARY CLEANUP	CERTIFIED	11600 EDGEWOOD ROAD	AURBURN	PLACER
SP-ROSEVILLE-SOUTH YARD	STATE RESPONSE	ACTIVE	SP ROSEVILLE RAILYARD	ROSEVILLE	PLACER
SP-ROSEVILLE: AREA A	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	SP ROSEVILLE RAILYARD	ROSEVILLE	PLACER
SP-ROSEVILLE: NORTH YARD	STATE RESPONSE	ACTIVE	SP ROSEVILLE RAILYARD	ROSEVILLE	PLACER
TURTON PARCEL	VOLUNTARY CLEANUP	CERTIFIED	2631 SHIRLAND TRACT ROAD	AUBURN	PLACER
TWELVE BRIDGES GOLF CLUB	VOLUNTARY CLEANUP	CERTIFIED	TOWNSHIP 12N, RANGE 7E, SECT 30 AND 31	LINCOLN	PLACER
VILLAGE AT GREEN HILL	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	ADJACENT TO: 3105 NEWCASTLE ROAD	NEWCASTLE	PLACER
WHISPER CREEK SUBDIVISION	VOLUNTARY CLEANUP	NO FURTHER ACTION	3289 PFE ROAD AND OLY LANE	ROSEVILLE	PLACER
WHITEBRIDGE SUBDIVISION	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8231 KING ROAD	LOOMIS	PLACER
WINCHESTER ESTATES - PHASE 4	VOLUNTARY CLEANUP	NO FURTHER ACTION	SUGAR PINE ROAD	MEADOW VISTA	PLACER
Sacramento County					
1031 ARDEN WAY	VOLUNTARY CLEANUP	ACTIVE	1031 ARDEN WAY	SACRAMENTO	SACRAMENTO
16TH STREET PLATING	STATE RESPONSE	CERTIFIED	1826 16TH STREET	SACRAMENTO	SACRAMENTO
7UP BOTTLING FACILITY	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	2670 LAND AVE	SACRAMENTO	SACRAMENTO
A-1 PLATING COMPANY	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	2170 ACOMA ST	SACRAMENTO	SACRAMENTO
ACE OIL COMPANY	STATE RESPONSE	CERTIFIED	323 A STREET	GALT	SACRAMENTO
AEROJET GENERAL CORPORATION	FEDERAL SUPERFUND - LISTED	ACTIVE	HIGHWAY 50 AND AEROJET ROAD	RANCHO CORDOVA	SACRAMENTO

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
B & J MANUFACTURING	STATE RESPONSE	CERTIFIED	11390 AMALGAM WAY	RANCHO CORDOVA	SACRAMENTO
CADA WAREHOUSE REDEVELOPMENT PROJECT	VOLUNTARY CLEANUP	CERTIFIED	1108 R STREET	SACRAMENTO	SACRAMENTO
CALTRANS, I-5 Q STREET OFF-RAMP	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	I-5 Q STREET OFF-RAMP	SACRAMENTO	SACRAMENTO
CHROMALLOY/GENERAL RADIATOR	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	7609 WILBUR WAY	SACRAMENTO	SACRAMENTO
CITY OF FOLSOM CORPORATE YARD LANDFILL	VOLUNTARY CLEANUP	NO FURTHER ACTION	1300 LEIDERSDORFF STREET	FOLSOM	SACRAMENTO
ESS LABORATORY	STATE RESPONSE	CERTIFIED	9613 OATES DR	SACRAMENTO	SACRAMENTO
FEDERAL COURTHOUSE - SACRAMENTO	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	5TH AND I STREETS	SACRAMENTO	SACRAMENTO
FOLSOM GUN CLUB	STATE RESPONSE	CERTIFIED	SIBLEY STREET AND GLENN DRIVE	FOLSOM	SACRAMENTO
FOLSOM PRISON	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	N OF FOLSOM CITY; ADJ TO AMERICAN RIVER	REPRESA	SACRAMENTO
FONTS PROPERTY	STATE RESPONSE	CERTIFIED	1822 16TH STREET	SACRAMENTO	SACRAMENTO
FORMER GENUINE PARTS STORE	VOLUNTARY CLEANUP	ACTIVE	4914 AUBURN BLVD.	SACRAMENTO	SACRAMENTO
FUTURE SACRED HEART SCHOOL	VOLUNTARY CLEANUP	NO FURTHER ACTION	39TH STREET AND H STREET	SACRAMENTO	SACRAMENTO
GOLDEN WEST HOMES (GPM)	STATE RESPONSE	CERTIFIED	9998 OLD PLACERVILLE ROAD	SACRAMENTO	SACRAMENTO
HARRIS AVENUE PCB SITE	STATE RESPONSE	CERTIFIED	627 HARRIS AVE	SACRAMENTO	SACRAMENTO
INTERSTATE BATTERY	STATE RESPONSE	CERTIFIED	451 ANTELOPE ST	ELVERTA	SACRAMENTO
JENSEN FLYING SERVICES	STATE RESPONSE	CERTIFIED	2080 BLAIR AVENUE	SACRAMENTO	SACRAMENTO
JIBBOOM BUILDING	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	240 JIBBOOM STREET	SACRAMENTO	SACRAMENTO
JIBBOOM JUNKYARD	FEDERAL SUPERFUND - DELISTED	CERTIFIED	240-260 JIBBOOM STREET	SACRAMENTO	SACRAMENTO
JOHNSON CONTROL	STATE RESPONSE	CERTIFIED	AREA WEST OF FRANKLIN ON SIMMS	SACRAMENTO	SACRAMENTO
KALWANI PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	8151 SHELDON ROAD	ELK GROVE	SACRAMENTO
KEN'S BUFF AND PLATING	STATE RESPONSE	BACKLOG	1816 21ST STREET	SACRAMENTO	SACRAMENTO
MATHER AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5,485 ACRES; 12 MI EA OF SACRAMENTO, CA	SACRAMENTO	SACRAMENTO

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
MCCLELLAN AFB P. A5 SAC. CO. RECOVERY (VCA)	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4450 ROSEVILLE ROAD	NORTH HIGHLANDS	SACRAMENTO
MCCLELLAN AFB- AREA D	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	5200 WATT AVE	SACRAMENTO	SACRAMENTO
MCCLELLAN AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	APPROX 5200 WATT AVE	SACRAMENTO	SACRAMENTO
MCCLELLAN AIR FORCE BASE - BUILDING 7	FEDERAL SUPERFUND - LISTED	NO FURTHER ACTION	5200 WATT AVENUE	SACRAMENTO	SACRAMENTO
MCCLELLAN BUSINESS PARK	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	APPROX 5200 WATT AVE	MCCLELLAN AFB	SACRAMENTO
MCCLELLAN PARCEL C6	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	MCCLELLAN AFB	MCCLELLAN	SACRAMENTO
MCCLELLAN PARK MOA	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	CORNER OF BELL AVE AND PARKER STREET	SACRAMENTO	SACRAMENTO
MCDONNELL DOUGLAS - INACTIVE TEST SITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	11505 DOUGLAS RD	RANCHO CORDOVA	SACRAMENTO
MERCY HOUSING CALIFORNIA	VOLUNTARY CLEANUP	CERTIFIED	3421 EAST COUNTRY CLUB LANE	SACRAMENTO	SACRAMENTO
METALLOY STEEL FOUNDRY	VOLUNTARY CLEANUP	NO FURTHER ACTION	8588 THYS COURT	SACRAMENTO	SACRAMENTO
NATOMAS AIRPORT	VOLUNTARY CLEANUP	REFER: EPA	3801 AIRPORT ROAD	SACRAMENTO	SACRAMENTO
OBIE'S DUMP	VOLUNTARY CLEANUP	ACTIVE	8437 SHELDON ROAD	ELK GROVE	SACRAMENTO
ORCHARD SUPPLY COMPANY	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1731 17TH STREET	SACRAMENTO	SACRAMENTO
ORCHARD SUPPLY COMPANY/WORLD OF GOOD TASTE	VOLUNTARY CLEANUP	NO FURTHER ACTION	THE BUILDING AT THE ORCHARD SUPPLY COMPANY SITE, 1731 17TH STREET	SACRAMENTO	SACRAMENTO
PALM IRON WORKS	STATE RESPONSE	CERTIFIED	1515 S STREET	SACRAMENTO	SACRAMENTO
PG&E - SACRAMENTO SITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	2000 FRONT STREET	SACRAMENTO	SACRAMENTO
PITTSBURG DES MOINES STEEL	STATE RESPONSE	REFER: OTHER AGENCY	9605 BUTTERFIELD	SACRAMENTO	SACRAMENTO
PLEASANT GROVE HI/KATHERINE ALBIANI MID	SCHOOL CLEANUP	CERTIFIED	BOND ROAD/BRADSHAW ROAD	ELK GROVE	SACRAMENTO
PURITY OIL SALES - DELTA GUNITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	WHITE ROCK ROAD & KILGORE ROAD	RANCHO CORDOVA	SACRAMENTO
RUSSELL RANCH ELEMENTARY SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	375 DRY CREEK ROAD	FOLSOM	SACRAMENTO

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
SACRAMENTO ARMY DEPOT	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	8350 FRUITRIDGE ROAD	SACRAMENTO	SACRAMENTO
SACRAMENTO ARMY DEPOT (SUBSITE)	STATE RESPONSE	CERTIFIED	8350 FRUITRIDGE ROAD	SACRAMENTO	SACRAMENTO
SACRAMENTO ARMY DEPOT - AREA I	STATE RESPONSE	CERTIFIED	8350 FRUITRIDGE ROAD	SACRAMENTO	SACRAMENTO
SACRAMENTO ARMY DEPOT - AREA II	STATE RESPONSE	CERTIFIED	8350 FRUITRIDGE ROAD	SACRAMENTO	SACRAMENTO
SACRAMENTO CABLE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2175 PERKINS WAY	SACRAMENTO	SACRAMENTO
SACRAMENTO COUNTY EXECUTIVE AIRPORT	STATE RESPONSE	CERTIFIED	6151 FREEPORT BLVD	SACRAMENTO	SACRAMENTO
SACRAMENTO HOUSING & REDEVELOP. AGENCY	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	1920 FRONT STREET	SACRAMENTO	SACRAMENTO
SACRAMENTO PLATING INC	STATE RESPONSE	ACTIVE	2809 S STREET	SACRAMENTO	SACRAMENTO
SETZER FOREST PRODUCTS, INC.	VOLUNTARY CLEANUP	ACTIVE	2570 3RD STREET AND 2630 5TH STREET	SACRAMENTO	SACRAMENTO
SIERRA BATTERY SALES	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	977 LOCHBRAE ROAD	SACRAMENTO	SACRAMENTO
SIMS METAL SITE	STATE RESPONSE	ACTIVE	130 NORTH 12 STREET; AT INTERSECTION OF NORTH B STREETS	SACRAMENTO	SACRAMENTO
SMUD, FRONT & T STREETS	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	FRONT & T STREETS	SACRAMENTO	SACRAMENTO
SONOMA AVENUE SITE	STATE RESPONSE	CERTIFIED	1035 SONOMA AVENUE	SACRAMENTO	SACRAMENTO
SP-PURITY OIL	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1324 A STREET	SACRAMENTO	SACRAMENTO
STRAWBERRY MANOR PCB SITE	STATE RESPONSE	CERTIFIED	188 OLMSTEAD DR	SACRAMENTO	SACRAMENTO
SUNRISE RIVER INDUSTRIAL PARK	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	GOLD RIVER ROAD AND U.S. HIGHWAY 50	RANCHO CORDOVA	SACRAMENTO
TEST PROJECT	STATE RESPONSE	ACTIVE	9876 ANY STREET	YOUR TOWN	SACRAMENTO
THE DOCKS AREA SACRAMENTO EOA	VOLUNTARY CLEANUP	NO FURTHER ACTION	CITY OF SACRAMENTO RIVERFRONT	SACRAMENTO	SACRAMENTO
UNION PACIFIC BANNON STREET PARCEL	VOLUNTARY CLEANUP	ACTIVE	NORTH B STREET AND SEVENTH STREET	SACRAMENTO	SACRAMENTO

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
UNION PACIFIC RAILROAD, CURTIS PARK	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	3675 WESTERN PACIFIC AVENUE	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - CAR SHOP NINE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - CENTRAL CORRIDOR	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - CENTRAL SHOPS	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - LAGOON	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - MANUFACTURED GAS PLANT	STATE RESPONSE	ACTIVE	400 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - NORTHERN SHOPS/DRUM S	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - PONDS AND DITCH	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - REDEVELOPMENT	VOLUNTARY CLEANUP	ACTIVE	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - SHOPS ABATEMENT	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO	SACRAMENTO
UP, DOWNTOWN SAC - TRACK RELOCATION	STATE RESPONSE	ACTIVE	401 I STREET	SACRAMENTO	SACRAMENTO
UP, SAC - BATTERY SHOP YARD	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO	SACRAMENTO
UP, SAC - SACRAMENTO STATION	STATE RESPONSE	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	401 I STREET	SACRAMENTO	SACRAMENTO
UP, SAC - SAND PILES	STATE RESPONSE	CERTIFIED	401 I STREET	SACRAMENTO	SACRAMENTO
VILLAGE OF ZINFINDEL	VOLUNTARY CLEANUP	NO FURTHER ACTION	3145 KILGORE ROAD	RANCHO CORDOVA	SACRAMENTO
VISTA DEL LAGO HIGH SCHOOL	SCHOOL CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	1970 BROADSTONE PARKWAY	FOLSOM	SACRAMENTO
Sutter County					
CUSTOM CHROME AND BUMPER COMPANY	STATE RESPONSE	CERTIFIED	335 GARDEN HIGHWAY	YUBA CITY	SUTTER
GOLDEN GATE HOP RANCH	STATE RESPONSE	CERTIFIED	12035 GARDEN HIGHWAY	YUBA CITY	SUTTER
H & B MACHINERY (1)	VOLUNTARY CLEANUP	NO FURTHER ACTION	1781 COLUSA HWY	YUBA CITY	SUTTER

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
HELENA CHEMICAL	STATE RESPONSE	CERTIFIED	921 N GEORGE WASHINGTON BLVD	YUBA CITY	SUTTER
SUTTER-BY-PASS	STATE RESPONSE	CERTIFIED	NEAR JUNCTION OF TISDALE & SUTTER BYPASS	SUTTER	SUTTER
UP RIGHT OF WAY, YUBA CITY	VOLUNTARY CLEANUP	ACTIVE	CLARK AND COOPER STREETS	YUBA CITY	SUTTER
YUBA CITY STEEL PRODUCTS COMPANY	STATE RESPONSE	REFER: RWQCB	526 STEVENS AVE	YUBA CITY	SUTTER
Yolo County					
BRIDGEWAY LAKES NORTH - PHASE I B	VOLUNTARY CLEANUP	CERTIFIED	3695 MARSHALL ROAD	WEST SACRAMENTO	YOLO
CAPITOL PLATING CORPORATION	STATE RESPONSE	ACTIVE	319 3RD STREET	WEST SACRAMENTO	YOLO
COURT GALVANIZING	STATE RESPONSE	REFER: RWQCB	SW OF DAVIS OFF COUNTY ROAD 32A	DAVIS	YOLO
DAVIS TRANSMITTER SITE	STATE RESPONSE	REFER: RWQCB	INTERSECTION OF MACE BLVD AND ROAD 35	DAVIS	YOLO
DELTA TRUCKING	STATE RESPONSE	CERTIFIED	1201 E KENTUCKY AVE	WOODLAND	YOLO
ESPARTO HIGH SCHOOL	SCHOOL CLEANUP	ACTIVE	HIGHWAY 85B	ESPARTO	YOLO
FRONTIER FERTILIZER	FEDERAL SUPERFUND - LISTED	ACTIVE	SECOND STREET/BTWN PENA & MACE BLVD.	DAVIS	YOLO
GAS'N'SAVE	STATE RESPONSE	REFER: RWQCB	504 L STREET	DAVIS	YOLO
PG & E FORMER WOODLAND MGP	VOLUNTARY CLEANUP	ACTIVE	904-906 MAIN STREET AND 419-421 4TH STREET	WOODLAND	YOLO
TARGET PROPERTY	VOLUNTARY CLEANUP	NO FURTHER ACTION	INTERSECTION OF SECOND STREET AND FARADAY AVENUE	DAVIS	YOLO
TOWER COURT	VOLUNTARY CLEANUP	ACTIVE	706 WEST CAPITAL AVENUE	WEST SACRAMENTO	YOLO
UNION CHEMICAL	STATE RESPONSE	CERTIFIED	3961 CHANNEL DRIVE	WEST SACRAMENTO	YOLO
WILBUR ELLIS	STATE RESPONSE	CERTIFIED	1962 HAYS LN	WOODLAND	YOLO
WOODLAND FAIRGROUNDS	VOLUNTARY CLEANUP	REFER: LOCAL AGENCY	1250 E GUM AVE	WOODLAND	YOLO
Yuba County					
AMES ROAD	STATE RESPONSE	CERTIFIED	7237 AMES ROAD	MARYSVILLE	YUBA
BEALE AFB	CORRECTIVE ACTION	REFER: SMBRP	10 MI S E/MARYSVILLE	BEALE AFB	YUBA
BEALE AFB - IR/MMRP	STATE RESPONSE	ACTIVE	22,944 ACRES; 10MI EA OF MARYSVILLE, CA	BEALE AFB	YUBA
CAMP BEALE (J09CA0136) - MMRP	STATE RESPONSE	ACTIVE	97.74 SQ MI; 40 MI N OF SACRAMENTO	MARYSVILLE	YUBA
CECIL'S RADIATOR SHOP	VOLUNTARY CLEANUP	CERTIFIED	5174 LINDHURST AVENUE	OLIVEHURST	YUBA

Table 10-4 Sites Contaminated by Hazardous Materials in the SACOG Region

SITE NAME	SITE TYPE	CLEANUP STATUS	ADDRESS DESCRIPTION	CITY	COUNTY
CLETUS ROGERS	STATE RESPONSE	CERTIFIED	MARYSVILLE LAPORO ROAD/ BLUE GRAVEL RD	BROWNS VALLEY	YUBA
KEYSTONE AUTOMOTIVE	VOLUNTARY CLEANUP	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS	5066 & 5079 POWERLINE ROAD	OLIVEHURST	YUBA
LINDA ELEMENTARY SCHOOL	SCHOOL CLEANUP	NO FURTHER ACTION	6180 DUNNING AVENUE	MARYSVILLE	YUBA
PG&E, MARYSVILLE	VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4TH AND A STREETS	MARYSVILLE	YUBA
YUBA GARDENS INTERMEDIATE SCHOOL	SCHOOL CLEANUP	CERTIFIED	1964 11TH AVENUE	OLIVEHURST	YUBA
YUBA SUTTER FAIR	VOLUNTARY CLEANUP	REFER: LOCAL AGENCY	442 FRANKLIN AVE	YUBA CITY	YUBA

Source: California Department of Toxic Substances Control, EnviroStar Database, October 2011

Figure 10.5 School Buffer Zones

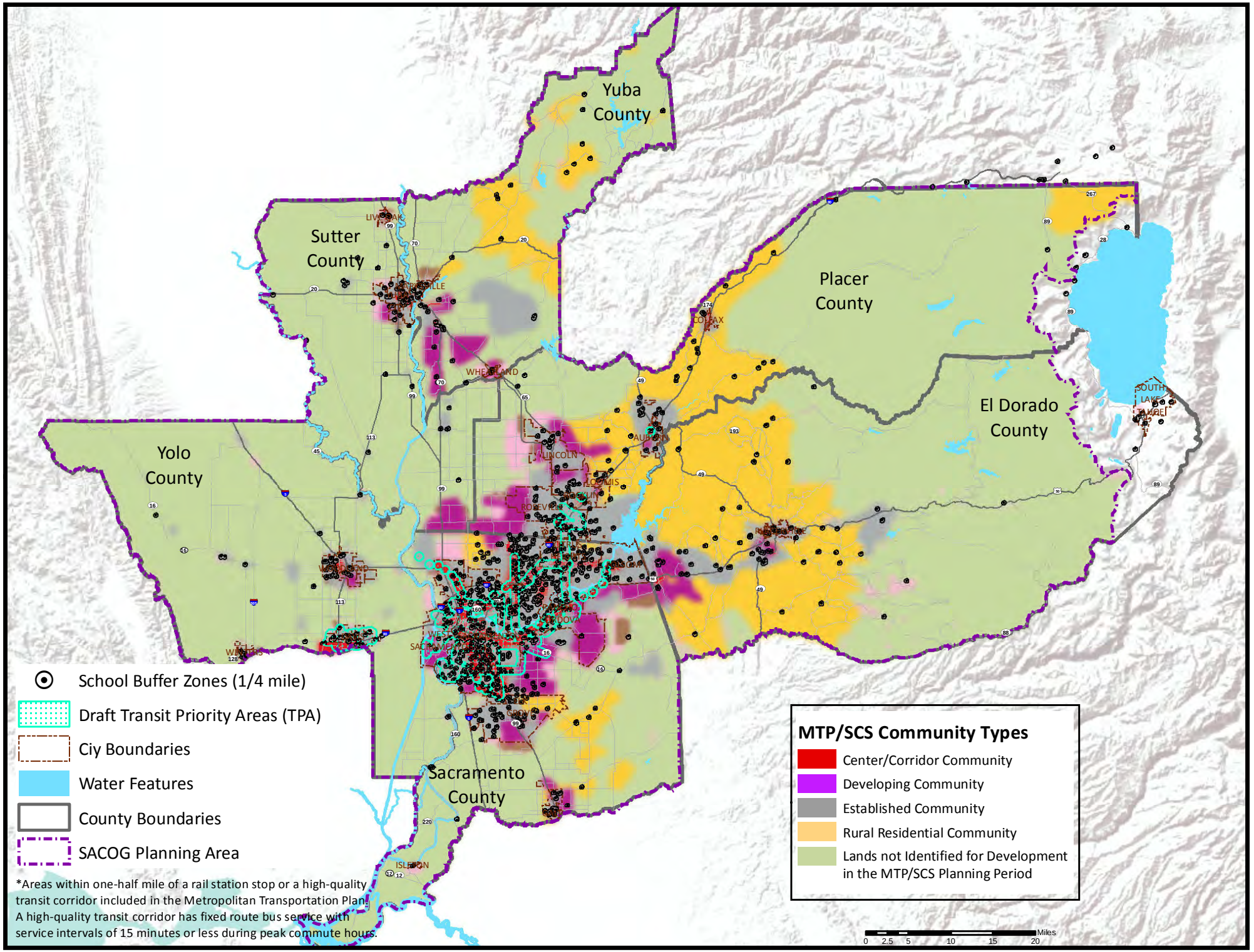


Figure 10.6 Airport Buffer Zones

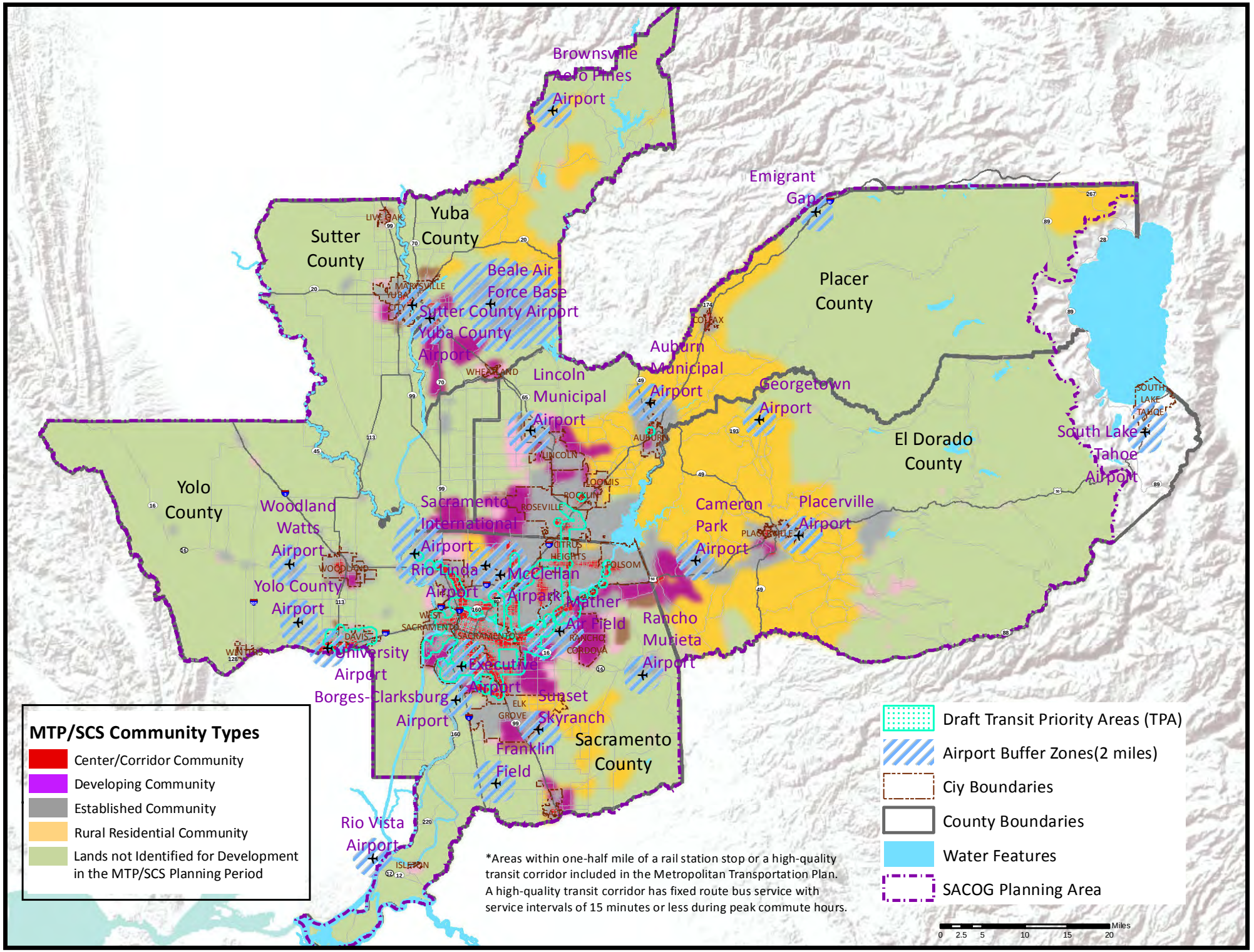
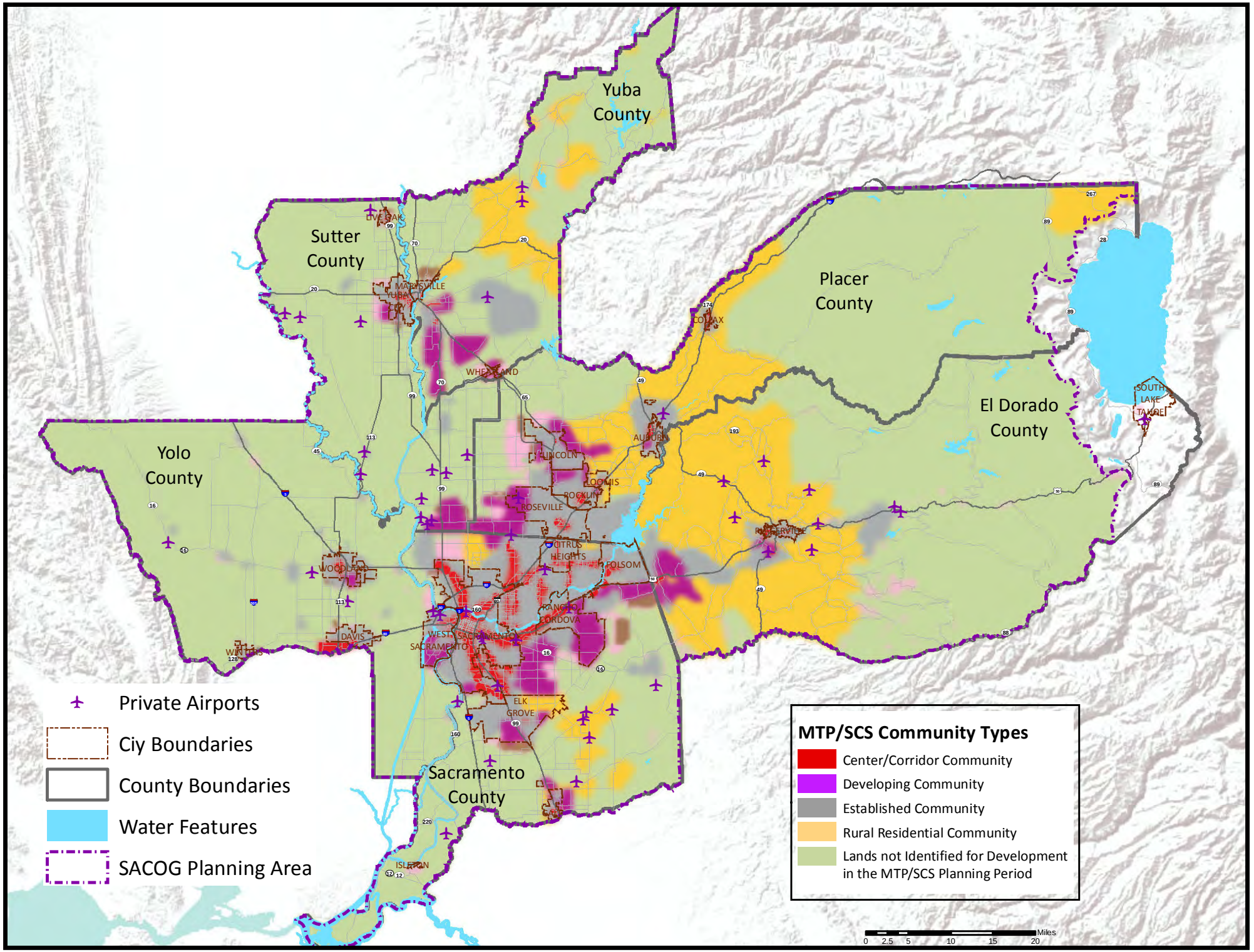


Figure 10.7 Private Airports in the SACOG Region



Emergency Services

This section provides information on emergency preparedness, existing emergency response services, disaster response services, and emergency plans in the MTP/SCS plan area. The region potentially faces a number of emergency situations caused by events such as forest fires, flooding, and earthquakes. The agencies and programs listed below are charged with planning for, and responding to, such emergencies.

California Emergency Management Agency

The California Emergency Management Agency (Cal EMA) was established as part of the Governor's Office on January 1, 2009, merging the duties, powers, purposes, and responsibilities of the former Governor's Office of Emergency Services with those of the Governor's Office of Homeland Security.

Cal EMA is responsible for the coordination of overall state agency response to major disasters in support of local government. The Agency is responsible for assuring the state's readiness to respond to, and recover from, all hazards – natural, man-made, and war-caused emergencies and disasters – and for assisting local governments with emergency preparedness, response, recovery, and hazard mitigation efforts (California Emergency Management Agency, 2011).

County Offices of Emergency Services

Each county has a local Office of Emergency Services (OES) which coordinates with the state during emergency situations. When local and mutual aid resources are exhausted, the state coordinates its emergency resources through its State Operations Center in Sacramento and its multiple Emergency Operations Centers (EOC) throughout the region.

Emergency Operations Centers

In coordination with the local OES, jurisdictions house EOCs, which are command centers where emergency service providers (many from the local OES) meet and coordinate response, recovery, and resources during disasters. The following functions are performed in the EOC, as necessary:

- Receiving and disseminating warnings;
- Managing emergency operations;
- Developing emergency response and recovery policies;
- Collecting intelligence from, and disseminating information to, the various EOC representatives, and assuring coordination between the Field Operations Center locations, building managers, and departmental safety representatives throughout the regional system;
- Coordinating information with Cal EMA, the Federal Emergency Management Agency, and other appropriate outside agencies;
- Preparing intelligence/information summaries, situation reports, operation progress reports and other reports as required;

- Preparing incident action plans;
- Maintaining general and specific maps, information display boards, and other data pertaining to emergency operations;
- Continuing analysis and evaluation of all data pertaining to emergency operations; and
- Controlling and coordinating, within established policy, the operations and logistical support of resources committed to the EOC.

Emergency Healthcare Facilities

Providing access to healthcare and emergency medical services is a goal in every community in the region. However, most hospitals are private non-profit or for-profit organizations that operate independently from cities or counties. Individual hospital boards are responsible for the sizing and siting of hospital facilities in compliance with federal and state requirements, which may or may not occur in coordination with local jurisdictions. As a result, individual hospital organizations assess a community's needs for healthcare facilities and make decisions on where and when to locate medical facilities. Table 10.6 contains a list of acute care facilities in the MTP/SCS plan area.

Table 10.6
MTP/SCS Plan Area - Acute Care and Hospital Facilities

El Dorado County	**City**
Marshall Hospital	Placerville
Placer County	**City**
Kaiser Permanente Medical Center	Roseville
Sutter Roseville Medical Center	Roseville
Sutter Auburn Faith Hospital	Auburn
Sacramento County	**City**
Kaiser Permanente Medical Center	Sacramento (north)
Kaiser Permanente Medical Center	Sacramento (south)
Mercy General Hospital	Sacramento
Mercy Hospital	Folsom
Mercy San Juan Medical Center	Sacramento
Methodist Hospital of Sacramento	Sacramento
Shriners Hospital for Children	Sacramento
Sutter General Hospital	Sacramento
Sutter Memorial Hospital	Sacramento
UC Davis Medical Center and Children's Hospital	Sacramento
Sutter County	**City**
Fremont Medical Center	Yuba City
Yolo County	**City**
Sutter Davis Hospital	Davis
Woodland Memorial Hospital	Woodland
Yuba County	**City**
Rideout Memorial Hospital	Marysville

Source: SACOG 2011

All of these facilities are designed and equipped to handle multiple, simultaneous patients during everyday activities and emergency situations. The MTP/SCS plan area is also served by a number of long-term acute care hospitals, psychiatric hospitals, convalescent homes, and veteran's hospitals. Many jurisdictions also provide emergency medical services through the fire department. Figure 10.8 shows the location of hospitals and medical centers in the MTP/SCS plan area.

Emergency Response and Evacuation Plans

The release of hazardous materials into the environment, or an accident resulting from a hazard, could necessitate an emergency response managed through an emergency response or evacuation plan. These plans coordinate the various emergency response agencies to provide a central management to effectively handle an emergency situation. The various levels of government are responsible for applying resources and emergency relief to those in the emergency area to minimize the effects of hazards or hazardous materials. These incidents can occur almost anywhere hazards or hazardous materials exist or are transported; however, certain areas of the state are at higher risk due to their surroundings. The OES for each county in the SACOG region designs emergency plans to coordinate the available resources and to effectively respond to natural and other types of disasters. The essential factors important during an emergency, including communications, transportation, a command station, control, and shelter, are outlined in emergency plans.

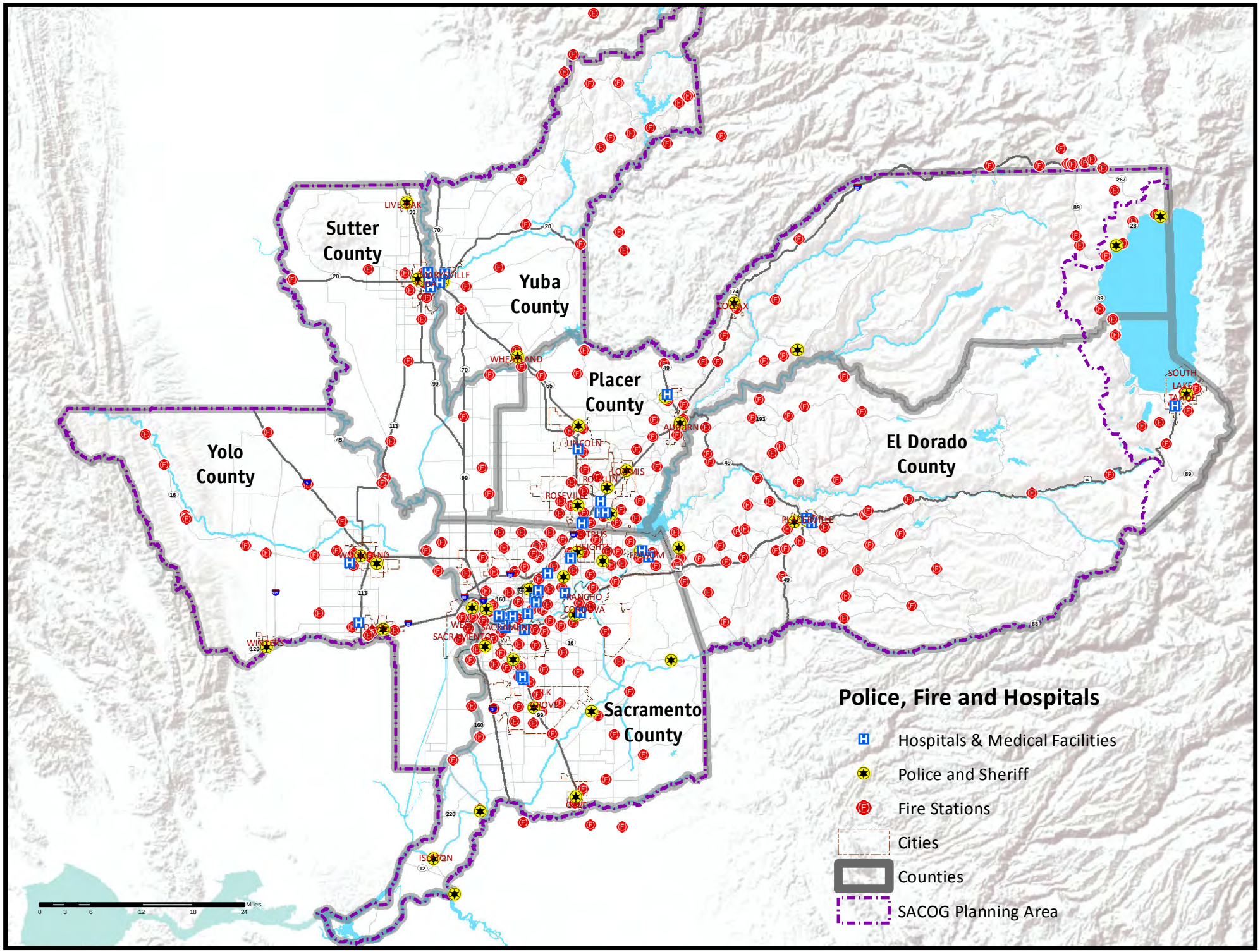
Mutual Aid Agreements

California's mutual aid system is designed to ensure that adequate resources, facilities, and other support are provided to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation. Each jurisdiction retains control of its own personnel and facilities, but can give and receive help whenever it is needed. State government, on the other hand, is obligated to provide available resources to assist local jurisdictions in emergencies.

To facilitate the coordination and flow of mutual aid, the state has been divided into six OES Mutual Aid Regions (and three administrative regions). Sutter and Yuba counties, and the jurisdictions therein, are in Region III. El Dorado, Placer, Sacramento, and Yolo counties, and the jurisdictions therein, are in Region IV. Through this mutual aid system, state OES can receive a constant flow of information from every geographic and organizational area of the state. This includes direct notification that a disaster exists or is imminent. In some cases, it also includes information that makes it possible to anticipate an emergency and mitigate its effects by accelerating preparations, or perhaps preventing a situation from developing to disaster proportions (California Emergency Management Agency, 2011).

To further facilitate the mutual aid process, particularly during day-to-day emergencies involving public safety agencies, Fire and Rescue Law Enforcement Coordinators have been selected and function at the Operational Area (countywide), Mutual Aid Region (two or more counties), and at the state (OES) level.

Figure 10.8 MTP/SCS Plan Area Police Stations, Fire Stations, and Hospitals



Homeland Security

The Sacramento Police Department's Office of Emergency Services and Homeland Security is a multi-agency, multi-jurisdictional office that coordinates Homeland Security and Urban Area Security Initiative grants, conducts regional threat and vulnerability assessments, develops regional and agency terrorism response plans, coordinates and conducts regional interdisciplinary terrorism response training, designs and coordinates training exercises, and organizes volunteers to assist with disaster situations. The Office also coordinates with the Regional Terrorist Threat Assessment Center (RTTAC) and the Terrorism Liaison Officer Program. The Regional Community Policing Institute (RCPI) is also an integral part of the Office of Emergency Services and Homeland Security, facilitating the instruction of core community-based Homeland Security programs, including the Community Emergency Response Teams (CERT), Neighborhood Emergency Training (NET), terrorist awareness presentations, and the Cultural Community Academies (Sacramento Regional Office of Homeland Security, 2011).

Fire Protection Services

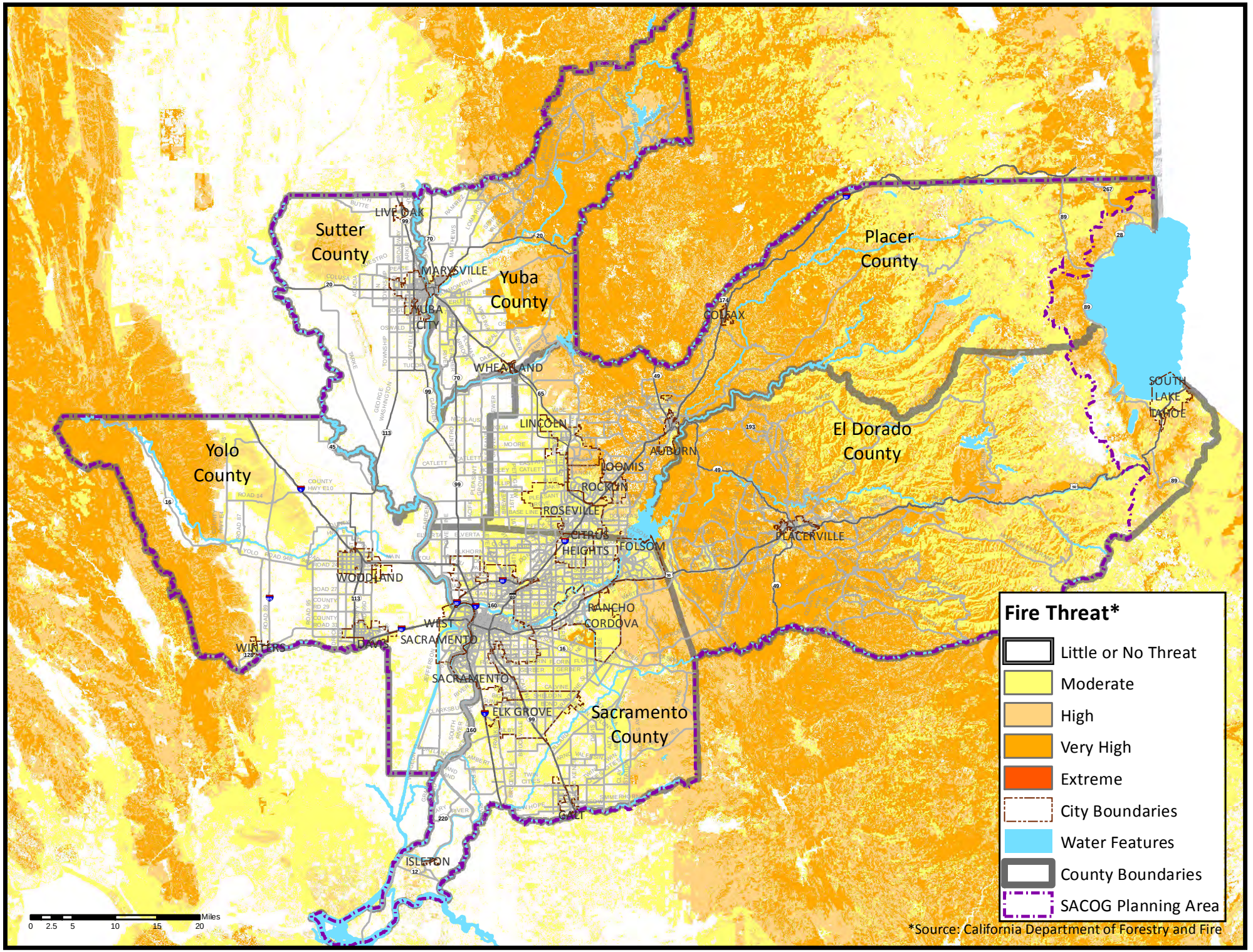
The region faces a number of fire threats, especially from wildfires in the foothill areas, as seen in the summer of 2008 when California experienced a record number of forest fires. Placer County and Yuba County had significant fires, with over 1,000 acres burned. Described below are the two types of fire threats the region faces.

Wildfires

The wildfire season typically lasts from early spring to late fall. Hazards arise from a combination of hot weather, the accumulation of dried vegetation, and low moisture content in the air. These conditions, if coupled with high winds and drought, can compound the risk and potential impact of a fire. Fires are usually classified as either urban fires or wildland fires. However, growth into rural areas has increased the number of people living in heavily-vegetated areas where wildlands meet urban development, also referred to as the wildland-urban interface. This trend is spawning a third classification of fires: the urban wildfire. The 1991 "Tunnel Fire" in the East Bay hills above Berkeley and Oakland is an example of an urban wildfire. A fire along the wildland-urban interface can result in major losses of property and structures.

In accordance with Public Resources Code Sections 4201-4204 and Government Code Sections 51175-51189, the California Department of Forestry and Fire Protection (CAL FIRE) has mapped areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These areas, referred to as Fire Hazard Severity Zones, represent the risks associated with wildland fires. Figure 10.9 shows the Fire Severity Zones in the SACOG region. Eastern portions of the SACOG region, are generally more rural and are more prone to wildfire hazards compared to the rest of the region. Certain areas in and surrounding the region are extremely vulnerable to fires as a result of dense, grassy vegetation combined with a growing number of structures being built near and within rural areas.

Figure 10.9 Fire Threats



Wildfire prevention and suppression is a shared responsibility among federal, state, and local agencies. Federal lands in Federal Responsibility Areas, are the responsibility of federal agencies. Non-federal lands in unincorporated areas with watershed value are of statewide interest and are classified as State Responsibility Areas, managed by CAL FIRE. All incorporated areas and other unincorporated lands are classified as Local Responsibility Areas.

Wildland-Urban Interface Zones, areas within very high fire hazard risk zones, must comply with specific building and vegetation management requirements intended to reduce potential property damage, loss of life, and resources within these areas.

Urban Fires

Urban fires occur in developed areas and include structural, chemical, and vehicular-related fires. Structural fires can result from mechanical failures, accidental occurrences, or arson. The building materials used in various structures can limit or be a catalyst for the spread of structural fires. Although structural fires can occur in any developed area, non-sprinklered commercial buildings in downtown areas and dwelling units in lower socio-economic areas appear to be more susceptible to fires, namely due to the age of the structures. Older structures are more susceptible to fire because they were built under older building standards and fire codes, are made from non-fire-resistive construction materials, and do not have internal sprinklers or other fire safety systems.

Fire Protection Agencies

Fire suppression is the responsibility of various fire departments and districts, which often also employ paramedics for emergency medical services. County fire departments provide fire prevention/suppression and emergency services to the unincorporated areas of the six counties, as well as those municipalities that contract for fire protection and emergency services. City fire departments are more prevalent among older and/or larger municipalities. The locations of fire stations are shown in Figure 10.8. Table 10.7 lists the local fire protection districts/departments in the MTP/SCS plan area.

U.S. Forest Service

The U.S. Forest Service is responsible for fire prevention and suppression in the El Dorado National Forest and those privately-owned lands within the forest boundaries.

National Indian Forestry and Wildland Fire Management Program

The National Indian Forestry and Wildland Fire Management Program is a cooperative effort of the United States Department of the Interior, Bureau of Indian Affairs, Office of the Deputy Director - Trust Services, Division of Forestry and Wildland Fire Management, Intertribal Timber Council, and individual Tribal governments on reservations that contain forest resources. Additionally, many Tribal governments also operate their own fire protection districts and fire departments.

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE provides response to all wildland fires within the unincorporated, privately-owned areas of the MTP/SCS plan area. CAL FIRE is also called to assist with emergencies which require more effort than the local city/county emergency responders can handle. Because of the Department's size and major incident management experience, CAL FIRE is often asked to assist or take the lead in disasters, such as floods, toxic spills, earthquakes, and major urban and rural fires. Within the MTP/SCS plan area, CAL FIRE operates 23 fire stations – 11 in Placer County, seven in El Dorado County, four in Yuba County, and one in Yolo County. El Dorado County is also home to one conservation camp (California Department of Forestry and Fire Protection, 2011).

Local Fire Protection Services

The varied topographic features, environmental settings, and demographics of the region require fire protection personnel to respond to various types of emergencies in rural, suburban, and urban settings. The wide diversity of emergency incidents require firefighters to be proficient in wildland firefighting, structural firefighting, crash fire rescue, technical rescue, swift water rescue, hazardous material mitigation, and paramedic medical services.

Police Protection Services

Police protection services are provided at both the state and local level. Law enforcement services include crime investigation, crime prevention, traffic management, traffic collision investigation, homeland security activities, and emergency response.

California Highway Patrol (CHP)

The CHP service area is along the state route and interstate highway system that runs through the MTP/SCS plan area. The CHP provides traffic regulation enforcement, emergency accident management and service, and assistance on state roadways and other major roadways in unincorporated portions of the region. The CHP also provides state police for the Capitol. The CHP cooperates with both county and city police departments when the need arises.

Local Police Protection

Each of the six counties within the MTP/SCS plan area has its own county sheriff’s department which is responsible for providing police protection within the unincorporated areas of counties. Each incorporated city and town in the MTP/SCS plan area also provides its own police services, or contracts with the sheriff’s department for the provision of such services. The Sacramento Regional Transit District, University of California-Davis, California State University-Sacramento, and Los Rios Community College District have their own police departments. The locations of police facilities are shown in Figure 10.8.

Table 10.7
MTP/SCS Plan Area Fire Protection Districts

El Dorado County	**Sutter County**
Cameron Park Community Services District	*Unincorporated*
Diamond Springs/El Dorado Fire District	County Service Area C (Nicolaus FD)
El Dorado County Fire Protection District	County Service Area D (Pleasant Grove FD)
El Dorado Hills Fire Department	County Service Area F (Live Oak, Sutter, and Oswold-Tudor Fire Stations)
Garden Valley Fire Protection District	Meridian Fire Protection District
Georgetown Fire Protection District	Sutter Basin (Robbins) Fire Protection District
Latrobe Fire Protection District	*Incorporated*
Mosquito Fire Protection District	City of Yuba City Fire Department
Pioneer Fire Protection District	**Yolo County**
Rescue Fire Protection District	*Unincorporated*
Shingle Springs Rancheria Fire Department	Capay Fire Protection District
Placer County	Clarksburg Fire Protection District
Unincorporated	Dunnigan Fire Protection District
Alta Volunteer Fire Protection District	East Davis Fire Protection District
Foresthill Fire Protection District	Elkhorn Fire Protection District
Iowa Hill Volunteer Fire Protection District	Esparto Fire Protection District
Newcastle Fire Protection District	Knights Landing Fire Protection District
Penryn Fire Protection District	Madison Fire Protection District
Placer Hills Fire Protection District	No Man's Land Fire Protection District
Sacramento Metropolitan Fire District	Rumsey Rancheria Fire Department
South Placer Fire Protection District	Springlake Fire Protection District
Incorporated	UC Davis Fire Department
City of Auburn Fire Department	West Plainfield Fire Protection District
City of Colfax Volunteer Fire Department	Willow Oak Fire Protection District
City of Lincoln Fire Department	Yolo Fire Protection District
Town of Loomis Fire Department	Zamora Fire Protection District
City of Rocklin Fire Department	*Incorporated*
City of Roseville Fire Department	City of Davis Fire Department
Sacramento County	City of West Sacramento Fire Department
Unincorporated	City of Winters Fire Department
Sacramento Metropolitan Fire District	City of Woodland Fire Department
Courtland Fire Protection District	**Yuba County**
Delta Fire Protection District	*Unincorporated*
Folsom State Prison Fire Department	Camptonville Volunteer
Herald Fire Protection District	Dobbins-Oregon House Fire Protection District
Sacramento County Airport Fire Department	Foothill Volunteer Fire Department
Sacramento Metropolitan Fire District	Loma Rica-Browns Valley CSD
Wilton Fire Protection District	Olivehurst Public Utility District
Walnut Grove Fire Protection District	Plumas-Brophy Fire Protection District
Incorporated	Marysville Fire Department
City of Folsom Fire Department	Smartsville Fire Protection District
City of Isleton Fire Department	*Incorporated*
City of Sacramento Fire Department	City of Marysville Fire Department
Cosumnes Community Services District	City of Wheatland Fire Department

Source: SACOG 2011

Regulatory Setting

A number of federal, state, and local laws and regulations have been enacted to regulate the management of hazardous materials and hazardous wastes, to prevent and minimize damages to public health and safety and the environment. These include statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use. An overview of key laws and regulations related to these hazards is provided below.

Federal

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. § 6901 et seq.) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (42 U.S.C. § 103). The purpose of CERCLA is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992 (42 U.S.C. § 9601)
- Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.)
- Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.)
- Safe Drinking Water Act (SDWA) of 1974 (42 U.S.C. § 300f et seq.)
- Occupational Safety and Health Act (OSHA) of 1970 (29 U.S.C. § 15)
- Atomic Energy Act of 1954 (42 U.S.C. § 2011 et seq.)
- Toxic Substances Control Act (TSCA) of 1976 (15 U.S.C. § 2601 et seq.)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1947 (7 U.S.C. § 136 et seq.)

In addition to the acts listed above, Executive Order 12088 (1978), Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a federal "Superfund" designation to clean up uncontrolled or abandoned sites contaminated by releases of hazardous substances, as well as accidents, spills, and other releases of pollutants and contaminants into the environment. CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 U.S.C. § 9601 et seq.), authorizes the EPA to order the parties responsible for a release to take action to remediate the contaminated site or to conduct remediation itself and recover the costs from responsible parties. Title III of SARA also authorized the Emergency Planning and Community Right-to-Know Act, which requires facility operators to undertake emergency planning and report on hazardous chemical inventories and toxic releases, in order to make this information available to local communities. Suspected hazardous waste sites throughout the United States are listed in the Comprehensive Environmental Response, Compensation, and Liability Information System

(CERCLIS). This federal database contains information on preliminary assessments, potential and actual hazardous waste sites, site inspections, and cleanup activities. CERCLIS sites are candidates for addition to the federal and state Superfund lists. The database is updated periodically as new sites are discovered.

Disaster Mitigation Act of 2000

In 2000, the Disaster Mitigation Act of 2000 (42 U.S.C. § 5121) was signed into law to amend the Robert T. Stafford Disaster Relief Act of 1988 (42 U.S.C. §§ 5121-5207). Among other things, this new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities. Some of the major provisions of the Act include:

- Funding pre-disaster mitigation activities;
- Developing experimental multi-hazard maps to better understand risk;
- Establishing state and local government infrastructure mitigation planning requirements;
- Defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP); and
- Adjusting ways in which management costs for projects are funded.

The mitigation planning provisions outlined in Section 322 of the Act establish performance-based standards for mitigation plans and requires states to have a public assistance program (Advance Infrastructure Mitigation—AIM) to develop county government plans. The consequence for counties that fail to develop an infrastructure mitigation plan is the chance of a reduced federal share of damage assistance from 75 percent to 25 percent if the damaged facility has been damaged on more than one occasion in the preceding ten-year period by the same type of event.

Federal Aviation Administration –Federal Aviation Regulation Part 77

Federal Aviation Regulation (FAR) Part 77 establishes standards for determining obstructions in navigable airspace and requires notice of proposed construction or alteration at an airport to the FAA Administrator. FAR Part 77 applies to alteration of any permanent or temporary existing structure by a change in its height (including appurtenances), or later dimensions, including equipment or materials used for construction.

Federal Emergency Management Agency (FEMA)

In March 2003, FEMA became part of the U.S. Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

Hazardous Materials Transport Act

The transport of hazardous materials is regulated by the Hazardous Materials Transport Act (HMTA) of 1975 (49 C.F.R. § 101 et seq.). USDOT regulates the transportation of hazardous materials by truck and rail, and governs every aspect of the movement of hazardous materials from packaging and labeling to shipping.

Occupational Safety and Health Standards

Regulations for asbestos are contained in the Occupational Safety and Health Administration Standards (29 C.F.R.). Regulations for lead-based paint are contained in the Lead-Based Paint Elimination Final Rule (24 C.F.R. § 33), governed by the U.S. Department of Housing and Urban Development (HUD).

Resource Conservation and Recovery Act of 1976

The Resource Conservation and recovery Act (RCRA) of 1976 (42 U.S.C. § 6901 et seq.) establishes a comprehensive program for identifying and managing hazardous waste, including reporting and record-keeping requirements of generators, a manifest system for transport of hazardous waste shipments, and standards for treatment and disposal facilities. Amendments in 1984 and 1986 established additional reporting requirements, restriction of landfill disposal, and a program regulating underground storage tanks (USTs). RCRA regulates active facilities and does not address abandoned or historical sites.

U.S. Department of Defense Air Installation Compatible Use Zone Program

The Department of Defense administers the Air Installation Compatible Use Zone (AICUZ) Program to evaluate the safety and compatibility for land adjacent to military airfields by working with local, state, and federal agencies. In addition, the AICUZ Program defines height and land use restrictions, procedures, and policies to protect the operations of military airfields.

State

California Accidental Release Prevention Program

The California Accidental Release Prevention Program (CalARP) applies to a wide variety of facilities that contain regulated substances, which are chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive, and to mitigate the effects of an accidental release. The CalARP Program is the federal “Risk Management Program” or “Federal Accidental Release Prevention Program” established in regulation by the EPA, with additional requirements specific to the State of California, in accordance with the Health and Safety Code.

California Education Code

The environmental review process for the proposed acquisition and construction of public education facilities that use state funding must involve the DTSC per the Education Code. Environmental review includes a Phase 1 Environmental Site Assessment (ESA) prior to acquisition of the site and pending the outcome, a Phase II ESA may be necessary. The Phase II ESA may require soil/groundwater testing and remediation prior to construction, if necessary.

California Health and Safety Code

State fire regulations are set forth in Health and Safety Code Sections 13000 et seq. which includes regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices, and fire suppression training.

California State Aeronautics Act

At the state level, the California Department of Transportation (Caltrans) Division of Aeronautics administers FAA regulations (Pub. Util. Code § 21001 et seq.). The Division issues permits for hospital heliports and public-use airports, reviews potential and future school sites proposed within two miles of an airport, and authorizes helicopter landing sites at or near schools. In addition, the Division of Aeronautics administers noise regulation and land use planning laws, which regulate the operational activities and provides for the integration of aviation planning on a regional basis.

Health and Safety Code

Section 19827.5 of the Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

The California Environmental Protection Agency (CalEPA) oversees the regulation and management of hazardous materials on a statewide level through the DTSC. In 1995, legislation went into effect that required CalEPA to consolidate permitting, inspection, and enforcement activities in several hazardous material and hazardous waste program areas.

Title 8 of the California Code of Regulations

Cal OSHA has established minimum standards for fire suppression and emergency medical services in accordance with California Code of Regulations (C.C.R.) Title 8 Sections 1270, “Fire Prevention” and Section 6773 “Fire Protection and Fire Equipment.” The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

Title 13 of the California Code of Regulations

Title 13 of the C.C.R., Division 2 governs the operations of the California Highway Patrol.

Title 14 of the California Code of Regulations

Title 14 of the C.C.R. Division 1.5 establishes regulations for CAL FIRE, in areas where CAL FIRE is responsible for wildfire protection. Development in areas under CAL FIRE's responsibility must comply with the regulations in Division 1.5. Additionally, Title 14 sets forth the minimum standards for emergency access, fuel modification, setback, signage, and water supply.

Title 19 of the California Code of Regulations

The State of California passed legislation, Title 19 of the C.C.R. Division 2, creating Cal EMA and authorizing it to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster.

Cal EMA serves as the lead state agency for emergency management in the state. Cal EMA coordinates the state response to major emergencies in support of local government. The primary responsibility for emergency management resides with local government. Local jurisdictions first use their own resources and, as they are exhausted, obtain more from neighboring cities and special districts, the county in which they are located, and other counties throughout the state through the statewide mutual aid system. In California, the Standardized Emergency Management System (SEMS) provides the mechanism by which local government requests assistance. Cal EMA serves as the lead agency for mobilizing the state's resources and obtaining federal resources; it also maintains oversight of the state's mutual aid system. During an emergency, Cal EMA coordinates the state's response efforts. It is also responsible for collecting, verifying, and evaluating information about the emergency, facilitating communication with local government, and providing affected jurisdictions with additional resources when necessary. Cal EMA may task state agencies to perform work outside their day-to-day and statutory responsibilities.

Title 22 of the California Code of Regulations

DTSC regulates hazardous waste under the authority of the federal RCRA and the California Health and Safety Code. California has enacted legislation pertaining to the management of hazardous waste that is equivalent to, and in some cases more stringent than, corresponding federal laws and regulations. DTSC, a department of CalEPA, is responsible for the enforcement and implementation of hazardous waste laws and regulations. The state hazardous waste regulations are codified in Title 22 of the C.C.R.

Title 22 addresses hazardous materials and wastes. The Hazardous Waste Control Act of 1972 (Health & Saf. Code, § 25100 et seq.) is the seminal hazardous waste control law in California.

The Hazardous Materials Release Response Plans and Inventory Law of 1986 (Health & Saf. Code, § 25500 et seq.) governs hazardous materials handling, reporting requirements, and local agency oversight programs. Additionally, Section 65962.5 of the Government Code directs the DTSC to compile a list of all hazardous-waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.

Transportation of hazardous materials/wastes is regulated by Caltrans within the State of California (Cal. Code Regs., tit. 26). The CHP and Caltrans enforce both federal and state regulations and respond with the County Fire Department to hazardous materials transportation emergencies. Emergency responses are coordinated as necessary between federal, state, and local governmental authorities and private persons through a state-mandated Emergency Response Plan.

Uniform Fire Code

The Uniform Fire Code (U. Fire Code) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises.

Local

Airport Land Use Commission and Airport Land Use Compatibility Plans

SACOG is the designated ALUC for Sacramento, Sutter, Yolo and Yuba Counties, with the exception of the UC Davis airport which is self-regulated by the University of California. The designated ALUC for El Dorado County is the El Dorado County Transportation Commission. The designated ALUC for Placer County is the Placer County Transportation Planning Agency. The ALUC is an agency that is required by state law in counties where there is an airport operated for the benefit of the general public. The purpose of the ALUC is to protect public health, safety, and welfare by ensuring the orderly development of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses. The ALUC is responsible for developing and maintaining ALUCPs for areas around each airport. City and county zoning and planning is required to conform to the ALUCP unless the city or county governing body specifically overrides the ALUCP by supermajority vote.

Bicycle, Pedestrian, and Trails Master Plans

Bicycle, Pedestrian, and Trails Master Plans are planning documents used to guide future development of a jurisdiction's bicycle and pedestrian facilities. At a minimum these plans usually contain an inventory of existing facilities, a discussion of the plan's goals, recommendations for new projects, and an implementation plan. In order to be eligible for state

Bicycle Transportation Account (BTA) funding, Master Plans must comply with California Streets and Highways Code Section 891.2.

Certified Unified Program Agency (CUPA)

CalEPA designates specific local agencies as CUPAs, typically at the county level. Each designated CUPA is responsible for the implementation of six statewide programs within its jurisdiction. These programs include:

- Underground storage of hazardous substances;
- Hazardous Materials Business Plan (HMP) requirements;
- Hazardous Waste Generator requirements;
- California Accidental Release Prevention (CalARP) program;
- Uniform Fire Code hazardous materials management plan; and
- Above Ground Storage Tanks (Spill Prevention Control; and Countermeasures Plan only).

Implementation of these programs involves:

- Permitting and inspection of regulated facilities;
- Providing educational guidance and notice of changing requirements stipulated in State or Federal laws and regulations;
- Investigations of complaints regarding spills or unauthorized releases; and
- Administrative enforcement actions levied against facilities that have violated applicable laws and regulations.

The CalEPA designated CUPAs for the six-county SACOG region are:

- El Dorado County – Environmental Management Department;
- Placer County – Environmental Health Services Department;
- City of Roseville – Fire Department (The City of Roseville has its own CUPA program);
- Sacramento County – Environmental Management Department;
- Sutter County – Environmental Health Services Department;
- Yolo County – Environmental Health Department; and
- Yuba County – Environmental Health Department.

Fire District Master Plans

Many jurisdictions and fire districts in the region have adopted or are planning to adopt Fire District Master Plans. A master plan addresses staffing needs, facility needs, and service goals for the service area and serves as a guiding document for the organization and daily functions of the department.

Emergency Operations Plans

Local jurisdictions maintain emergency operations plans that detail how emergency and disaster situations are to be handled within that jurisdiction. Jurisdictions may also have Multi-Hazard Emergency Plans that address various threats to the jurisdiction.

General Plans

Local planning policies related to public services and recreation are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that public services must be provided at the same time (or in advance of) need for that service. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for police protection services might include language pertaining to the development of law enforcement programs to reduce and control crime, the planning of future law enforcement facilities concurrently with growth, and the prevention of crime through education. Many jurisdictions also have specific goals, such as a maintaining a certain ratio of sworn officers to citizens, reducing response times, or reducing the overall number of crimes in the community.

Policies and strategies for fire protection services might include goals for service provision (such as an average response time) and supporting policies to help meet those goals, such as implementing emergency signal activation or requiring sprinkler systems in new developments. Each jurisdiction's general plan policies and goals will differ slightly depending on the level of need and type of services being provided.

For emergency services, some of the relevant policies may include coordinating with other agencies that are responsible for planning medical facilities to meet the health care needs of residents in the region, retaining hospitals, evaluating medical facility proposals, providing emergency response services, and participating in mutual-aid agreements.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis analyzes each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact hazards and hazardous materials. For each impact, the implementation of the proposed MTP/SCS is assessed for land use and transportation impacts at the regional level, because the impacts at the localized or Transit Priority Areas are the same as the impacts at the regional level, unless otherwise noted.

By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The

proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count, and vehicle miles traveled (VMT) data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

The land use analysis is based on an assessment of the amount of growth (population, housing, and employment) projected for the region, in each Community Type and in the TPAs by 2035, and an analysis of how that growth will impact hazards and hazardous materials. Although the proposed project sites within the proposed MTP/SCS plan area were not physically surveyed, a brief description of the types of typical hazards and hazardous materials issues found within the region is given above in the settings section.

The proposed MTP/SCS contains $35.2 billion (in 2010 dollars) worth of roadway and transit investments by 2035. Roadway transportation projects consist of freeway, high-occupancy vehicle (HOV) lanes, auxiliary, arterial/expressway miles, collector and local streets, Class I bicycle and pedestrian facilities, and Class II bicycle lanes. Different project types will likely have a different impact on hazards and hazardous materials.

The evaluation of hazards and hazardous materials impacts in this section assumes that construction and development in the MTP/SCS plan area will adhere to the latest federal, state, and local regulations, and conforms to the latest standards in the industry, as appropriate for individual projects.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to Public Resources Code Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

2a. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

2b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of asbestos into the environment.

3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.

5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
6. For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.
7. Impede achievement of acceptable emergency service, including fire protection, police protection, and response times; or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
8. Expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including whether wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands.
9. Result in construction impacts that would cause a hazard to the public or the environment.

Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

A. Regional Impacts

Regional development will increase density and population, and it will include a variety of land uses ranging from residential areas to commercial or industrial areas. New developments could include uses such as residential, dry cleaners, gas stations, service stations, industrial uses, agricultural uses, etc. that could require additional routine transport, use, and disposal of hazardous materials like household hazardous waste from cleaning supplies, solvents, and commercial and industrial hazardous waste. Proposed land uses are identified in general terms, as the specific, parcel-level land uses are unknown. Routine transportation, use or disposal of hazardous materials poses a risk to residents within the project area by using trucks, rail, and other modes that are shared with the public and have the potential to be involved in an accident.

The operation of businesses that use, create, or dispose of hazardous materials is regulated and monitored by federal, state, and local regulations and policies to provide a high level of protection to the public and the environment from the hazardous materials manufactured within, transported to, and disposed within the SACOG region.

Title 49 of the C.F.R., Hazardous Materials Regulations, discussed in more detail in the Regulatory Setting, includes requirements for the classification of materials, packaging, hazard communication, transportation, handling HAZMAT employee training, and incident reporting. Transport of hazardous materials is regulated by the USDOT (through Caltrans and the CHP in California). The California Health Services Department regulates the haulers of hazardous waste. A valid registration issued by the DTSC is required, unless specifically exempted, to transport hazardous wastes. Vehicle Code Section 31303 outlines general routing and parking restrictions (Table 10.3), for hazardous material and hazardous waste shipments; the CHP also publishes a list of restricted or prohibited highways.

CalEPA oversees the regulation and management of hazardous materials on a statewide level through DTSC. Use of hazardous materials on-site requires permits and monitoring to avoid hazardous waste release through the local CUPA. DTSC is responsible for the enforcement and implementation of hazardous waste laws and regulations, codified in Title 22 of the C.C.R.

Additionally, businesses that generate hazardous waste are required to have an EPA identification number to monitor and track hazardous waste activities. Furthermore, roadway improvements in the proposed MTP/SCS will improve road safety, as well as pedestrian and bicycle safety, thereby reducing the potential for transportation related hazardous materials risks.

Therefore, the hazardous materials impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

On the transportation side, a variety of improvements are included in the proposed MTP/SCS, such as new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. The proposed MTP/SCS projects involve the expansion or extension of the transportation system, which may increase the capacity to transport hazardous materials. Roadway improvements in the proposed MTP/SCS will improve road safety, as well as pedestrian and bicycle safety, thereby reducing the potential for transportation related hazardous materials risks.

To ensure a high level of protection to the public and the environment, requirements for the classification of materials, packaging, hazard communication, transportation, handling HAZMAT employee training, and incident reporting, is regulated through Title 49 of the C.F.R., Hazardous Materials Regulations. In California, Caltrans and the CHP regulate transport of hazardous materials; in addition, the California Health Services Department regulates the haulers of hazardous waste. Hazardous waste transport requires a valid registration issued by the DTSC, unless specifically exempted. California Vehicle Code Section 31303 outlines general routing and parking restrictions (Table 10.3), for hazardous material and hazardous waste shipments; the CHP also publishes a list of restricted or prohibited highways.

At the statewide level, CalEPA oversees the regulation and management of hazardous materials through DTSC. Use of hazardous materials on-site requires permits and monitoring to avoid hazardous waste release through the local CUPA. DTSC is responsible for the enforcement and implementation of hazardous waste laws and regulations, codified in Title 22 of the C.C.R.. Additionally, businesses that generate hazardous waste are required to have an EPA identification number to monitor and track hazardous waste activities.

Therefore, the hazardous materials impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

B. Localized impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the hazardous materials impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the hazardous materials impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the TPA level are considered less than significant (LS) for Impact HAZ-1. No mitigation is required.

Impact HAZ-2a: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

A. Regional Impacts

Regional development will increase density and population, and it will include a variety of land uses, ranging from residential to commercial or industrial, that will increase the potential for upset or accident conditions involving the release of hazardous materials into the environment. Specific, parcel-level land uses are unknown, but regional development will generally increase the number of land uses that require the use, storage, and transport of hazardous materials. Such land uses could include residential, dry cleaners, gas stations, service stations, industrial uses, agricultural uses, etc. Businesses that store large quantities of hazardous materials (e.g., gas storage facility, chemical warehouse, etc.), and accidents that result from transporting, pumping, pouring, emptying, injecting, spilling, and dumping or disposing, could release hazardous materials into the environment. The severity of potential effects varies with the activity conducted and the concentration and type of waste present. The possible adverse effects to the public or environment from these and other activities are addressed through regulations and monitoring by federal, state, and local regulations discussed below.

CalARP, established by the EPA with additional requirements specific to the State of California, applies to a wide variety of facilities that contain regulated substances. CalARP aims to prevent an accidental release of hazardous materials into the environment through proper storing, containing, and handling. The USDOT enforces the HMTA by regulating transportation of hazardous materials by truck and rail, and governs every aspect of the movement of hazardous materials from packaging, to labeling and shipping. Cal EMA administers the Emergency Response Plan to respond to hazardous materials incidents that may occur. Additionally, roadway improvements in the proposed MTP/SCS will improve road safety, thereby reducing the potential for accidents related to hazardous materials.

Therefore, the hazardous materials impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-2a. No mitigation is required.

The proposed MTP/SCS transportation projects involve the expansion or extension of the transportation system, which may increase the capacity to transport hazardous materials. For example, gas or oil spilling from vehicle accidents or a tanker overturning on a highway could release hazardous materials. Transportation improvements that expand the transportation system and extend it to new areas expose more adjoining land uses to risks associated with risk of upset on the roadway, highway, or railroad. These impacts are addressed through CalARP which manages risks associated with accidental release. To prevent or minimize the accidental release of hazardous materials into the environment, precautions, such as proper securing of the materials and proper container design, are required by CalARP. California Vehicle Code Section 31303 outlines general routing and parking restrictions (Table 10.3) for hazardous material and hazardous waste shipments; the CHP also publishes a list of restricted or prohibited highways. Roadway improvements in the proposed MTP/SCS will improve road safety, thereby reducing the potential for accidents related to hazardous materials.

Therefore, the hazardous materials impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-2a. No mitigation is required.

B. Localized impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the hazardous materials impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-2a. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the hazardous materials impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the TPA level are considered less than significant (LS) for Impact HAZ-2a. No mitigation is required.

Impact HAZ-2b: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of asbestos into the environment.

A. Regional Impacts

As described in the Setting sections of this chapter, naturally occurring asbestos (NOA) is commonly associated with ultramafic rocks. Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks or along their boundaries (Churchill and Hill, 2000).

For individuals living in areas of NOA, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; rock blasting; quarrying; gardening; and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in outdoor air. Once such fibers are indoors, they can be entrained into the air by normal household activities, such as vacuuming (as many respirable fibers will simply pass through vacuum cleaner bags).

People exposed to low levels of asbestos may be at elevated risk (i.e., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (i.e., quantity of fibers), and also increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given asbestos (e.g., fiber length and width, fiber type, and fiber chemistry), all forms are carcinogens.

The California Geological Survey (formerly the California Division of Mines and Geology) has prepared reports on the relative likelihood for the presence of NOA in California.

As shown in Figures 10.1, 10.2, and 10.3, NOA can be found in El Dorado, Placer, and Sacramento counties. With the amount and general location of regional growth, the implementation of the land use and transportation projects in the proposed MTP/SCS could disturb the NOA in the plan area, and release asbestos into the environment.

Federal regulations for asbestos are contained in the Occupational Safety and Health Administration Standards (29 C.F.R.). In addition, section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. However, while these standards are in place to reduce potential exposure, the implementation of the land use and transportation projects of the proposed MTP/SCS could impact the release of asbestos into the environment. This is considered a significant impact.

Therefore, the asbestos impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HAZ-2b. Mitigation is discussed below in Mitigation Measure HAZ-1.

B. Localized impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to create exposure to asbestos.

Therefore, the asbestos impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered potentially significant (PS) for Impact HAZ-2b. Mitigation is discussed below in Mitigation Measure HAZ-1.

The one Community Type excepted from the foregoing is the land use impacts in Lands Not Identified for Development. Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the asbestos impacts related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact HAZ-2b. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to create exposure to asbestos.

Therefore, the asbestos impacts related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact HAZ-2b. Mitigation is discussed below in Mitigation Measure HAZ-1.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas have the potential to create exposure to asbestos.

Therefore, the asbestos impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the TPA level are considered potentially significant (PS) for Impact HAZ-2b. Mitigation is discussed below in Mitigation Measure HAZ-1.

Mitigation Measure HAZ – 1: Implement dust mitigation plan applicable to activities with risk of disturbing areas known to contain NOA.

The implementing agency should require a dust mitigation plan for any activities, including construction, grading, quarrying, and surface mining, in areas known to contain NOA. The dust mitigation plan should, at a minimum, apply in the following areas:

- A geographic area designated as an ultramafic rock unit or ultrabasic rock unit on maps published by the Department of Conservation;
- An area with ultramafic rock, serpentine or naturally-occurring asbestos on the site, as determined by the implementing or the owner or the owner/operator; or
- After the start of the operation, the District, a registered geologist, or the owner/operator discoversultramaic rock, serpentine or naturally-occurring asbestos is the area to be disturbed.

Where feasible and appropriate, the dust mitigation should include the following elements:

- Specify how the operation will minimize emissions;
- Prevent visible emissions from crossing the project boundaries;
- Limit vehicle speeds;
- Apply water prior to and during ground disturbance;
- Keep storage piles wet or covered;

- Prevent track-out and removal; and
- Use dust control measures appropriate to the presence of NOA.

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Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact HAZ-2b would be reduced to less than significant (LS). However, because SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact HAZ-2b remains significant and unavoidable (SU).

Impact HAZ-3: Emit hazardous emissions or cause handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

A. Regional Impacts

Regional development will increase density and population, and it will include a variety of land uses, ranging from residential to commercial or industrial, that will increase the potential for hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Specific, parcel-level land uses are unknown, but regional development will generally increase the number of land uses that require the use, storage, and transport of hazardous materials (gas, chemical, etc.) by truck or rail. Such land uses could include residential, dry cleaners, gas stations, service stations, industrial uses, agricultural uses, etc. Businesses that store large quantities of hazardous materials (e.g., gas storage facility, chemical warehouse, etc.), and accidents that result from transporting, pumping, pouring, emptying, injecting, spilling, and dumping or disposing, could release hazardous materials into the environment near schools.

There are more than 700 existing schools within the proposed MTP/SCS land use area and a variety of land uses are assumed in proximity to those schools. Impacts HAZ-1 and HAZ-2 above document an extensive set of existing federal and state regulations controlling emissions and the handling of hazardous materials. Roadway improvements in the proposed MTP/SCS will improve road safety, thereby reducing the potential for accidents in proximity of schools related to hazardous materials. For new schools the state school siting process requires that emissions of hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school be addressed (Pub. Resources Code, § 21151.2; Edu. Code, §17210 et seq.). Additionally, individual hazardous materials emitters or handlers must adhere to permitting requirements (Pub. Resources Code, § 21151.4) that require evaluation and notification of where potential materials handling and emissions could occur within one-quarter mile proximity of existing or proposed schools.

Therefore, the hazardous materials impacts related to land use changes from implementation of the proposed MTP/SCS in the region are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

The proposed MTP/SCS transportation projects could include transportation system expansions or extensions near schools; this is addressed through California P.R.C. Sections 21151.4. These transportation improvements may increase the capacity to transport hazardous materials. These impacts are addressed through CalARP, which manages risks associated with accidental release. To prevent or minimize the accidental release of hazardous materials into the environment, precautions such as proper securing of the materials and container design are required by CalARP. California Vehicle Code Section 31303 outlines general routing and parking restrictions (Table 10.3) for hazardous material and hazardous waste shipments; the CHP also publishes a list of restricted or prohibited highways. Additionally, roadway improvements in the proposed MTP/SCS will improve road safety, thereby reducing the potential for accidents in proximity of schools related to hazardous materials.

Therefore, the hazardous materials impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

B. Localized impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the hazardous materials impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the hazardous materials impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the TPA level are considered less than significant (LS) for Impact HAZ-3. No mitigation is required.

Impact HAZ-4: Result in development on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.

A. Regional Impacts

The proposed MTP/SCS includes many projects that are located on sites within the region where hazardous materials could potentially be present. These range from greenfield projects on properties with prior agricultural chemical use to urban redevelopment on properties with different existing and/or prior land uses, for which hazardous materials and/or waste may be an issue (e.g. improper disposal of hazardous waste on-site). A common practice when property changes hands for the purpose of development is for a Phase I ESA to be prepared in order to research and disclose the prior uses of the site and the likelihood that residual hazardous materials and/or waste would be present. Also, in many instances implementing agencies will require submittal of a Phase I report prior to approval or implementation of a project. These studies include research of a variety of government databases to determine whether the site has had prior underground tanks or other industrial uses that could result in hazardous materials on or below the ground surface.

The American Society for Testing and Materials (ASTM) has developed widely accepted practice standards for the preparation of Phase I ESAs. These include an on-site visit to determine current conditions; an evaluation of possible risks posed by neighboring properties; interviews with persons knowledgeable about the site's history; an examination of local planning files to check prior land uses and permits granted; file searches with appropriate agencies having oversight authority relative to water quality and/or soil contamination; examination of historic aerial photography of the site and adjacent properties; a review of current topographic maps to determine drainage patterns; and an examination of chain-of-title for environmental lines and/or activity and land use limitations. Preparation of and compliance with a Phase I ESA for properties at risk of potential hazardous materials and/or waste contamination will avoid adverse impacts associated with build-out of SCS land uses. If a Phase I ESA indicates the presence, or potential presence of contamination, a site-specific Phase II ESA could be required to test soil and/or groundwater. Based on the outcome of a Phase II ESA, remediation of contaminated sites under federal and state regulations, administered at the local level, could be required prior to development.

However, because not all proposed MTP/SCS projects will necessarily include a Phase I ESA or Phase II ESA, the hazard impacts related to land use changes from the implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HAZ-4. See Mitigation Measure HAZ-2 below.

Proposed MTP/SCS transportation improvement projects could involve development on or over sites containing potentially hazardous materials and/or waste. As described above, a common practice when property changes hands for the purpose of development is for a Phase I ESA to be prepared in order to research and disclose the prior uses of the site and the likelihood that residual hazardous materials and/or waste would be present. Also, in many instances implementing agencies will require submittal of a Phase I report prior to approval of or implementation of a project. These studies include research of a variety of government databases to determine whether the site has had prior underground tanks or other industrial uses that could result in hazardous materials and/or waste on or below the ground surface.

Widely accepted practice standards for the preparation of Phase I ESAs have been developed by the ASTM, including an on-site visit to determine current conditions; an evaluation of possible risks posed by neighboring properties; interviews with persons knowledgeable about the site's history; an examination of local planning files to check prior land uses and permits granted; file searches with appropriate agencies having oversight authority relative to water quality and/or soil contamination; examination of historic aerial photography of the site and adjacent properties; a review of current topographic maps to determine drainage patterns; and an examination of chain-of-title for environmental lines and/or activity and land use limitations. Preparation of and compliance with a Phase I ESA for properties at risk of potential hazardous materials and/or waste contamination will avoid adverse impacts associated with build-out of SCS land uses. If a Phase I ESA indicates the presence, or potential presence of contamination, a site-specific Phase II ESA could be required to test soil and/or groundwater. Based on the outcome of a Phase II ESA, remediation of contaminated sites under federal and state regulations, administered at the local level, could be required prior to development.

However, because not all proposed MTP/SCS projects will necessarily include a Phase I ESA or Phase II ESA, the hazard impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HAZ-4. See Mitigation Measure HAZ-2 below.

B. Localized impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities have the potential to result in development on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Therefore, the potential to cause a public hazard related to land use and transportation impacts from implementation of the proposed MTP/SCS at the localized level is considered potentially significant (PS) for Impact HAZ-4. See Mitigation Measure HAZ-2 below.

The one Community Type excepted from the foregoing is the land use impacts in Lands Not Identified for Development. Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the potential to cause a public hazard related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development Community Type is considered less than significant (LS) for Impact HAZ-4. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the regional impacts discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in development on a site which could create a significant hazard to the public or environment.

Therefore, the potential to cause a public hazard related to the transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development is considered potentially significant (PS) for Impact HAZ-4. See Mitigation Measure HAZ-2 below.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas have the potential to result in development on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Therefore, the potential to cause a public hazard related to land use changes and transportation improvements from implementation of the proposed MTP/SCS at the TPA level is considered potentially significant (PS) for Impact HAZ-4. See Mitigation Measure HAZ-2 below.

Mitigation Measure HAZ - 2: Determine if project sites are included on a government list of hazardous materials sites pursuant to Government Code Section 65962.5.

The implementing agency should determine whether specific project sites are listed on government lists of hazardous materials and/or waste sites compiled pursuant to Government Code Section 65962.5. Implementing agencies should require preparation of a Phase I ESA that meets ASTM standards for any listed sites or sites with the potential of residual hazardous materials and/or waste as a result of location and/or prior uses. Implementing agencies should require that recommendations of the Phase I ESA be fully implemented. If a Phase I ESA indicates the presence or likely presence of contamination, the implementing agency should require a Phase II ESA, and recommendations of the Phase II ESA should be fully implemented.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact HAZ-4 would be reduced to less than significant (LS). However, because SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact HAZ-4 remains significant and unavoidable (SU).

Impact HAZ-5: For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.

A. Regional impacts

Regional development could include a variety of land uses, ranging from residential to commercial or industrial, to provide increased goods and services to the region. The proposed land uses are identified in general terms, but specific, parcel-level land uses are unknown; as a result it is unknown whether they would create a safety hazard within an airport plan area. Regional development could increase the number of land uses and developments within an airport plan area and within airport hazard zones, creating hazards from tall structures, glare-producing objects, bird and wildlife attractants, radio waves from communication centers, or other features that have the potential to interfere with take-off or landing procedures.

The public airports and air base in the region are listed by ALUC in Table 10.5. Figure 10.6 depicts the two-mile airport buffer zones overlaid on the proposed MTP/SCS land use map. Only high-altitude aircraft fly over the Sacramento International Airport buffer zone, reducing the hazards that exist in other airport buffer zones. The proposed MTP/SCS land uses that fall within these buffer zones and ALUP boundaries could potentially result in adverse safety hazard impacts. Implementing agencies are responsible for analyzing compliance with Airport Land Use Commission (ALUC) plans as a part of their land use approval authority. Legislation passed in the 1994 ALUP Handbook requires that when preparing an environmental impact report for any project situated within an airport influence area as defined in an ALUC compatibility plan (or, if a compatibility plan has not been adopted, within two nautical miles of a public-use airport), lead agencies shall utilize the California Airport Land Use Planning Handbook as a technical resource with respect to airport noise and safety compatibility issues.

Military airfields, such as Beale Air Force Base, are required to adopt AICUZ studies to evaluate compatible land uses in the vicinity of military airfields. Hazards associated with development in the proximity of military airports would be reduced through California PRC Section 21098. The FAA also evaluates projects located within two miles of a public use airport, and other projects that may pose a potential hazard for people residing or working in the project area, due to height, visual hazard, or the attraction of wildlife.

Therefore, in reliance on that regulatory environment, the potential for adverse hazard impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

The implementation of the proposed MTP/SCS could create a potential hazard due to new or newly expanded transportation projects that would lie within an airport land use plan or two miles of an airport. For example, the construction of Sacramento Regional Transit's light rail extension to the Sacramento International Airport is part of the proposed MTP/SCS. However, improvements included in the proposed MTP/SCS are more likely to improve safety (through improvements to the roadway network and public transportation) than cause hazards or interfere with airport operations. Figure 10.6 depicts the two-mile airport buffer zones overlaid on the land use map. The proposed transportation projects that fall within the two-mile airport buffer zones could potentially result in adverse safety hazard impacts. Implementing agencies are responsible for analyzing compliance with ALUC plans as part of their project approval authority.

Table 10.5 lists the public airports and air base in the region. Implementing agencies are responsible for analyzing compliance with ALUC plans as a part of their land use approval authority. Legislation passed in the 1994 ALUP Handbook requires that when preparing an environmental impact report for any project situated within an airport influence area as defined in an ALUC compatibility plan (or, if a compatibility plan has not been adopted, within two nautical miles of a public-use airport), lead agencies shall utilize the California Airport Land Use Planning Handbook as a technical resource with respect to airport noise and safety compatibility issues.

AICUZ studies are required to be adopted by military airfields such as Beale Air Force Base, to evaluate compatible land uses in the vicinity of military airfields. Hazards associated with development in the proximity of military airports would be reduced through California PRC Section 21098. The FAA also evaluates projects located within two miles of a public use airport, and other projects that may pose a potential hazard for people residing or working in the project area, due to height, visual hazard, or the attraction of wildlife.

Therefore, in reliance on that regulatory environment, the potential for adverse hazard impacts related to transportation improvements from the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

B. Localized impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, in reliance on that regulatory environment, the potential for adverse hazard impacts related to land use and transportation improvements from the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, in reliance on that regulatory environment, the potential for adverse hazard impacts related to land use and transportation improvements from the proposed MTP/SCS at the TPA level are considered less than significant (LS) for Impact HAZ-5. No mitigation is required.

Impact HAZ-6: For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.

A. Regional Impacts

Implementation of the proposed MTP/SCS contains land use and transportation projects that could be in the vicinity of private airstrips, creating hazards from tall structures, glare-producing objects, bird and wildlife attractants, radio waves from communication centers, or other features that have the potential to interfere with take-off or landing procedures and pose a risk to aircrafts. Growth in rural areas could potentially increase the number of businesses or industries near private airstrips, which are generally located in more rural areas. However, the proposed MTP/SCS has limited growth in these areas. Figure 10.7 depicts the private airports within the SACOG region.

The activity level and accessibility of private airstrips is very limited, and these airstrips affect less land than public airports; thus, the safety hazards are comparatively less than public or public use airports. In addition, private airstrips are regulated by both local land use regulations and state and federal aviation guidelines.

There are several private airstrips located throughout the region, where proposed MTP/SCS land uses and transportation projects are proximate to these airstrips, and therefore could potentially result in adverse safety hazard impacts. Implementing agencies are responsible for analyzing safety and compatibility issues associated with approval of MTP and SCS development proximate to private airstrips for which operation is to continue. In addition, local governments require operators to obtain a conditional use permit prior to air operations on private airstrips. Furthermore, Caltrans requires operators to obtain a permit from the Division of Aeronautics prior to air operations, and FAA regulation (14 C.F.R. § 77) includes provisions that apply to public as well as private airstrips. Although the regulatory environment for private airstrips is not as explicit as for public airstrips, adherence to state and local permits, existing regulations, and FAA requirements would reduce the potential for a safety hazard for people residing or working in the vicinity of private airstrips. In addition, general plan policies within the area ensure that development proximate to private airstrips addresses compatibility issues.

Therefore, the potential for adverse private airstrip impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-6. No mitigation is required.

B. Localized impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the potential for adverse private airstrip impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-6. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by the various state and federal regulations discussed in the regional analysis.

Therefore, the potential for adverse private airstrip impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-6. No mitigation is required.

Impact HAZ-7: Impede achievement of acceptable emergency service, including fire protection, police protection, and response times; or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert about 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

Public service standards, performance measures, and related policies are usually set in city and county general plans. For fire, police, and emergency services these standards usually take the form of response times or service ratios. To meet increased demand, existing facilities would likely need additional personnel and equipment to maintain adequate service levels. In some cases, depending on the pattern of development, it will be necessary to construct new facilities to maintain adequate response times, capital capacity, equipment, and personnel.

Historically, local jurisdictions have accommodated increases in demand by constructing new facilities and leveraging existing facilities, equipment, and personnel. Future increases in demand will likely be handled in the same way. The timing, siting, and project-specific details of individual development projects will dictate the necessity of increasing service in existing service areas or expanding service to new areas. In most cases, local jurisdictions will not grant building permits until public services are in place to serve the new development. The proposed MTP/SCS land use allocation assumes increases in public service facilities and infrastructure as the population increases. However, because public services are regulated at the local level, local

jurisdictions have different goals, standards, and policies related to the provision of public services.

Emergency response and emergency evacuation plans are designed by the Office of Emergency Services for each county in the SACOG region to respond to a possible emergency situation (e.g., fires, floods, earthquakes, etc.). These plans cover all of the land within the region including both incorporated and unincorporated areas, and university and tribal lands. These plans provide a process for evacuating people from danger, preventing or minimizing loss of life and property.

Therefore, given the emergency plans and programs in place on a countywide and individual jurisdictional basis, and the project-level review required for all individual projects, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

On the transportation side, the region will see about 7,700 lane miles of additional capacity over existing conditions, including freeway, HOV, auxiliary, arterial, and surface street lane miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles.

Projects that increase capacity, such as road widenings, newly constructed roads, and HOV lanes, have the potential to improve response times for police, fire, and emergency service providers, especially in heavily-congested areas where such projects will alleviate bottlenecks and reduce congestion. Overall, congestion for the region is projected to increase; however, the region will see weekday congested VMT per capita (household-generated) decrease from 1.19 in 2008 to 1.07 in 2035 with implementation of the proposed MTP/SCS, including improved transit opportunities which allow for more people to move through the regional transportation system with neutral to improved performance (See Chapter 16 – Transportation). Less congestion on roadways can potentially help local jurisdictions meet their performance standards and response time for police, fire, and emergency services. In addition, implementation of the proposed MTP/SCS will result in the construction of roadway projects that coincide with new housing and employment developments, thereby facilitating efficient access to these developments by public service providers.

Additional Class I and Class II bicycle facilities could potentially increase the service areas of police, fire, and emergency service providers if new trails or bike lanes are constructed outside of current service boundaries. However, the increase in services required for these routes is anticipated to be low as most of these routes will be constructed in areas already served by public service providers.

Transit projects could also potentially increase the size of the service areas of police, fire, and emergency services providers, as new stations and transfer points will require patrolling in order to maintain public safety. Transit improvements will include 3,989 new daily vehicle service hours, 437 new bus route miles, and 56 new light rail route miles. Sacramento Regional Transit District maintains its own policing services to enforce agency policies and provide for the public

safety at transit stops and stations. Implementation of new transit service is expected to include additional staff.

Development of proposed MTP transportation projects in the region will improve overall transportation system efficiency and in some instances improve capacity. As such, the transportation projects that comprise the proposed MTP will have beneficial effects on emergency response and evacuation. Increased congestion as a result of land use and growth is addressed separately above.

Therefore, with the improved transportation system efficiency, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from the implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

B. Localized impacts

Historically, local jurisdictions have accommodated increases in demand by constructing new facilities and leveraging existing facilities, equipment, and personnel. Future increases in demand would likely be handled in the same way. The timing, siting, and project-specific details of individual development projects will dictate the necessity of increasing service in existing service areas or expanding service to new areas. In most cases, local jurisdictions will not grant building permits until public services are in place to serve the new development. The proposed MTP/SCS land use allocation assumes increases in public service facilities and infrastructure as the population increases. However, because public services are regulated at the local level, local jurisdictions have different goals, standards, and policies related to the provision of public services.

The management of emergency and emergency evacuation plans includes regular updates to these plans which would incorporate new or proposed developments into the plans. Emergency response and emergency evacuation plans are designed by the Office of Emergency Services for each county in the SACOG region to respond to a possible emergency situation (e.g., fires, floods, earthquakes, etc.). These plans cover all of the land within the region including both incorporated and unincorporated areas, and university and tribal lands. These plans provide a process for evacuating people from danger, preventing or minimizing loss of life and property. The proposed MTP/SCS could pose a hazard if it caused an impairment or physical interference to these plans.

Development of planned MTP transportation projects in the region will improve overall transportation system efficiency and in some instances improve capacity. The transportation projects that comprise the proposed MTP will have beneficial effects on emergency response and evacuation, congestion as a result of land use and growth is addressed in the regional impact above.

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to grow by approximately 92,000 new housing units and 104,000 new jobs. This growth will consume about 4,400 acres. Regionwide,

Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of acres developed. This indicates that Center and Corridor Communities will grow more compactly than existing conditions.

Center and Corridor Communities are already built out and have established public services, including police, fire, and emergency response. Because new development would mostly be infill, the service area of public service providers would not increase, but the total number of residents served would increase. More compact development will allow service providers to meet accepted service standards by leveraging existing facilities, equipment, and personnel without necessarily needing to construct additional facilities.

Designated emergency routes are comprised of freeways and roadways in the region. Although weekday congested VMT per capita (household-generated) increases slightly from 0.82 to 0.84 with the implementation of the proposed MTP/SCS, it has the lowest congested VMT per capita among Community Types. This could result in quicker response times for emergency services.

Therefore, given the emergency plans and programs in place on a countywide and individual jurisdictional basis, the project-level review required for all individual projects, and existing facilities, equipment and personnel, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS in Center and Corridor Communities considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Center and Corridor Communities will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Implementation of the proposed MTP/SCS will result in an overall increase in the amount of congested VMT in Center and Corridor Communities. Because Center and Corridor Communities often have large employment and commercial districts, they also tend to have higher rates of congestion, as large volumes of people try to get to the same destinations at the same times of day. More congestion in these areas could lead to longer response times for emergency services providers. However, Center and Corridor Communities have the lowest per capita weekday congested VMT, and are expected to become denser and more compact through implementation of the proposed MTP/SCS, meaning that destinations will be closer together. This could potentially lead to faster emergency service response times.

Bicycle and pedestrian infrastructure projects within Center and Corridor Communities will be built within existing public service boundaries and will not impede the achievement of acceptable service levels and response times.

Transit projects will consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. As with bicycle and pedestrian projects, new transit projects will not impede achievement of acceptable fire protection, police protection, and emergency services including capital capacity,

equipment and personnel, and response times, as these projects will be constructed within existing service boundaries and the increase in demand will be minor compared to existing conditions.

Therefore, with increased system efficiency, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Established Communities

Like Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. Housing units in Established Communities will increase by about 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will essentially maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by nearly 20,000 for regional 2035 shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Established Communities are already built out and have established public services, including police, fire, and emergency response. Because new development would mostly be infill, the service area of public service providers will not increase, but the total number of residents served will increase. More compact development will allow service providers to meet accepted service standards by leveraging existing facilities, equipment, and personnel without necessarily needing to construct additional facilities.

Designated emergency routes are comprised of freeways and roadways in the region. Weekday congested VMT per capita (household-generated) decreases from 1.21 in 2008 to 1.06 in 2035 for Established Communities with the implementation of the proposed MTP/SCS, which could result in faster response times for emergency responders.

Therefore, given the emergency plans and programs in place on a countywide and individual jurisdictional basis, the project-level review required for all individual projects, and existing facilities, equipment, and personnel, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Established Communities will experience transportation improvements similar to those found in Center and Corridor communities. Transportation improvements may include new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Implementation of the proposed MTP/SCS will not result in a per capita congested VMT rate

that is different from existing conditions, indicating that public service providers will face traffic congestion conditions similar to existing conditions when planning for future service provision. As with Center and Corridor communities, the increased density in Established Communities could potentially help public service providers achieve acceptable response times by decreasing the distance between public service facilities and public service users.

Bicycle and pedestrian infrastructure projects within Established Communities will be built within existing public service boundaries and will not impede the achievement of acceptable service levels and response times, as the increase in service levels will be minor compared to existing conditions.

Transit projects will consist of increased fixed route bus service, new light rail extensions and increased service on existing lines, new streetcar service, increased express bus service to downtown Sacramento, new transit operations' facilities, and system operational improvements. As with bicycle and pedestrian projects, new transit projects will not impede achievement of acceptable fire protection, police protection, and emergency services including capital capacity, equipment and personnel, and response times, as these projects will be constructed within existing service boundaries and the increase in service levels will be minor compared to existing conditions.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Developing Communities

Developing Communities already contain some developed areas, but such development is intermittent, often branching out from Established Communities. Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will grow by approximately 127,000 new housing units and 65,000 new jobs, developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rates of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

Developing Communities already have some capacity for providing public services, but with the type of population growth described above, it will be necessary to increase capital capacity, equipment, and personnel in order to achieve acceptable service levels and response times. Because growth in Developing Communities will occur at the edge of Established Communities, there is some limited potential for service providers to leverage existing facilities, equipment, and personnel by expanding current service boundaries to include future developments.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact HAZ-7. See Mitigation Measure HAZ-3 below.

Implementation of the proposed MTP/SCS will result in the construction of various transportation improvement projects throughout Developing Communities. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the proposed MTP/SCS.

Overall, Developing Communities will see weekday congested VMT per capita (household-generated) increase from 1.33 in 2008 to 1.35 in 2035 with implementation of the proposed MTP/SCS. More congestion in these areas could potentially lead to longer response times for emergency services providers.

Bicycle and pedestrian improvements will increase the demand for public protection services. The increase in public services demand from implementation bicycle and pedestrian projects is expected to be low, although these projects may require expansion of the service area depending on the location of specific projects. Similarly, implementation of transit projects may increase the demand for public services as well, but as with bicycle and pedestrian projects, the increase in demand is expected to be low.

Therefore, with increased congestion, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact HAZ-7. See Mitigation Measure HAZ-3 below.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. This Community Type will increase by approximately 5,300 housing units and 4,000 jobs, less than two percent of the regional housing and employment growth. This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

Rural Residential Communities already have some capacity for providing public services, and some of the growth resulting from implementation of the proposed MTP/SCS could likely be accommodated by expanding service boundaries to include future developments. However, because Rural Residential Communities cover such a vast area of the MTP/SCS plan area, it is also likely that new equipment and facilities will be necessary to serve populations in this Community Type. In addition, despite the decrease in per capita weekday congested VMT

discussed below, the dispersed pattern of growth could make for longer response times for emergency services.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HAZ-7. See Mitigation Measure HAZ-3 below.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Rural Residential Communities will see minor investment in bicycle and transit infrastructure. Increases in service demand from bicycle and transit projects are expected to be very low in this Community Type.

Although Rural Residential Communities will see weekday congested VMT per capita (household-generated) decrease from 1.35 in 2008 to 0.96 in 2035 with implementation of the proposed MTP/SCS, the per capita per number is one of the highest of the Community Types. With this congestion, and dispersed pattern of growth, response times could be longer for emergency services.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HAZ-7. See Mitigation Measure HAZ-3 below.

Lands Not Identified for Development in the Proposed MTP/SCS

The proposed MTP/SCS does not forecast or model growth in Lands Not Identified for Development communities during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, and public lands such as waste water treatment facilities, etc.).

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

The proposed MTP/SCS will make a limited number of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. Overall, this Community Type will see weekday congested VMT per capita (household-generated) decrease from 0.82 in 2008 to 0.66 in 2035 with implementation of the proposed MTP/SCS. Less congestion on roadways can

potentially help local jurisdictions meet their performance standards and response time for police, fire, and emergency services. In addition, implementation of the proposed MTP/SCS will result in the construction of roadway projects that coincide with new housing and employment developments, thereby facilitating the efficient service of these developments by public service providers.

This Community Type will see minor investment in bicycle and transit infrastructure. Increases in service demand from bicycle and transit projects are expected to be very low in this Community Type.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas

The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), tend to be urbanized and built out, and infill development in these areas could include uses (e.g., residential, commercial, etc.) to support the approximately 2,600 new housing units and 10,000 new jobs projected by 2035. This development will occur on about 315 acres.

The Placer County TPAs have established public services, including police, fire, and emergency response. Because new development would mostly be infill, the service area of public service providers would not increase, but the total number of residents served would increase. More compact development would allow service providers to meet accepted service standards by leveraging existing facilities, equipment, and personnel without necessarily needing to construct additional facilities.

Designated emergency routes are comprised of freeways and roadways in the region. Weekday congested VMT per capita (household-generated) in the Placer TPAs decreases from 1.64 in 2008 to 1.45 in 2035 with the implementation of the proposed MTP/SCS, which could result in faster response times for emergency services.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from the implementation of the proposed MTP/SCS in Placer County TPAs are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

As mentioned above, Placer County TPAs will see a decrease in weekday congested VMT per capita with implementation of the proposed MTP/SCS. Less congestion on roadways can potentially help local jurisdictions meet their performance standards and response time for police, fire, and emergency services. The Placer County TPAs are expected to become denser and more compact through implementation of the proposed MTP/SCS, meaning that destinations will be closer together. This could potentially lead to faster emergency service response times.

Bicycle and pedestrian infrastructure projects within the Placer County TPAs will be built within existing public service boundaries and will not impede the achievement of acceptable service levels and response times.

Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. As with bicycle and pedestrian projects, new transit projects will not impede achievement of acceptable fire protection, police protection, and emergency services including capital capacity, equipment and personnel, and response times, as these projects will be constructed within existing service boundaries and the increase in service levels will be minor compared to existing conditions.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Placer County TPAs are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will grow by approximately 92,000 new housing units and 108,000 new jobs. This development will occur on about 5,000 acres.

The Sacramento County TPAs are already built out and have established public services, including police, fire, and emergency response. Because new development would mostly be infill, the service area of public service providers would not increase, but the total number of residents served will increase. More compact development would allow service providers to meet accepted service standards by leveraging existing facilities, equipment, and personnel without necessarily needing to construct additional facilities.

Designated emergency routes are comprised of freeways and roadways in the region. Although weekday congested VMT increases in Sacramento TPAs from 0.83 in 2008 to 0.87 in 2035 with the implementation of the proposed MTP/SCS, it is one of the lowest numbers in the region, and therefore could have a shorter response time for emergency services.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from implementation of the proposed MTP/SCS in Sacramento County TPAs are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Because the Sacramento TPAs have large employment and commercial districts, they also tend to have higher rates of congestion, as large volumes of people try to get to the same destinations at the same times of day. Implementation of the proposed MTP/SCS will result in an overall increase in the amount of congested VMT per capita in the Sacramento County TPAs. However, as discussed above, it has one of the lowest numbers in the region. In addition, the Sacramento County TPAs are expected to become denser and more compact through implementation of the proposed MTP/SCS, meaning that destinations will be closer together. This could potentially lead to faster emergency service response times.

Bicycle and pedestrian infrastructure projects within the Sacramento County TPAs will be built within existing public service boundaries and will not impede the achievement of acceptable service levels and response times.

Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. As with bicycle and pedestrian projects, new transit projects will not impede achievement of acceptable fire protection, police protection, and emergency services including capital capacity, equipment and personnel, and response times, as these projects will be constructed within existing service boundaries and the increase in service levels will be minor compared to existing conditions.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Sacramento County TPAs are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Yolo County Transit Priority Areas

The Yolo County TPAs include the majority of West Sacramento and Davis. Yolo County TPAs will grow by approximately 20,000 new housing units and 22,000 new jobs. This development will occur on about 1,250 acres.

The Yolo County TPAs are already built out and have established public services, including police, fire, and emergency response. Because new development would mostly be infill, the service area of public service providers would not increase, but the total number of residents served will increase. More compact development would allow service providers to meet accepted service standards by leveraging existing facilities, equipment, and personnel without necessarily needing to construct additional facilities.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to land use changes from implementation of the proposed MTP/SCS in Yolo County TPAs are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

Because the Yolo TPAs have large employment and commercial districts, they also tend to have higher rates of congestion, as large volumes of people try to get to the same destinations at the same times of day. Implementation of the proposed MTP/SCS will result in an overall increase in the amount of congested VMT per capita (household-generated) in the Yolo County TPAs, from 0.62 in 2008 to 0.83 in 2035 with implementation of the proposed MTP/SCS. However, the Yolo County TPAs have the lowest weekday congested VMT among TPAs in the region, and are expected to become denser and more compact through implementation of the proposed MTP/SCS, meaning that destinations will be closer together. This could potentially lead to faster emergency service response times.

Bicycle and pedestrian infrastructure projects within the Yolo County TPAs will be built within existing public service boundaries and will not impede the achievement of acceptable service levels and response times.

Transit service will include increased frequency on local fixed route buses, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. As with bicycle and pedestrian projects, new transit projects will not impede achievement of acceptable fire protection, police protection, and emergency services including capital capacity, equipment and personnel, and response times, as these projects will be constructed within existing service boundaries and the increase in service levels will be minor compared to existing conditions.

Therefore, the potential for adverse emergency services and emergency evacuation plan impacts related to transportation improvements from implementation of the proposed MTP/SCS in Yolo County TPAs are considered less than significant (LS) for Impact HAZ-7. No mitigation is required.

Mitigation Measure HAZ – 3: Ensure adequate public services, emergency response times, and emergency plans are in place.

The implementing agency should require that public services and emergency response times and plans are or will be available to meet service levels identified in the applicable local general plan or service master plan. This should be documented in the form of a capacity analysis or provider will-serve letter.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact HAZ-7 would be reduced to less than significant (LS). However, because SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact HAZ-7 is considered significant and unavoidable (SU).

Impact HAZ-8: Expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands.

A. Regional Impacts

Wildfires can cause significant damage to people and property because they can spread quickly across large areas. The proposed MTP/SCS could pose a hazard if it results in the loss, injury, or death and damage to property adjacent to wild lands where residences are intermixed with wild lands. Fire threats are depicted in Figure 10.9.

Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Specific, parcel-level land uses are unknown, but regional development could increase the number of structures adjacent to wild lands. The threat of wildfires from development of areas within CAL FIRE's responsibility, which include non-federal lands in unincorporated areas with watershed value, is addressed through compliance with Title 14 of the C.C.R., Division 1.5 to minimize exposing people and structures to loss, injury, or death and damage. Title 14 sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent damage to structures or people by reducing wildfire hazards. In addition, wildfire prevention is a shared responsibility between federal, state, and local agencies. Federal lands fall under Federal Responsibility Areas, and all incorporated areas and other unincorporated lands are classified as Local Responsibility Areas.

Therefore, the potential for wild land fire hazard impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-8. No mitigation is required.

The proposed MTP/SCS projects involve the expansion or extension of the transportation system, which may increase the threat of adverse impacts from wild land fires. Transportation improvements that expand the transportation system and extend it to new areas expose more urban-adjoining land uses to risks associated with wild land fires.

Transportation improvements, especially capacity improvements, generally improve the transportation network to move people more efficiently, in case there is a need to evacuate due to a wildfire. The threat of wildfires from transportation improvements within CAL FIRE's responsibility, which include non-federal lands in unincorporated areas with watershed value, is addressed through compliance with Title 14 of the C.C.R., Division 1.5 to minimize exposing people and structures to loss, injury, or death and damage. Title 14 sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent damage to structures or people by reducing wildfire hazards. In addition, wildfire prevention is a shared responsibility between federal, state, and local agencies. Federal lands fall under Federal Responsibility Areas, and all incorporated areas and other unincorporated lands are classified as Local Responsibility Areas.

Therefore, the potential for adverse wild land fires hazard impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-8. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by Title 14 of the C.C.R., Division 1.5 discussed in the regional analysis. Therefore, implementation of the proposed MTP/SCS would not expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands.

Therefore, the potential for adverse wild land fires hazard impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-8. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by Title 14 of the C.C.R., Division 1.5 discussed in the regional analysis. Therefore, implementation of the proposed MTP/SCS would not expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands.

Therefore, the potential for adverse wild land fires hazard impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the TPA level are considered less than significant (LS) for Impact HAZ-8. No mitigation is required.

Impact HAZ-9: Result in construction impacts that would cause a hazard to the public or the environment.

A. Regional Impacts

Regional development could include a variety of land uses, ranging from residential to commercial or industrial uses, to provide increased goods and services to the region. Short-term construction related impacts could cause hazards to the public or the environment from urban infill and redevelopment to new construction of structures, buildings, and other uses. Construction impacts related to the implementation of the proposed MTP/SCS could result from the routine use, transport, and disposal of hazardous materials and waste by rail or trucks that share facilities with the public, and from reasonably foreseeable upset or accident conditions

that may result in a release of hazardous materials. In addition, emission of hazardous materials from construction-related activities, pumping proximate to schools, and development near public airports or private airstrips and wild lands could result in a construction impact.

Development may require construction through or adjacent to contaminated sites, most of which have already been identified by regulatory agencies, and could lead to a disturbance and release of hazardous materials. Additionally, construction-related activities such as pumping, pouring, emptying, injecting, spilling, and dumping or disposing could also release hazardous materials into the environment. The severity of potential effects varies with the activity conducted, and the concentration and type of waste present. Construction-related activities will require the use of construction equipment, construction materials, construction signage, and use, and/or disposal of hazardous materials, which could involve the use of equipment that contains hazardous materials (e.g., solvents and fuels, diesel-fueled equipment), or the transportation of excavated soil and/or groundwater containing contaminants from areas that are identified as being contaminated, which could increase hazards to the public or environment. During construction, road closures and detours may be necessary; these are normally part of a Traffic Control Plan or Transportation Management Plan that allows emergency service providers to be aware of the current access restrictions and the alternatives available, while allowing people to travel to their destination.

Impacts HAZ-1 through HAZ-8 provide an extensive listing of regulations, and compliance with these regulations address normal construction activities from implementing the proposed MTP/SCS.

Therefore, the potential for adverse construction impacts related to land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-9. No mitigation is required.

The proposed MTP/SCS involve the expansion or extension of the transportation system, which may increase hazards to the public or the environment.

Implementation of transportation improvements could include construction impacts that result from the routine use, transport, and disposal of hazardous materials and waste by rail or trucks that share facilities with the public and from reasonably foreseeable upset or accident conditions that may result in a release of hazardous materials. In addition, emission of hazardous materials from construction-related activities, pumping proximate to schools, and development near public airports or private airstrips and wild lands could result in a construction impact.

The construction of transportation projects in the proposed MTP/SCS through or adjacent to contaminated sites, most of which have already been identified by regulatory agencies, could lead to a disturbance and release of hazardous materials. Additionally, construction-related activities such as pumping, pouring, emptying, injecting, spilling, and dumping or disposing could also release hazardous materials into the environment. The severity of potential effects varies with the activity conducted, and the concentration and type of waste present. Construction-related activities will require the use of construction equipment, construction materials, construction signage, and use, and/or disposal of hazardous materials, which could

involve the use of equipment that contains hazardous materials (e.g., solvents and fuels, diesel-fueled equipment), or the transportation of excavated soil and/or groundwater containing contaminants from areas that are identified as being contaminated, which could increase hazards to the public or environment. During the construction of transportation improvements, road closures and detours may be necessary; these are normally part of a Traffic Control Plan or Transportation Management Plan that allows emergency service providers to be aware of the current access restrictions and the alternatives available, while allowing people to travel to their destination. Transportation improvements generally improve the transportation network to move people more efficiently especially in the case of capacity improvements.

Impacts HAZ-1 through HAZ-8 provide an extensive listing of regulations, and compliance with these regulations address normal construction activities from implementing the proposed MTP/SCS.

Therefore, the potential for adverse construction impacts related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HAZ-9. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the proposed MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are regulated by the various federal and state regulations discussed in Impacts HAZ-1 through HAZ-8. Therefore, implementation of the proposed MTP/SCS would not result in construction impacts that would cause a hazard to the public or the environment.

Therefore, the potential for adverse construction impacts related to land use and transportation improvements from implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HAZ-9. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the Transit Priority Areas as described in the regional impacts discussion above. Land use and transportation projects in the Transit Priority Areas are regulated by the various federal and state regulations discussed in Impacts HAZ-1 through HAZ-8. Therefore, implementation of the proposed MTP/SCS would not result in construction impacts that would cause a hazard to the public or the environment.

Therefore, the potential for adverse construction impacts related to transportation improvements from implementation of the proposed MTP/SCS at the TPA level are considered less than significant (LS) for Impact HAZ-9. No mitigation is required.

CHAPTER 11 – HYDROLOGY AND WATER QUALITY

INTRODUCTION

This chapter describes the existing conditions (environmental and regulatory) for hydrology and water quality and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect hydrology and water quality in the MTP/SCS plan area. This chapter evaluates potential impacts on hydrology and water quality that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts. Refer to Chapter 17 – Utilities and Service Systems, for further discussion of water supply. Refer to Chapter 8 – Energy and Global Climate Change, for further discussion of sea-level rise.

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data provided in this section should be considered preliminary and appropriate for general policy planning and tiering of subsequent environmental documents. Site-specific evaluations will be necessary to determine future project-level environmental effects and appropriate mitigation.

Six comments regarding hydrology were received during circulation of the Notice of Preparation (NOP). Placer County's Community Development and Resource Agency requested that SACOG continue coordination with HCP/NCCP processes. Placer County Flood Control and Water Conservation District had three requests: (1) that project-level Environmental Impact Reports (EIRs) specifically quantify the incremental effect of increases in peak flow runoff downstream of transportation projects, and propose mitigation measures if necessary; (2) that project-level EIRs specifically quantify the incremental effect of transportation projects overloading the actual or designed capacity of existing stormwater and flood-carrying facilities; and (3) that project-level EIRs specifically quantify the incremental effect of transportation projects altering 100-year floodplain boundaries. Rick Bettis had two comments: (1) the potential impact on flooding should include both the location and design of the transportation facility as well as changes in land use induced or facilitated by the transportation projects; and (2) impacts should consider related land use changes and increased drainage runoff due to urbanization. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

SETTING

Environmental Setting

Climate and Topography

The topography in the MTP/SCS plan area (hereafter, plan area) varies from relatively flat areas in the Sacramento-San Joaquin Delta and the northern portion of the California Central Valley to steeper slopes and greater elevations in the Sierra Nevada foothills in the east and the Coast Range foothills in the west. Elevations in the plan area along the Sacramento River and in the southern portion in the Sacramento-San Joaquin Delta are generally at or below sea level

(Topozone, 1999). Near the foothills of the Coast Range and the Sierra Nevada, elevations in the plan area range from greater than 2,000 feet above mean sea level (amsl) to greater than 7,000 feet amsl, respectively (Topozone, 1999).

In general, the plan area experiences a typical Mediterranean climate with hot, dry summers and cool, wet winters. Average high temperatures during the summer range from 80 to 90 degrees Fahrenheit in the coastal and Sierra Nevada foothills to 90 to 100 degrees Fahrenheit in the Sacramento Valley (NOAA, 2006). During winter, average low temperatures range from approximately the low 30s (degrees Fahrenheit) in the Sierra Nevada foothills to the low 50s (degrees Fahrenheit) in the Sacramento Valley (NOAA, 2006).

Precipitation varies in the plan area. Average precipitation for the 2-year, 24-hour storm event is shown in Figure 11.1, Regional 2-year 24-hour Precipitation (NOAA, 2011).

Watersheds and Hydrological Characteristics

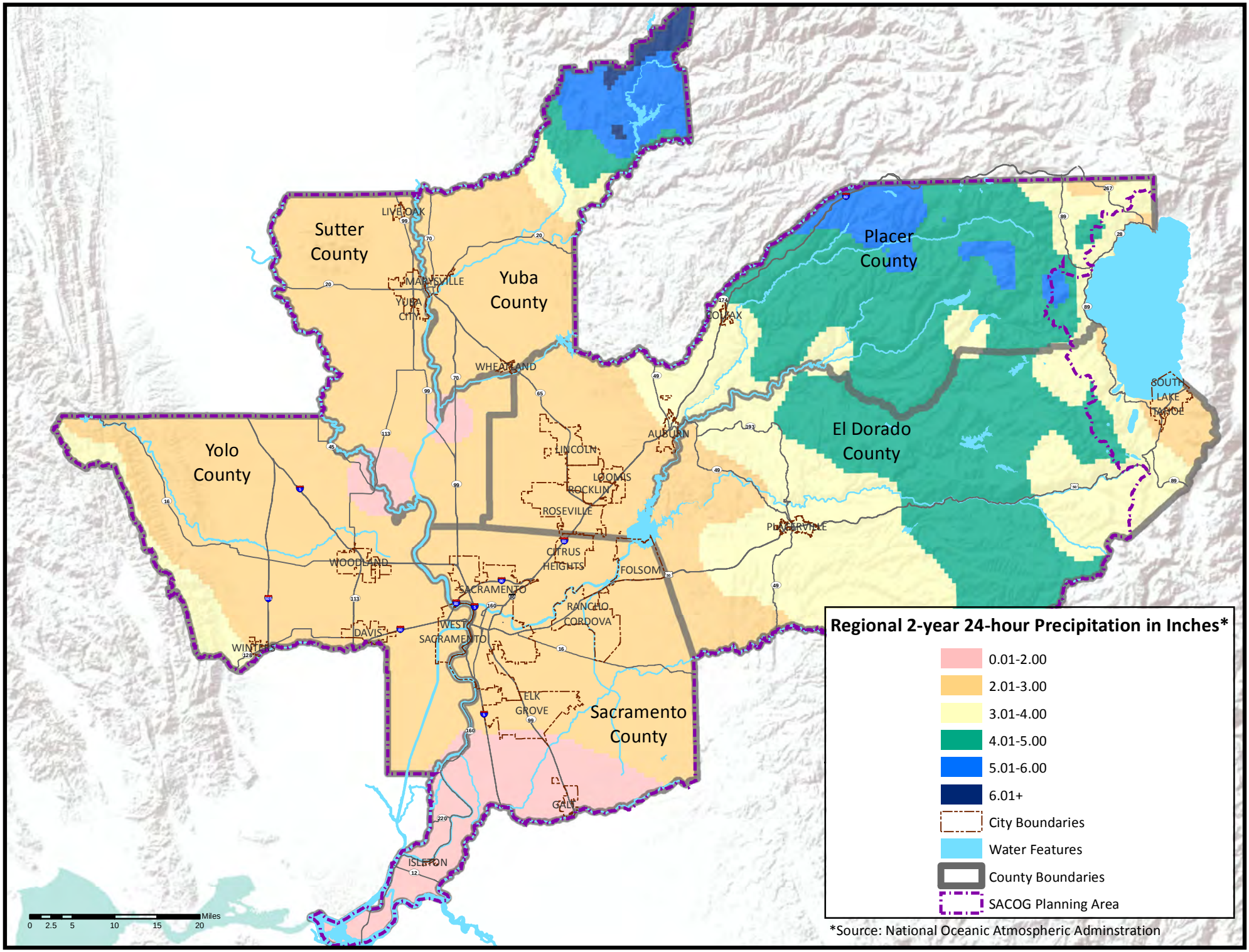
The Sacramento River Hydrologic Region encompasses an area of approximately 17.4 million acres (27,200 square miles) and contains all or large portions of Butte, Colusa, El Dorado, Glenn, Lake, Lassen, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Yolo, and Yuba counties. Most of northern California is located in the Sacramento River Hydrologic Region, which encompasses several watersheds of various sizes (DWR, 2003b).

A small portion of the plan area lies in the San Joaquin River Hydrologic Region. The San Joaquin River Hydrologic Region covers approximately 9.7 million acres (15,200 square miles) and contains all or parts of, Alameda, Alpine, Amador, Calaveras, Contra Costa, El Dorado, Fresno, Madera, Mariposa, Merced, Sacramento, San Benito, San Joaquin, Stanislaus, and Tuolumne counties (DWR, 2003c).

Major watersheds in the Sacramento River Hydrologic Region and San Joaquin River Hydrologic Region that lie in the plan area include: the American River; Bear River; Cache Creek; Cosumnes River; Feather River; Mokelumne River; Putah Creek; Sacramento River; and Yuba River (Figure 11.2). These watersheds and their major surface waters, including average annual flows and reservoir capacities, are summarized in Tables 11.1 and 11.2. Ultimately, these watersheds drain to the Sacramento-San Joaquin River Delta.

The American River Watershed is one of the largest watersheds in the plan area and overlies Placer, El Dorado and Sacramento counties. This watershed originates in the high Sierra Nevada, west of Lake Tahoe, and drains east until it ultimately discharges into the Sacramento River near the city of Sacramento. Major rivers and tributaries draining the watershed include the North, Middle, and South Forks of the American River; the Rubicon River, and Silver Fork Creek. Several major reservoirs in this watershed provide water storage and flood control, including Folsom Lake, Lake Natoma, Lake Clementine, Union Valley Reservoir, and Ice House Reservoir (SACOG, 2008).

Figure 11.1 Regional 2-year 24-hour Precipitation



*Source: National Oceanic Atmospheric Adminstration

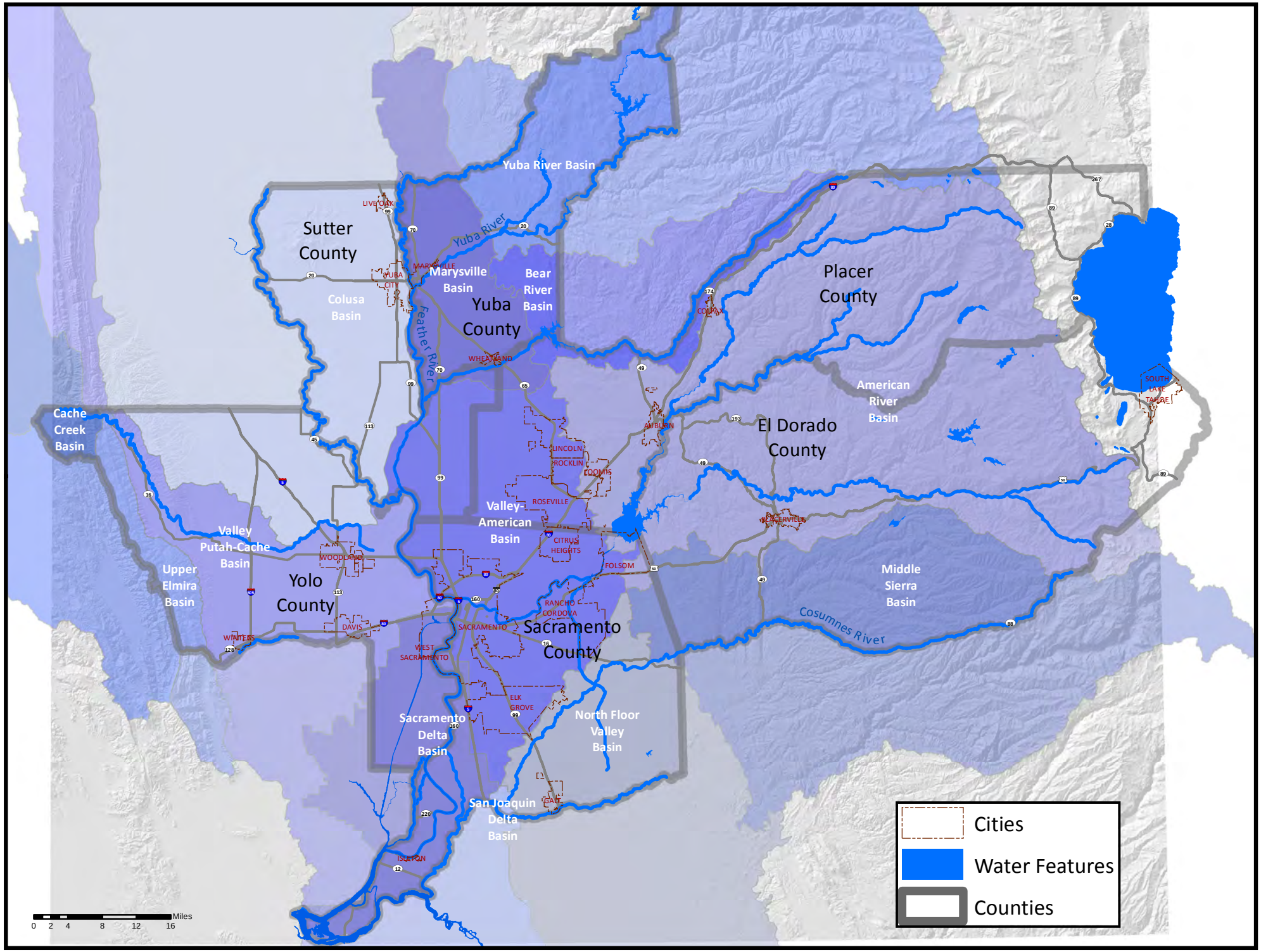


Figure 11.2 Major Watersheds in the Sacramento River Hydrologic Region and San Joaquin River Hydrologic Region

Table 11.1
Major Rivers, Creeks, and Drainage Canals

	Annual Average Flows (cfs)[a]	Drains/Tributary to
American River Watershed		
North Fork American River	2,300	Main Branch American River
Middle Fork American River	1,300	Main Branch American River
South Fork American River	1,500	Main Branch American River
Main Branch American River	3,800	Sacramento River
Rubicon River	400	Middle Fork American River
Silver Fork	N/A	South Fork American River
Bear River Watershed		
Bear River	450	Feather River
Cache Creek Watershed		
Cache Creek	540	Sacramento River / Yolo Bypass
Cosumnes River Watershed		
Cosumnes River	600	Mokelumne River
Laguna Creek	15	Sacramento River
Folsom South Canal	3,500	Lake Natomas
Feather River Watershed		
Feather River	8,300	Sacramento River
Honcut Creek	600	Feather River
Yuba River	2,400	Feather River
Bear River	450	Feather River
Mokelumne River Watershed		
Mokelumne River	760	Sacramento-San Joaquin Delta
Cosumnes River	600	Mokelumne River
Dry Creek (Sacramento County)	78	Mokelumne River
Putah Creek Watershed		
Putah Creek	490	Sacramento River / Yolo Bypass
Sacramento River Watershed		
Sacramento River	24,200	Sacramento-San Joaquin Delta
Feather River	8,500	Sacramento River
Dry Creek	78	Sacramento River
Arcade Creek	19	Sacramento River
American River	3,800	Sacramento River
Morrison Creek	22	Sacramento River
Laguna Creek	15	Sacramento River
Yuba River Watershed		
Yuba River	2,400	Feather River
Dry Creek (Yuba County)	72	Yuba River

Source: U.S. Geological Service 2007
[a] USGS 2007.

Table 11.2
Major Lakes and Reservoirs

Reservoir	Location	Reservoir Capacity (acre-feet)[a]
American River Watershed		
Folsom Lake	Convergence of the North and South Forks of the American River	977,000
North Fork Dam/ Lake Clementine	Convergence of the North and Middle	14,700[b]
Lake Natoma	Main branch of the American River	9,000
Union Valley Reservoir	South Fork American River	277,300
Ice House Reservoir	South Fork Silver Creek	45,960
Bear River Watershed		
Camp Far West Reservoir	Bear River	104,000
Cache Creek Watershed		
N/A		
Cosumnes River Watershed		
Sly Park Reservoir/Jennison Lake	Cosumnes River	41,000
Rancho Seco Lake	Folsom Canal	160[c]
Feather River Watershed		
N/A		
Mokelumne River Watershed		
N/A		
Putah Creek Watershed		
N/A		
Sacramento River Watershed		
N/A		
Yuba River Watershed		
Lake Francis	Dobbins Creek	1,905[d]
Collins Lake	Dry Creek	1,600[e]
New Bullard's Bar Reservoir	Yuba River	966,000
Englebright Reservoir	Yuba River	70,000

Source: California Department of Water Resources, accessed July 25, 2011
Notes:
N/A = Not applicable
[a] DWR, 2011a
[b] http://www.parks.ca.gov/?page_id=1141
[c] http://www.smud.org/en/about/Pages/recreation-rancho.aspx
[d] http://www.collinslake.com/
[e] http://findlakes.com/lake_francis_california~ca00866.htm

The Bear River watershed's boundary forms the northwestern border for the plan area. The watershed overlies portions of Placer and Yuba counties. This watershed originates in the lower Sierra Nevada foothills and drains to the Feather River. The Bear River is the major surface water in this watershed. Bear River flows are affected by Camp Far West Reservoir, which is located along the river on the northwestern border of Yuba and Placer counties (SACOG, 2008).

The Cache Creek watershed is located in the eastern portion of the plan area and is entirely within Yolo County. The major surface water in the watershed is Cache Creek, which is a large

stream that originates in the Coastal Ranges. The creek drains to the Sacramento River and, during heavy storms, to the Yolo Bypass (SACOG, 2008).

The Cosumnes River watershed overlies the southwestern portion of the plan area and is located in El Dorado and Sacramento counties. Major surface waters in this watershed include the Cosumnes River, Laguna Creek, Sly Park Reservoir, Folsom South Canal, and Rancho Seco Lake. The Cosumnes River originates on the western slopes of the central Sierra Nevada and converges with the Mokelumne River in San Joaquin County before draining to the Sacramento-San Joaquin River Delta. Laguna Creek is a major tributary to the Cosumnes River. The Folsom South Canal is a major human-made canal that distributes water from Lake Natoma south of Folsom Dam to residents in eastern Sacramento County. Rancho Seco Lake provides minor water storage along the canal (SACOG, 2008).

The Feather River watershed originates high in the northern Sierra Nevada Mountains and drains into Lake Oroville. This watershed is mostly outside of the plan area; however, the major surface water of the watershed, the Feather River, passes through the northern portion of the plan area. This portion of the Feather River converges with the Sacramento River approximately 20 miles north of Sacramento. Major tributaries that drain to the Feather River include Honcut Creek, the Yuba River, and the Bear River (SACOG, 2008).

The Mokelumne River watershed is mostly outside of the plan area; however, the eastern portion of this watershed overlies the southern border. The Cosumnes River and Dry Creek drain into the Mokelumne River, which drains to the Sacramento-San Joaquin River Delta (SACOG, 2008).

The Putah Creek watershed overlies the southeastern border of the plan area and is located in Yolo County. Putah Creek, the primary surface water in the watershed, originates in the Coastal Ranges. The creek is a major tributary to the Yolo Bypass (SACOG, 2008).

The largest watershed in the plan area is the Sacramento River watershed, which encompasses the entire plan area. The Sacramento River is the main drainage in this watershed and originates near Mount Shasta in the Cascades Range (Domagalski, 2000). Tributaries to the Sacramento River include the Feather River, Cache Creek, Putah Creek, Dry Creek, American River, Arcade Creek, Morrison Creek, and Laguna Creek. The Sacramento River drains an area of approximately 43,500 square miles including all or parts of six landforms or physiographic provinces—the Great Basin, the Middle Cascade Mountains, the Sierra Nevada, the Klamath Mountains, the Coast Ranges, and the Sacramento Valley (Domagalski, 2000). It flows south from the northern mountain ranges through the plan area before discharging into the Sacramento-San Joaquin River Delta (SACOG, 2008).

The Yuba River watershed originates in the Sierra Nevada and drains to the Feather River near Yuba City. The portion of the watershed in the plan area is in Yuba County. The Yuba River is the main surface water of this watershed. Reservoirs affecting flows in the Yuba River include Dry Creek, Collins Lake, Englebright Reservoir, and New Bullard's Bar Reservoir (SACOG, 2008).

The Sacramento-San Joaquin River Delta receives runoff from approximately 40 percent of the state's land area, including through discharges from surface waters traversing the plan area, and covers an area of approximately 738,000 acres. Generally, lands in the Delta are at or below sea level and are protected from flooding by over a 1,000 miles of levees. The Delta is the terminus for the Sacramento and Mokelumne Rivers, as well as the Sacramento Deep Water Ship Channel. The Sacramento-San Joaquin River Delta provides habitat for several species of fish, birds, mammals, and plants; supports agriculture; provides recreational activities; and is key for water distribution throughout the State (DWR, 2007a).

Flooding

Potential flood hazards in the plan area are related to 100-year flood events, the failure of levees located along several of the major rivers and in the Delta, and dam failures. A portion of the MTP/SCS plan area lies in a Federal Emergency Management Agency (FEMA)-identified 100-year floodplain, as shown in Figure 11.3. Recently, the U.S. Army Corps of Engineers (USACE) and the California Department of Water Resources have advised local communities that there is a greater potential for levee failure than previously thought. This is as a result of preliminary tests of levees for potential below levee seepage. Dams and some of the levees that provide flood protection to the region could potentially fail and inundate portions of the plan area.

Flood events can result in damage to structures or infrastructure, injury or loss of human and animal life, and the spread of waterborne diseases. In addition, standing floodwater can destroy agricultural crops, and contaminate groundwater. Flooding can also contribute to mudslides and slope instability. In urbanized areas, flood events can also overwhelm stormwater drainage systems resulting in additional flooding.

Because of the potential flood hazards in the plan area and the severe consequences of flooding, flood protection features have been implemented in and upstream of the plan area. Along the Sacramento and American Rivers and various other rivers and creeks in the plan area is a system of flow bypasses, dams, levees, and reservoirs to control flooding. Two key elements of this flood protection system are the Yolo and Sutter Bypasses, which function as flood basins and divert floodwaters away from populated areas during the winter storm season. The Sacramento River and Putah and Cache Creeks drain floodwaters into these bypasses. There are several dams located in and around the plan area that provide flood protection. The most significant of these dams are Folsom, Natoma, Englebright Narrows, Sly Park, Ice House, Camp Far West North Fork, Union Valley Reservoir, and New Bullards Bar dams.

Several federal, state, and local agencies are responsible for maintaining flood protection features in the plan area. USACE is a federal agency responsible for maintaining and repairing several levees and flood protection devices in the plan area. The California Department of Water Resources (DWR) provides dam safety and flood control services and is responsible for reducing the flood risk to Californians, developing a sustainable flood management system, and reducing the consequences of floods when they occur (DWR, 2007b). Reclamation districts and local flood control agencies are also responsible for flood control and maintenance activities. These agencies include the El Dorado County Water Agency; Placer County Flood Control and Water Conservation District; Sacramento Area Flood Control Agency (SAFCA); West

Sacramento Flood Control Agency; Sutter County Flood Control and Water Conservation District; American River Flood Control District; Yolo County Flood Control and Water Conservation District; and Yuba County Water Agency.

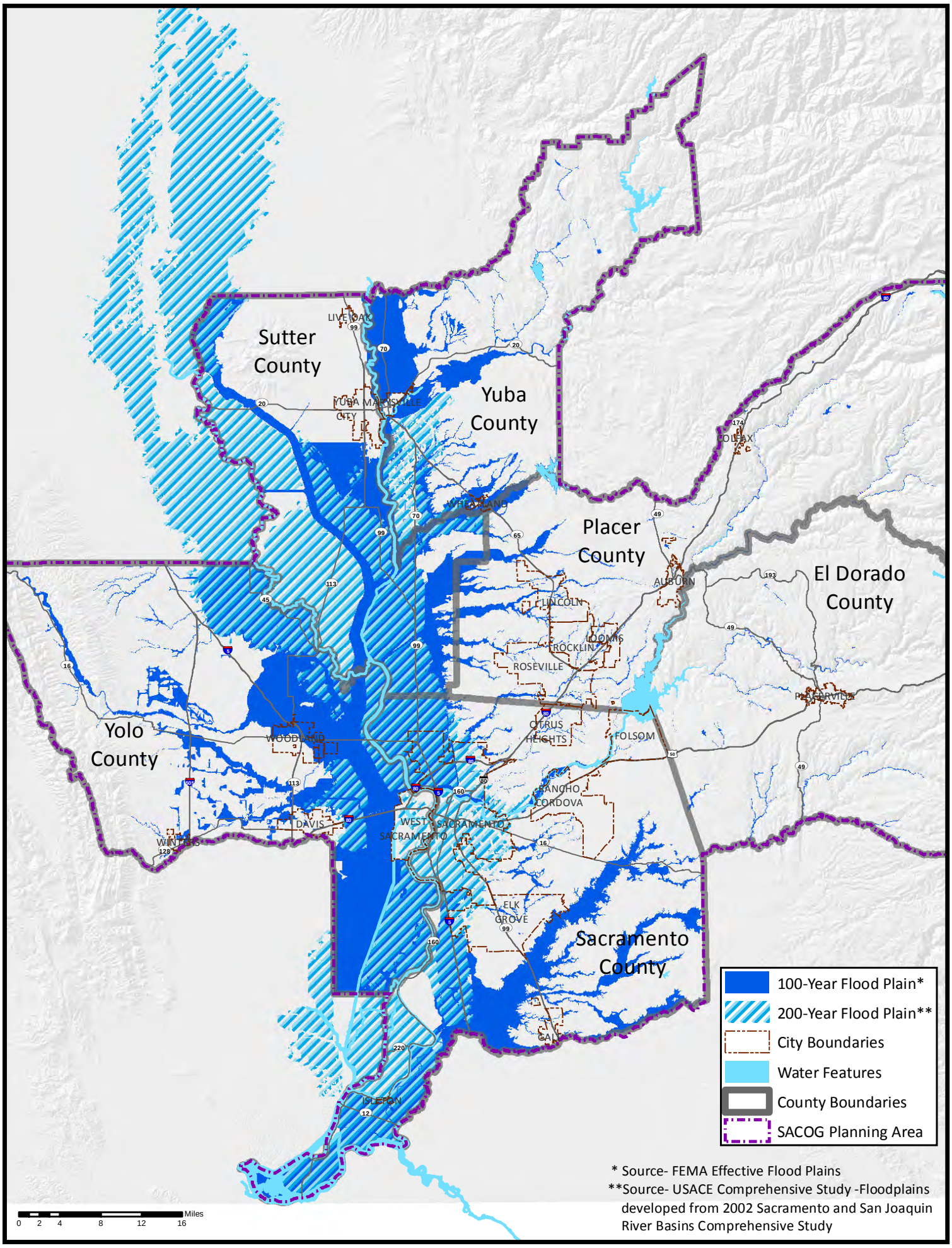


Figure 11.3 100-Year and 200-Year Flood Plains

Groundwater

The Sacramento groundwater basin makes up the northern part of the great Central Valley groundwater basin. The Sacramento groundwater basin is bound on the east by the Sierra Nevada and southern Cascades, and on the west by the crest of the Coast Range and Klamath Mountains. It extends north past Redding and south to the Sacramento-San Joaquin River Delta. The Sacramento groundwater basin includes 24 of 88 groundwater basins underlying the Sacramento River Hydrologic Region. The plan area overlies nine of the 24 Sacramento groundwater basins, namely the North Yuba, South Yuba, East Butte, Sutter, North American, South American, Solano, Yolo, and Capay Valley basins (DWR, 2003b). Figure 11.4 is a map of all groundwater sub-basins in the Sacramento groundwater basin.

The San Joaquin Valley groundwater basin is part of the San Joaquin River Hydrologic Region. The San Joaquin Valley groundwater basin is bound by the northern half of the San Joaquin Valley, the southern part of the Sacramento-San Joaquin Delta, the Sierra Nevada and Diablo Range. The San Joaquin Valley groundwater basin includes nine of the 11 groundwater basins in the San Joaquin River Hydrologic Region. The plan area overlies a portion of the Cosumnes basin (DWR, 2003c).

The North Yuba basin is located in the eastern central portion of the Sacramento groundwater basin and has a surface area of 78 square miles. This basin is bound on the west by the Feather River, on the south by the Yuba River, on the east by the Sierra Nevada and on the north by Honcut Creek. The North Yuba basin is recharged from stream channel and floodplain deposits along the Yuba River and Honcut Creek. Water bearing formations in this basin consist of continental deposits of Quaternary to Late Tertiary (Pliocene) age including recent valley sedimentary deposits, Pleistocene Victor Formation, Pleistocene floodplain deposits, Pleistocene alluvium, Pliocene Laguna Formation, and Miocene-Pliocene Mehrten Formation. Groundwater levels have remained relatively constant over the last 50 years at approximately 20 feet below the surface (DWR, 2006a; DWR, 2006b).

The South Yuba basin is located in the southern portion of the Sacramento groundwater basin and has a surface area of 138 square miles. This basin is recharged from stream channel and floodplain deposits along the Yuba River, Feather River and the Honcut Creek. The South Yuba basin is bound on the west by the Feather River, on the south by the Bear River, on the east by the Sierra Nevada and on the north by the Yuba River. Water bearing formations in this basin consist of continental deposits of Quaternary (Recent) to Late Tertiary (Miocene) age including Holocene dredger tailings, Holocene stream channel and floodplain deposits, Pleistocene Victor Formation, Pleistocene floodplain deposits, Pleistocene alluvium, Pliocene Laguna Formation, and Miocene-Pliocene Mehrten Formation. The thickness of these deposits changes from a few hundred feet at the Sierra Nevada foothills in the east to well over 1,400 feet in the western margin of the basin. Beneath the South Yuba groundwater basin, exists a well-developed cone of depression with water levels at approximately 10 feet above sea level. However, due to surface water irrigation and reduction in groundwater pumping, these groundwater levels have shown continual increases. Existing groundwater levels in this basin range from 40 to 120 feet below the ground surface (DWR, 2006b).

The East Butte basin is located in the northern portion of the Sacramento groundwater basin and has a surface area of 415 square miles. This basin is recharged by the Thermalito Afterbay. The East Butte basin is bounded on the west and northwest by Butte Creek, on the northeast by the Cascade Ranges, on the southeast by the Feather River and the south by the Sutter Buttes. The northeast boundary along the Cascade Ranges is primarily a geographic boundary with some groundwater recharge occurring beyond that boundary. The subbasin is contiguous with the West Butte Subbasin at depth. Water bearing formations in this basin consist of deposits of late Tertiary to Quaternary age including Holocene stream channel deposits and basin deposits, Pleistocene deposits of the Modesto and Riverbank formations, Sutter Buttes alluvium, and Tuscan and Laguna formations. The thickness of these deposits changes from 1 to 1,000 feet. Existing groundwater levels in this basin range 15 to 40 feet below the ground surface (DWR, 2004d).

The Sutter basin is located in the eastern central portion of the Sacramento groundwater basin and has a surface area of 366 square miles. This basin is recharged from local streams and rainwater. It is bounded on the west by the Sacramento River, on the south by the confluence of the Sacramento River and the Sutter Bypass, on the east by the Feather River, and on the north by confluences of Butte Creek and the Sacramento River and the Sutter Buttes. Water bearing formations in this basin consist of continental deposits of Quaternary (Recent) to Late Tertiary (Miocene) age, including Holocene stream channel and floodplain deposits, Pleistocene Victor formation, Pleistocene floodplain deposits, Pleistocene alluvium, Pliocene Laguna formation, Miocene- Pliocene Mehrten Formation and Oligocene-Miocene Valley Springs Formation. The thickness of these deposits changes from a few hundred feet at Sierra Nevada foothills in the east to well over 2,000 feet in the western margin of the basin. Groundwater levels for this basin have remained relatively constant with average levels approximately 10 feet below the surface (DWR, 2006c).

The North American basin is located in the eastern central portion of the Sacramento groundwater basin and has a surface area of 548 square miles. It is bound on the west by the Feather River, on the south by the Sacramento River, on the east and north by the Bear River. Water bearing formations in this basin consist of continental deposits of Quaternary and Late Tertiary age, including younger alluvium, older alluvium, and Miocene/Pliocene volcanics. The cumulative thickness of these deposits changes from 0 to 1,200 feet in the center margin of the basin. Groundwater levels in northern Sacramento County and southern Placer County have been declining at a rate of one and a half feet per year for the last 40 years, while groundwater levels in northern Placer and northern Sutter counties have remained relatively stable. Existing groundwater levels in this basin range from 10 to 70 feet below the ground surface (DWR, 2006d).

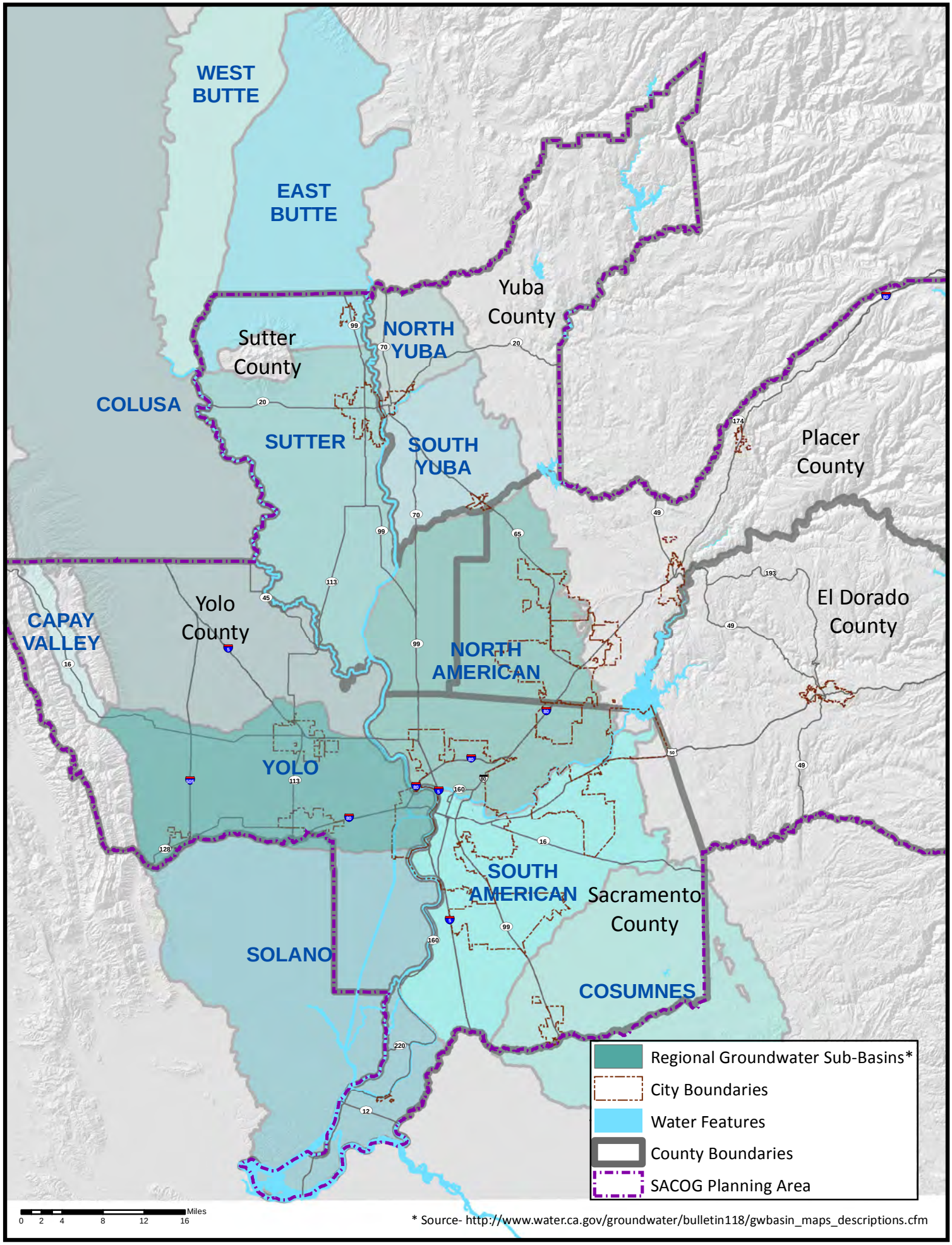


Figure 11.4 Groundwater Sub-Basins in the Sacramento Region

The South American groundwater basin is located in the southeastern portion of the Sacramento groundwater basin and has a surface area of 388 square miles. It is bounded on the west by the Sacramento River, on the south by the Cosumnes and Mokelumne Rivers, on the east by the Sierra Nevada, and on the north by the American River. Water-bearing formations in this basin consist of continental deposits of Quaternary and Late Tertiary age, including flood basin deposits, dredger tailings, stream channel deposits, older alluvium, and Miocene/Pliocene volcanics. The thickness of these deposits changes from a few hundred feet at Sierra Nevada foothills in the east to well over 2,500 feet in the western margin of the basin. Groundwater levels in this basin have fluctuated over the last several years as a result of dry years and well activity. Existing groundwater levels are approximately 20 feet or less throughout the basin (DWR, 2004a).

The Solano groundwater basin is located in the southwestern portion of the Sacramento Basin and the northern portion of the Sacramento-San Joaquin Delta and has a surface area of 664 square miles. It is bounded on the north by Putah Creek, on the east by the Sacramento River (from Sacramento to Walnut Grove), on the southeast by the North Mokelumne River (from Walnut Grove to the San Joaquin River), and on the south by the San Joaquin River (from the North Mokelumne River to the Sacramento River. The western subbasin border is defined by the hydrologic divide that separates lands draining to the San Francisco Bay from those draining to the Sacramento-San Joaquin River Delta. Water-bearing formations consist of sedimentary continental deposits of Late Tertiary (Pliocene) to Quaternary (Recent) age. Fresh water-bearing units include younger alluvium, older alluvium, and the Tehama Formation. The thickness of these deposits increase to 3,000 feet near the eastern margin of the subbasin. Groundwater level trends within the Solano subbasin are susceptible to drought, but quickly recover in wet years. DWR has not conducted groundwater level estimates for the subbasin (DWR, 2004e).

The Yolo groundwater basin is located in the southern portion of the Sacramento groundwater basin and has a surface area of 400 square miles. This basin is recharged by local streams, including Cache and Putah Creeks, and by rainwater. It is bounded on the west by the Coast Range, on the south by Putah Creek, on the east by the Sacramento River, and on the north by Cache Creek. Water-bearing formations in this basin consist of sedimentary continental deposits of Late Tertiary (Pliocene) to Quaternary (Holocene) age, including younger alluvium, older alluvium, and the Tehama Formation. The thickness of these deposits changes from a few hundred feet near the Coast Range in the west to more than 3,000 feet in the eastern margin of the basin. Groundwater levels in this basin are affected by dry years and drought; however, they recover quickly during wet years. Existing groundwater levels range from 20 to 420 feet below the surface (DWR, 2004b).

The Capay Valley groundwater basin is located in the southwestern portion of the Sacramento groundwater basin and has a surface area of 39 square miles. This basin is primarily recharged by Cache Creek, but is also influenced by Bear Creek and rainwater. It is located within the Coastal Ranges and is bounded by the Yolo County boundary on the north end and the confluence of Salt Creek and Cache Creek on the south. Water-bearing formations in this basin consist of sedimentary continental deposits of Late Tertiary (Pliocene) to Quaternary (Holocene) age, including the Tehama Formation and Cretaceous marine rocks. The thickness of these deposits changes from 0 to over 200 feet in the eastern margin of the basin. Existing

groundwater levels throughout most of the Capay Valley basin range from 10 to 40 feet below the ground surface and have remained relatively stable over the years (DWR, 2004c).

The Cosumnes groundwater basin is located in the southwestern portion of the San Joaquin Valley groundwater basin and has a surface area of 439 square miles. It is bounded on the south and southwest by the Eastern San Joaquin Subbasin and on the north to northwest by the South American Subbasin of the Sacramento Valley Groundwater Basin. Water-bearing formations consist of continental deposits of Late Tertiary to Quaternary age. These deposits include Younger Alluvium, Older Alluvium, and Miocene/Pliocene volcanics. The thickness of these deposits changes from a few hundred feet near the Sierra Nevada foothills on the east to over 2,500 feet along the western margin of the subbasin. Groundwater levels have fluctuated, recovering between 1993 and 2000 after several decades of decline. Existing groundwater levels are approximately 15-20 feet (DWR, 2006e).

Water Quality

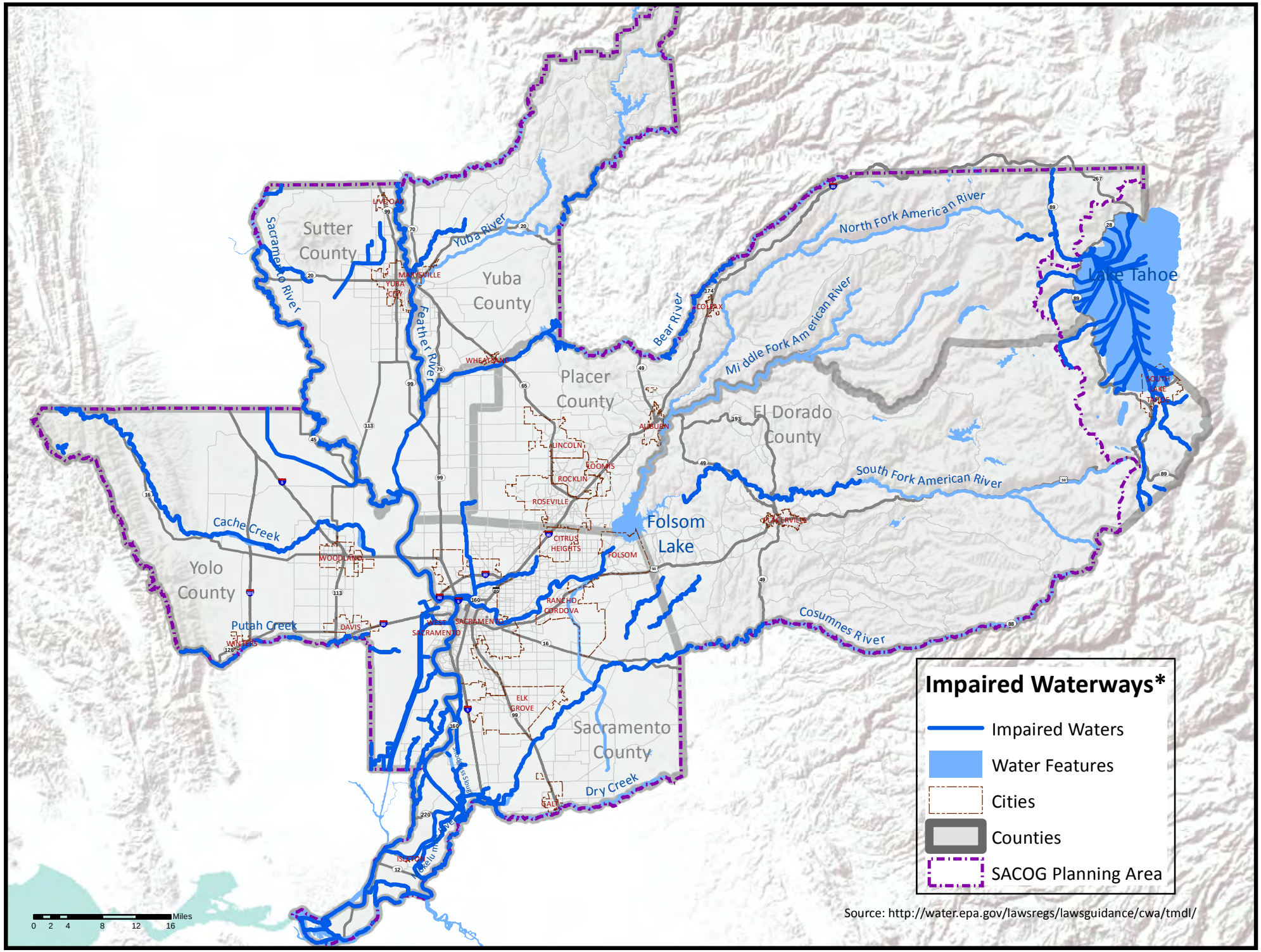
Surface Water Quality

Generally, surface water quality in the plan area is considered sufficient for municipal, agricultural, wildlife, and recreational uses (DWR, 2003a); however, several of the larger water bodies in the plan area are listed as impaired according to Section 303(d) of the Clean Water Act (CWA) of 1972 (33 U.S.C. §1251 et seq.) (see Regulatory Setting section below). Beneficial use impairments can result from several factors but are generally a result of pollutant discharges from point and non-point sources. Point sources of pollutants include discharges of treated effluent from municipal wastewater treatment plants and wastewater discharges from industrial and commercial facilities. Non-point pollutant sources include urban runoff, construction runoff, livestock and animal wastes, and runoff from agricultural areas. Water quality is expected to reflect the land uses in the watershed. Land uses surrounding the project area include open space, urban, and agricultural uses. Open space is not anticipated to contribute pollutants to water bodies above background levels, except when it includes grazing. Urban and agricultural land uses typically contribute sediment, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash. The proposed project would be expected to contribute similar contaminants. Table 11.3 summarizes water quality impairments in surface waters in the plan area and the sources of these impairments. Figure 11.5 shows impaired waterways in the plan area.

Groundwater Quality

Groundwater in the Sacramento Groundwater Basin is generally excellent, with only local impairments in certain areas, and suitable for irrigation and municipal and domestic uses (DWR, 2003b). Water quality problems in the basin are a result of high total dissolved solids (TDS) from the underlying marine sedimentary rocks and high nitrates and organic compounds from fertilizers and septic tanks (DWR, 2003b). The majority of groundwater underlying the plan area can generally be characterized as calcium-magnesium bicarbonate or magnesium-calcium bicarbonate rich (DWR, 2006a; DWR, 2006b; DWR, 2006c; DWR, 2006d; DWR, 2006e; DWR, 2004a; DWR, 2004b; DWR, 2004c; DWR, 2004d; DWR, 2004e).

Figure 11.5 Impaired Waterways in Plan Area



Source: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/

Table 11.3
CWA Section 303(d)-Listed Impairments in the Plan Area

Surface Water	Water Quality Impairments	Suspected Sources
American River, Lower (Nimbus Dam to confluence with Sacramento River)	Mercury, PCBs (Polychlorinated biphenyls), Unknown	Abandoned mines, Unknown
American River, North and South Forks (North Fork Dam to Folsom Lake; below Slab Creek Reservoir to Folsom Lake)	Mercury	Unknown
Arcade Creek	Chlorpyrifos, Copper, Diazinon, Malathion, Pyrethroids, Sediment Toxicity	Agricultural aerial deposition, unknown
Bear River (Amador Co, Lower Bear River Reservoir to Mokelumne River, N Fork)	Copper	Unknown
Bear River (from Allen to Upper Bear River Reservoir, Amador County)	pH (low)	Unknown
Bear River, Lower (below Camp Far West Reservoir)	Chlorpyrifos, Copper, Diazinon, Mercury	Unknown
Bear River, Upper (from Combie Lake to Camp Far West Reservoir, Nevada and Placer counties)	Mercury	Unknown
Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)	Boron, Mercury, Unknown	Abandoned mines, Unknown
Cache Creek, North Fork (below Indian Valley Reservoir, Lake County)	Mercury	Unknown
Camp Far West Reservoir	Mercury	Unknown
Carson Creek (from wastewater treatment plant to Deer Creek)	Aluminum, Manganese	Unknown
Chicken Ranch Slough	Chlorpyrifos, Diazinon, Pyrethroids, Sediment Toxicity	Agricultural aerial deposition, unknown
Coon Creek, Lower (from Pacific Avenue to Main Canal, Sutter County)	Chlorpyrifos, Escherichia coli (E. coli), Unknown	Unknown
Cosumnes River, Lower (below Michigan Bar; partly in Delta Waterways, eastern portion)	Escherichia coli (E. coli), Invasive Species, Sediment Toxicity	Unknown
Cosumnes River, Upper (above Michigan Bar)	Invasive Species	Unknown
Curry Creek (Placer and Sutter Counties)	Pyrethroids, Sediment Toxicity	Unknown
Davis Creek (downstream and upstream from Davis Creek Reservoir, Yolo County); Davis Creek Reservoir	Mercury	Unknown
Deer Creek (Sacramento County)	Iron	Unknown
Deer Creek (Yuba County)	pH	Unknown
Delta Waterways (northern and northwestern portions)	Chlordane, Chlorpyrifos, DDT, diazinon, Dieldrin, invasive species, group A pesticides, mercury, PCBs, unknown toxicity, electrical conductivity and mercury	Agriculture, urban runoff, storm sewers, abandoned mines
Elk Grove Creek	Chlorpyrifos, Diazinon	Unknown
Englebright Lake	Mercury	Abandoned mines
Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)	Chlorpyrifos, Group A Pesticides, Mercury, PCBs (Polychlorinated biphenyls), Unknown	Abandon mines, Unknown
Folsom Lake	Mercury	Unknown
Gilsizer Slough (from Yuba City to downstream of Township Road, Sutter County)	Diazinon, Oxyfluorfen, pH,	Unknown

Surface Water	Water Quality Impairments	Suspected Sources
Gordon Slough (from headwaters and Goodnow Slough to Adams Canal, Yolo County)	Oxygen (dissolved)	Unknown
Honcut Creek (Butte and Yuba Counties)	Oxygen, Dissolved	Unknown
Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County)	Pyrethroids, Sediment Toxicity	Unknown
Knights Landing Ridge Cut (Yolo County)	Boron, oxygen (dissolved), salinity	Unknown
Live Oak Slough	Diazinon, Oxyfluorfen, oxygen (dissolved)	Unknown
Main Drainage Canal	Diazinon, Diuron, oxygen (dissolved)	Unknown
Miners Ravine (Placer County)	Oxygen (dissolved)	Unknown
Morrison Creek	Diazinon, Pentachlorophenol (PCP), Pyrethroids, Sediment toxicity	Unknown
Morrison Slough	Diazinon	Unknown
Lake Natoma	Mercury	Unknown
Natomas Cross Canal (Sutter County)	Mercury	Unknown
Natomas East Main Drainage Canal (aka Steelhead Creek, downstream of confluence with Arcade Creek)	Diazinon, Mercury, PCBs (Polychlorinated biphenyls)	Agricultural aerial deposition, unknown
New Bullards Bar Reservoir	Mercury	Unknown
Oxbow Reservoir (Ralston Afterbay, El Dorado and Placer Counties)	Mercury	Unknown
Putah Creek (Solano Lake to Putah Creek Sinks; partly in Delta Waterways, northwestern portion)	Boron, Mercury	Abandoned mines, unknown
Sacramento Deep Water Ship Channel	Chlorpyrifos, DDT, diazinon, dioxins, exotic species, group A pesticides, mercury, pathogens, PCBs and unknown toxicity	Agriculture, urban runoff, storm sewers, abandoned mines, contaminated sediments, unknown sources
Sacramento River (Keswick Dam to Cottonwood Creek)	Unknown Toxicity	
Sacramento River (Cottonwood Creek to Red Bluff)	Mercury, Unknown	Unknown
Sacramento River (Red Bluff to Knights Landing)	DDT (Dichlorodiphenyltrichloroethane), Dieldrin, Mercury, PCBs (Polychlorinated biphenyls), Unknown	Unknown
Sacramento River (Knights Landing to the Delta)	Chlordane, DDT, Dieldrin, Mercury, PCBs, Unknown	Abandoned mines, unknown
Sacramento Slough	Chlorpyrifos, Mercury, oxygen (dissolved), unknown, pH (low)	Unknown
Strong Ranch Slough	Chlorpyrifos, Diazinon, Pyrethroids, sediment toxicity	Agricultural aerial deposition, unknown
Sutter Bypass	Mercury	Unknown
Sycamore Slough (Yolo County)	Oxygen (dissolved	Unknown
Thermalito Afterbay	Mercury, PCBs	Unknown
Tule Canal (Yolo County)	Boron, Escherichia coli (E. coli), fecal coliform, salinity	Unknown
Wadsworth Canal	Chlorpyrifos, Diazinon	Unknown
Willow Slough (Yolo County)	Boron	Unknown
Willow Slough Bypass (Yolo County)	Boron, Escherichia coli (E. coli), fecal coliform	Unknown
Winters Canal (Yolo County)	Diazinon	Unknown
Yankee Slough (Placer and Sutter Counties)	Chlorpyrifos, unknown	Unknown
Yuba River, Lower	Mercury	Unknown

Surface Water	Water Quality Impairments	Suspected Sources
Yuba River, Middle Fork (Bear Creek to North Yuba River)	Mercury	Unknown
Yuba River, North Fork (New Bullards Bar Reservoir dam to Lake Englebright)	Mercury	Unknown
Yuba River, South Fork (Spaulding Reservoir to Englebright Reservoir)	Mercury, Temperature, water	Unknown

Source: State Water Board 2010

Groundwater quality in the San Joaquin Groundwater Basin is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are TDS, nitrate, boron, chloride, and organic compounds (DWR, 2003c). Because only one subbasin is within the plan area, see the Cosumnes subbasin for a discussion of relevant groundwater quality.

The North American subbasin generally has acceptable water quality. However, high TDS levels are found in areas along the Sacramento River from the Sacramento International Airport northward to the Bear River. In addition, in this subbasin there are three sites with significant groundwater contamination issues: the former McClellan Air Force Base, Union Pacific Railroad Yard in Roseville, and the Aerojet Superfund Site. Of the 265 wells sampled from 1994 through 2000 throughout the basin, seven wells had primary inorganics above maximum contaminant levels (MCLs), two had radiological MCL exceedances and six had volatile organic carbons (VOCs) or semi-volatile organic carbons (SVOCs) MCL exceedances. This subbasin is predominantly characterized by calcium-magnesium bicarbonate or magnesium-calcium bicarbonate with some areas of magnesium bicarbonate (DWR, 2006d).

Groundwater in the South American subbasin is generally of good to excellent quality. However, there are seven listed sites with significant groundwater contamination. These sites include three Superfund sites—Aerojet, Mather Field, and the Sacramento Army Depot. The other impaired sites are the Kiefer Boulevard Landfill, an old PG&E site on Jiboom Street near Old Sacramento, and the Southern Pacific and Union Pacific Rail yards in downtown Sacramento. Of the 144 wells sampled from 1994 through 2000, MCL exceedances were measured for primary inorganics (two wells), radiological constituents (one well), nitrates (one well), and VOCs and SVOCs (eight wells). This subbasin is predominantly characterized by calcium-magnesium bicarbonate or magnesium-calcium bicarbonate with magnesium-sodium bicarbonate dominant in Elk Grove (DWR, 2004a).

Groundwater in the Cosumnes subbasin is generally good, with no identified significant impairments. Of the 26 wells sampled from 1994 through 2000, MCL exceedances were detected for pesticides in one well. Groundwater contained in the water-bearing deposits underlying most of Sacramento County is of excellent mineral quality for irrigation and domestic use. Within the subbasin, calcium-magnesium and calcium-sodium bicarbonate water types are most common (DWR, 2006e).

The Yolo subbasin's groundwater quality is generally good with localized groundwater impairments. These impairments include elevated boron concentrations along Cache Creek and

the Cache Creek Settling Basin area, elevated selenium concentrations in the City of Davis, and several localized areas of nitrate contamination. Of the 61 wells sampled from 1994 through 2000, MCL exceedances were detected for primary inorganics (three wells), nitrates (one well), and VOCs (one well). The subbasin is predominantly characterized by calcium-magnesium bicarbonate or sodium-magnesium bicarbonate with small areas of magnesium bicarbonate (DWR, 2004b).

Groundwater in the Capay Valley subbasin is of good quality with moderate to high levels of boron surrounding Cache Creek. Several wells sampled in 2001 indicated that none of the wells' constituent levels exceeded the respective MCLs. This subbasin is dominated by calcium-sodium bicarbonate (DWR, 2004c).

The North Yuba subbasin contains good to excellent groundwater quality and has not been listed for any major impairments. Of the 27 wells sampled from 1994 through 2000, MCL exceedances occurred for radiological constituents (one well), nitrates (one well), and VOCs (two wells). This subbasin is predominantly characterized by calcium-magnesium bicarbonate or magnesium-calcium bicarbonate (DWR, 2006a).

The South Yuba subbasin generally has good water quality characteristics and has not been listed for any major impairments. Of the 38 wells sampled from 1994 through 2000, two wells had MCL exceedances for primary inorganics, and one well had MCL exceedances for VOCs. This subbasin is predominantly characterized by calcium-magnesium bicarbonate or magnesium-calcium bicarbonate with some magnesium bicarbonate in the northern section of the basin (DWR, 2006b).

The East Butte subbasin has localized high concentrations of manganese, iron, magnesium, total dissolved solids, conductivity, ASAR, and calcium. DWR does not have a qualitative assessment of its water quality characteristics. Of the 30 wells sampled from 1994 through 2000, one well had MCL exceedances for primary inorganics, and two wells had MCL exceedances for nitrates. This subbasin is predominantly characterized by calcium-magnesium bicarbonate and magnesium-calcium bicarbonate waters are the predominant groundwater water types in the subbasin. Magnesium bicarbonate waters occur locally near Biggs-Gridley, south and east to the Feather River (DWR, 2004d).

The Sutter subbasin has not been listed for any major impairments and groundwater quality is generally good to excellent. Groundwater does have some portions with high levels of naturally occurring minerals. This subbasin is predominantly characterized by calcium-magnesium bicarbonate or magnesium-calcium bicarbonate with magnesium bicarbonate in some areas of the northwestern portion (DWR, 2006c).

Groundwater within the Solano subbasin is considered to be of generally good quality, and useable for both domestic and agricultural purposes. Impairments include overall hardness (as CaCO3) generally greater than 180 ppm, high concentrations of bicarbonate which cause precipitation of Ca and Mg carbonates in the southern area, arsenic concentrations between 0.02 and 0.05 ppm (highest along the southeastern margin), and manganese (a secondary constituent) above the MCL of 0.05 ppm along the Sacramento River along the eastern portion of the

subbasin. Of 71 wells sampled between 1994 and 2000, one well had MCL exceedances for primary inorganics, eight wells had MCL exceedances for nitrates, three wells had MCL exceedances for pesticides, and one well had exceedances for VOCs and SVOCs. This subbasin is generally characterized by sodium bicarbonate in the southern and eastern areas (DWR, 2004e).

Regulatory Setting

Federal

This section describes federal laws and regulations related to hydrology. It is organized by federal agencies, although some functions are delegated to state or local agencies. State and local agencies referenced here may have additional functions covered under the State and Local sections, which follow this section.

Federal Emergency Management Agency

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA issues flood insurance rate maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community. The locations of FEMA-designated flood zones in the plan area are illustrated in Figure 11.3. FEMA also administers levee standards. Requirements for levee construction include embankment protection, embankment and foundation stability, settlement, and maintenance plans and criteria.

Floodplain Management Ordinances

Once FEMA provides a community with the flood hazard information upon which floodplain management regulations are based, the community is required to adopt a floodplain management ordinance that meets or exceeds the minimum NFIP regulations. The purpose of the floodplain management regulations is to ensure that participating communities take into account flood hazards, to the extent that they are known, in all official actions relating to land management and use.

National Flood Insurance Act of 1968/Flood Disaster Protection Act of 1973

Alarmed by increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 (42 U.S.C. § 4001 et seq.) and the Flood Disaster Protection Act of 1973 (42 U.S.C. § 4002 note). The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. The National Flood Insurance Act requires FEMA to maintain the FIRM, which defines areas of federal flood hazard. The maps are drawn based on Army Corps of Engineers studies and note the location of 100- and 500-year flood areas, as well as the base flood elevation. Rural and wilderness areas are typically not mapped by FEMA (Sacramento County, 2010).

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) licenses hydroelectric power projects. In 2006, FERC issued a license to the El Dorado Irrigation District for a 21-megawatt project on the South Fork of the American River and its tributaries in El Dorado, Alpine, and Amador counties (El Dorado County, 2004, FERC, 2006).

Multiagency Federal Regulations

Executive Order 11990 – Protection of Wetlands

The objective of Executive Order 11990 is to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. It requires federal agencies to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The Order applies to: acquisition, management, and disposition of federal lands and facilities construction and improvement projects which are undertaken, financed or assisted by federal agencies; and federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities. The procedures require the determination of whether or not the proposed project will be in or will affect wetlands. If so, a wetlands assessment must be prepared that describes the alternatives considered (FEMA, 2010a). This order would apply to any proposed future projects, if construction related to the CWA Section 404 permit falls under any of the applicable categories listed above, or if federal funds are used for construction. Section 404 is discussed under the USACE.

Executive Order 11988 – Floodplain Management

The objectives of Executive Order 11988 are to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains. It applies to federal agencies for the following actions: acquiring, managing, and disposing of federal lands and facilities; providing federally-undertaken, financed, or assisted construction and improvements; conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities. The evaluation process follows the same steps as for EO 11990 (FEMA, 2010b). This order would apply to any proposed future projects, if construction related to the CWA Section 404 permit falls under any of the applicable categories listed above, or if federal funds are used for construction.

National Park Service

The National Park Service is responsible for the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271-1287). The Lower American River is part of the National Wild and Scenic Rivers System. The Wild and Scenic Rivers Act prohibits federal agencies from assisting in the construction of water resources projects that would have a direct and adverse effect on the protected rivers. This includes construction in the bed or on the banks of the river (Sacramento County, 2010).

U.S. Army Corps of Engineers

USACE administers and enforces Section 10 of the Rivers and Harbors Appropriation Act of 1889 (33 U.S.C. §§ 401, 403, 407) and Section 404 of the Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) (see discussion under U.S. Environmental Protection Agency).

Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Appropriation Act of 1889 (33 U.S.C. §§ 401, 403, 407) requires a permit for constructing structures, working in, or affecting waters of the United States, including wetland habitats subject to inundation by ordinary high waters (33 C.F.R. § 329.11 (a)).

Section 404 – Discharge of Dredge or Fill Material

USACE issues Section 404 permits when dredged or fill materials will be discharged in navigable waters or surface waters hydrologically connected to navigable waters, including oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project applicants must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may adversely affect surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols, to determine whether the permit study area encompasses wetlands or other waters of the United States that qualify for CWA protection. These include any or all of the following:

> *Areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned. Seasonal and perennial wetlands, including coastal wetlands.*

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR § 328.3, 40 CFR § 230.3). Refer to Chapter 6 – Biological Resources for more information on wetlands regulation.

U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation, part of the Department of the Interior, is responsible for developing and conserving most water resources in the western United States. Its functions include: municipal and industrial water supply (Central Valley Project); hydroelectric power generation; agricultural irrigation water supply; water quality improvement; flood control; river navigation; river regulation and control, including fish and wildlife enhancement; recreation management; and research. In the plan area, the Bureau purchases water from various water agencies for the Central Valley Project, oversees some levies, and owns reservoirs such as

Folsom and Jennison Lake (El Dorado County 2004, Yuba County 2011). In the project area, the U.S. Bureau of Reclamation has the following projects, which include individual dams and power plants: Auburn-Folsom South Unit, Delta Division, Folsom and Sly Park Units, and Sacramento Canals Unit (U.S. Bureau of Reclamation, 2007).

U.S. Environmental Protection Agency (U.S. EPA)

Clean Water Act

Enacted by Congress in 1972, as the first comprehensive national clean water legislation to protect our nation's waters, the Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) mandates cooperative effort by federal, state, and local governments to implement its pollution control measures. Except for Section 404 fill or dredge discharge permits, the U.S. EPA has delegated implementation and enforcement of the sections below to the State Water Board and its nine Regional Water Quality Control Boards (the Central Valley Board has jurisdiction over the plan area). CWA is intended to improve the quality of the nation's waters using a framework of standards, technical tools, and financial assistance to address pollution and poor water quality.

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

Section 303(d) – Total Maximum Daily Load (TMDL)

The State Water Board and Central Valley Regional Water Quality Control Board identify waters that do not meet water quality standards and develop plans to address polluted bodies (CWA Section 303(d) and California Porter-Cologne Water Quality Control Act). Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards, requiring the water board to identify streams with impaired water quality (i.e., affected by the presence of pollutants or contaminants) and to establish the TMDL, or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects. CWA Section 303(d) also requires the state to identify water bodies that do not meet water quality standards and thus exhibit impaired beneficial uses. Most of the proposed future projects in the plan area would be located within areas that discharge to impaired waters, as identified in the Clean Water Act Section 303(d) List of Water Quality Limited Segments listed in the Environmental Setting of this chapter.

The Central Valley RWQCB has developed and approved TMDLs to address impaired waters within the plan area. Projects are required to comply with requirements of approved TMDLs, as regulated in the plan area by the through issuance of Waste Discharge Requirements and NPDES permit amendments.

Section 304(a) – Water Quality Criteria

Section 304(a) requires U.S. EPA to publish water-quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water.

Section 401 – Water Quality Certification

The State Water Board and Central Valley Regional Water Quality Control Board issue CWA Section 401 permits when dredged or fill materials will be discharged in navigable waters or surface waters hydrologically connected to navigable waters. Section 401 permits are typically issued in connection with USACE's issuance of Section 404 permits. The regional water board must certify that any discharges comply with Sections 301, 303, 306 and 307 of the CWA. In some cases, Section 401/404 regulations may not apply, but state water discharge requirements must still be met (Yolo County, 2009). Under the Section 401 program, the State Water Board must protect all waters, but has special responsibility for wetlands, riparian areas, and headwaters, because these waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. Under the Section 401 program, the State Water Board also protects special-status species and regulates hydromodification impacts. The Section 401 program encourages basin-level analysis and protection, because some functions of wetlands, riparian areas, and headwater streams—including pollutant removal, flood water retention, and habitat connectivity—are expressed at the basin or landscape level (SWRQCB, 2011c).

Section 402 – National Pollutant Discharge Elimination System (NPDES) Permit

The CWA requires that National Pollutant Discharge Elimination System (NPDES) permits be obtained for any discharges to surface waters by a point source and for municipal and industrial stormwater discharges. The CWA prohibits discharging pollutants through a point source into a water of the United States without an NPDES permit. NPDES permits contain limits on types of discharge, monitoring and reporting requirements, and other provisions to ensure that the discharge does not hurt water quality or public health. There are three types of NPDES permits: municipal, construction and industrial. U.S. EPA has delegated permit authority for the NPDES Program to the State Water Board (U.S. EPA, 2011). A full discussion of the State Water Board NPDES Program is under State Water Board.

Safe Drinking Water Act of 1974

The Safe Drinking Water Act (SDWA) of 1974 (42 U.S.C. § 300(f) et seq.) is the principal federal law protecting drinking water quality. It empowers U.S. EPA to set drinking water quality standards and oversee water providers that implement the standards. It includes provisions for protecting surface waters and wetlands to support drinking water quality. The California Department of Public Health Division of Drinking Water and Environmental Management is delegated implementation authority for well water permits, regulation of potable water monitoring, regulation of septic and sewer systems, regulation of hazardous materials and wastes, and regulation of underground storage tanks and solid waste disposal facilities (Yolo County, 2009).

Antidegradation Policy

The federal antidegradation policy is applied by the State Water Board on a case-by-case basis (see discussion under State).

California Toxics Rule

In 2000, U.S. EPA established the California Toxics Rule, which sets water quality criteria for priority toxic pollutants and other provisions for water quality standards to be applied to inland surface waters, enclosed bays and estuaries for all purposes and programs under the Clean Water Act (U.S. EPA).

State

Bay Delta Conservation Plan

The Bay Delta Conservation Plan (BDCP) is a collaborative effort between federal and state agencies, water districts, environmental organizations, and the California Farm Bureau to help recover endangered/sensitive species and their habitats in the Delta, while ensuring sufficient and reliable water supplies for central and southern California. The agencies are proposing a dual conveyance water delivery system. A new North Delta Intakes and Conveyance would be used in conjunction with the existing South Delta Diversion Facilities that flows through the Delta. Several intake sites and configurations are being reviewed in the environmental review process. All are in the south area of the MTP/SCS plan area, as far north as Freeport and Clarksburg, running south to an area outside of the plan area near Tracy. Extensive habitat restoration to mitigate for the plan is also under consideration, including the lower Yolo Bypass and the Clarksburg region. In September 2011, the agencies are releasing the draft conceptual foundation, analytical framework, and first technical appendix for agency and scientific review. An administrative draft EIR/Environmental Impact Statement (EIS) will be submitted for agency review in February 2012. Public review of the draft BDCP will not begin until May 2012, after the proposed MTP/SCS is adopted. The final BDPC is scheduled for release in December 2012. California Department of Water Resources is the CEQA/NEPA lead agency for the BDCP (Yolo County, 2009, BDCP, 2011a, BDCP, 2011b).

California Building Code

As required by Sen. Bill No. 5 (2007-2008 Reg. Sess.) (SB 5), the California Building Standards Commission adopted regulations for new construction, changes of use and substantial improvements and restoration of substantial damage to certain building types in the Central Valley Flood Protection Plan area where flood levels are anticipated to exceed three feet for the 200-year flood event (Cal. Building Code 2010). These requirements are consistent with FEMA requirements for non-residential development in a 100-year flood plain.

Section 3106 of the California Building Code applies to new or replacement mechanical and electrical systems proposed within flood hazard areas. This section only allows the placement of mechanical and electrical systems below the base flood elevation if properly protected to prevent water from entering or accumulating within the system components.

Section 3107 of the California Building Code applies to structures in the FEMA designated "A" Zones. All floors below the base flood elevation must be constructed and engineered to be flood-resistant, or the floor must only be used for storage, parking, access or foyers.

California Department of Fish and Game

California Department of Fish and Game (CDFG) reviews water rights applications and issues lake and streambed alteration permits for new water supply projects. CDFG works in coordination with state and federal agencies to mitigate the impacts of projects on fish and wildlife resources, and is responsible for enforcing the California Endangered Species Act (CESA) of 1984 (Fish & G. Code § 2050 et seq.). CDFG often helps establish in-stream flows (minimum releases below a dam or diversion structure) to maintain habitat below a project. Release schedules are included in the water rights appropriation and can affect the yield of a project.

California Fish and Game Code

Under Sections 1600–1616 of the California Fish and Game Code, CDFG regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Projects that involve construction near or across a river, stream, or lake are required to comply with these regulations. Section 1602 requires public agencies and private individuals respectively to notify and enter into a streambed or lakebed alteration agreement with CDFG before beginning construction of a project that will:

- divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; or
- use materials from a streambed. Section 1602 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Sections 1601–1607 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. Sections 1601–1607 typically do not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.

California Department of Public Health

The California Department of Public Health (CDPH) Division of Drinking Water and Environmental Management regulates drinking water quality, well water permits, potable water monitoring, septic and sewer systems, hazardous materials and wastes, and underground storage tanks and solid waste disposal facilities (Yolo County, 2009).

Title 22

Title 22 of the California Code of Regulations establishes drinking water quality standards. Title 22 designates beneficial uses of water and criteria to protect those uses. Maximum contaminant levels (MCLs) are regulated at the consumer point of use (i.e., home and office faucets). Public health is the primary objective; aesthetic (e.g., taste, odor, staining of laundry and porcelain fixtures) is the secondary objective. When basin plans (see Sacramento and San Joaquin Rivers Basins Plan) reference MCLs for groundwater and surface water resources, they are enforceable by the state and regional water boards.

Title 22 also establishes acceptable levels of constituents in recycled wastewater. CDPH has jurisdiction over the distribution of recycled water and the enforcement of Title 22. The CVRWQCB has jurisdiction over waste discharge requirements and reuse requirements for wastewater reclamation projects (Yuba County, 2011).

California Department of Water Resources

DWR is responsible for the preparation of the California Water Plan, management of the State Water Project (water storage and conveyance), protection and restoration of the Sacramento-San Joaquin River Delta, regulation of dams, provision of flood protection, helping water agencies prepare Urban Water Management Plans, and other functions related to surface water and groundwater resources (El Dorado County, 2004).

California Water Plan

The California Water Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The plan, updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the State's water needs (DWR, n.d.a).

Urban Water Management Planning

Urban water suppliers must prepare Urban Water Management Plans (UWMPs) to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 or more connections is required to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. This assessment is included in each UWMP, which is prepared every 5 years and submitted to DWR. DWR reviews UWMPs for consistency with the Urban Water Management Planning Act of 1983 (Wat. Code §§ 10610-10656). The Water Conservation Act of 2009 (Wat. Code § 10608 et seq.), also known as Sen. Bill No. 7 (Stats. 2009, 7th Ex. Sess., ch. 4) (SB X7-7), and amendments to the Urban Water Management Planning Act of 1983 set a goal of reducing per capita daily water consumption by 20 percent by the year 2020. Updates to UWMPs for 2010 were due by July 1, 2011 submitted to DWR by August 1, 2011 (DWR, 2011b).

Levee Flood Protection Zones

Assem. Bill No. 156 (Stats. 2007, ch. 368) (AB 156) required DWR to prepare Levee Flood Protection Zones (LFPZ) maps using the best available information. LFPZ maps cover areas protected by the 1,600 miles of state-federal project levees in the Central Valley. Regions that would have depths greater than 3 feet coverage are identified. LFPZ maps must be updated annually with new floodplain data (DWR, n.d.b.).

Groundwater Management Act

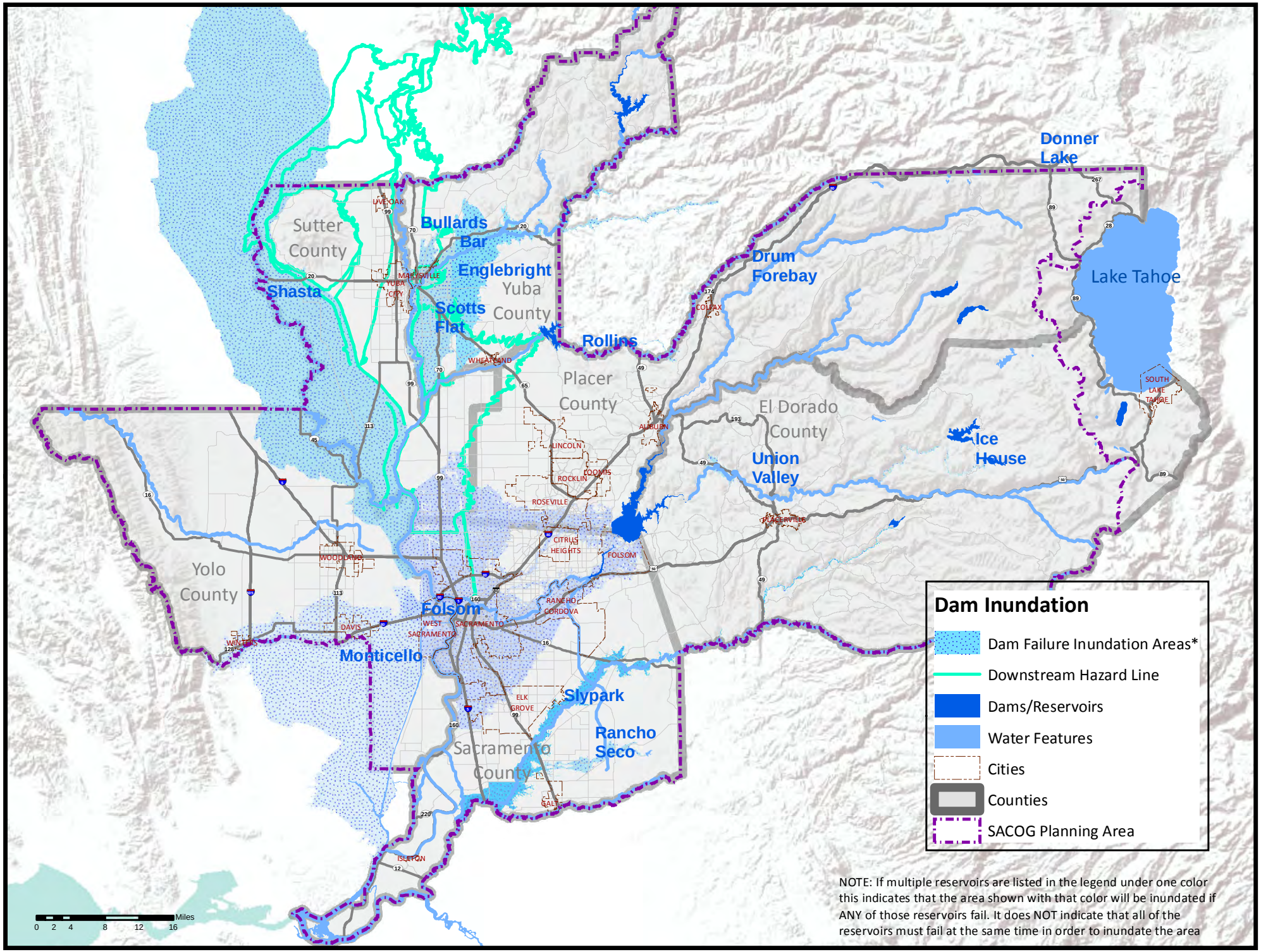
The Groundwater Management Act of 1992 (Wat. Code § 10750 et seq.), also known as Assem. Bill No. 3030 (Stats. 1992, ch. 947) (AB 3030), provides guidelines for local agencies to acquire authority over the management of groundwater resources in basins recognized by DWR. Its intent is to promote the voluntary development of groundwater management plans and provide criteria for the plans in order to ensure sustainable groundwater supplies for the future. It stipulates the technical components of a groundwater management plan as well as procedures for such a plan's adoption, including passage of a formal resolution of intent to adopt a groundwater management plan, and holding a public hearing on the proposed plan. AB 3030 also allows agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin, such as extraction wells, conveyance infrastructure, recharge facilities, and testing and treatment facilities. Sen. Bill No. 1938 (Stats. 2002, ch. 603) (SB 1938) also requires basin management objectives and other additions to be included in local groundwater management plans to comply with California Water Code (Wat. Code §10750–10756).

California Emergency Management Agency

Dam Inundation Mapping

Dam owners must submit flood routing information, land surveys to delineate the floodplain, and a technical report to support a dam failure inundation map to the California Emergency Management Agency. The purpose of the program is to provide decision support for emergency preparedness planning, mitigation, response to, and recovery from potential damage to life and property from dam inundation flood waves. Based upon approved inundation maps, or the delineated areas, cities and counties with territory in the mapped areas are required to adopt emergency procedures for the evacuation and control of populated areas below the dams. The technical study must contain information about dam specifications, physical conditions affected by the dam, including downstream areas and floodwater routing, and the areas that could be affected by a dam failure. The requirements of the technical study can also include modeling of worst case breaching parameters and identification of the downstream hazard potential from partial or complete failure of the dam. The technical study and dam inundation map must be updated when a dam is enlarged (Yolo County, 2009). Figure 11.6 is a map showing dam inundation in the plan area.

Figure 11.6 Dam Inundations



California Planning, Zoning and Development Laws

Cities and counties exercise local planning and land use functions subject to the California Planning and Zoning Law (Gov. Code §65000 et seq.) and the Subdivision Map Act of 1974 (Gov. Code §66410 et seq.), as well as in the California Coastal Act of 1976 (Pub. Resources Code § 30000 et seq.). Each city or county must adopt a comprehensive, long-term general plan for the physical development of the city or county and any land outside its jurisdiction that bears relation to its planning. General plans must contain seven elements: 1) land use, 2) circulation, 3) housing, 4) conservation, 5) open space, 6) noise, and 7) safety. The following elements are the most relevant to hydrology:

- *Land Use*. Designates categories such as housing, industry, and natural resources, including density and intensity of use;
- *Conservation*. Applies to conservation, development, and use of natural resources (e.g., soils, forests, rivers and other water bodies, and harbors). May also cover watershed protection, land or water reclamation, prevention or control of the pollution of streams and other coastal waters, regulation of land uses along stream channels and in other areas required to implement the conservation plan (e.g., buffer areas), to control or correct soil erosion, and for flood control;
- *Open Space*. Applies to the preservation of natural resources, including fish and wildlife habitat, rivers, streams, bays and estuaries, and open space; and
- *Circulation*. Plans infrastructure, including water, sewage, and storm drainage.

While the general plan is a long-range look at the future of a community, local zoning ordinance spells out the immediate allowable uses for each property in the community. The Subdivision Map Act sets forth other mandates that must be followed for subdivision processing. Specific projects in the plan area are subject to the requirements of local general plans (SWRCB, 2011a).

Central Valley Flood Protection Board

In 2007, the governor signed Sen. Bill No. 5 (Stats. 2008, ch. 302) (SB 5), Assem. Bill No. 5 (Stats. 2007, ch. 366) (AB 5), Assem. Bill No. 70 (Stats. 2007, ch. 367) (AB 70), Assem. Bill No. 162 (Stats. 2007, ch. 369) (AB 162), and AB 156 all of which deal with flood management in the Central Valley.

AB 5 and SB 5 renamed the Department of Water Resources Reclamation Board as the Central Valley Flood Protection Board (CVFPB), and expanded its size, duties, and powers, including a requirement that the CVFPB prepare and adopt a Central Valley Flood Protection Plan by 2012. In addition, the program required that cities and counties in the Sacramento-San Joaquin Valley amend their general plans and zoning ordinances to be consistent with a newly adopted flood plan within 36 months of flood plan adoption, and established other flood protection regulations for local land-use decisions consistent with the Central Valley Flood Protection Plan. Further, SB 5 established higher standards of flood protection (generally 200-year protection) for urban and urbanizing areas (defined as areas of at least 10,000 residents, or which will grow to 10,000

or more within the next 10 years). Other areas remain subject to the pre-existing 100-year standard for protection (Yolo County, 2009). The CVFPB works with USACE to control flooding along the Sacramento and San Joaquin rivers and tributaries.

AB 70 states that local governments could be held financially liable if they unreasonably approve new developments that are susceptible to flood damage. AB 162 requires local governments to consider flood risks in their general plans (after January 1, 2009), including:

- annually review areas covered by the general plan that are subject to flooding as identified by FEMA or the State Department of Water Resources;
- including flood hazards in the safety element of their general plan, with goals, policies and objectives for the protection of the community;
- for communities/counties within the Central Valley, the safety element must be submitted to and reviewed by the State Central Valley Flood Protection Board; and
- allows flood risk to be considered in evaluating the available land suitable for urban development if the flood protection infrastructure required for development would be impractical due to cost or other considerations.

AB 156 requires the state to prepare flood maps for areas in the Central Valley that are protected by state levees and to annually notify owners of property behind those levees of their flood risks, starting in 2010.

Delta Protection Commission

The Delta Protection Act of 1992 (Pub. Resources Code § 29760 et seq.) recognized the Sacramento-San Joaquin Delta as a natural resource of statewide, national and international significance, containing irreplaceable resources. It created the policy to recognize, preserve and protect those resources, and established the Delta Protection Commission. The Delta Protection Commission was charged with creating the Land Use and Resources Management Plan for the Primary Zone, which was adopted in 1995. The management plan provides direction for local jurisdictions in the Delta region on land use decisions. Local jurisdictions with lands in the primary zone have amended their general plans to incorporate the management plan (Sacramento County, 2010, Yolo County, 2009). In 2010, the Delta Protection Commission amended the management plan to reflect changes since adoption, such as newly identified endangered species, effects of climate change, flood control issues, increased recreational use, water quality changes, habitat loss, road and utility construction, and urbanization. The amendment adds specific overview, goals, and policies subsections and a glossary of terms to address components of the Delta system, such as: natural resources, utilities, infrastructure, land use, agriculture, water, recreation, and levees (State of California Office of Administrative Law, 2010).

Delta Stewardship Council

In November 2009, the California Legislature enacted the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) of 2009 (Wat. Code § 10610 et seq.), also known as Sen. Bill No. 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC). The DSC is made up of seven members that are advised by a 10-member board of scientists. The DSC is charged with developing and adopting a Delta Plan by January 1, 2012. The DSC is tasked with addressing the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. According to the Delta Reform Act, the coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The DSC will regulate covered actions, as statutorily defined, to address the coequal goals (DSC, 2011).

Table 11.4
Central Valley Flood Protection Board Regulated Rivers and Streams in Plan Area

Stream Title	County-Limits
American River	Sacramento - to Nimbus Dam
Antelope Creek	Placer - to settlement ponds
Arcade Creek	Sacramento - to Roseville Road
Auburn Ravine	Sutter and Placer
Beacon Creek	Sacramento - Morrison Creek to Franklin Boulevard
Bear River	Sutter, Placer & Yuba
Best Slough	Yuba
Butte Creek Diversion Canal	Sutter
Butte Slough	Sutter
Cache Creek	Yolo - to 1/2 mile west of 1-5
Cirby Creek	Placer
Colusa Basin Drain and Canal	Glenn, Colusa, and Yolo
Coon Creek	Placer and Sutter
Cosumnes River	Sacramento
Davis Drain	Yolo
Deer Creek	Sacramento
Dry Creek	Sacramento and Placer - to Antelope Creek
Dry Creek	Sutter
Dry Creek	Yuba
Duck Slough	Yolo
Elk Slough	Yolo
Feather River	Butte and Yuba
Georgiana Slough	Sacramento
Honcut Creek	Butte and Yuba - to 1/2 mile west of S.P.R.R.
Hutchinson Creek	Sutter
Ida Island	Sacramento
Jack Slough	Yuba
Knights Landing Ridge Cut	Yolo
Laguna Creek	Sacramento-Morrison Creek to Franklin Boulevard
Markham Creek	Sutter
Mayberry Slough	Sacramento
Miners Ravine	Placer - to Interstate 80 Highway
Mokelumne River	Sacramento, San Joaquin - to Camanche Reservoir
Morrison Creek	Sacramento to Bradshaw Road
Natomas Cross Canal	Sutter
Natomas East Main Drainage Canal	Sacramento
Pleasant Grove Creek Canal	Sutter and Placer - to Union Pacific R.R.
Putah Creek	Yolo, Solano - to Monticello Dam
Reeds Creek	Sutter
Sacramento Bypass	Yolo
Sacramento Deep Water Channel	Solano and Yolo
Sacramento River	Keswick Dam - to west end of Sherman Island
Secret Ravine	Placer
Shag Slough	Solano and Yolo
Sevenmile Slough	Sacramento
Simmerly Slough	Sacramento
State Main Drain	Sutter
Steamboat Slough	Sacramento and Yolo
Sutter Slough	Sacramento
Sycamore Slough	Yolo
Threemile Slough	Sacramento
Tisdale Bypass	Sutter

Stream Title	County-Limits
Wadsworth Canal	Sutter
Wadsworth Intercepting Canal. East	Sutter - to Township Road south bank only
Wadsworth Intercepting Canal, West	Sutter - south bank only
Western Pacific Interceptor Channel	Yuba
Willow Slough and Bypass	Yolo - to SPRR
Yankee Slough	Sutter and Placer
Yolo Bypass	Solano and Yolo
Yuba River	Yuba - to Daguerre Point Dam/Highway 70

Source: California Code of Regulation, Title 23 Section 112

The proposed MTP/SCS and plans, programs, projects or activities within the secondary zone of the Delta that SACOG determines are consistent with the proposed MTP/SCS are not subject to regulation as covered actions (Wat. Code § 85057.5). The DSC will review and provide timely advice to local agencies and SACOG regarding the consistency of local planning documents and the proposed MTP/SCS with the Delta Plan, including the ecosystem restoration needs of the Delta and reviewing whether the lands set aside for natural resources protection are sufficient to meet the Delta's ecosystem needs. If the DSC concludes that the draft sustainable communities strategies are inconsistent with the Delta Plan, they must provide written notice of the claimed inconsistency to the metropolitan planning organization no later than 30 days prior to the adoption of the final regional transportation plan. If the DSC provides timely notice of a claimed inconsistency, SACOG shall include a detailed response to the council's notice in the final MTP/SCS for 2035 (Wat. Code § 85212).

Delta Vision Blue Ribbon Task Force

California Executive Order S-17-06 created the Delta Vision Blue Ribbon Task Force and directed it to develop a vision statement for sustainable management of the Delta and a management plan for the long-term restoration and maintenance of identified functions and values that are determined to be important to the environmental quality of the Delta and the economic and social well-being of the people of California. In 2009, the task force released its vision, which includes 12 recommendations:

1. Delta ecosystem and a reliable water supply for California are the primary, co-equal goals for sustainable management of the Delta.
2. The California Delta is a unique and valued area, warranting recognition and special legal status from the State of California.
3. The Delta ecosystem must function as an integral part of a healthy estuary.
4. California's water supply is limited and must be managed with significantly more efficiency to be adequate for its future population, growing economy and vital environment.
5. The foundation for policy making about California water resources must be the long-standing constitutional principles of "reasonable use" and "public trust;" these principles are particularly important and applicable to the Delta.

6. The goals of conservation, efficiency and sustainable use must drive California water policies.
7. A revitalized Delta ecosystem will require reduced diversions, or changes in patterns and timing of those diversions, upstream, within the Delta and exported from the Delta at critical times.
8. New facilities for conveyance and storage, and better linkage between the two, are needed to better manage California's water resources the estuary and exports.
9. Major investments in the California Delta and the statewide water management system must be consistent with, and integrate specific policies in this vision. In particular, these strategic investments must strengthen selected levees, improve floodplain management and improve water circulation and quality.
10. The current boundaries and governance system of the Delta must be changed. It is essential to have an independent body with authority to achieve the co-equal goals of ecosystem revitalization and adequate water supply for California while also recognizing the importance of the Delta as a unique and valued area. This body must have secure funding and the ability to approve spending, planning and water export levels.
11. Discouraging inappropriate urbanization of the Delta is critical both to preserve the Delta's unique character and to ensure adequate public safety.
12. Institutions and policies for the Delta should be designed for resiliency and adaptation (Delta Vision Blue Ribbon Task Force, 2009).

State Land Commission

The State Land Commission holds title to lands under navigable waters, under the Public Trust Doctrine (*Illinois Central R.R. Co v Illinois 146 U.S. 387 (1892)).* The State Land Commission may impose certain conditions to protect water quality as it relates to the benefit of the people and the requirements of the Public Trust Doctrine (Sacramento County, 2010).

State Implementation Policy

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California of 2005 (State Implementation Policy, or SIP) addresses a gap in water quality standards covering priority toxic pollutants. The SIP established the policy for development of new standards for a variety of toxic pollutants, as required by the Clean Water Act. It applies to discharges of toxic pollutants into California's inland surface waters, enclosed bays, and estuaries subject to regulation under the Porter-Cologne Water Quality Control Act of 1969 (Wat. Code § 13000 et seq.) and the CWA. Such regulation may occur through the issuance of NPDES permits, the issuance or waiver of waste discharge requirements, or other regulatory approaches (Yolo County, 2009).

State Water Board/Central Valley Regional Water Quality Control Board

Water quality in California is governed by the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 (Wat. Code § 13000 et seq.). This law implements the federal CWA and assigns overall responsibility for water rights and water quality protection to the State Water Resource Control Board (SWRCB) and directs the nine statewide Regional Water Quality Control Boards (RWQCBs) to develop and enforce water quality standards within their boundaries (Wat. Code § 13000 et seq.). The Central Valley Regional Water Quality Control Board is responsible for water quality standards in the plan area.

Antidegradation Policy

California's antidegradation policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (SWRCB Resolution No. 68-16), restricts degradation of surface and ground waters. It protects waters where existing quality is higher than necessary for the protection of beneficial uses. Any actions that can adversely affect water quality in all surface and ground waters must 1) be consistent with maximum benefit to the people of the State, 2) not unreasonably affect present and anticipated beneficial use of the water, and 3) not result in water quality less than that prescribed in water quality plans and policies. Any actions that can adversely affect surface waters are also subject to the federal antidegradation policy (40 C.F.R. § 131.12) developed under the Clean Water Act (SWRCB, 2011a).

Beneficial Uses and Water Quality Objectives

The Central Valley RWQCB is responsible for the protection of beneficial uses of water resources within the plan area. Beneficial uses are those desired resources, services, and qualities of the aquatic system that are supported by achieving and protecting high water quality. The Central Valley RWQCB uses planning, permitting, and enforcement authorities to meet this responsibility. It uses the Basin Plan for the Sacramento River and San Joaquin River Basins (described below) to implement plans, policies, and provisions for water quality management. Beneficial uses are described in the Basin Plan and are designated for major surface waters and their tributaries, as well as groundwater.

In addition to the identification of beneficial uses, the Basin Plan contains water quality objectives that are intended to protect the beneficial uses of the basins. The Central Valley RWQCB has region-wide and water body/beneficial use-specific water quality objectives. The RWQCB has set water quality objectives for all surface waters in its region for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses (Central Valley Regional Water Quality Control Board, 2006). Water quality objectives applicable to all groundwaters in the region have been set for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity (Central Valley Regional Water Quality Control Board, 2006).

Management Measures

The State Water Board has adopted Management Measures to address nonpoint source pollution. These are 1) voluntary implementation of Best Management Practices (BMPs), 2) regulatory based encouragement of BMPs and 3) adopted effluent limits (SWRCB, 2011b).

Onsite Wastewater Treatment Systems

The State Water Board is in the process of developing regulations of onsite wastewater treatment systems, commonly known as septic systems. The regulations will apply to owners of existing septic systems adjacent to an impaired surface water body, someone installing a new or replacement system, and owners of an existing system that has failed (SWRCB, 2011c).

Section 402 – National Pollutant Discharge Elimination System (NPDES) Permit

The State Water Board has delegated permit authority for the NPDES Program from U.S. EPA. The following paragraphs provide additional details on NPDES permits and specific sections of the CWA that could apply to specific activities, related to projects in the plan area, including construction and effluent discharge.

Municipal Permit Program

Water agencies serving more than 100,000 residents are required to have a Municipal Separate Storm Sewer Systems (MS4) Stormwater Program Phase I permit. The Central Valley Regional Water Quality Control Board has issued a unified Municipal Stormwater NPDES permit for stormwater discharge from the County of Sacramento and Cities of Citrus Heights, Elk Grove, Folsom, Galt, and Sacramento (CVRWQCB, 2010b). CVRWQCB has also issued MS4 Phase II permits, which address discharges not covered by Phase I, to areas with fewer than 100,000 residents (CVRWQCB, 2011a). Jurisdictions with Municipal Stormwater either Phase I or Phase II permits must develop and enforce ordinances and regulations to reduce the discharge of sediments and other pollutants in runoff, including developing a Comprehensive Stormwater Management Program. Permit holders must also verify compliance through monitoring, recording and reporting on effluent.

Caltrans Stormwater Program

The State Water Board issued a special statewide permit (Order No. 2009-0009-DWQ) regulating all stormwater discharges from Caltrans-owned conveyances (e.g., roads, catch basins, curbs, gutters, ditches, man-made channels, storm drains), maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan (SWMP) that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters (Caltrans, 2010).

Construction General Permit

The State Water Board requires dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. The Central Valley Regional Water Quality Control Board enforces the permits (CVRWQCB, 2011b).

Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The General Permit requires project proponents to implement specific sampling and analytical procedures to determine whether the BMPs used at permitted construction sites are effective. The project proponent must propose control measures consistent with the state's permit, and develop a Storm Water Pollution Prevention Plan (SWPPP) for each site, which includes BMPs to reduce potential impacts.

The SWPPP includes implementing BMPs to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges. Examples of typical construction BMPs included in SWPPPs include, but are not limited to: using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the city's drainage system or receiving waters.

Industrial General Permit

Industries such as mining, lumber and wood products facilities, petroleum refining, metal industries, and some agricultural product facilities such as dairies are subject to the NPDES program Industrial Storm Water General Permit Order 97-03-DWQ. New industrial activities are required to comply with the requirements of the Industrial General Permit, which include preparing a Storm Water Pollution Prevention Plan, monitoring, and reporting (CVRWQCB, 2011c).

Agricultural Programs

Agricultural irrigation and agricultural stormwater runoff are excluded from the NPDES regulations under the Conditional Waivers of Waste Discharge Requirements for Discharges from Irrigated Lands program. The State Water Board's Irrigated Lands Conditional Waivers program allows agricultural users to obtain a waiver if they implement BMPs, comply with water quality standards, conduct monitoring, prevent pollution, avoid nuisance conditions, and pay applicable fees. Concentrated animal production facilities, dairies, aquaculture projects, and forestry are subject to the industrial general permit program (CVRWQCB, 2011d).

Sacramento and San Joaquin Rivers Basins Plan

The Porter-Cologne Act also provides for the development and tri-annual review of Water Quality Control Plans (Basin Plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Basin Plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met. Basin Plans provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Act assigns responsibility for implementing the NPDES and Total Maximum Daily Load programs to the State Water Board and regional Water Boards. The plan area is covered by the Water Quality Control Plan, Sacramento and San Joaquin River Basins (CVRWQCB, 1998).

Local

Flood control

Cities, counties and flood control agencies in the plan area are responsible for designing, constructing and maintain flood control facilities, as well as evaluating the flood hazard of construction projects in their jurisdiction. Cities and counties also have local codes and ordinances intended to limit flood risk.

General Plans

A description of how each of the six counties in the plan area have addressed hydrology follows. Each of the 22 cities also addresses hydrology. The county general plans are discussed for illustrative purposes; the general plan of the city or county where a specific transportation or land use project occurs will have applicable policies, programs, and mitigation measures.

El Dorado County General Plan

The El Dorado County General Plan has several objectives and policies relating to water quality, and surface water drainage as described in the Public Services and Utilities Element of the general plan (El Dorado County, 2004). In addition, there are two objectives and several policies to achieve the county's goal of "protecting the residents of El Dorado County from flood hazards" in the Health, Safety and Noise Element of the general plan (El Dorado County, 2004). Proponents of specific projects within El Dorado County must comply with the objectives and policies stated in the general plan.

Placer County General Plan

The Placer County General Plan has several policies and three implementation programs to achieve their goal to "minimize the risk of personal injury, property damage and the economic and social disruptions associated with floods" within its Health and Safety section of the general plan (Placer County, 1994). In addition, there are several policies and implementation programs

related to stormwater drainage and water quality protection in the Public Facilities and Services section of the general plan. Proponents of specific projects within Placer County must comply with the policies and implementation measures related to hydrology as described in the general plan.

Sacramento County General Plan

The Sacramento County General Plan has several policies and implementation measures to achieve their goal to "minimize the loss of life, injury, and property damage due to flooding hazards" within the Safety Element of the general plan (Sacramento County, 1993). In addition, there are several policies and implementation measures related to water quality protection and wastewater runoff in the Public Facilities Element of the general plan. Proponents of specific projects within Sacramento County must comply with these policies and regulations related to flooding issues in the Safety Element and water quality issues in the Public Facilities Element of Sacramento County's general plan. Sacramento County is in the process of updating its general plan (Sacramento County, 2010).

Sutter County General Plan

The Sutter County General Plan has several policies and implementation measures to achieve their goal to "minimize the potential for loss of life, personal injury, and property damage associated with floods" (Sutter County, 2010). In addition, there are several policies and implementation measures related to water quality protection, wastewater, stormwater, and emergency response. Proponents of specific projects within Sutter County must comply with the policies and implementation measures related to hydrology issues in the Public Health and Safety, Infrastructure, and Environmental Resources elements of the Sutter County General Plan.

Yolo County General Plan

The Yolo County General Plan includes several policies related to flood protection and safety as well as conservation measures to preserve water quality. Proponents of specific projects within Yolo County must comply with the policies described in the Safety and Seismic and Conservation Policy sections of the Yolo County General Plan (Yolo County, 2009).

Yuba County General Plan

The Yuba County General Plan has several policies relating to water quality issues and flood hazards as described in the Hydrologic Conditions section of the General Plan (Yuba County, 2004). Proponents of specific proposed MTP/SCS projects within Yuba County must comply with the policies and implementation measures related to hydrologic issues in the general plan.

Integrated Regional Water Management Plans

Integrated Regional Water Management Plans (IRWMPs) are collaborative efforts that attempt to manage all aspects of water resources. The plan area has a number of IRWMPs, including American River Basin, Yolo County, Yuba County, Sacramento Valley, Cosumnes American Bear Yuba, and Placer County Water Agency.

Habitat Conservation Plans and Natural Resources Conservation Plans

Several habitat conservation plans (HCP) and natural community conservation plans (NCCP) are being developed at the county or sub-county level. These plans may meet state and federal regulations for water quality for a broad area, and thereby lowering the amount of project-level compliance through the adoption of an HCP or NCCP. HCPs/NCCPs under development include: Yuba-Sutter NCCP/HCP, Placer County Conservation Plan, El Dorado County Integrated Natural Resources Management Plan, South Sacramento HCP, and the Yolo Natural Heritage Program. The Bay Delta Conservation Plan (see description under State regulations) is also considered an NCCP. The Natomas Basin HCP is the only completed plan in the plan area at this time.

Summary of Regional Land Use and Transportation Changes

At the regional level, growth patterns and land use patterns will influence the nature of the impacts associated with implementation of the MTP/SCS. By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a 7 percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the MTP/SCS will result in more compact development than existing conditions. The location and pattern of this growth is important because it determines travel behavior and provides a means for determining the impact of future vehicle emissions in the MTP/SCS planning area. A compact growth pattern served by an efficient transportation system provides the foundation to reduce automotive travel and increase walking, bicycling and transit use; behaviors which lower VMT and reduce individual trip numbers.

The proposed MTP/SCS is an update of the 2008 MTP. The proposed MTP/SCS addresses projected changes in population growth, lower projected funding for transportation projects, and further integrates Blueprint principles through the SCS. The 2035 horizon year is the same for both plans. The 2035 forecast for the proposed MTP/SCS indicates that population in the plan area is expected to be 3.08 million in 2035 (SACOG, 2011). This projection is significantly lower than the 3.3 million people projected in the last 2008 MTP (SACOG, 2007). In addition to a lower population forecast, the proposed MTP/SCS accounts for lower projected funding for transportation, than the previous MTP due to a downward turn in the economy. The proposed MTP/SCS focuses on maximizing the efficiency of existing infrastructure and identifying investments that can bring the most benefit to the regional transportation network. Overall, the proposed MTP/SCS guides the Sacramento region toward a more sustainable future through

better integration of smart land use decisions with an efficient, well-managed, and diverse transportation system. The creation of the SCS serves to further SACOG's longstanding effort to integrate land use and transportation planning by tying the plan's performance to reduce automotive travel and increase walking, bicycling, and transit use based on Blueprint-influenced land use patterns.

With respect to transportation projects proposed as a part of the proposed MTP/SCS, the includes 7,730 new lane miles of highways, arterials, expressways, collectors, bridges, and local streets, as well as new light rail tracks to accommodate the addition of approximately 871,000 people in the plan area. The proposed MTP/SCS provides maintenance, major reconstruction, and rehabilitation activities on over 35,000 lane miles making up the 2035 road and highway network.

Community Type Areas: Summary of Land Use and Transportation Changes

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to see approximately 92,000 new housing units and 104,000 new jobs. This growth will consume approximately 4,400 acres. Region-wide, Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and 8 percent of new acres developed.

The compact and mixed use character of land uses in Center and Corridor Communities helps reduce vehicle miles traveled (VMT) by providing more opportunities for shorter trips by non-auto modes of travel. Center and Corridor Communities are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel.

In addition, Center and Corridor Communities will see a variety of transportation improvements by 2035, including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Center and Corridor Communities receive new and expanded bus and rail transit and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure in the Center and Corridor Communities.

Established Communities

Similar to Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional housing decrease from 2008 to 2035. The housing units in Established Communities will increase by approximately 79,000 but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will generally maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by approximately 20,000 for

regional shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Established Communities are mostly low density residential, office parks, and strip retail. They are considered to be mostly built-out development that occurs is to build-out existing areas or infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses. Established Communities are typically adjacent to and surrounding Center and Corridor Communities, taking advantage of the higher densities and mixed uses. Established areas in the proposed MTP/SCS receive 52 percent of the employment growth, in an attempt to better balance the housing and job development.

The type of growth in Established Communities takes advantage of existing transportation infrastructure and surrounding land uses. However, Established Communities will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. As with Center and Corridor Communities, Established Communities receive new and expanded bus and rail transit and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points along major arterials and freeways leading to and from major employment centers in Sacramento, Rancho Cordova, and Roseville. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

Developing Communities

Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will have approximately 127,000 new housing units (a 492 percent increase over 2008), and about 65,000 new jobs (a 397 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rate of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

Developing communities contain only 2.9 percent of the residential, and 1.7 percent of the employment development in 2008. These areas receive approximately 41 percent of the residential growth in the proposed MTP/SCS. As these communities become more established with a mix of housing and commercial uses, residents will be able to travel shorter distances to reach most routine destinations.

Developing Communities will see a somewhat different mix of transportation projects in comparison to Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. Developing Communities have little or no transit service in 2008, but with the proposed MTP/SCS, by 2035

some areas will include bus service every 30 minutes or less. These areas area will also include walk and bike facilities that are included in the new developments. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of the transportation infrastructure supporting Developing Communities.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. Housing units are expected to increase to approximately 5,300 (7 percent) and jobs are expected to increase to about 4,000 (12 percent). This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

While the land uses in Rural Residential Communities staying largely the same in the proposed MTP/SCS, these communities benefit from changes in adjacent developing and Established Communities that bring important destinations closer and reduce the need to travel long distances on a regular basis. Existing transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the plan area. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, with the focus on road maintenance and rehabilitation, safety projects and limited new or widened roadways or freeway improvements. Road projects in Rural Residential Communities focus on improving agricultural and goods movement travel as well as improving or maintaining accessibility for slow moving farm equipment. Rural Residential Communities will also benefit from improvements to lifeline and rural transit services that focus on bringing workers to job sites and providing access to crucial destinations such as hospitals, social services, and shopping. A number of road safety improvements, such as the addition of shoulders, in Rural Residential Communities create a safer environment for pedestrians and bicyclists.

Lands Not Identified for Development

The proposed MTP/SCS does not forecast or model growth in Lands Not Identified for Development during the planning period, though there is existing development in these areas (e.g., primarily farm homes, agricultural-related uses, and public lands such as waste water treatment facilities). Since no growth is forecasted in the proposed MTP/SCS for this Community Type, there will be few transportation investments in this Community Type by 2035. The focus for investments is on road maintenance, safety enhancements, and other roadway operational improvements.

Transit Priority Areas: Summary of Land Use and Transportation Changes

Placer County Transit Priority Areas

The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see about 2,600 new housing units and about 10,000 new jobs by 2035. Jobs are primarily focused in existing job centers and residential growth in the TPAs is 80 percent attached. This development will occur on about 315 acres and is generally more densely developed than surrounding areas.

The land use changes, together with the transportation investments in Placer County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Placer County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. The Placer TPAs are served by the Capitol Corridor train, as well as high quality transit services in Roseville. These systems are connected to the larger regional transit network, making the Placer TPA a very accessible regional destination. The sum of the investments creates more efficient travel, as well as opportunities for non-auto modes of travel.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres. The Sacramento County TPAs see a large amount of residential and employment growth, approximately 30 percent of regional growth, in the proposed MTP/SCS. Residential growth averages 22 dwelling units per acre between 2008 and 2035, and 77 percent of all new residential products are attached.

The land use changes, together with the transportation investments in Sacramento County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking

and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Sacramento County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. The Sacramento TPA is served by light rail, Capitol Corridor, and numerous bus routes. In 2035, the Sacramento TPA has a streetcar corridor in downtown, and bus rapid transit service. The transit in the Sacramento TPA is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel.

Yolo County Transit Priority Areas

The Yolo TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres. In the Yolo TPA, residential growth averages 20 dwelling units per acre, and 81 percent of all residential growth is attached. The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis.

The land use changes, together with the transportation investments in Yolo County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Yolo County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo TPA is served by Capitol Corridor as well as numerous bus routes. In 2035, the area will include bus rapid transit and a streetcar in West Sacramento. These new transit services will be connected to new and existing regional transit service.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This analysis assesses the potential impacts to hydrology and water quality that could result from implementation of the proposed MTP/SCS. For each potential impact, implementation of the proposed MTP/SCS is analyzed on three levels. First, land use and transportation impacts are analyzed at the regional level. Second, the analysis breaks the region down into five Community Types. The five Community Types are: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the proposed MTP/SCS. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is analyzed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, see Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

The land use analysis assesses the growth (e.g., population, housing, and employment) projected for the region, in each Community Type, and in the TPAs by 2035 and analyzes how that growth may impact hydrology and water quality. Although the proposed project sites within the MTP/SCS plan area were not physically surveyed, a brief description of the hydrological conditions found within the region is discussed above in the settings section.

By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

Some data used to analyze impacts do not use 2008 as the baseline for the following reasons:

- The most recently adopted general plans are used for data and information. Some were adopted before 2008, while others were adopted since 2008. While the data and information from local general plans were used to provide localized examples, the impact analysis did not rely on them, so this deviation from the baseline is acceptable.

- The State Water Board Clean Water Act Section 303(d) List of Water Quality Limited Segments was produced in 2010. The prior dataset is from 2006, so the more conservative approach is to use the most available data. In addition, the economic downturn has slowed regional growth and development over the past three years, such that the 2010 hydrological conditions have not changed significantly from 2008.
- The Central Valley Regional Water Quality Control Board Sacramento River and San Joaquin River Basin Plans are updated on a continuing basis, with the most recent update in 2009. However, some of the data does not change with each update. The 2009 update is the most reliable source of information on hydrological conditions within the groundwater and surfacewater basins in the plan area.
- The 2007 U.S. Geological Survey average annual flow data is the most current data available for major rivers, creeks, and drainage canals in the plan area.
- Reservoir capacity is current as of 2011(California Department of Water Resources), because the data is presented in an online format. Reservoir capacity is static, so the assumption is that the capacities stated are acceptable for 2008 analysis.

The data related to housing units in flood hazard areas comes from SACOG's projections from housing units. Using GIS, SACOG extracted unit counts of projects within 100-year flood hazard areas (FEMA Effective Flood Plains) and 200-year flood hazard areas (USACE Comprehensive Study –Floodplains developed from 2002 Sacramento and San Joaquin River Basins Comprehensive Study).

For Impact HYD-3, data for housing units are analyzed at the higher 200-year (urban) standard. Because SACOG does not control land use, it is not feasible to predict which communities will remain at the rural standard (fewer than 10,000 residents for the next 10 years).

The key sources of data and information used in the preparation of this section are: City of Sacramento General Plan (City of Sacramento 2009); Sacramento County General Plan (Sacramento County 1993); Sacramento County General Plan Update Final Environmental Impact Report (Sacramento County 2010); Yolo County General Plan (Yolo County 2009); Sutter County General Plan (Sutter County 2011); Yuba County General Plan (Yuba County 2011); Placer County General Plan (Placer County 2005); El Dorado County General Plan (El Dorado County 2004); California Department of Water Resources Groundwater Bulletin 118 (DWR 2003a); Delta Reform Act of 2009; 2010 Clean Water Act Section 303(d) List of Water Quality Limited Segments (CVRWQCB, 2010a); Sacramento River and San Joaquin River Basin Plans (RWQCB 2009); Sacramento Area of Council of Governments Metropolitan Transportation Plan for 2035 (SACOG, 2008); Sacramento Area Council of Governments Metropolitan Transportation Plan for 2035 Environmental Impact Report (SACOG, 2008)

The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data provided in this section is appropriate for general policy planning at a programmatic level and tiering of subsequent environmental documents. Site-specific evaluations may be necessary to determine future project-level environmental effects and appropriate mitigation.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the proposed MTP policies, adoption of the proposed SCS, and adoption of the proposed transportation project list and proposed financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
2. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would either (a) result in flooding on- or off-site, or (b) result in substantial erosion or siltation on- or off-site.
3. Place housing within a 200-year flood hazard area (urban) or 100-year flood hazard area (rural) as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or place structures that would impede or redirect flood flows.
4. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
5. Inundation by seiche, tsunami, or mudflow.
6. Exacerbate land subsidence associated with groundwater use.
7. Otherwise substantially degrade water quality.
8. Violate any water quality standards or waste discharge requirements resulting from construction activities.

Impacts and Mitigation Measures

Impact HYD-1: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

A. Regional Impacts

A summary of land use changes for the region from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The projected growth would result in an incremental reduction in the amount of natural soil surfaces available for infiltration of rainfall and runoff between 2008 and 2035, potentially generating additional runoff during storm events. In addition, the increase in impervious

surfaces, along with the increase in surface water runoff, could increase the non-point source discharge of pollutants in stormwater and non-stormwater in the plan area.

Growth alone does not necessarily translate into exceedance of stormwater drainage capacity or polluted runoff. It is the siting and design of new development, in relation to existing development, that determines if adequate stormwater drainage exists or will exist, and if appropriate measures are taken to limit or reduce polluted runoff.

New development could add additional sources of runoff. However, in portions of the region that are already built out, such increases would either be accommodated by existing infrastructure, or project proponents would be required, by local ordinances and state regulations, to make infrastructure improvements.

In less developed areas of the region, new housing and employment developments could require additional stormwater drainage infrastructure and control measures to limit polluted runoff. However, local stormwater management plans and policies, and State Water Board requirements, which implement federal Clean Water Act requirements, will mitigate these potential impacts as described below.

Water quality degradation from urban runoff caused by increased impervious surfaces is discussed in greater detail under Impact HYD-7: Otherwise Substantially Degrade Water Quality. Impact HYD-7 also discusses impacts from discharges of constituent pollutants to federal Clean Water Act 303(d)-listed waters.

Clean Water Act Section 402 NPDES MS4 Phase I and Phase II permits, which cover all jurisdictions as well as large institutional users (as further described under state regulatory settings), require stormwater management plans, which in turn require source and treatment control measures. Clean Water Act Section 402 NPDES Construction General permits, which cover projects that disturb one or more acres of soil, or that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres (as further described under state regulatory settings), require project proponents to incorporate general site design control measures into project design. These control measures may include conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment control measures may include use of vegetated swales and buffers, grass median strips, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. Filtration systems may be either mechanical (e.g., oil/water separators) or natural (e.g., bioswales and settlement ponds). Selection and implementation of these measures would occur on a project-by-project basis depending on project size and stormwater treatment needs.

NPDES MS4 permittees are also required to develop and enforce ordinances and regulations to reduce the discharge of sediments and other pollutants in runoff, and must verify compliance. NPDES Construction General permittees are also required to develop a SWPPP for each site, which includes BMPs to reduce potential impacts. The Central Valley Regional Water Quality Control Board enforces the SWPPP requirement.

In addition to the requirements on NPDES permittees, the State Water Board has developed 15 Management Measures for Urban Areas to reduce potential impacts on hydrology from urban development (SWRCB 2011b). The Management Measures are intended to address nonpoint source pollution in three ways: (1) voluntary implementation of BMPs, (2) regulatory based encouragement of BMPs, and (3) adopted effluent limits.

Management Measure 3.1A requires development of a watershed protection program to: (1) avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss; (2) preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; (3) protect, to the extent practicable, the natural integrity of water bodies and natural drainage systems associated with site development—including roads, highways, and bridges; (4) limit increased impervious surfaces; and (5) provide education and outreach to address sources or nonpoint pollution. Management Measure 3.1A is supported by state Water Code Section 13000 et seq.(TMDL), and federal Clean Water Act Sections 303 (TMDL), 401 (water quality certification for watershed-level developments, such as HCPs, planned community developments), and 402 (NPDES).

Management Measure 3.1C (New Development) requires: (1): By design or performance: (a) After construction has been completed and the site is permanently stabilized, reduce the average annual TSS loadings by 80 percent (for the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis); or (b) Reduce the post-development loadings of TSS so that the average annual TSS loadings are no greater than pre-development loadings; and (2): To the extent practicable, maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. Management Measure 3.1C is supported by federal Clean Water Act Section 402(p), which regulates post-construction impacts.

Management Measure 3.2B (Construction Site Chemical Control) requires lead agencies to: (1) limit application, generation, and migration of toxic substances; (2) ensure proper storage and disposal of toxic materials; (3) apply nutrients at rates necessary to establish and maintain vegetation without causing nutrient runoff to surface waters; and (4) prepare and implement, prior to the use or storage of toxic materials on site, an effective, approved chemical control plan or similar administrative document that contains chemical control provisions. Management Measure 3.2B is supported by the same laws as Management Measure 3.1C, in addition to state Health and Safety Code Sections 58000 and 251000, which give the California Department of Toxic Substances Control authority to permit and regulate the storage, treatment and disposal of hazardous waste.

Management Measure 3.3A (Existing Development) requires development and implementation of watershed management programs to reduce runoff pollutant concentrations and volumes from existing development. Management Measure 3.3A is supported by the same state and federal laws as 3.1A. Additionally, Government Code sections 65000 et seq. and 66410 et seq. authorize cities and counties to adopt ordinances and rules, including enforcement via inspection, fines, infractions, misdemeanors, stop work orders, and police powers to protect public health, safety and welfare, and declare, prohibit and abate nuisances.

Management Measure 3.4A (New Onsite Disposal Systems (OSDSs)) and 3.4B (Operating OSDSs) relate to the prevention of discharge of pollutants to the surface, and to the extent practicable, into groundwater. Management Measures 3.4A and 3.4B are supported by the state Porter-Cologne Water Quality Control Act, which requires basin plans. Cities and counties determine OSDS criteria and set permit and inspection requirements. Cities and counties may also use enforcement tools described under 3.3A.

Additionally, the Sacramento Stormwater Quality Partnership has developed a hydromodification management plan to require projects to maintain preconstruction hydrological conditions for its member jurisdictions (2007).

At the regional level, implementation of the proposed MTP/SCS will result in development beyond the existing urban footprint that could create additional sources of runoff. However, because the region already contains 721,872 acres of developed land, and because local, state and federal policies and regulations specified above are in place to provide adequate stormwater drainage capacity and control polluted runoff, implementation of the proposed MTP/SCS would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS at the regional are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

A summary of transportation improvements for the region from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Paving required for streets and highways could have minor effects on the amount of surface water that filters into the ground, and groundwater basins could be affected by pollutants in the runoff from proposed future projects. Table 11.3 provides a list of transportation projects crossing 303(d) impaired bodies of water.

Transportation projects, where Caltrans is the lead agency, are covered by the Caltrans Stormwater Program. As described in the regulatory settings for the State Water Board, this permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. Construction-related measures are described under Impact HYD-8.

The NPDES permit requirements described in the land use discussion above also apply to transportation impacts (project design including general site design control measures, treatment control measures, ordinances and regulations to reduce the discharge of sediments and other pollutants, SWPPP including BMPs).

The Sacramento Stormwater Quality Partnership hydromodification management plan also applies to transportation projects within the boundaries of the partnership's member jurisdictions.

The State Water Board Management Measures for Urban Areas 3.1A and 3.1C, described in the land use discussion above, also apply. Additional Management Measures specific to transportation impacts are discussed below.

Management Measure 3.5A (Planning, Siting and Developing Roads and Highways) requires that lead agencies plan, site, and develop roads and highways to: (1) Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss; (2) Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and (3) Limit disturbance of natural drainage features and vegetation. Management Measure 3.5A is supported by the federal Clean Water Act Sections 401, 402, state Government Code sections 65000 et seq. and 66410 et seq., and the state Fish and Game Code Sections 1 et seq., and Section 1600-1607 (streambed alteration permits to control for erosion and sedimentation).

Management Measure 3.5B (Bridges) requires that lead agencies site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important benefits are protected from adverse effects (SWRCB 2011b). Management Measure 3.5B is supported by the same state and federal laws as Management Measure 3.5A.

Management Measure 3.5C (Construction Projects [Roads, Highways and Bridges]) requires that lead agencies: (1) reduce erosion and, to the extent practicable, retain sediment on site during and after construction; and (2) prior to land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions. Management Measure 3.5C is supported by the same state and federal laws as Management Measure 3.5A.

Management Measure 3.5D (Construction Site Chemical Controls [Roads, Highways and Bridges]) requires that lead agencies: (1) limit application, generation, and migration of toxic substances; (2) ensure the proper storage and disposal of toxic materials; and (3) apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water. Management Measure 3.5D is supported by the same state laws as Management Measure 3.2B, as described under the land use discussion.

Management Measure 3.5E requires lead agencies to incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters. Management Measure 3.5E is supported by federal Clean Water Act Section 402, which the SWRCB uses to require Construction General permits and SWPPPs; and Government Code sections 65000 et seq, Section 66410 et seq.

Management Measure 3.5F requires lead agencies to develop and implement runoff management systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters by: (1) identifying priority and watershed

pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures), and (2) establishing schedules for implementing appropriate controls. Management Measure 3.5F is supported by the same state and federal laws as Management Measure 3.5E.

Additionally, the NPDES Caltrans Stormwater Program regulates stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities, as described under the state regulatory setting. The Caltrans Storm Water Management Plan (SWMP) outlines requirements for reducing or eliminating the discharge of pollutants to storm drainage systems and receiving waters (Caltrans 2010).

At the regional level, implementation of the proposed MTP/SCS will result in transportation projects that could create additional sources of runoff. However, because the region already contains nearly 22,000 lane miles of existing collector and local streets and over 5,000 lane miles of freeway, carpool, auxiliary, expressway, and arterials; and because local, state and federal policies and regulations specified above are in place to provide adequate stormwater drainage capacity and control polluted runoff, implementation of the proposed MTP/SCS would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to transportation changes from the implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

B. Localized Impacts

Center and Corridor Communities

A summary of land use changes in Center and Corridor Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of developments usually require infrastructure upgrades, so new projects will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Where infrastructure is upgraded to facilitate development, capacity may be increased above existing levels. Combined with the application of BMPs, implementation of control measures, adherence to NPDES permit requirements, and State Water Board Management Measures for Urban Areas (described in the land use discussion under regional impacts), implementation of proposed Center and Corridor Communities land uses may actually reduce net polluted runoff. On their own, adherence to NPDES permit requirements, and State Water Board Management Measures for Urban Areas would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

A summary of transportation improvements in Center and Corridor Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities are highly urbanized, most of the transportation improvements will be to existing facilities with stormwater drainage infrastructure in place. In cases where the infrastructure will not adequately handle stormwater drainage or control polluted runoff, lead agencies will be required to make infrastructure upgrades. In both cases, adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the transportation discussion under regional impacts) in Center and Corridor Communities would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to transportation changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Established Communities

A summary of land use changes in Established Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As with Center and Corridor Communities, Established Communities are already largely built out, development in these areas will be primarily infill and some intensification of existing land uses. Infill, low-to-medium density residential, office and industrial parks, and commercial strip centers sometimes require infrastructure upgrades if adequate capacity does not exist. Where infrastructure is upgraded to facilitate development, capacity may be increased above existing levels. Combined with the application of BMPs, implementation of control measures, adherence to NPDES permit requirements, and State Water Board Management Measures for Urban Areas (described in the land use discussion under regional impacts), implementation of Established Communities as proposed may actually reduce net polluted runoff. On their own, adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

A summary of transportation improvements in Established Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because existing communities are urbanized, most of the transportation improvements will be to existing facilities with stormwater drainage infrastructure in place. In cases where the infrastructure will not adequately handle stormwater drainage or control polluted runoff, lead agencies will be required to make infrastructure upgrades. In both cases, adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the transportation discussion under regional impacts) in Established Communities would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to transportation changes from the implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Developing Communities

A summary of land use changes in Developing Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Developing Communities may have some existing development, but for the most part, they still have some undeveloped land, or greenfield, as well. Implementation of the proposed MTP/SCS will convert previously undeveloped land to urban uses.

Greenfield development in most case can have less impact on runoff than other development types, because new construction will include complete systems designed to handle runoff and meet local and state regulations. Where development exists in Developing Communities, it is typically near or adjacent to relatively recent existing development. The existing infrastructure in these existing developments is typically designed to handle additional growth, so some projects may require only connections to the trunk stormwater drainage system. Where adequate local or trunk stormwater drainage does not exist, expansion capacity may be increased above existing levels. Adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the land use discussion under regional impacts) would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Implementation of the proposed MTP/SCS will result in more construction of transportation improvement projects in the area. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will add more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will experience road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today (or if they are, service is very limited), but new transit service will be added incrementally to align with the completion of new housing and employment centers. Similarly, pedestrian and bicycle infrastructure will be implemented with housing and employment development.

Adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the transportation discussion under regional impacts) in Developing Communities would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to transportation changes from the implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Rural Residential Communities

A summary of land use changes in Rural Residential Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Development that does occur will be similar to development that already exists—mostly single family dwelling units on large parcels, allowed by right.

The dispersed, predominantly residential development in this Community Type in most case will have less impact than other types of development. Some developments may operate on independent septic systems and not connect to stormwater drainage systems, thereby causing no impact to capacity. Where developments do connect to existing infrastructure, the very limited amount of growth is unlikely to have a significant impact on capacity.

Adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the land use discussion under regional impacts) would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

A summary of transportation improvements in Rural Residential Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the transportation discussion under regional impacts) in Rural Residential Communities would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to transportation changes from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS

A summary of land use changes and transportation improvements on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The proposed MTP/SCS does not forecast or model growth in this Community Type, and considering the isolated and dispersed nature of this Community Type, it is unlikely that any off-site flooding, erosion or siltation will occur.

The impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS on Lands Not Identified for Development in the MTP/SCS are considered less than significant (LS) for Impact HYD-2. No mitigation is required.

The limited number of planned transportation projects will not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the land use discussion under regional impacts) would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use and transportation changes from the implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

C. Transit Priority Area Impacts

Placer, Sacramento and Yolo County Transit Priority Areas
A summary of land use changes in TPAs from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are already urbanized, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of developments usually require infrastructure upgrades, so new projects will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Where infrastructure is upgraded to facilitate development, capacity may be increased above existing levels.

Combined with the application of BMPs, implementation of control measures, adherence to NPDES permit requirements, and State Water Board Management Measures for Urban Areas (described in the land use discussion under regional impacts), implementation of the proposed MTP/SCS in TPAs may actually reduce net polluted runoff. On their own, adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Those TPAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Sacramento Stormwater Quality Partnership 2007).

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to land use changes from the implementation of the proposed MTP/SCS in TPAs are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

A summary of transportation improvements in TPAs from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are urbanized, most of the transportation improvements will be to existing facilities with stormwater drainage infrastructure in place. In cases where the infrastructure will not adequately handle stormwater drainage or control polluted runoff, lead agencies will be required to make infrastructure upgrades. In both cases, adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas (described in the transportation discussion under regional impacts) in TPAs would not create or contribute runoff

water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Those Placer County TPAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Sacramento Stormwater Quality Partnership 2007).

Therefore, the impacts associated with runoff water and capacity of stormwater drainage systems related to transportation changes from the implementation of the proposed MTP/SCS in TPAs are considered less than significant (LS) for Impact HYD-1. No mitigation is required.

Impact HYD-2: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

A. Regional Impacts

A summary of land use changes for the region from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

At the regional level, growth alone does not necessarily substantially alter the existing drainage pattern, and the diffusion of new growth across 53,000 acres may have less of an impact than a highly urbanized concentration of growth. The proposed growth would also not substantially increase the rate or amount of surface runoff in a manner resulting in on- or off-site flooding, or substantial erosion or siltation because of federal, state, and local regulations described above in HYD-1 and in the discussion below.

While erosion is being analyzed in this impact as an indirect impact of alterations to the existing drainage pattern, it is worth noting that the existing geologic conditions of soils in the Sacramento Valley have slight-to-no erosion hazard, but the Sierra Nevada Foothills consist of soils that have moderate erosion hazard. Chapter 9 – Geology, Seismicity, Soils and Mineral Resources, provides a description of direct impacts related to erosion under Impact GEO-2.

Development may increase stormwater flows, resulting in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, or substantial erosion or siltation. However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-1, in combination with existing regulations described below, may mitigate or avoid these potential impacts.

In order to receive an NPDES Construction General Permit (as described in state regulatory settings), project proponents must develop a stormwater maintenance plan with an erosion control plan with appropriate BMPs, including hydrologic and hydraulic calculations for storm

drains and rock riprap energy dissipaters at storm drains can reduce the velocity of runoff. They must also prepare a SWPPP.

NPDES MS4 permittees (as described in state regulatory settings) must develop standard urban runoff mitigation plans and manuals. In the plan area, the Sacramento Stormwater Quality Partnership has developed runoff mitigation plans for Sacramento County and South Placer County (Sacramento Stormwater Quality Partnership 2007). The Sacramento Stormwater Quality Partnership hydromodification management plan also requires project proponents to maintain preconstruction hydrological conditions. The plans and manuals specify BMPs and additional regulations to mitigate runoff, therefore reducing the likelihood of substantial erosion or siltation.

In addition to the requirements on NPDES permittees, several State Water Board Management Measures for Urban Areas (covered in HYD-1) uniquely apply to impacts related to erosion and are discussed below. Also discussed below are Management Measures for Hydromodification, also developed by the State Water Board. These Management Measures address hydromodification affecting state waters (SWRCB 2011b). The Management Measures are intended to address nonpoint source pollution in three ways: (1) voluntary implementation of BMPs, (2) regulatory based encouragement of BMPs, and (3) adopted effluent limits.

State Water Board Management Measure for Urban Areas 3.1B requires that project proponents plan, design, and develop sites to: (1) Protect areas that provide important water quality benefits, necessary to main riparian and aquatic biota, and/or are particularly susceptible to erosion and sediment loss; (2) Limit increases of impervious areas; (3) Limit land disturbance activities such as clearing and grading, and cut-and-fill to reduce erosion and sediment loss; and (4) Limit disturbance of natural drainage features and vegetation. Management Measure for Urban Areas 3.1B is supported by federal Clean Water Act Section 401.

State Water Board Management Measure for Urban Areas 3.2A requires that project proponents: (1): Reduce erosion and, to the extent practicable, retain sediment on site during and after construction; and (2): Prepare and implement, prior to land disturbance, an effective, approved erosion and sediment control plan or similar administrative document that specifies contains erosion and sediment control provisions. Management Measure for Urban Areas 3.2A is supported by federal Clean Water Act Sections 303, 401, and 402, and state Fish and Game Code Sections 1 et seq., and 1600-1607. Cities and counties may also use enforcement tools described under HYD-1.

State Water Board Management Measures for Hydromodification 5.1A (Physical and Chemical Characteristics of Surface Waters), 5.1B (Instream and Riparian Habitat Restoration), and 5.1C (Eroding Streambanks and Shorelines) require project proponents to study the potential impacts of proposed channelization and channel modification, and then develop and implement plans to protect against undesirable impacts, including erosion. These Management Measures for hydromodification are supported by federal Clean Water Act Section 401 and state Fish and Game Code Sections 1 et seq., and 1600-1607. Cities and counties may also use enforcement tools described under HYD-1.

At the regional level, implementation of the proposed MTP/SCS will result in development beyond the existing urban footprint. Local, state and federal policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS is not anticipated to increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to land use changes from the implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

A summary of transportation improvements for the region from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Adherence to local and state regulations would help mitigate against substantial alterations to the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantial increases in the rate or amount of surface runoff in a manner which would result in on- or off-site flooding, or substantial siltation or erosion.

Transportation project work, including grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- or off-site flooding, or substantial siltation or erosion.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The NPDES permit requirements described in the land use discussion above also apply to transportation impacts. The Sacramento Stormwater Quality Partnership hydromodification management plan also applies to transportation projects within the boundaries of the partnership's member jurisdictions.

The State Water Board Management Measures for Urban Areas 3.5A 3.5B, and 3.5C, described under HYD-1, also apply to transportation impacts for HYD-2. The State Water Board Management Measures for Urban Areas and Hydromodification described in the land use discussion above also apply to transportation impacts (3.1B, 3.2A, 5.1A, 5.1B and 5.1C).

Additionally, Caltrans regulations combined with federal and state regulations require that engineered conveyances integrate energy dissipation protection, streambank erosion protection, and other design controls to minimize erosion or the transport of sediment or silt to downstream areas. The Caltrans Highway Design Manual (2010) requires that: road storm drain systems are designed to safely drain the 25-year return interval storm; cross-culverts are designed to safely drain the 10-year interval storm; and the headwater depth for the 100-year interval storm must not overtop freeways. Specifically, Caltrans projects are subject to the Caltrans NPDES Construction General Permit. The Caltrans Storm Water Management Plan sets the maintenance practices for controlling erosion and siltation.

Non-Caltrans projects are subject to the NPDES Construction General Permit, and the hydromodification management plan in certain jurisdictions, as discussed in the land use discussion above.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided to mitigate this impact.

B. Localized Impacts

Center and Corridor Communities

A summary of land use changes in Center and Corridor Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of development usually do not substantially alter the existing drainage pattern of the areas where they locate, especially when they do not add additional impervious surfaces. In many cases, infrastructure improvements do change the drainage patterns of the site by redirecting flows into engineered conveyances, and therefore reducing the rate or amount of surface runoff.

Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, erosion or siltation. However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-1, combined with adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas and Hydromodification (described in the land use discussion under regional impacts), will help mitigate or avoid these potential impacts.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS may not increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to land use changes from the implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

A summary of transportation improvements in Center and Corridor Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities are highly urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding, erosion, or siltation.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Transportation project work, including grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- or off-site flooding, or substantial siltation or erosion.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, State Water Board Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

Established Communities

A summary of land use changes in Established Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As with Center and Corridor Communities, Established Communities are already largely built out, development in these areas will be primarily infill and some intensification of existing land uses. These types of development usually do not substantially alter the existing drainage pattern of the areas where they locate, especially when they do not add additional impervious surfaces. In many cases, infrastructure improvements do change the drainage patterns of the site by redirecting flows into engineered conveyances, and therefore reducing the rate or amount of surface runoff.

Where impervious surfaces are added, or changes are made to the site or area by grading or other methods of alteration, there may be substantial alterations to the existing drainage pattern. Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, erosion, or siltation.

However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-1, combined with adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas and Hydromodification (described in the land use discussion under regional impacts) will help mitigate or avoid these potential impacts.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS may not increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to land use changes from the implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

A summary of transportation improvements in Established Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Established Communities are urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding, erosion, or siltation.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Transportation project work, including grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- or off-site flooding, or substantial siltation or erosion.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, State Water Board Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

Developing Communities

A summary of land use changes in Developing Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Developing Communities may have some existing development, but for the most part, they still have some undeveloped land, or greenfield, as well. Implementation of the proposed MTP/SCS will convert previously undeveloped land to urban uses.

Greenfield development may substantially alter the existing drainage pattern of the areas where they locate, especially when grading and other changes are made to the site or area by grading or other methods of alteration. In many cases, infrastructure improvements do change the drainage patterns of the site by redirecting flows into engineered conveyances, and therefore reducing the rate or amount of surface runoff. Where development modifies the existing drainage pattern, adherence to local and state regulations will help mitigate potential impacts to a less than significant level.

Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, erosion, or siltation. However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-1, combined with adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas and Hydromodification (described in the land use discussion under regional impacts) will help mitigate or avoid these potential impacts.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS may not increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to land use changes from the implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

A summary of transportation improvements in Developing Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Because Developing Communities are not fully urbanized, many of the transportation improvements will be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns,

including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding, erosion, or siltation.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Transportation project work, including grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- or off-site flooding, or substantial siltation or erosion.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, State Water Board Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

Rural Residential Communities

A summary of land use changes in Rural Residential Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Development that does occur will be similar to development that already exists—mostly single-family dwelling units on large parcels, allowed by right.

Where impervious surfaces are added, or changes are made to the site or area by grading or other methods of alteration, there may be substantial alterations to the existing drainage pattern. Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, erosion, or siltation, but the very limited development in this Community Type, along with its dispersed nature, will not likely have a significant impact on increased flooding, erosion, or siltation from stormwater flows.

Additionally, requirements for stormwater drainage capacity infrastructure, as described in Impact HYD-1, combined with adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas and Hydromodification (described in the land use discussion under regional impacts) will also help mitigate or avoid potential impacts.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS may not increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to land use changes from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

A summary of transportation improvements in Rural Residential Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Rural Residential Communities are not urbanized, many of the transportation improvements will be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding, erosion, or siltation.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, State Water Board Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

Lands Not Identified for Development in the Proposed MTP/SCS

A summary of land use changes on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The proposed MTP/SCS does not forecast or model growth in this Community Type, and considering the isolated and dispersed nature of this Community Type, it is unlikely that any off-site flooding, erosion or siltation will occur.

The impacts associated with substantial alteration of the existing drainage pattern related to land use changes from the implementation of the proposed MTP/SCS on Lands Not Identified for Development in the MTP/SCS are considered less than significant (LS) for Impact HYD-2. No mitigation is required.

A summary of transportation changes on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because transportation improvements in this Community Type are primarily on or adjacent to existing transportation facilities, they will not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding, erosion, or siltation.

As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, State Water Board Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

C. Transit Priority Area Impacts

Placer, Sacramento, and Yolo County Transit Priority Areas

A summary of land use changes in TPAs from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are already urbanized, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of development usually do not substantially alter the existing drainage pattern of the areas where they locate, especially when they do not add additional impervious surfaces. In many cases, infrastructure improvements do change the drainage patterns of the site by redirecting flows into engineered conveyances, and therefore reducing the rate or amount of surface runoff.

Increased development does increase stormwater flows, which may result in increased volume and/or velocity. Such increases raise the potential for on- or off-site flooding, erosion, or siltation. However, the required stormwater drainage capacity infrastructure, as described in Impact HYD-1, combined with adherence to NPDES permit requirements and State Water Board Management Measures for Urban Areas and Hydromodification (described in the land use discussion under regional impacts) will help mitigate or avoid these potential impacts.

Federal, state, and local policies and regulations specified above are in place to provide adequate analysis of potential impacts and preventative measures to limit or avoid substantial alteration of the existing drainage pattern of the plan area, so implementation of the proposed MTP/SCS may not increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to land use from the implementation of the proposed MTP/SCS in TPAs are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

A summary of transportation improvements in TPAs as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may substantially alter existing drainage patterns, including the course of streams and rivers, which may result in increased stormwater flow volumes and/or velocity, resulting in on- and off-site flooding, erosion, or siltation. As discussed under regional impacts, drainage systems are designed on a site-specific basis in accordance with the findings of the studies and the regulations of the applicable local flood control agencies and flood control design criteria.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. The following regulations, described under the regional impacts, also apply at the localized level: NPDES permit requirements, Sacramento Stormwater Quality Partnership hydromodification management plan requirements, State Water Board Management Measures for Urban Areas and Hydromodification (3.1B, 3.2A, 3.5A 3.5B, 3.5C, 5.1A, 5.1B and 5.1C), and Caltrans regulations (including Highway Design Manual, NPDES Construction General Permit, Storm Water Management Plan).

While the regulations discussed above adequately control for potential impacts in most circumstances, projects in areas with high erodibility may potentially have impacts not mitigated by existing regulations.

Therefore, the impacts associated with substantial alteration of the existing drainage pattern related to transportation changes from the implementation of the proposed MTP/SCS in TPAs are considered potentially significant (PS) for Impact HYD-2. Mitigation Measures HYD-1, HYD-2, and HYD-3 are provided below to mitigate this impact.

Mitigation Measure HYD-1: Manage stormwater run-off and other surface drainage.

The implementing agency should require projects to direct stormwater run-off and other surface drainage into an adequate on-site system or into a municipal system with capacity to accept the project drainage. This should be demonstrated by requiring consistency with local stormwater drainage master plans or a project-specific drainage analysis satisfactory to the jurisdiction's engineer of record.

Mitigation Measure HYD-2: Use best management practices to treat water quality.

The implementing agency should require the use of BMPs or equivalent measures to treat water quality at on-site basins, prior to leaving the project site, and/or at the municipal system as necessary to achieve local or other applicable standards. This should be demonstrated by requiring consistency with local standards and practices for water quality control and management of erosion and sedimentation, and/or other applicable standards, including the CBC and UBC regulations and guidelines and/or local NPDES. Implementation of Mitigation Measure GEO-1 will also help mitigate this impact.

Mitigation Measure HYD-3: Implement Mitigation Measure GEO-1 (Reduce soil erosion and loss of topsoil through erosion control mitigation and SWPPP).

Significance after Mitigation

If the implementing agency adopts these mitigation measures, the impact would be reduced to less than significant (LS), because project-level management of surface drainage and incorporation of BMPs would mitigate any potentially significant impacts. However, because SACOG cannot require an implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact is considered significant and unavoidable (SU).

Impact HYD-3: Place housing within a 200-year flood hazard area (urban) or 100-year flood hazard area (rural) as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or place structures that would impede or redirect flood flows.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 303,000 housing units, with 75,655 units located in a 200-year flood hazard area. Figure 11.3 shows 200-year and 100-year flood hazard areas in the plan area.

While the majority of growth will take place outside these hazard areas, placing new housing in flood hazard areas is necessary, because a sizable portion of the region's existing housing units are in these areas (232,083 in 200-year flood hazard areas). Further, the projected growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint, some of which is located within flood hazard areas.

Siting structures in flood zones can result in direct impacts to new development related to flooding. In addition, structures that impede flood flows can cause a backwater effect by potentially raising flood levels, causing more severe flooding impacts to existing vulnerable areas or by exposing new areas that would not have previously flooded to new flooding impacts.

Where growth occurs within these hazard areas, recent state regulations are being implemented to develop plans to address flood control system deficiencies in these areas, provide updated information on flood risk, and require land use planning and management to consider flood risk. SB 5 requires cities and counties in the plan area to amend their general plans and zoning ordinances to be consistent with a newly adopted flood plan within 36 months of adoption of the Central Valley Flood Protection Plan (CVFPP). The CVFPP, which is due by 2012, will, among other things, require higher standards of flood protection (generally 200-year protection) for urban and urbanizing areas (defined as areas of at least 10,000 residents, or which will grow to 10,000 or more within the next 10 years). Rural areas remain subject to the pre-existing 100-year standard for protection.

As of January 1, 2008, cities and counties now share flood liability with the state in the case of litigation over unreasonably approved new development on previously undeveloped areas. This does not apply when the city or county has amended its general plan and zoning, and otherwise makes land use decisions consistent with the CVFPP (AB 70).

At the regional scale, the proposed MTP/SCS would increase the amount of housing in flood hazard areas, but state regulations, in combination with local ordinances and federal regulations, as well as ongoing improvements to flood protection infrastructure, may mitigate the risk associated with housing in these areas.

As described under the regulatory settings, numerous federal, state, and local agencies are responsible for maintaining flood protection features in the plan area. Project proponents are required by state and federal regulations to obtain necessary approvals for construction within designated floodplains.

Proponents of specific projects included in the proposed MTP/SCS that require federal approval or funding must comply with Executive Order 11988 for floodplain management. Proponents of these projects must avoid incompatible floodplain development designs, restore and preserve the natural and beneficial floodplain values, and maintain consistency with the standards and criteria of the National Flood Insurance Program. In addition, a Letter of Map Revision (LOMR) will be prepared and submitted to FEMA if unavoidable construction would occur within 100-year floodplains. The LOMR will include revised local base flood elevations for projects constructed within flood-prone areas. Potential impacts due to flooding as a result of specific projects included in the proposed MTP/SCS would be mitigated through the FEMA LOMR approval process, as well as the jurisdiction of the CVFPB, when applicable, and the affected Reclamation District. Project design will proceed in accordance with the latest available mapping by DWR and USACE.

Despite the regulatory requirements listed above, because some of the growth within the MTP/SCS plan area is within a floodplain, such growth could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with land use changes from the implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below to mitigate this impact.

Some of the transportation projects included in the proposed MTP/SCS would be placed within the 200-year flood hazard area (urban) or 100-year flood hazard area (rural), thus increasing the potential to obstruct or exacerbate floodwaters. The construction of projects involving support structures in the floodway could obstruct floodwaters at some locations. Placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. As described under the land use discussion, structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which

floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels.

The regulatory requirements listed under land use also apply to transportation improvements. Despite these requirements, the projects in Table 11.5 add structures in a floodplain, and such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes from the implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

B. Localized Impacts

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to add approximately 92,000 new housing units on approximately 4,400 acres. Centers and corridor communities in Sacramento County will add 37,350 housing units in the 200-year flood hazard area. Yolo County will add 3,425 housing units in the 200-year flood hazard area. Yuba County will add 76 housing units in the 200-year flood hazard area.

Regionally, Center and Corridor Communities will account for 30 percent of housing unit growth and 8 percent of acres developed. Every county in the region will experience increases in population, housing, and employment growth in Center and Corridor Communities by 2035. Most of the projected growth will occur in Sacramento County, though Yolo County will also see a substantial shift in the amount of population, housing, and employment growth moving to Center and Corridor Communities, particularly in West Sacramento. The projected growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint.

The state regulations described under regional impacts (SB 5, Central Valley Flood Protection Plan) and federal regulations (Executive Order 11988, National Flood Insurance Program, Letter of Map Revision) also apply to localized impacts. Despite these regulatory requirements, because some of the growth within the MTP/SCS plan area is within a floodplain, such growth could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with land use changes related to implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below to mitigate this impact.

Center and Corridor Communities will add a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian

infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because Center and Corridor Communities are highly urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely impede or redirect flood flows. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

Placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. As described under regional impacts, structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels.

The regulatory requirements listed under land use also apply to transportation improvements. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

Table 11.5
Proposed MTP/SCS Transportation Projects With Structures in a Floodplain

Floodplain		Improvement	Project Type
100-Year	200-Year		
X	X	New Southern Bridge: from Sacramento to West Sacramento across the Sacramento River. Includes: Auto, transit, bicycle and pedestrian facilities.	Bridge Project
X	X	East Commerce Way extension from planned Natomas Crossing Drive to San Juan Rd. as a 4 lane road.	Road Extension
X	X	El Centro Rd. new overcrossing	Highway Over/Undercrossing
X	X	Highway 99 Meister Way new overcrossing	Highway Over/Undercrossing
X	X	Extend Cosumnes River Boulevard from Franklin to Freeport with an interchange at I-5	Road Extension
X	X	New all-modal bridge: between downtown Sacramento and South Natomas across the Lower American River. Includes: Auto, transit, bicycle, and pedestrian facilties. Scale and features to be determined through need and purpose study anticipated to begin in 2012.	Bridge Project
X	X	Main Ave. extension: 2 lanes from Rio Linda Blvd. to Marysville Blvd.	Road Extension
X	X	Natomas Crossing Dr. new overcrossing	Highway Over/Undercrossing
X	X	Natomas Crossing Drive: new 2 lane road from Duckhorn Drive to El Centro Rd.	Road New
X	X	Snowey Egret Wy.: new overcrossing for planned road that will run east-west from El Centro Rd. to Commerce Wy. crossing over I-5.	Highway Over/Undercrossing
X	X	Sutter's Landing Parkway: New Road: 1.6 mile 4-lane arterial on new alignment between Hwy. 160 and Hwy. 51. Includes: sidewalks and bike lanes in both directions, a grade separation with the railroad, and a full interchange at the connection with Hwy. 51.	Road New
X	X	Elkhorn Blvd.: new 2 lane road from Airport Blvd. / Crossfield Dr. to Power Line Rd.	Road New
X	X	Meister Way Rd.: new 4 lane road from Metro Air Pkwy. to Lone Tree Rd.	Road New
X	X	Meister Way Rd: 4 lane road from Lone Tree Rd. to Hwy. 99.	Road New
X	X	Metro Air Parkway: from north of I-5 to Elverta Road: Construct and widen roadway from 2 to 4 lanes	Road Widening
X	X	Metro Air Parkway Interchange at I-5 Phase I: partial clover interchange; three lane overcrossing facility with a median, bike lanes and a sidewalk on the west side. Metro Air Parkway will connect on the north of the interchange and terminate south of I-5 with a cul-de-sac. South Bayou Rd will realigned to provide the r/w for partial completion of two-quadrant partial cloverleaf interchange.	Highway Interchange New/Improved
X	X	SR 99 Elverta Road new interchange: bridge structure to accommodate 10 lanes, with sidewalks and bike lanes on both sides	Highway Interchange New/Improved
X	X	SR-99 / Riego Road Type L-9 Interchange (partial cloverleaf) in Sacramento and Sutter Counties	Highway Interchange New/Improved
X	X	SR-99/113 Interchange (Sutter County)	Highway Interchange New/Improved
X	X	Goldfields Parkway: 2 lane extension of regional arterial from Orchards Subdivision to North Beale Road	Road Extension
X	X	Plumas Arboga Rd.: Widen 2 to 3 lane collector from Feather River Blvd. to Arboga Rd.	Road Widening
X	X	River Oaks Blvd: new 4-lane modified arterial from Algodon Rd to Draper Ranch South development.	Road New
X	X	River Oaks Blvd.: extension: 2 inner lanes of 4-lane arterial from Feather River Blvd. to Lateral 16.	Road Extension
X		I-5 / 113 Connector Phase 2 (NB I-5 to SB SR 113 freeway to freeway connection)	Highway Interchange New/Improved

Floodplain		Improvement	Project Type
100-Year	200-Year		
X		Dominguez Road extend with 2 lanes from Granite Drive to Sierra College Boulevard, including new bridge over I-80 in Rocklin	Road Extension
X		Valley View Parkway: Construct 2 lanes from Park Drive to Sierra College Blvd.	Road New
X		Whitney Ranch Parkway, construct new 4-lane facility from east of Wildcat Blvd. to Whitney Oaks Dr.	Road New
X		N. Watt Avenue Extend four lanes from Baseline Road to Blue Oaks Avenue (Roseville)	Road Extension
X		Foothills Blvd.: Construct as a 2 lane road from the City of Roseville to Sunset Blvd.	Road New
X		Widen Sunset Boulevard from State Route 65 to Cincinnati Avenue from two to four lanes. Project includes widening Industrial Blvd / UPRR overcrossing from two to four lanes.	Road Widening
X		Placer Parkway Phase 1: new 4-lane divided facility with I/C at SR 65 "Whitney Ranch" and at grade crossings at Fiddyment and Foothills from SR 65 to Watt Ave.	Road New
X		Route 65 Lincoln Bypass Phase 1: Construct Lincoln Bypass Phase 1: a 4-lane expressway on a new alignment from Industrial Avenue to north of North Ingram Slough and continue north with 2 lanes to Sheridan. Also design and construct a Park and Ride facility at SR 65 Bypass and Industrial Avenue.	Road Realignment / Bypass
X		East Natoma Street Widening: from Fargo Way to Folsom Lake Crossing: widen from 2 to 4 lanes and construct bicycle trail undercrossing in Folsom	Road Widening
X		Amador Ave. extension: 2 lanes from Carol Dr. to Cedar Flat Ave.	Road Extension
X		University Avenue - Phase 1: new four lane roadway from the intersection of Whitney Ranch Parkway north to the extension of West Oaks Drive.	Road New
X		Waterman Road Widening existing roadway to 4 lanes and extend roadway from Gerber Road to Florin Road with an at-grade rail road crossing.	Road Widening
X		Waterman Road Widening: Between Florin Rd. to Jackson Rd.; construct roadway to 4 lanes	Road Widening
X		Zinfandel Drive Extension: new two-lane road extension with the installation of a new traffic signal at the intersection of Zinfandel Drive/Eagles Nest Road and Douglas Road and reconstruct/realign Eagles Nest Road approximately 1,000 feet south from the new Zinfandel Drive and Douglas Road intersection.	Road Extension
X		Feather River Parkway: new alignment for SR-70 and SR-20 through the City of Marysville, creating a new alignment from 3rd Street westward towards the levee just north of Binney Junction, reconnecting to SR-20 and continuing to reconnect with SR-70 north of town	Road Realignment / Bypass
X		New Northern Bridge: from Sacramento to West Sacramento across the Sacramento River. Includes: Auto, transit, bicycle and pedestrian facilities.	Bridge Project

Source: SACOG, FEMA, Effective Flood Plains, USACE Comprehensive Study – Flood Plains

Established Communities

Like Center and Corridor Communities, Established Communities are already urbanized, but at a lower average density. Housing units will increase by approximately 79,000, but will decrease in proportional share from 77 percent to 64 percent. Established Communities in Sacramento County will add 16,599 housing units in the 200-year flood hazard area. Yolo County will add 791 housing units in the 200-year flood hazard area. Yuba County will add 1,702 housing units in the 200-year flood hazard area. This growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint.

The state regulations described under regional impacts (SB 5, Central Valley Flood Protection Plan) and federal regulations (Executive Order 11988, National Flood Insurance Program, Letter of Map Revision) also apply to localized impacts. Despite these regulatory requirements, because some of the growth within the MTP/SCS plan area is within a floodplain, such growth could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with land use related to implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below to mitigate this impact.

As with Center and Corridor Communities, Established Communities will add a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because Established Communities are urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely impede or redirect flood flows. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

Placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. As described under regional impacts, structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels.

The regulatory requirements listed under land use also apply to transportation improvements. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

Developing Communities

Existing development in Developing Communities is more intermittent than in existing communities. Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. Development in these Communities will add approximately 127,000, new housing units (a 492 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. The highest rates of growth will be in Placer, Sutter, and Sacramento counties. Developing Communities are expected to have the highest growth rates of any of the Community Types and will experience substantial increases in their proportional share of population, housing and, to a lesser extent, employment.

Developing Communities in Sacramento County will add 5,350 housing units in the 200-year flood hazard area. Sutter County will add 3,475 housing units in the 200-year flood hazard area. Yolo County will add 954 housing units in the 200-year flood hazard area. Yuba County will add 5,926 housing units in the 200-year flood hazard area.

The state regulations described under regional impacts (SB 5, Central Valley Flood Protection Plan) and federal regulations (Executive Order 11988, National Flood Insurance Program, Letter of Map Revision) also apply to localized impacts. Despite these regulatory requirements, because some of the growth within the MTP/SCS plan area is within a floodplain, such growth could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows, resulting in additional flood-related risks and impacts.

Therefore, the impacts associated with land use changes related to implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below to mitigate this impact.

Implementation of the proposed MTP/SCS will result in more construction of transportation improvement projects in the area. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor communities and Established Communities. Developing Communities will add more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will experience road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor communities and Established Communities. Developing Communities generally are not served by transit today (or if they are, service is very limited), but new transit service will be added incrementally to align with the completion of new housing and employment centers. Similarly, pedestrian and bicycle infrastructure will be implemented with housing and employment development.

Because Developing Communities are not fully urbanized, many of the transportation improvements will be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely impede or redirect flood flows. Those

improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

The regulatory requirements listed under land use also apply to transportation. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to experience very limited growth by 2035. They are expected to add approximately 5,300 housing units (seven percent increase) on about 5,000 acres. Only 13 housing units in the 200-year flood hazard area are expected in Rural Residential Communities (Sacramento County).

The state regulations described under regional impacts (SB 5, Central Valley Flood Protection Plan) and federal regulations (Executive Order 11988, National Flood Insurance Program, Letter of Map Revision) also apply to localized impacts.

Because the amount of growth expected within floodplains is so low, the land use impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-3. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Because Rural Residential Communities are not urbanized, many of the transportation improvements will be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely impede or redirect flood flows. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

The regulatory requirements listed under land use also apply to transportation. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

Lands Not Identified for Development in the MTP/SCS
A summary of land use changes on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The proposed MTP/SCS does not forecast or model growth in this Community Type, and considering the isolated and dispersed nature of this Community Type.

Therefore, the impacts associated with land use changes related to implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-3. No mitigation is required.

A summary of transportation improvements on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. The limited number of planned transportation projects will not have a significant impact on this threshold.

Transportation improvements in this Community Type are primarily on or adjacent to existing transportation facilities, and therefore will not likely impede or redirect flood flows. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

The regulatory requirements listed under land use also apply to transportation. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows, resulting in additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
A summary of land use and transportation changes in Placer County TPAs as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. The Placer County TPAs are outside of the 200-year flood hazard area, which is the level of protection required under state regulations.

Therefore, the impacts associated with land use and transportation changes related to implementation of the proposed MTP/SCS in Placer County TPAs are considered less than significant (LS) for Impact HYD-3. No mitigation is required.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the City of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. These areas are already highly urbanized. The Sacramento County TPAs will add approximately 92,000 new housing units. This development will occur on about 5,000 acres. This growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint. The Sacramento County TPAs are expected to add 37,525 housing units in the 200-year flood hazard area.

The state regulations described under regional impacts (SB 5, Central Valley Flood Protection Plan) and federal regulations (Executive Order 11988, National Flood Insurance Program, Letter of Map Revision) also apply to TPA impacts. Despite these regulatory requirements, because some of the growth within the MTP/SCS plan area is within a floodplain, such growth could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and, subsequently, additional flood-related risks and impacts.

Therefore, the impacts associated with land use changes related to implementation of the proposed MTP/SCS in Sacramento County TPAs are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below to mitigate this impact.

Sacramento County TPAs will add a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service.

Because Sacramento County TPAs are urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely impede or redirect flood flows. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

Placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. As described under regional impacts, structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels.

The regulatory requirements listed under land use also apply to transportation. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows, resulting in additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS in Sacramento County TPAs are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

Yolo County Transit Priority Areas

The Yolo County TPAs include the majority of West Sacramento and Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. With the exception of the land surrounding the airport, these areas are already highly urbanized. Yolo County TPAs will add approximately 20,000 new housing units, and 22,000 new jobs. This development will occur on about 1,250 acres. This growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint. The Yolo County TPAs are expected to add 112 housing units in the 100-year flood hazard area and 3,661 in the 200-year flood hazard area.

The state regulations described under regional impacts (SB 5, Central Valley Flood Protection Plan) and federal regulations (Executive Order 11988, National Flood Insurance Program, Letter of Map Revision) also apply to TPA impacts. Despite these regulatory requirements, because some of the growth within the MTP/SCS plan area is within a floodplain, such growth could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows, resulting in additional flood-related risks and impacts.

Therefore, the impacts associated with land use changes related to implementation of the proposed MTP/SCS in Yolo County TPAs are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below to mitigate this impact.

Yolo County TPAs will add a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento.

Because Yolo County TPAs are urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely impede or redirect flood flows. Those improvements that involve grading, recontouring, bridge pilings, and new impervious surfaces may impede or redirect flood flows.

Placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. As described under regional impacts, structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in

neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels.

The regulatory requirements listed under land use also apply to transportation. Despite these requirements, because the projects in Table 11.5 add structures in a floodplain, such projects could be vulnerable to flooding and cause floodplain encroachment, resulting in increased flood levels by the redirection of flood flows and additional flood-related risks and impacts.

Therefore, the impacts associated with transportation changes related to implementation of the proposed MTP/SCS in Yolo County TPAs are considered potentially significant (PS) for Impact HYD-3. Mitigation Measure HYD-4 is provided below.

Mitigation Measure HYD-4: Conduct hydrology studies for projects in floodplains.

The implementing agency should conduct or require project-specific hydrology studies for projects proposed to be constructed within floodplains to demonstrate compliance with applicable federal, state, and local agency flood-control regulations. These studies should identify project design features or mitigation measures that reduce impacts to either floodplains or flood flows to a less than significant level. For the purposes of this mitigation, less than significant means consistent with federal, state, and local regulations and laws related to development in the floodplain.

Significance after Mitigation

If the implementing agency adopts these mitigation measures, the impact would be reduced to less than significant (LS). However, because SACOG cannot require an implementing agency to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact is considered significant and unavoidable (SU).

Impact HYD-4: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 303,000 housing units, with 75,655 in a 200-year flood hazard area. It will also grow by about 361,000 jobs, with 84,769 jobs in the 200-year flood hazard area. El Dorado and Placer counties are not in the 200-year flood hazard area. Figure 11.3 shows 200-year and 100-year flood hazard areas in the plan area. While the majority of the growth will take place outside these hazard areas, the growth in flood hazard areas is necessary, because a sizable portion of the region's existing housing units and jobs are in these areas (232,083 and 313,243 in 200-year flood hazard areas, respectively). Further, this growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint. Some projects included in the

proposed MTP/SCS may cause flood flows to expand to areas not previously mapped as an inundation area under levee or dam failure scenarios.

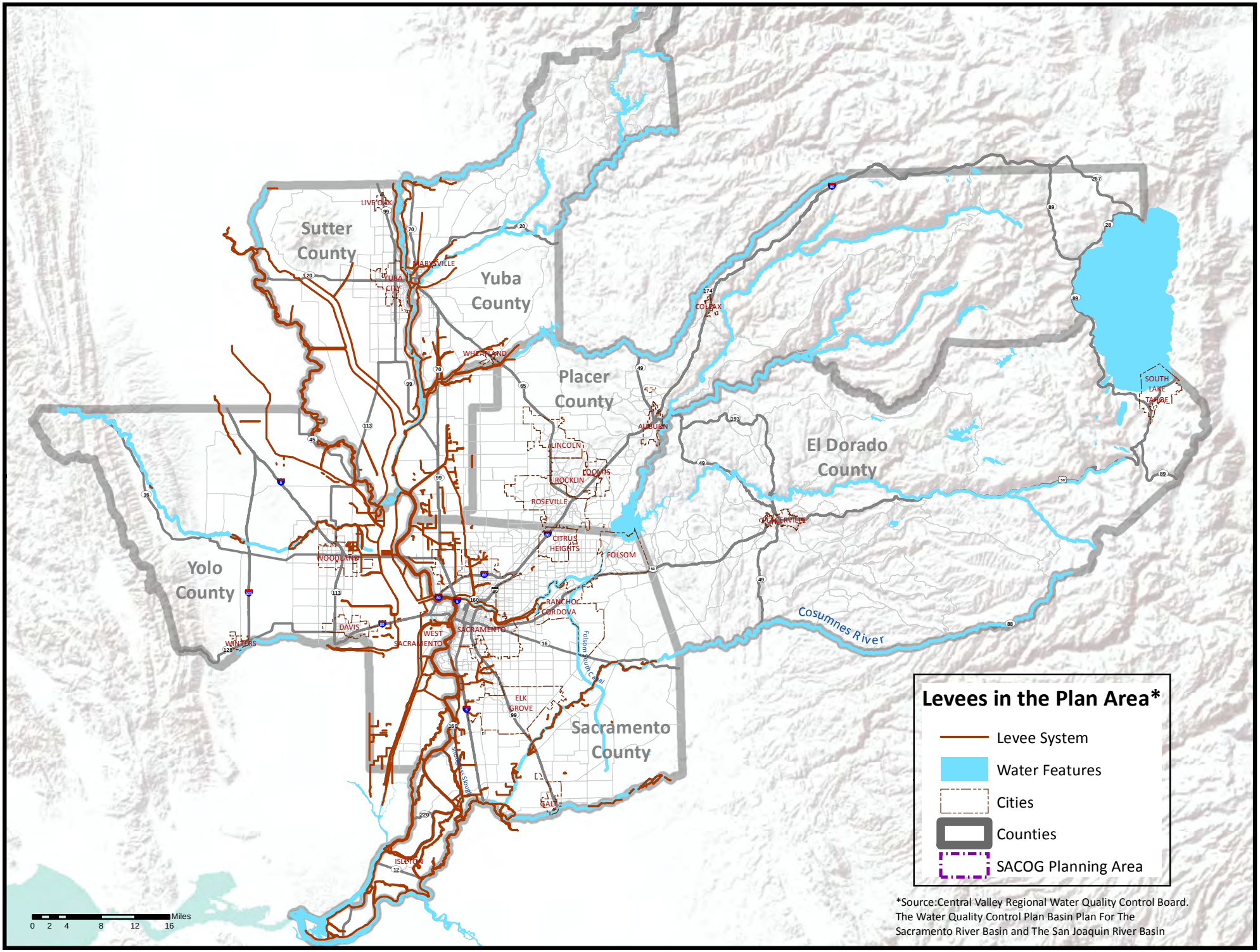
The California Department of Water Resources Division of Safety of Dams oversees dams statewide. Since 1950, there have been nine dam failures statewide, with one of the incidents resulting in three deaths. The most recent failure of a dam occurred 1965. Based on these statistics, dam failure is a relatively low likelihood event, particularly in the recent past.

Counties are required by state regulation to map potential dam inundation and prepare emergency plans and procedures for preparing and responding to a dam breach as part of their Multi-Hazard Mitigation Plans (Cal. Code Regs., tit. 19 § 2575). Additionally, the Federal Energy Regulatory Commission is required to approve local Emergency Action Plans for dams with the potential to cause massive damage. Emergency Action Plans outline notification procedures for people and property owners within a potential inundation area.

Figure 11.6 shows dams that have the potential to inundate a portion of the plan area if they fail, and the potential maximum inundation area, based on hydrology, or the amount of water flowing in a flooding source. Flood depths, determined using hydraulics, are not considered here, so no flood depths are shown.

Major storm events can produce high flows throughout the plan area's rivers. The primary method of flood protection provided in the plan area is via a system of levees or earthen embankments, particularly in areas with a minimum of 100-year or 200-year flood protection. Figure 11.7 shows levees in the plan area. In some areas, a bypass system accommodates additional flows to take the load off the primary levee system during critical peak flow periods.

Figure 11.7 Levees in the Plan Area



*Source:Central Valley Regional Water Quality Control Board. The Water Quality Control Plan Basin Plan For The Sacramento River Basin and The San Joaquin River Basin

Significant precipitation or major storm events have the potential to cause levee failure within the plan area. The most recent levee failure in the state, at Jones Tract in 2004, was outside the plan area, but within the Sacramento-San Joaquin River Delta (DWR, 2007c). Specific projects included in the proposed MTP/SCS may create structures or obstructions to flood flows from levee or dam failures. However, any projects constructed within areas subject to flooding due to dam failure, as mapped by FEMA, would be built following standard building codes and federal, state, and local regulations. Specifically, the state and federal regulations for 200-year or 100-year flood protection assess the adequacy of protection, including from levees. The proposed MTP/SCS land uses, when implemented locally, must comply with these state and federal regulations. Therefore, the potential exposure from the development of the proposed MTP/SCS is less than significant.

In addition, the following regulations would provide further mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: California Building Code, state and federal regulations to control stormwater runoff and limit drainage pattern alteration described in Impacts HYD-1 and HYD-2, and state real estate disclosure laws requiring notification to new property owners for property that lies within any dam inundation area and floodplains.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Some of the transportation projects included in the proposed MTP/SCS would be placed within the 200-year flood hazard area (urban) or 100-year flood hazard area (rural), potentially exposing people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Table 11.5 shows new transportation structures in a floodplain, which could potentially expose people or structures to flood hazards.

State and federal regulations described under the land use discussion would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

B. Localized Impacts

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to add approximately 92,000 new housing units and 104,000 jobs on approximately 4,400 acres. Centers and corridor communities in Sacramento County will add 37,350 housing units and 32,094 jobs in the 200-year flood hazard area. Yolo County will add 3,425 housing units and 1,964 jobs in the 200-year flood

hazard area. Yuba County will add 76 housing units and 324 jobs in the 200-year flood hazard area.

Regionally, Center and Corridor Communities will account for 30 percent of housing unit growth and 8 percent of acres developed. Every county in the region will experience increases in population, housing, and employment growth in Center and Corridor Communities by 2035. Most of this growth will occur in Sacramento County, though Yolo County will also see a substantial shift in the amount of population, housing, and employment growth moving to Center and Corridor Communities, particularly in West Sacramento. This growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint.

As described in the regional discussion, the primary method of flood protection in the plan area is via a system of levees or earthen embankments, supported by a bypass system accommodating additional flows during critical peak flow periods.

The following regulations would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: floodplain development regulations described in Impact HYD-3, California Building Code, state and federal regulations to control stormwater runoff and limit drainage pattern alteration described in Impacts HYD-1 and HYD-2, and state real estate disclosure laws require notification to new property owners for property that lies within any dam inundation area and floodplains.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Center and Corridor Communities will add a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because Center and Corridor Communities are highly urbanized, most of the transportation improvements will be on or adjacent to existing facilities.

Placement of structures within a floodplain potentially expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Table 11.5 shows new transportation structures in a floodplain, which could potentially expose people or structures to flood hazards.

State and federal regulations described under the land use discussion would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Established Communities

Like Center and Corridor Communities, Established Communities are already urbanized, but at a lower average density. Housing units will increase by approximately 79,000, but decrease in proportional share from 79 percent to 66 percent. Employment growth will maintain its proportional share, with jobs increasing by 187,000. Established Communities in Sacramento County will add 16,599 housing units and 37,937 jobs in the 200-year flood hazard area. Yolo County will add 791 housing units and 2,029 jobs in the 200-year flood hazard area. Yuba County will add 1,702 housing units and 764 jobs in the 200-year flood hazard area. This growth pattern is consistent with the policies of the 2008 MTP and Blueprint, which call for a more compact regional growth footprint.

As described in the regional discussion, the primary method of flood protection in the plan area is via a system of levees or earthen embankments, supported by a bypass system accommodating additional flows during critical peak flow periods. Significant precipitation or major storm events have the potential to cause levee failure within the plan area. Specific projects included in the proposed MTP/SCS may create structures or obstructions to flood flows from levee or dam failures.

The following regulations would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: floodplain development regulations described in Impact HYD-3, California Building Code, state and federal regulations to control stormwater runoff and limit drainage pattern alteration described in Impacts HYD-1 and HYD-2, and state real estate disclosure laws require notification to new property owners for property that lies within any dam inundation area and floodplains.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

As with Center and Corridor Communities, Established Communities will add a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Because Established Communities are urbanized, most of the transportation improvements will be on or adjacent to existing facilities.

Placement of structures within a floodplain potentially expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Table 11.5 shows new transportation structures in a floodplain, which could potentially expose people or structures to flood hazards.

State and federal regulations described under the land use discussion would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Developing Communities

Existing development in Developing Communities is more intermittent than in existing communities. Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will add approximately 127,000, new housing units (a 492 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. The highest rates of growth will be in Placer, Sutter, and Sacramento counties. Developing Communities are expected to have the highest growth rates of any of the Community Types and will experience substantial increases in their proportional share of population, housing and, to a lesser extent, employment.

Developing Communities in Sacramento County will add 5,350 housing units and 2,175 jobs in the 200-year flood hazard area. Sutter County will add 200-year flood hazard area. Yolo County will add 954 housing units and 47 jobs in the 200-year flood hazard area. Yuba County will add 5,926 housing units and 3,478 jobs in the 200-year flood hazard area.

As described in the regional discussion, the primary method of flood protection in the plan area is via a system of levees or earthen embankments, supported by a bypass system accommodating additional flows during critical peak flow periods. Significant precipitation or major storm events have the potential to cause levee failure within the plan area. Specific projects included in the proposed MTP/SCS may create structures or obstructions to flood flows from levee or dam failures.

The following regulations would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: floodplain development regulations described in Impact HYD-3, California Building Code, state and federal regulations to control stormwater runoff and limit drainage pattern alteration described in Impacts HYD-1 and HYD-2, and state real estate disclosure laws require notification to new property owners for property that lies within any dam inundation area and floodplains.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Implementation of the proposed MTP/SCS will result in more construction of transportation improvement projects in the area. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will add more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will experience road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities.

Developing Communities generally are not served by transit today (or if they are, service is very limited), but new transit service will be added incrementally to align with the completion of new housing and employment centers. Similarly, pedestrian and bicycle infrastructure will be implemented with housing and employment development.

Because Developing Communities are not fully urbanized, many of the transportation improvements will be new facilities. Placement of structures within a floodplain potentially expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Table 11.5 shows new transportation structures in a floodplain, which could potentially expose people or structures to flood hazards.

Federal and state regulations described under the land use discussion would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Rural Residential Communities

Rural Residential Communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to experience very limited growth by 2035. They are expected to add approximately 5,300 housing units (7 percent increase) on about 5,000 acres. Only 13 housing units and 1,487 jobs in the 200-year flood hazard area are expected in Rural Residential Communities (Sacramento County).

As described in the regional discussion, the primary method of flood protection in the plan area is via a system of levees or earthen embankments, supported by a bypass system accommodating additional flows during critical peak flow periods. Significant precipitation or major storm events have the potential to cause levee failure within the plan area. Specific projects included in the proposed MTP/SCS may create structures or obstructions to flood flows from levee or dam failures.

The following regulations would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: floodplain development regulations described in Impact HYD-3, California Building Code, state and federal regulations to control stormwater runoff and limit drainage pattern alteration described in Impacts HYD-1 and HYD-2, and state real estate disclosure laws require notification to new property owners for property that lies within any dam inundation area and floodplains.

Furthermore, because the amount of growth expected within floodplains is so low, the land use impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Transportation infrastructure in Rural Residential Communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

Because Rural Residential Communities are not urbanized, many of the transportation improvements will be new facilities. Placement of structures within a floodplain potentially expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Table 11.5 shows new transportation structures in a floodplain, which could potentially expose people or structures to flood hazards.

State and federal regulations described under the land use discussion would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
A summary of land use and transportation changes on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The proposed MTP/SCS does not forecast or model growth in this Community Type, and considering the isolated and dispersed nature of this Community Type. The limited number of planned transportation projects will not have a significant impact resulting from the failure of a levee or dam.

Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

C. Transit Priority Area Impacts

Placer, Sacramento, Yolo County Transit Priority Areas
A summary of land use changes in TPAs as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As described in the regional discussion, the primary method of flood protection in the plan area is via a system of levees or earthen embankments, supported by a bypass system accommodating additional flows during critical peak flow periods. Significant precipitation or

major storm events have the potential to cause levee failure within the plan area. Specific projects included in the proposed MTP/SCS may create structures or obstructions to flood flows from levee or dam failures.

Placement of structures within a floodplain potentially expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Table 11.5 shows new transportation structures in a floodplain, which could potentially expose people or structures to flood hazards.

The following regulations would mitigate against potential exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: floodplain development regulations described in Impact HYD-3, California Building Code, state and federal regulations to control stormwater runoff and limit drainage pattern alteration described in Impacts HYD-1 and HYD-2, and state real estate disclosure laws require notification to new property owners for property that lies within any dam inundation area and floodplains.

Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS in TPAs are considered less than significant (LS) for Impact HYD-4. No mitigation is required.

Impact HYD-5: Exposure of more people and structures to seiche, tsunami or mudflow.

A. Regional Impacts

A summary of land use and transportation changes for the region as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The plan area is outside of the areas of California at risk for tsunamis, as mapped by the California Department of Conservation, so impacts from tsunamis are not analyzed (California Department of Conservation 2011). The proposed MTP/SCS would have no impact on exposure of more people or structures to tsunamis.

Large enclosed or partially enclosed water bodies, such as Folsom Lake, are susceptible to seiche. Seiche can be caused by several factors including tsunami, earthquake, and wind. No state or federal regulations exist related to seiches. There are no recorded large seiches in the plan area. A portion the plan area (western Yolo County, southern Sacramento County) has a 10 percent chance of seismic shaking hazard between 20-40 percent peak ground acceleration in 50 years. Yolo County is the only jurisdiction in the plan area within an earthquake fault zone (California Department of Conservation 2010). Given the absence of tsunamis and low level of earthquake risk in the plan area, as discussed above, there is a low probability of seiche occurrence in the plan area. While the probability of seiches remain low, the impact of the proposed MTP/SCS is less than significant.

Any development constructed adjacent to unstable slopes would be susceptible to mudflows. Current state and local design standards require slope stabilization that would reduce the possibility for mudflows.

When water rapidly accumulates in the ground, during heavy rainfall or rapid snowmelt, mudflows can develop. Mudflows are rivers of rock, earth, and other debris saturated with water that flow at varying speeds and distances (FEMA 2010c). No state or federal mapping of mudflows exists. While the potential for mudflows exists in the plan area, the runoff and floodplain control measures identified in Impacts HYD-1, HYD-2 and HYD-3 will reduce the impact of the proposed MTP/SCS on exposure of people or structures to mudflows to less than significant by controlling runoff, maintaining the existing drainage pattern, and keeping flood flows unimpeded .

At the regional scale, the proposed MTP/SCS would not significantly increase the exposure of people and structures to seiche, tsunami or mudflow. Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-5. No mitigation is required.

B. Localized Impacts

As with the regional level, the land use and transportation impacts at the localized level of the proposed MTP/SCS the impact of exposing people or structures to tsunamis, seiches, and mudflows for are less than significant.

Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS at the localized level are considered less than significant (LS) for Impact HYD-5. No mitigation is required.

C. Transit Priority Area Impacts

As with the regional level for both land use and transportation projects within TPAs of the proposed MTP/SCS, the impact of exposing people or structures to tsunamis, seiches and mudflows for is considered less than significant.

Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS in at the TPA level are considered less than significant (LS) for Impact HYD-5. No mitigation is required.

Impact HYD-6: Exacerbate land subsidence associated with groundwater use

A. Regional Impacts

A summary of land use changes at the regional level as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Much of the existing land subsidence in the plan area is caused by irrigated agricultural practices. Land subsidence also threatens the integrity of levees in the plan area. Most islands in the Sacramento-San Joaquin Delta subside up to three inches a year, which puts pressure on the levees. The land development and transportation projects in the proposed MTP/SCS are required to comply with project-specific groundwater use regulations.

Urban water suppliers must prepare Urban Water Management Plans (UWMPs) to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands (as further described under state regulatory setting) (Wat. Code §§ 10610-10656). SB X7-7 set a goal of reducing per capita daily water consumption by 20 percent by the year 2020, which is intended to ensure adequate supply, including from groundwater. Additionally, the California Groundwater Management Act promotes voluntary groundwater management plans to ensure groundwater supplies. The Act also allows agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin. Local examples of groundwater management plans include the Sacramento Groundwater Authority Groundwater Management Plan (2008), the Western Placer County Groundwater Management Plan (City of Roseville, 2007), and the Yuba County Water Agency Groundwater Management Plan (2010).

At the regional level, growth alone does not necessarily substantially increase groundwater use, nor does an increase groundwater use necessarily exacerbate land subsidence. Proposed future projects, such as buildings and parking lots, may add new impervious surfaces and could reduce rainwater infiltration and groundwater recharge. Those areas that rely on groundwater can help mitigate potential land subsidence through BMPs, including groundwater recharge.

Infiltration rates vary depending on the overlying soil types. In general, sandy soils have higher infiltration rates and can contribute to significant amounts of ground water recharge; clay soils tend to have lower percolation potentials; and impervious surfaces such as pavement significantly reduce infiltration capacity and increase surface water runoff. The amount of new pavement and the extent to which it affects infiltration depends on the site-specific soil type. Projects located in urban areas would have less of an impact than projects converting open lands and spaces. Much of the proposed MTP/SCS growth occurs in urban areas and along existing highways, streets, and roads in which most of the surfaces are already paved or impervious. In addition, extensive storm drainage systems present in these areas currently intercept rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs.

Some local and regional plans for groundwater management exist, and others are being developed. State regulations also address the issue of subsidence resulting from overuse of groundwater. Sen. Bill No. 6 (Stats. 2009 7th Ex. Sess., ch. 1) (SB 6) requires that local agencies monitor the elevation of their groundwater basins to help better manage the resource during both normal water years and drought conditions. SB 6 requires the Department of Water Resources (DWR) to make recommendations to local entities to improve the monitoring programs and assist with local entities with compliance. Local entities may determine regionally how best to set up their groundwater monitoring program, but if they fail to implement a monitoring program and/or fail to provide the required reports, DWR may implement the groundwater

monitoring program for that region. DWR also maintains subsidence monitors in groundwater sub-basins throughout the plan area.

While many regulations are in place, because local agencies have discretion over how they manage groundwater resources, as described above, the land use impacts associated with implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

A summary of transportation changes at the regional level as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Transportation projects may increase impervious surfaces, but will not have a significant impact on groundwater use, limiting their potential impact on land subsidence. Much of the proposed MTP/SCS transportation facilities are on or adjacent to existing highways, streets, and roads in which most of the surfaces are already paved or impervious. In addition, extensive storm drainage systems present in these areas currently intercept rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs.

Local and regional groundwater management plans described above are directing groundwater monitoring in the plan area. Adherence to BMPs, and local and state regulations will help mitigate against exacerbating land subsidence associated with groundwater use.

However, because local agencies have discretion over how they manage groundwater resources, as discussed under land use impacts above, the transportation impacts associated with implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

B. Localized Impacts

Center and Corridor, Established, and Developing Communities

A summary of land use changes in Center and Corridor, Established, and Developing Communities that could occur as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of development usually do not rely on groundwater because they are typically highly urbanized. However, development in Center and Corridor Communities may introduce new impermeable surfaces, slowing the rate of groundwater recharge.

Established Communities are already largely built out, and development in these areas will be primarily infill and some intensification of existing land uses. These types of development usually do not rely on groundwater, but they may add additional impervious surfaces. Where

infrastructure improvements are made, they may reduce groundwater recharge by redirecting flows into engineered conveyances.

Developing Communities may have some existing development, but for the most part, they still have some undeveloped land, or greenfield, as well. Implementation of the proposed MTP/SCS will convert previously undeveloped land to urban uses. These types of development usually do not rely on groundwater. In many cases, infrastructure improvements affect groundwater recharge by redirecting flows into engineered conveyances.

While many regulations are in place, as described under regional impacts, because local agencies have discretion over how they manage groundwater resources, the land use impacts associated with implementation of the proposed MTP/SCS in Center and Corridor, Established, and Developing Communities are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

A summary of transportation changes in Center and Corridor, Established, and Developing Communities that could occur as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Local agency and Caltrans standards, combined with state and federal regulations and BMPs, often require drainage studies for transportation projects. These studies address drainage issues, including incorporation of infiltration systems where appropriate.

Local and regional groundwater management plans described under regional impacts are directing groundwater monitoring in the plan area. Adherence to BMPs, and local and state regulations will help mitigate against exacerbating land subsidence associated with groundwater use.

However, because local agencies have discretion over how they manage groundwater resources, the transportation impacts associated with implementation of the proposed MTP/SCS in Center and Corridor, Established, and Developing Communities are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

Rural Residential Communities

A summary of land use changes in Rural Residential Communities that could occur as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Development that does occur will be similar to development that already exists—mostly single-family dwelling units on large parcels, allowed by right.

Many developments in Rural Residential Communities rely on groundwater. State regulations require that permits for water wells require that a survey monument and a permanent benchmark must be installed at the waterside levee toe, as near to the well site as practical, to serve as a vertical control to monitor subsidence (Cal. Code Regs., tit. 23 § 129).

Impervious surfaces may be added in this Community Type, but their dispersed nature will not likely have a significant impact on groundwater recharge.

While many regulations are in place, as described under regional impacts, because local agencies have discretion over how they manage groundwater resources, the land use impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

A summary of transportation improvements in Rural Residential Communities that could occur as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Because Rural Residential Communities are not urbanized, many of the transportation improvements will be new facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns.

Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely add impermeable surfaces. Those improvements that add new impervious surfaces may slow the rate of groundwater recharge.

Local agency and Caltrans standards, combined with state and federal regulations and BMPs, often require drainage studies for transportation projects. These studies address drainage issues, including incorporation of infiltration systems where appropriate.

Local and regional groundwater management plans described under regional impacts are directing groundwater monitoring in the plan area. Adherence to BMPs, and local and state regulations will help mitigate against exacerbating land subsidence associated with groundwater use.

However, because local agencies have discretion over how they manage groundwater resources, the transportation impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

Lands Not Identified for Development in the Proposed MTP/SCS

A summary of land use changes on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The proposed MTP/SCS does not forecast or model growth in this Community Type, and considering the isolated and dispersed nature of this Community Type, it is unlikely that it would exacerbate land subsidence associated with groundwater use.

For the potential development that relies on groundwater, state regulations require that permits for water wells require that a survey monument and a permanent benchmark must be installed at

the waterside levee toe, as near to the well site as practical, to serve as a vertical control to monitor subsidence (C.C.R tit. 23 § 129).

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

The proposed MTP/SCS will make a variety of transportation investments in this Community Type by 2035, including road maintenance, road widenings and safety enhancements, and other roadway improvements. However, because this Community Type covers over 2.6 million acres of land in the proposed MTP/SCS plan area, the limited number of planned transportation projects will not likely have a significant impact on this threshold.

Local and regional groundwater management plans described under regional impacts are directing groundwater monitoring in the plan area. Adherence to BMPs, and local and state regulations will help mitigate against exacerbating land subsidence associated with groundwater use.

However, because local agencies have discretion over how they manage groundwater resources, the transportation impacts associated with implementation of the proposed MTP/SCS on Lands Not Identified for Development in the MTP/SCS are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

C. Transit Priority Area Impacts

Placer, Sacramento, and Yolo County Transit Priority Areas
A summary of land use changes in TPAs as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are already urbanized, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of development usually do not rely on groundwater. While typically highly urbanized, development in Center and Corridor Communities may introduce new impermeable surfaces, slowing the rate of groundwater recharge.

While many regulations are in place, as described under regional impacts, local discretion over groundwater management cannot lead to a definitive conclusion that the proposed MTP/SCS will have a less than significant impact on land subsidence associated with groundwater use.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in TPAs are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

A summary of transportation changes in TPAs as a result of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are urbanized, most of the transportation improvements will be on or adjacent to existing facilities. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely alter drainage patterns. Those improvements that are on existing facilities, such as paved shoulders converted to lanes, will not likely add impermeable surfaces. Those improvements that add new impervious surfaces may slow the rate of groundwater recharge.

Local agency and Caltrans standards, combined with state and federal regulations and BMPs, often require drainage studies for transportation projects. These studies address drainage issues, including incorporation of infiltration systems where appropriate.

Local and regional groundwater management plans described under regional impacts are directing groundwater monitoring in the plan area. Adherence to BMPs, and local and state regulations will help mitigate against exacerbating land subsidence associated with groundwater use. However, the local discretion over groundwater management cannot lead to a definitive conclusion that the proposed MTP/SCS will have a less than significant impact on land subsidence associated with groundwater use.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in TPAs are considered potentially significant (PS) for Impact HYD-6. Mitigation Measure HYD-5 is provided below to mitigate this impact.

Mitigation Measure HYD-5: Implement Mitigation Measure PS-1.

Mitigation Measure HYD-6: In areas of existing or potential future land subsidence due to groundwater pumping, establish cooperative regional relationships to define and manage sustainable yield.

Implementing agencies should establish cooperative regional relationships to define and manage sustainable yield in areas of existing or potential future land subsidence due to groundwater pumping. At a minimum this effort should involve the following:

1. regional coordination and cooperative agreements within groundwater basins to study and define sustainable yield, undertake regular monitoring, and reach agreement regarding management of groundwater withdrawal pursuant to sustainable yield objectives;
2. development and implementation of recharge programs in areas where land subsidence is, or is likely to become, a problem;
3. cooperate regionally to consider use of surface water resources; and
4. ensure that new land uses do not exacerbate the potential for land subsidence, and strive to avoid increase in subsidence.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, the impact would be reduced to less than significant (LS), because adequate water supply would reduce overreliance on groundwater, and therefore subsidence. However, because SACOG cannot require an implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact is considered significant and unavoidable (SU).

Impact HYD-7: Otherwise substantially degrade water quality.

A summary of land use changes at the regional level from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Growth alone does not necessarily degrade water quality. It is the siting and design of new development, along with water management practices, that impact water quality.

Two potentially substantial adverse impacts to water quality are urban runoff caused by increased impervious surfaces and discharges of constituents to federal Clean Water Act Section 303(d)-listed waters. Impacts related to runoff are also analyzed in Impacts HYD-1, HYD-2, HYD-6, and HYD-8.

The growth in the proposed MTP/SCS would increase impervious surfaces. Anticipated runoff contaminants include sediment, pesticides, herbicides, fertilizers, oil and grease, nutrients, metals, bacteria, and trash. Contributions of these contaminants to stormwater and non-stormwater runoff could degrade the quality of receiving waters. During the dry season, vehicles and other urban activities release contaminants onto the impervious surfaces, where they can accumulate until the first storm event. During this initial storm event, or first flush, the concentrated pollutants would be transported via runoff to stormwater drainage systems. Contaminated runoff waters could flow into the stormwater drainage systems that discharge into rivers, agricultural ditches, sloughs, and channels and ultimately could degrade the water quality of any of these water bodies.

Several waterbodies in the study area, including major rivers, creeks, and tributaries (see Table 11.3) have been identified under Clean Water Act Section 303(d) as being impaired by a variety of contaminants, including pesticides (chlorpyrifos, DDT, diazinon, and Group A pesticides), mercury, copper, zinc, pathogens, and exotic species. These constituents originate from a variety of sources, but generally include agricultural activities, such as irrigation runoff, and urban non-point sources of runoff from landscaping, rooftops, trash, and illegal dumping. Table 11.3 shows waters in the plan area with Clean Water Act Section 303(d)-listed impairments.

Under the CWA listing, these water bodies have no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration. In order to address impaired waters, the State Water Board has several permit processes for municipal stormwater and construction runoff. In addition, several jurisdictions in the plan area have adopted BMPs and ordinances that address the issues of construction-related runoff and runoff resulting from new development.

As described in the regulatory settings for the State Water Board and Impact HYD-1, several jurisdictions have municipal stormwater permits to reduce the discharge of sediments and other pollutants in runoff. Proponents (public agencies and private developers) of construction projects that disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain a Construction General Permit from the State Water Board. The project proponent must propose control measures consistent with the state's permit, and develop a Storm Water Pollution Prevention Plan for each site, which includes BMPs to reduce potential impacts.

New development could add additional sources of runoff. However, in portions of the region that are already built out, such increases would either be accommodated by existing infrastructure or project proponents would be required, by local ordinances and state regulations, to make infrastructure improvements.

In less developed areas of the region, new housing and employment developments could require additional stormwater drainage infrastructure and control measures to limit polluted runoff. However, as described above, adherence to local and state regulations would ensure that development would not otherwise substantially degrade water quality.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

A summary of transportation changes at the regional level from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Groundwater basins could be affected by pollutants in the runoff from proposed future projects. Table 11.6 is a list of transportation projects crossing 303(d) impaired bodies of water.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program. As described in the regulatory settings for the State Water Board and Impact HYD-1, this permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention. Construction-related measures are described under Impact HYD-8. Adherence to local and state regulations would ensure that development would not otherwise substantially degrade water quality.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

B. Localized Impacts

Center and Corridor, and Established Communities

A summary of land use changes in Center and Corridor Communities and Established Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities and Established Communities are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of development usually require infrastructure upgrades, so new projects will not otherwise substantially degrade water quality. Where infrastructure is upgraded to facilitate development, capacity may be increased above existing levels, and the application of BMPs, implementation of control measures, and adherence to local and state regulations may improve water quality.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

A summary of transportation improvements in Center and Corridor Communities and Established Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities and Established Communities are highly urbanized, most of the transportation improvements will be to existing facilities with engineered water conveyance infrastructure in place. In cases where the infrastructure is not adequate, lead agencies will be required to make infrastructure upgrades. In both cases, adherence to local and state regulations will ensure that development will not otherwise substantially degrade water quality.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention, as described under regional impacts and Impact HYD-8. Adherence to local and state regulations will ensure that development would not otherwise substantially degrade water quality.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Center and Corridor Communities and Established Communities are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

Developing Communities

A summary of land use changes in Developing Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Table 11.6
Proposed MTP/SCS Transportation Projects Crossing Impaired Bodies of Water

Improvement	Type	Impaired Water Body
Latrobe Rd/White Rock Rd Connector (New Road)	Road New	Carson Creek (from wastewater treatment plant to Deer Creek)
I-5 and I-80 HOV Connectors and Lanes to Downtown	Highway HOV Lanes	American River, Lower
I-80 HOV Across the Top (Longview Drive to Sacramento River)	Highway HOV Lanes	Sacramento River (Knights Landing to the Delta)
SR 51 Transition Lane (American River Bridge to Exposition Boulevard)	Highway Auxiliary Lanes	American River, Lower
SR 51 Transition Lane (Exposition Boulevard to E Street)	Highway Auxiliary Lanes	American River, Lower
Wilton Rd (Grant Line Road to City limit)	Road Widening	Deer Creek (Sacramento County)
Lower American River Crossing	Bridge Project	American River, Lower
Main Ave. (Sacramento City limit to Norwood Avenue)	Road Widening	Natomas East Main Drainage Canal (Steelhead Creek, downstream of confluence with Arcade Cr.)
Sutter's Landing Bridge	Bridge Project	American River, Lower
Elkhorn Blvd. (Sacramento City limit to Watt Avenue)	Road Widening	Natomas East Main Drainage Canal (Steelhead Creek, downstream of confluence with Arcade Cr.)
Elverta Road (Rio Linda Boulevard to Sacramento International Airport)	Road Widening	Natomas East Main Drainage Canal (aka Steelhead Creek, downstream of confluence with Arcade Cr.)
Hazel Ave Widening, Phase 1 (US 50 Interchange to Curragh Downs Drive)	Road Widening	American River, Lower
Sunrise Blvd. (Madison Avenue to Gold Country Boulevard)	Road Widening	American River, Lower
Winding Way (Auburn Boulevard to Garfield Avenue)	Road Widening	Arcade Creek
I-80 / U.S. 50 Bus/Carpool Lanes (Mace Boulevard in Davis to Downtown Sacramento)	Highway HOV Lanes	Tule Canal; Sacramento River (Knights Landing to the Delta)
Sacramento River Crossing (Sacramento to West Sacramento)	Bridge Project	Sacramento River (Knights Landig to the Delta)
Sacramento River Crossing (Sacramento to West Sacramento)	Bridge Project	Sacramento River (Knights Landig to the Delta)
Sutter SR-99 Corridor Widening (Nicholas Avenue/Garden Highway to Sacramento Ave.)	Highway Capacity	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Pease Rd. (North Township Road to SR 99)	Road Widening	Live Oak Slough
Riego Rd Widening (SR 99 to Placer County)	Road Widening	Main Drainage Canal
SR 20 10th St. Bridge Improvements	Bridge Project	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Feather River Bridge at 5th St (SR 99 to SR 65/70)	Bridge Project	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Lake Washington Blvd. (Jefferson Boulevard to Palamidessi Bridge)	Road Widening	Sacramento Deep Water Ship Channel
South River Rd. (US 50 on-ramp to Stonegate Drive)	Road Widening	Sacramento River (Knights Landing to the Delta); Sacramento Deep Water Ship Channel
Feather River Parkway (3rd Street to SR 70)	Road Realignment / Bypass	Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)
Wheatland Pkwy. (Future north terminus of SR 65 to SR 65 near South Beal Road)	Road Realignment / Bypass	Bear River, Lower (below Camp Far West Reservoir)
Route 70 at Feather River Blvd. (SR 70 / Feather River Boulevard interchange)	Highway Safety, Operations & ITS	Bear River, Lower (below Camp Far West Reservoir)

Source: SACOG, State Water Board 2011

Greenfield development in most case can have less impact on runoff than other development types, because new construction will include complete systems designed to handle runoff and meet local and state regulations. Where development exists in Developing Communities, it is typically near or adjacent to relatively recent existing development. The existing infrastructure in these existing developments is typically designed to handle additional growth, so some projects may require only connections to the trunk stormwater drainage system. Where adequate local or trunk stormwater drainage does not exist, expansion capacity may be increased above existing levels, and the application of BMPs, implementation of control measures, and adherence to local and state regulations will mitigate any potentially substantial degradation of water quality.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

A summary of transportation improvements in Developing Communities that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention, as described under regional impacts and Impact HYD-8. Adherence to local and state regulations would ensure that development would not otherwise substantially degrade water quality.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

Rural Residential Communities

A summary of land use changes in Rural Residential Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Development that does occur will be similar to development that already exists—mostly single family dwelling units on large parcels, allowed by right.

The dispersed, predominantly residential development in this Community Type in most cases will have less impact than other development types. Some developments may operate on independent septic systems and not connect to stormwater drainage systems, thereby causing no impact on community-level water quality. However, as described under regional impacts, projects on one acre or more will be required to comply with the state construction general permit process, which is designed to control additional polluted runoff.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

A summary of transportation changes in Rural Residential Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention, as described under regional impacts and Impact HYD-8. Adherence to local and state regulations would ensure that development would not otherwise substantially degrade water quality.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS

A summary of land use and transportation changes that would occur on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The proposed MTP/SCS does not forecast or model growth in this Community Type, and considering the isolated and dispersed nature of this Community Type, it is unlikely that development would otherwise substantially degrade water quality. Some developments may operate on independent septic systems and not connect to stormwater drainage systems, thereby causing no impact on capacity. As described earlier, projects on one acre or more will be required to comply with the state construction general permit process, which is designed to control additional polluted runoff. The limited number of planned transportation projects will not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS on Lands Not Identified for Development in the proposed MTP/SCS are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

C. Transit Priority Area Impacts

Placer, Sacramento, and Yolo County Transit Priority Areas

A summary of land use changes in TPAs that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of development usually require infrastructure upgrades. Where infrastructure is upgraded to facilitate development, capacity may be increased above existing levels, and the application of BMPs, implementation of control measures, and adherence to local and state regulations may improve water quality. Those TPAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Sacramento Stormwater Quality Partnership 2007).

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in TPAs are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

A summary of transportation improvements in TPAs that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are highly urbanized, most of the transportation improvements will be to existing facilities with engineered water conveyance infrastructure in place. In cases where the infrastructure is not adequate, lead agencies will be required to make infrastructure upgrades. In both cases, adherence to local and state regulations will ensure that development would not otherwise substantially degrade water quality.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction and non-construction runoff prevention, as described under regional impacts and Impact HYD-8. Adherence to local and state regulations will ensure that development would not otherwise substantially degrade water quality. Those Placer County TPAs within the city of Roseville are subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Sacramento Stormwater Quality Partnership 2007).

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Placer County TPAs are considered less than significant (LS) for Impact HYD-7. No mitigation is required.

Impact HYD-8: Violate any water quality standards or waste discharge requirements resulting from construction activities.

A. Regional Impacts

A summary of land use changes at the regional level that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Construction alone does not necessarily violate water quality standards or waste discharge requirements. With appropriate attention to site-

specific conditions, along with local, regional, state and federal water management practices and regulations, such impacts can be mitigated or avoided.

Construction-related earth-disturbing activities of land development would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality and storm drain capacity. During site grading, trenching, and other construction activities, areas of bare soil are exposed to erosive forces during rainfall events. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and/or grading could result in increased erosion and sedimentation to surface waters. The extent of the impacts is dependent on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, and topography and proximity to drainage channels. In addition, construction equipment and activities would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface water or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, solvents, and paints, could also pose a threat to the water quality of local waters. These potential leaks or spills, if not contained, would be considered a potentially significant impact on groundwater and surface water quality. If precautions are not taken to contain or capture sediments and/or accidental hazardous spills, construction activities could produce substantial pollutants in stormwater runoff and result in a significant impact on the existing surface water quality.

Soil erosion is probable during construction of proposed future projects, and the resulting water quality impairments could include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. Sediment from project-induced erosion could also accumulate in downstream drainage facilities and interfere with streamflow, thereby aggravating downstream flooding conditions. Non-construction soil erosion is discussed in Impact HYD-2.

Construction could also affect local storm drain catch basins, culverts, flood control channels, waters of the United States, streams, and the Sacramento-San Joaquin Delta. Most runoff in urban areas is eventually directed to either a storm drain or bodies of water, unless allowed to stand in a detention area and filter into the ground.

Before discharging any dewatered effluent to surface water, project proponents are required to obtain an NPDES permit (as described under Impact HYD-1) and Waste Discharge Requirement from the Central Valley RWQCB. Depending on the volume and characteristics of the discharge, coverage under the NPDES General Construction Permit may be permissible. If coverage under the NPDES Construction General Permit is not allowed, projects must conform to requirements of the General Dewatering Permit, issued by the Central Valley RWQCB.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

A summary of transportation improvements at the regional level that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Groundwater basins could be affected by pollutants in the runoff from proposed future projects. Table 11.6 is a list of transportation projects crossing 303(d) impaired bodies of water.

Construction-related earth-disturbing activities of highway, interchange, street and other various improvement projects in the plan area would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality and storm drain capacity. During site grading, trenching, and other construction activities, areas of bare soil are exposed to erosive forces during rainfall events. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and/or grading could result in increased erosion and sedimentation to surface waters. The extent of the impacts is dependent on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, and topography and proximity to drainage channels. In addition, construction equipment and activities would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface water or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, solvents, and paints, could also pose a threat to the water quality of local waters. These potential leaks or spills, if not contained, would be considered a potentially significant impact on groundwater and surface water quality. If precautions are not taken to contain or capture sediments and/or accidental hazardous spills, construction activities could produce substantial pollutants in stormwater runoff and result in a significant impact on the existing surface water quality.

Soil erosion is probable during construction of proposed transportation projects, and the resulting water quality impairments could include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. Sediment from project-induced erosion could also accumulate in downstream drainage facilities and interfere with streamflow, thereby aggravating downstream flooding conditions.

Construction could also affect local storm drain catch basins, culverts, flood control channels, waters of the United States, streams, and the Sacramento-San Joaquin Delta. Most runoff in urban areas is eventually directed to either a storm drain or bodies of water, unless allowed to stand in a detention area and filter into the ground, so projects not adjacent to bodies of water.

Some transportation projects in the proposed MTP/SCS would require extensive foundational support. Overpasses, underpasses, grade separations, highway interchanges, and other rail crossing structures would require excavation below the ground surface or support structures or foundations secured deep into the ground. Projects that excavate or secure foundations deep in the ground may encounter groundwater.

Depending on the location, trenching and excavation associated with these projects, construction activities may reach depths that can expose the water table and create a direct path to the groundwater basin for contaminants to enter the groundwater system. Primary construction-

related contaminants that could reach groundwater would include oil and grease, and construction-related hazardous materials and dewatering effluent.

Before discharging any dewatered effluent to surface water, project proponents are required to obtain an NPDES permit (as described under Impact HYD-1) and Waste Discharge Requirement from the Central Valley RWQCB. Depending on the volume and characteristics of the discharge, coverage under the NPDES Construction General Permit may be permissible. If coverage under the Construction General Permit is not allowed, projects must conform to requirements of the General Dewatering Permit, issued by the Central Valley RWQCB.

The Caltrans Stormwater Program covers transportation projects where Caltrans is the lead agency. As described in the regulatory settings for the State Water Board and Impact HYD-1, this permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

Transportation projects where local agencies are the lead agency are subject to local and state requirements for construction runoff prevention. Adherence to local and state regulations would mitigate against violation of any water quality standards or waste discharge requirements.

At the regional scale, the proposed MTP/SCS projects would not violate any water quality standards or waste discharge requirements if they comply with existing local, state, and federal regulations.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

B. Localized Impacts

Center and Corridor Communities

A summary of land use changes in Center and Corridor Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because Center and Corridor Communities are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of developments usually require infrastructure upgrades, which are subject to current water quality standards and waste discharge requirements, and the application of BMPs, implementation of control measures, and adherence to local and state regulations may improve water quality.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

A summary of transportation improvements in Center and Corridor Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter. Because Center and Corridor Communities are highly urbanized, most of the transportation improvements will be to existing facilities with engineered water conveyance infrastructure in place. In cases where the infrastructure is not adequate, lead agencies will be required to make infrastructure upgrades. In both cases, projects are subject to water quality standards and waste discharge requirements.

The Caltrans Stormwater Program, as described earlier, covers transportation projects where Caltrans is the lead agency. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations will ensure that development would not violate water quality standards or waste discharge requirements.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

Established Communities

A summary of land use changes in Established Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As with Center and Corridor Communities, Established Communities are already largely built out, development in these areas will be primarily infill and some intensification of existing land uses. Infill, low-to-medium density residential, office and industrial parks, and commercial strip centers sometimes require infrastructure upgrades if adequate capacity does not exist. Where infrastructure is upgraded to facilitate development, these projects are subject to current water quality standards and waste discharge requirements, and the application of BMPs, implementation of control measures, and adherence to local and state regulations may improve water quality.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

A summary of transportation improvements in Established Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because existing communities are urbanized, most of the transportation improvements will be to existing facilities with water conveyance infrastructure in place. In cases where the infrastructure is not adequate, lead agencies will be required to make infrastructure upgrades. In both cases, adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements.

The Caltrans Stormwater Program, as described earlier, covers transportation projects where Caltrans is the lead agency. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state requirements would ensure that development would not violate water quality standards or waste discharge requirements.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

Developing Communities

A summary of land use changes in Developing Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Developing Communities may have some existing development, but for the most part, they still have some undeveloped land, or greenfield, as well. Implementation of the proposed MTP/SCS will convert previously undeveloped land to urban uses.

Greenfield development in most case can have less probability of violating water quality standards or waste discharge requirements than other development types, because new construction will include complete systems designed to handle water supply and waste conveyance, and meet local and state regulations. Where development exists in Developing Communities, it is typically near or adjacent to relatively recent existing development. The existing infrastructure in these existing developments is typically designed to handle additional growth. New development and its associated infrastructure are subject to current water quality standards and waste discharge requirements, and the application of BMPs, implementation of control measures, and adherence to local and state regulations.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

A summary of transportation improvements in Developing Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The Caltrans Stormwater Program, as described earlier, covers transportation projects where Caltrans is the lead agency. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

Rural Residential Communities
A summary of land use changes in Rural Residential Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Development that does occur will be similar to development that already exists—mostly single family dwelling units on large parcels, allowed by right.

The dispersed, predominantly residential development in this Community Type in most cases will have less impact than other development types at the localized impact level. Some developments may operate on independent septic systems and not connect to stormwater drainage systems, thereby causing no impact on community-level water quality or waste discharge. However, as described earlier, projects on one acre or more will be required to comply with the state construction general permit process, which is designed to control additional polluted runoff.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

A summary of transportation improvements in Rural Residential Communities that would occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program, as described under regional impacts. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations would ensure that development would not violate water quality standards or waste discharge requirements.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
A summary of land use and transportation changes on Lands Not Identified for Development in the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because there is no development on Lands Not Identified for Development in the proposed MTP/SCS, development would not violate water quality standards or waste discharge requirements. The limited number of planned transportation projects will not exceed the

capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, the land use and transportation impacts associated with implementation of the proposed MTP/SCS on Lands Not Identified for Development in the MTP/SCS are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

C. Transit Priority Area Impacts

Placer, Sacramento, and Yolo County Transit Priority Areas

A summary of land use changes in TPAs that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are already largely built out, most of the development in these areas will be redevelopment, infill and intensification of existing land uses. These types of developments usually require infrastructure upgrades, so new projects will not violate water quality standards or waste discharge requirements. Where infrastructure is upgraded to facilitate development, capacity may be increased above existing levels, and the application of BMPs, implementation of control measures, and adherence to local and state regulations may improve water quality. Those TPAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Sacramento Stormwater Quality Partnership 2007).

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS in TPAs are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

A summary of transportation improvements in TPAs that could occur from implementation of the proposed MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because TPAs are highly urbanized, most of the transportation improvements will be to existing facilities with engineered water conveyance infrastructure in place. In cases where the infrastructure is not adequate, lead agencies will be required to make infrastructure upgrades. In both cases, projects are subject to water quality standards and waste discharge requirements.

The Caltrans Stormwater Program, as described earlier, covers transportation projects where Caltrans is the lead agency. Transportation projects where local agencies are the lead agency are subject to local and state regulations for construction runoff prevention. Adherence to local and state regulations ensure that development would will not violate water quality standards or waste discharge requirements. Those TPAs within the city of Roseville and Sacramento County (incorporated and unincorporated) are subject to strict standards outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Sacramento Stormwater Quality Partnership 2007).

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS in TPAs are considered less than significant (LS) for Impact HYD-8. No mitigation is required.

CHAPTER 12 – LAND USE AND PLANNING

INTRODUCTION

This chapter describes the existing conditions (environmental and regulatory) for land use and planning and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the land use and planning environment within the MTP/SCS plan area. This chapter evaluates potential impacts on land use and planning that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

One comment regarding land use planning was received during circulation of the Notice of Preparation (NOP). A letter was received from Placer County Community Development/ Resource Agency, Planning Division, requesting that existing land use entitlements be included and affirmed in the MTP/SCS Preferred Scenario Map and as part of the project description. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

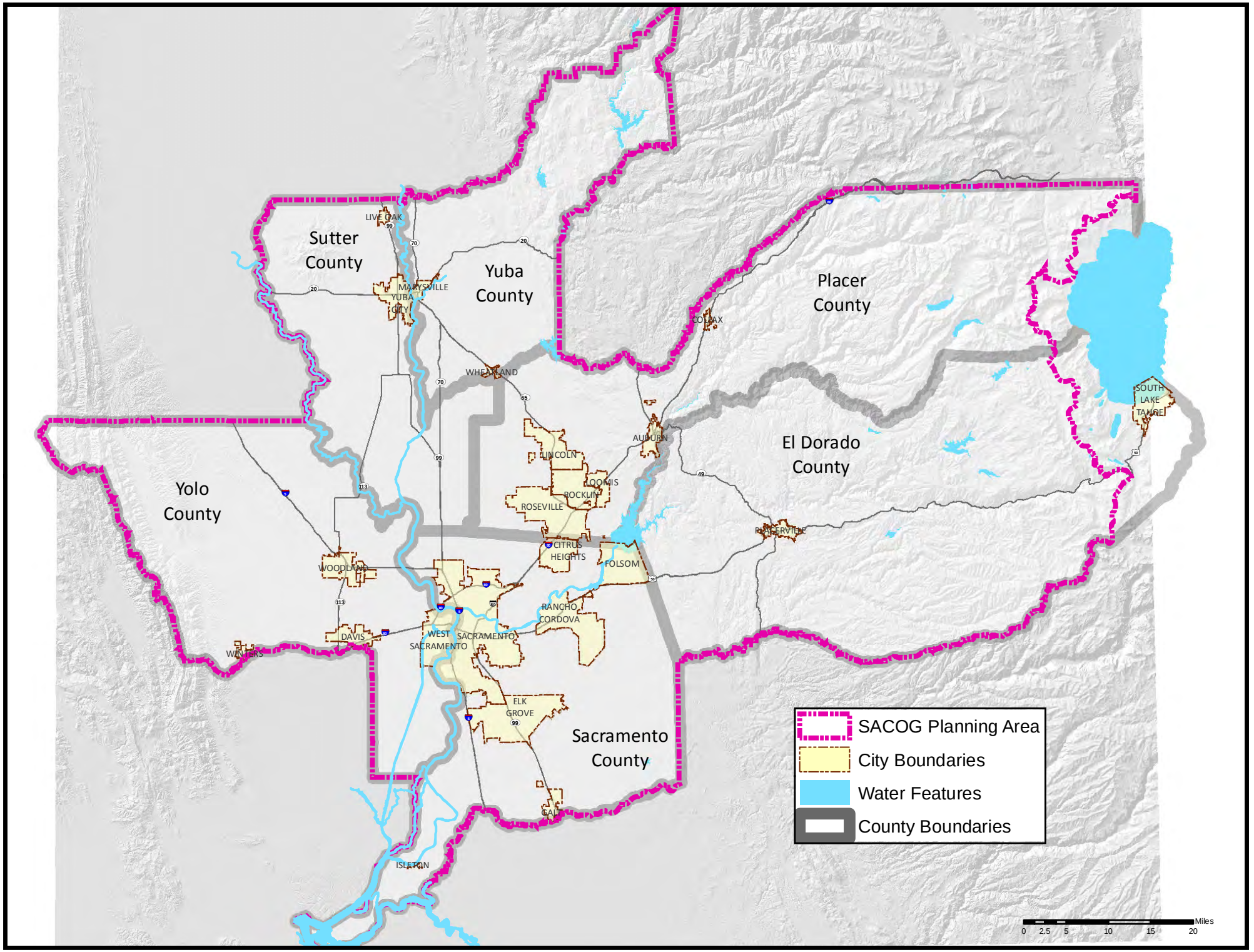
SETTING

Environmental Setting

The Sacramento Area Council of Governments (SACOG) is a voluntary association of governments, a federally designated metropolitan planning organization (MPO), and state designated regional transportation planning agency (RTPA). Member jurisdictions include: the County of El Dorado (including the City of Placerville); the County of Placer (including the cities of Auburn, Colfax, Lincoln, Rocklin, Roseville, and Town of Loomis); the County of Sacramento (including the cities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento); the County of Sutter (including the cities of Live Oak and Yuba City); the County of Yolo (including the cities of Davis, West Sacramento, Winters, and Woodland); and the County of Yuba (including the cities of Marysville and Wheatland). SACOG's designated RTPA status does not include the unincorporated areas and cities within El Dorado and Placer counties which have their own RTPAs; El Dorado County Transportation Commission in El Dorado and Placer County Transportation Planning Agency in Placer.

The MTP/SCS plan area encompasses the entire 28-jurisdiction area (except for the portions of El Dorado and Placer counties within the Lake Tahoe Basin), totaling approximately 6,193 square miles (3,963,626 acres). See Figure 12.1 for a map of the MTP/SCS plan area. The MTP/SCS plan area spans a diverse geography, including productive agricultural lands, the rapidly growing urban core and foothill communities, and the sparsely populated forest lands of the western Sierra Nevada Mountains. Existing development is heavily concentrated near the geographic center of the region in Sacramento County and southwest Placer County, with outlying development occurring mainly along major freeways such as I-80, I-5, US-50, and Highway 99. Near the edges of the region, outside the small incorporated cities found in these areas, most land is either productive agricultural land (in Yolo, Sutter, and southwest Sacramento counties) or protected forests and open space in the Sierra Nevada foothills (eastern Placer, El Dorado, and Yuba counties).

Figure 12.1 Sacramento Metropolitan Planning Area



Existing Land Use by County, Community Type, and Transit Priority Area

The MTP/SCS plan area contained 721,872 acres of developed land in 2008. Tables 12.1 and 12.2 summarize, by county, existing housing units, employees, and land uses within the MTP/SCS plan area. The paragraphs following Tables 12.1 and 12.2 describe the existing land use conditions in each of the region's six counties.

Table 12.1
Summary of 2008 Housing and Employment by County

County (incorporated and unincorporated areas)	Dwelling Units		Employment	
	2008 Dwelling Units[1,2]	Percent of Total	2008 Employees[1,2]	Percent of Total
El Dorado	61,791	7.0%	44,764	4.6%
Placer	136,709	15.4%	141,658	14.7%
Sacramento	554,360	62.6%	622,579	64.4%
Sutter	33,707	3.8%	31,751	3.3%
Yolo	72,391	8.2%	102,379	10.6%
Yuba	26,133	3.0%	23,177	2.4%
Region Total	885,090	100.0%	966,309	100.0%

Source: SACOG, MTP/SCS Land Use Forecast, June 2011

[1] Totals may not match due to rounding.
[2] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 12.2
Existing Land Uses in the MTP/SCS Plan Area by County

Development Types	El Dorado County	Placer County	Sacramento County	Sutter County	Yolo County	Yuba County	Regional Total
2008							
Residential	194,106	122,005	161,172	25,284	26,142	69,981	598,690
Mixed Use (vertical)	0	17	234	3	6	0	260
Office & Commercial	1,559	4,960	15,281	847	2,068	602	25,317
Industrial	1,068	4,340	21,341	1,227	5,676	1,362	35,014
Public	2,355	5,685	22,451	803	7,060	24,237	62,591
Total Development Acres[1]	199,088	137,007	220,480	28,163	40,952	96,181	721,872

Source: SACOG, MTP/SCS Land Use Forecast, June 2011
[1] Excludes Agriculture, Open Space, Parks, Recreation, and Vacant land estimate (land that is not developed in the proposed MTP/SCS but is available for development based on currently adopted general plans and specific plans.)

Existing Land Uses by County

El Dorado County

El Dorado County extends from the Sacramento County line on the west to the summit of the Sierra Nevada Mountains on the east. From west to east, the geography of El Dorado County progresses from foothill to mountainous terrain. Existing land uses include residential, commercial, and industrial urban development and rural and agricultural lands used for agricultural production, resource extraction, open space, and recreation. The only incorporated city in the county within the plan area is Placerville (the Lake Tahoe Basin, including South Lake Tahoe, is not part of the MTP/SCS plan area). Residential development is primarily concentrated on the west side of the county in clusters along U.S. Highway 50, including Placerville and the unincorporated communities of El Dorado Hills and Cameron Park. El Dorado Hills and Cameron Park are recently urbanized areas of the county, where housing and commercial development is suburban in nature. Commercial development has generally followed the same growth patterns as residential development, clustering along U.S. Highway 50 and State Routes 49 and 193. A new business park in El Dorado Hills south of Highway 50 and just east of the El Dorado-Sacramento County border has begun generating some job growth outside of the traditional jobs center in the city of Placerville.

Forty-five percent of the land in the county is in public ownership. Agricultural and forest lands make up the largest percentage of undeveloped lands. Forest lands are managed by the United States Forest Service (USFS), and the United States Bureau of Land Management (BLM) also manages forested lands in the American and Cosumnes River canyons.

Placer County

With a similar geography to El Dorado County, the unincorporated portion of Placer County is predominantly rural. The majority of the population lives in the suburban southwest portion of the county where residential development has occurred in and around the fast-growing cities of Roseville, Rocklin, and Lincoln. Residential development in these cities is predominantly

single-family although there are some medium- and high-density attached dwelling units. Outside of these cities, along Interstate 80, suburban residential uses are concentrated in the incorporated cities of Loomis, Auburn, and Colfax. The predominant land use in these cities is low-density residential, though Auburn has a concentration of employment uses due to its role as the county seat of government. The unincorporated area of the county is broken up into several rural communities and a substantial amount of agriculture and protected open space.

The highest concentrations of commercial and light industrial/office uses in the county fall within the cities of Roseville, Rocklin, and Lincoln. Industrial and heavy commercial uses are also scattered in various locations outside the incorporated urban boundaries, mainly along Interstate 80 near Newcastle, Auburn, Foresthill, and Weimar.

Non-urban uses within Placer County include agricultural, resource extractive (timber and mining), and public lands and open space uses. A large portion of the county, particularly in the eastern half, is under public ownership. The largest amount of public lands within Placer County is under the control of the Bureau of Land Management. Smaller amounts of land in central Placer County are under the jurisdiction of the US Forest Service and the Bureau of Reclamation.

Sacramento County

Sacramento County lies at the geographic center of the region and contains both agricultural land uses as well as the most urbanized areas of the region. The geographic boundaries of the County of Sacramento include several unincorporated communities and seven incorporated cities, including Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento. The county has an "Urban Services Boundary," or USB, which delineates where county services shall be provided and where they will not be extended.

The highest densities of employment and residential uses are located in the urban core of the city of Sacramento. Two of the plan area's three regional employment centers are located in Sacramento County, including downtown Sacramento and a newer employment center along the U.S. Highway 50 corridor in the cities of Rancho Cordova and Folsom. Land uses north of the American River are primarily suburban residential with concentrations of commercial and employment uses along major transportation routes. Communities in the southern half of the county, including south Sacramento, the unincorporated Vineyard community, and the cities of Elk Grove and Galt, are predominantly residential, with the latter three areas at fairly low suburban- to rural- densities. The Cosumnes River flood plain and existing agricultural operations separate the cities of Elk Grove and Galt. The southeast county (outside of existing cities and the county USB) is in agricultural use with pockets of Rural Residential Communities.

Sutter County

Land use in Sutter County is predominantly agricultural, and agriculture is the county's primary industry. Yuba City and Live Oak are the two incorporated cities in Sutter County and are suburban and rural in their current land use pattern. Several unincorporated rural communities include Meridian, Nicolaus, East Nicolaus, Rio Oso, Robbins, Sutter, and Trowbridge. Historically, general plan policy in Sutter County has encouraged agricultural preservation in the unincorporated areas of the county and directed new development adjacent to and into the

county's two cities. While generally continuing this policy, a recent exception is the Sutter Pointe specific plan area, located at the southern end of the unincorporated county. A development approval for this area was approved by voters under "Measure M" in 2004; however, no development exists today.

Yolo County

Agriculture is Yolo County's primary industry. The eastern two-thirds of the County consists of nearly level alluvial fans, flat plains, and basins, while the western third is largely composed of rolling terraces and steep uplands used for dry-farmed grain and range. The elevation ranges from slightly below sea level near the Sacramento River around Clarksburg to 3,000 feet along the ridge of the western mountains. Over 88 percent of the population lives in the County's four cities (Davis, West Sacramento, Woodland, and Winters). Yolo County and its cities operate under an agriculture preservation policy that directs urban development into existing urban areas (including the many small rural towns within the unincorporated area). The cities of Davis, Woodland, and West Sacramento have received most of this growth. For this reason, land uses in the cities are relatively compact compared to other cities in the region.

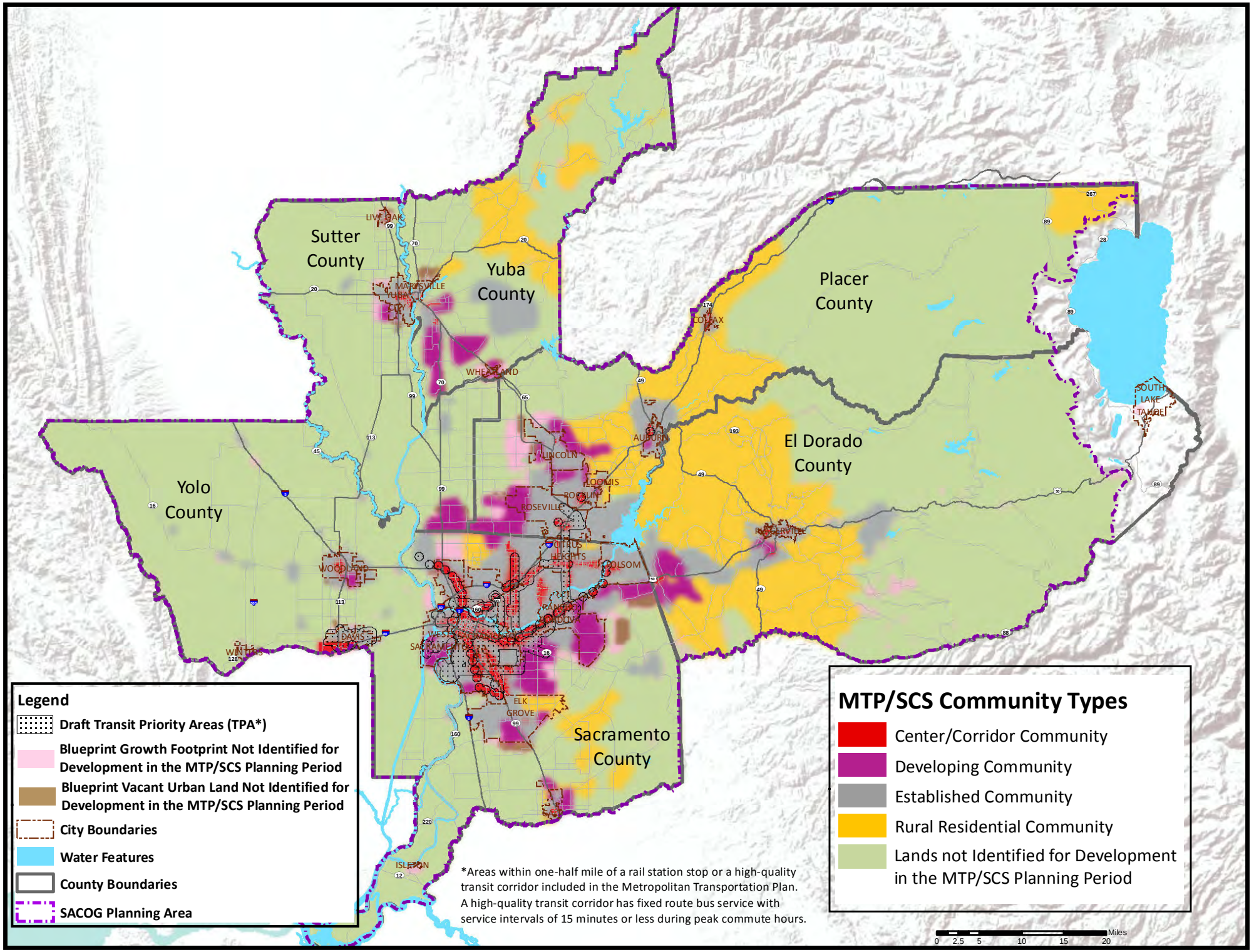
Yuba County

Yuba County is located in the northern Sacramento Valley, approximately 40 miles north of Sacramento. Its boundaries stretch from the farms and orchards of the valley to the timberlands of the Sierras. Historically, Yuba County has been primarily rural and agricultural. However, the Highway 70 corridor in unincorporated Yuba County has recently experienced suburban residential growth since the approval of the Plumas Lakes Specific Plan. Similarly, the Highway 65 corridor running through the city of Wheatland has resulted in modest residential growth in the city. The city of Marysville maintains its compact footprint due, in large part, to significant flood constraints.

Existing Land Uses by Community Type

The Community Types Framework was used in the land use allocation process of the proposed MTP/SCS. Local land use plans (adopted and proposed general plans, specific plans, master plans, corridor plans, etc.) were divided into one of five "Community Types" based on the location and land use composition of the plans, as described in Chapter 2 – Project Description. Figure 12.2 illustrates these Community Types, which are also defined as follows:

Figure 12.2 MTP/SCS with Blueprint Footprint Reference with TPA



Center and Corridor Communities
Land uses in Center and Corridor Communities are typically higher density and more mixed than surrounding land uses. Centers and Corridor Communities are identified in local plans as historic downtowns, main streets, commercial corridors, rail station areas, central business districts, town centers, or other high density destinations. In 2008, these areas had higher concentrations of employment, usually commercial and office, than their surroundings. They typically have more compact development patterns, a greater mix of uses, and a wider variety of transportation infrastructure compared to the rest of the region. Some have frequent transit service, either bus or rail, and all have pedestrian and bicycling infrastructure that is more supportive of walking and bicycling than other Community Types.

Established Communities
Established Communities are the areas adjacent to or surrounding Center and Corridor Communities. Local land use plans aim to maintain the existing character and land use pattern in these areas. Land uses in Established Communities are typically low- to medium-density residential neighborhoods, office and industrial parks, or commercial strip centers. Depending on the density of existing land uses, some Established Communities have bus service; others may have commuter bus service or very little service. The majority of the region's roads are in Established Communities in 2008 and in 2035.

Developing Communities
Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development; they are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans and may be residential-only, employment-only, or a mix of residential and employment uses. In 2008, some of these areas were partially developed while others were used for farming, grazing, natural resource extraction, or other non-urban uses. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely, though many Developing Communities are designed with dedicated pedestrian and bicycle trails.

Rural Residential Communities
Rural Residential Communities are typically located outside of urbanized areas and designated in local land use plans for rural residential development. Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. Travel occurs almost exclusively by automobile and transit service is minimal or nonexistent.

Lands Not Identified for Development in the MTP/SCS Planning Period
These areas of the region are not expected to develop to urban levels during the MTP/SCS planning period. Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Some of these areas have long-term plans and policies to preserve or maintain the existing "non-urban" uses; however, some are covered under adopted or proposed

plans that allow urban development and/or are included in the adopted Blueprint vision for future growth.

The distribution of housing, employment, and land use development by Community Type are provided below in Tables 12.3 and 12.4.

Table 12.3
Summary of 2008 Housing and Employment by Community Type

Community Type	2008 Dwelling Units[1,3]	Percent of Total	2008 Employees[1,3]	Percent of Total
Center and Corridor Communities	103,479	11.7%	355,678	36.8%
Established Communities	684,161	77.3%	564,999	58.1%
Developing Communities	25,719	2.9%	16,488	1.7%
Rural Residential Communities	71,733	8.1%	29,144	3.4%
Lands Not Identified for Development in the MTP/SCS Planning Period	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	885,092	100.0%	966,309	100.0%

Source: SACOG, MTP/SCS Land Use Forecast, June 2011

[1] Totals may not match due to rounding.

[2] The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.). As a result, existing developed acres in the Lands Not Identified for Development Community Type was included in established and rural residential Community Type totals. Some lands within the Lands Not Identified for Development Community Type areas are within spheres of influence and/or urban growth boundaries and will be targeted for urbanization over the longer term (beyond 2035).

[3] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 12.4
Existing Land Uses in the MTP/SCS Plan Area by Community Type (Acres)

Development Types	Center and Corridor Communities	Established Communities	Developing Communities	Rural Residential Communities	Lands Not Identified for Development	Regional Total
2008 Acres						
Residential	9,980	178,306	19,530	390,874	n/a[2]	598,690
Mixed Use (vertical)	84	165	4	6	n/a[2]	260
Office & Commercial	7,688	14,032	485	3,112	n/a[2]	25,317
Industrial	3,284	22,280	1,846	7,604	n/a[2]	35,014
Public	4,504	51,636	1,610	4,841	n/a[2]	62,591
Total Development Acres[1]	25,539	266,419	23,476	406,437	n/a[2]	721,872

Source: SACOG, MTP/SCS Land Use Forecast, June 2011

[1] Excludes Agriculture, Open Space, Parks, Recreation, and Vacant land estimate (land that is not developed in the proposed MTP/SCS but is available for development based on currently adopted general plans and specific plans.)

[2] The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.). As a result, existing developed acres in the Lands Not Identified for Development Community Type was included in established and rural residential Community Type totals. Some lands within the lands not identified for development Community Type areas are within spheres of influence and/or urban growth boundaries and will be targeted for urbanization over the longer term (beyond 2035).

Existing Land Uses by Transit Priority Area

A subset of the proposed MTP/SCS housing and employment growth falls within what SACOG refers to as Transit Priority Areas (TPAs). TPAs are areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor included in the proposed MTP/SCS. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Resources Code, § 1155). In both the proposed MTP/SCS and this DEIR, TPAs are considered an overlay geography and do not necessarily correspond directly to Community Types. See Chapter 2 – Project Description for more detailed information about the region's TPAs.

Blueprint principles call for diverse housing options, in the form of housing products that are currently not widely available, in places where transit service can be efficiently provided. In 2008, 14 percent of housing units and 27 percent of employees were within areas that meet the definition of TPAs.

Table 12.5 provides the amount of the housing and employment in TPAs in the baseline (2008).

Table 12.5
Summary of 2008 Housing and Employment within Transit Priority Areas[1]

Transit Priority Areas (TPAs)[1]	2008 Transit Priority Areas[1]	
	Existing Dwelling Units	Existing Employees
Placer TPAs	2,788	5,843
Sacramento TPAs	107,069	230,081
Yolo TPAs	16,837	25,738
All TPAs	**126,694**	**261,662**

Source: SACOG, MTP/SCS Land Use Forecast, June 2011

[1]Transit Priority Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. (Pub. Resources Code, § 1155)

Regulatory Setting

The most direct regulation of land use and development in the plan area is provided by city and county governments, but there are numerous laws, regulations, policies, programs, and codes that at the federal and state levels of government that also regulate land use in various ways within the plan area. To simplify the volume and complexity of the regulations presented, this regulatory setting focuses on laws, regulations, policies, and programs that directly affect land use designations and zoning. Laws, regulations, policies, and programs that indirectly affect land use planning are included in other chapters of this EIR.

Federal Regulations

United States Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act (DOT Act) of 1966 (49 U.S.C. § 303) was enacted to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration that involve the use – or interference with use – of the following types of land.

- Public park lands
- Recreation areas
- Wildlife and waterfowl refuges
- Publicly or privately owned historic properties of federal, state, or local significance

For a further discussion of the requirements of Section 4(f), see Chapter 15 – Public Services and Recreation.

Tribal Sovereignty

Tribal sovereign lands within the plan area include Shingle Springs Band of Miwok Indians in El Dorado County, United Auburn Indian Community of the Auburn Rancheria in Placer County, Wilton Miwok Indians in Sacramento County and Yocha Dehe Wintun Nation in Yolo County.

Under federal law, tribes are deemed domestic dependent nations and, as such, exercise a limited sovereignty that is subject to congressional authority. States may apply state law to activities within tribal territories only with permission from Congress to do so. As a result, most land use decisions on tribal land are not subject to CEQA, or the planning and zoning codes of local jurisdictions. (California Planning Roundtable, October 2007.)

The most complex and extensive body of federal land use regulation regarding tribal land use concerns the siting and operating of casinos. In 1988, Congress passed the Indian Gaming Regulatory Act (IGRA) of 1988 (29 U.S.C. § 2701 et seq.) in response to concerns by states over increased tribal gaming. IGRA rejected states' claims of authority over low stakes gambling, but it did stipulate that Class III or "Las Vegas style" games such as slot machines, black jack, and roulette could only occur under a "compact" between the tribe and the state. In 2000, California voters passed Proposition 1A to allow the state to enter these compacts for certain Class III games throughout the state. The compacts require a Tribal Environmental Impact Review (TEIR) process to address off-reservation impacts of casino projects. Also, any project undertaken by a local jurisdiction in conjunction with a casino project, such as an infrastructure upgrade or extension, is subject to the CEQA process as applicable. (California Planning Roundtable, October 2007.)

Other Federal Regulations

The Army Corps of Engineers, U.S. Fish and Wildlife Service and U.S. Environmental Protection Agency, through enforcing the requirements of the Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) and Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq.), have a significant influence on the location and yield of development in the region. See Chapter 6 – Biological Resources, for a discussion of these federal regulations. In addition, the following federal agencies manage federal lands within the plan area.

U.S. Bureau of Land Management (BLM)
The BLM manages large rural land areas, including land that is environmentally sensitive. The BLM governs the uses that will be allowed on land that it manages, striving to balance environmental protection and conservation goals with other uses such as recreation and grazing. BLM manages lands in Yolo County, Yuba County, and in the Placer and El Dorado county foothills.

U.S. Forest Service (USFS)
The USFS is responsible for the management of large areas of national forest land. National forests are primarily managed for outdoor recreational uses and for resource preservation by the

USFS. The El Dorado National Forest in Placer and El Dorado counties is under USFS jurisdiction.

State Regulations

General Plans

State law requires each city and county in California to adopt a general plan for the physical development of the land within its planning area. (Gov. Code, §§ 65300-65404.) The general plan must contain land use, housing, circulation, open space, conservation, noise, and safety elements, as well as any other elements that the city or county may wish to adopt. The circulation element of a local general plan must be correlated with the land use element.

Local Agency Formation Commissions

The Cortese-Knox-Hertzberg Local Government Reorganization Act (Cortese-Knox-Hertzberg Act) of 2000 (Gov. Code, § 56000 et seq.) establishes the process through which local agency boundaries are established and revised. Each county must have a local agency formation commission (LAFCO), which is the agency that has the responsibility to create orderly local government boundaries, with the goal of encouraging "planned, well-ordered, efficient urban development patterns," the preservation of open-space lands, and the discouragement of urban sprawl. A LAFCO typically consists of two county supervisors, two representatives of the county's cities, and one member of the public. Many LAFCOs also include one special district representative. While LAFCOs have no land use power, their actions determine which local government will be responsible for planning new areas. LAFCOs address a wide range of boundary actions, including creation of spheres of influence for cities, adjustments to boundaries of special districts, annexations, incorporations, detachments of areas from cities, and dissolutions of cities. A city's sphere of influence is an indication of the city's future boundaries. Since 1992, state law requires that the incorporation of a new city must not financially harm the county and must result in a positive cash flow for the new city, a requirement that has slowed the rate of new city incorporation.

The California Land Conservation Act (Williamson Act)

The California Land Conservation Act (Williamson Act) of 1965 (Gov. Code, §§ 51200-51207), was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands. The Williamson Act program permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space uses for at least 10 years. Lands covered by Williamson Act contracts are assessed on the basis of their agricultural value instead of their potential market value under nonagricultural uses. In return for the preferential tax rate, the landowner is required to agree contractually not to develop the land for a period of at least 10 years.

Williamson Act contracts are renewed annually for ten years unless a party to the contract files for non-renewal. The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a nine-year phase-out of the contract. During the phase-

out period, the land remains restricted to agricultural and open-space uses, but property taxes gradually return to levels associated with the market value of the land. At the end of the nine-year non-renewal process, the contract expires and the owner's uses of the land are restricted only by applicable local zoning.

The Williamson Act defines *compatible use* of contracted lands as any use determined by the county or city administering the preserve to be compatible with the agricultural, recreational, or open-space use of land within the preserve and subject to contract. (Gov. Code, § 51202(e).) However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code Sections 51231, 51238, or 51238.1. (Gov. Code, § 51201(e).)

See Chapter 4 – Agriculture and Forestry Resources for more information about the Williamson Act.

State Lands Commission Significant Lands Inventory

The State Lands Commission is responsible for managing lands owned by the state, including lands that the state has received from the federal government. These lands total more than four million acres and include tide and submerged lands, swamp and overflow lands, the beds of navigable waterways, and state school lands. The state's sovereign interests within Placer County include, but are not limited to, Lake Tahoe, the Truckee River, and the North Fork of the American River. The State Lands Commission has a legal responsibility for, and a strong interest in, protecting the ecological and Public Trust values associated with the state's sovereign lands, including the use of these lands for habitat preservation, open space and recreation. Proposed MTP/SCS projects located within these lands would be subject to the State Lands Commission permitting process.

California Endangered Species Act

See Chapter 6 – *Biological Resources*, for a discussion of this state regulation. The California Department of Fish and Game has no direct land use authority, but in enforcing the requirements of the California Endangered Species Act, it participates with the federal resource agencies (U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency) in commenting on the impacts of new development on natural resource areas.

Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta

Pursuant to the Delta Protection Act of 1992 (Pub. Resources Code, § 29760 et seq.), the State Delta Protection Commission (DPC) adopted the Land Use and Resource Management Plan (LURMP), which outlines the long-term land use requirements for the Sacramento-San Joaquin Delta and provides direction for land use decisions by the local jurisdictions in the Delta region. The Act defines two delta zones: the Primary Zone comprises the principal jurisdiction of the DPC, and the Secondary Zone, while part of the "Legal Delta" is outside the planning area of

the DPC. Both Primary and Secondary Delta Zones overlay the southern end of the plan area within Yolo County and Sacramento County.

As of 2011, the DPC is in the process of updating the LURMP. The update will address recent court decisions related to water export, Delta ecosystem issues, levee stability, and global climate change. The updated Draft EIR was released in 2010. Once the state adopts the LURMP update, local jurisdictions will be required to review their general plans for consistency and make amendments as necessary.

The DPC must ensure that proposed amendments to the general plan, and any development approved or proposed that is consistent with the general plan, will be consistent with the regional plan and will not result in the following:

- wetland or riparian loss;
- degradation of water quality;
- increased nonpoint source pollution;
- degradation or reduction of Pacific Flyway habitat;
- reduced public access, provided the access does not infringe on private property rights;
- expose the public to increased flood hazard;
- adversely impact agricultural lands or increase the potential for vandalism, trespass, or the creation of public private nuisance on public or private land;
- degradation or impairment of levee integrity; or
- increased requirements or restrictions upon agricultural practices in the Primary Zone.

Bay Delta Conservation Plan

The Bay Delta Conservation Plan (BDCP) is being prepared by state, federal and local agencies as part of the planning and environmental permitting process for the State Water Project Delta facilities and the federal Central Valley Project. A final plan is not available for public review. The BDCP's purpose is to provide for the conservation of at-risk species in the Delta and improve the reliability of the State's water supply system. The BDCP is being developed under the ESA and the California Natural Community Conservation Planning Act (NCCPA) of 1991 (Fish & G. Code, § 2800 et seq.) and will:

- identify conservation strategies to improve the overall ecological health of the Delta;
- identify ecologically friendly ways to move fresh water through and/or around the Delta;
- and address toxic pollutants, invasive species, and impairments to water quality; and
- provide a framework and funding to implement the plan over time.

Among the recommendations being considered by the agencies is the construction of a new facility to convey water from the North Delta to the South Delta. There are two potential alignments for an alternative conveyance: one going through Sacramento County and one through Yolo and Solano counties. Extensive habitat restoration to mitigate for the plan is also under consideration, including the lower Yolo Bypass and the Clarksburg region. The Department of Water Resources is the lead agency for an EIR/EIS that is being prepared to evaluate the potential effects of the BDCP. The BDCP and draft EIR/EIS is expected to be ready for public review and comment in 2012. (Bay Delta Conservation Plan Website, 2011.)

Delta Vision Strategic Plan

The Delta Vision Blue Ribbon Task Force (Task Force) was initiated by the Governor's Executive Order (Executive Order S-17-06) in 1996 to develop recommendations on the overall management and governance of the Delta, including goals related to improving safety, ensuring water supply and water quality, expanding recreation, coordinating emergency response, and protecting infrastructure and public safety. The Task Force recommended two co-equal goals: to restore the Delta ecosystem and to create a reliable water supply for California.

The Task Force adopted the Delta Vision Strategic Plan in October 2008, which emphasizes the two co-equal goals and, in total, contains seven goals, 22 strategies, and 73 actions to achieve these goals. The seven goals of the Strategic Plan are listed below.

1. Legally acknowledge the co-equal goals of restoring the Delta ecosystem and creating a more reliable water supply for California.
2. Recognize and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place, an action critical to achieving the co-equal goals.
3. Restore the Delta ecosystem as the heart of a healthy Estuary.
4. Promote statewide water conservation, efficiency, and sustainable use.
5. Build facilities to improve the existing water conveyance system and expand statewide storage, and operate both to achieve the co-equal goals.
6. Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and strategic levee investments.
7. Establish a new governance structure with the authority, responsibility, accountability, science support, and secure funding to achieve these goals.

The Strategic Plan proposes a governance structure for the Delta based on a new California Delta Ecosystem and Water (CDEW) Plan to be developed and adopted by the California Delta Ecosystem and Water Council. The CDEW Plan would have legal standing, and the CDEW Council would have the authority to determine if other agencies are in compliance with the CDEW Plan. All state, regional and local agencies with planning responsibilities would be required to carry out their actions consistently with the CDEW Plan. (Governor's Delta Vision Blue Ribbon Task Force, 2008.)

Delta Reform Act

In November 2009, the California Legislature enacted the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) of 2009 (Wat. Code, § 10610 et seq.), also known as Sen. Bill No. 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC). The DSC is made up of seven members that are advised by a 10-member board of scientists. The DSC is charged with developing and adopting a Delta Plan by January 1, 2012. The DSC is tasked with addressing the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. According to the Delta Reform Act, the coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.

Under the Delta Reform Act, the DSC is charged with reviewing and advising local and regional agencies regarding the consistency of local and regional planning documents, including an SCS, with the Delta Plan. The DSC's input includes reviewing the consistency of local and regional plans with the ecosystem restoration needs of the Delta and the whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs. The Act requires that "covered actions," as defined by the Act, and which include plans, programs, or projects within the primary or secondary zones of the Delta, be consistent with the Delta Plan.

The Act also requires a metropolitan planning organization adopting a plan with land in the primary or secondary zones of the Delta to follow a consultation procedure with the DSC, including an early consultation to review the consistency of such plans with the Delta Plan. Although the DSC has not yet adopted the Delta Plan, SACOG has consulted with the DSC and will follow the Act's consultation requirements. SACOG has considered the coequal goals of the Act in developing the proposed MTP/SCS.

Finally, the Act expressly provides that "covered actions" do not include the following: (1) regional transportation plans, such as this proposed MTP/SCS; and (2) plans, programs, projects, activities (and any infrastructure necessary to support those plans, programs, projects, or activities) within the secondary zone of the Delta that SACOG has determined is consistent with the proposed SCS. (Wat. Code, § 85057.5.)

Senate Bill 375 – The Sustainable Communities and Climate Protection Act of 2008

In 2008, California enacted the Sustainable Communities and Climate Protection Act, also known as Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375), which coordinates regional land use and transportation planning to reduce greenhouse gas emissions from cars and light trucks. The law resulted in several amendments to the currently adopted MTP (2008 MTP) process and regulations. Although the law has many smaller process-oriented changes that affect only the Metropolitan Planning Organization (MPO) preparing the plan, the bill also resulted in three significant changes to the MTP process and the plan itself.

Create a Sustainable Communities Strategy (SCS)
The first major change is that the bill requires the MPO to adopt a Sustainable Communities Strategy (SCS) as part of the MTP. The SCS is a land use and transportation plan designed to achieve certain goals for the reduction of greenhouse gas emissions from automobiles and light trucks in the region. The greenhouse gas targets are to be set by the California Air Resources Board for the years 2020 and 2035, and will be updated every eight years.

The MTP has always been required to have a land use component that forecasts the amount and location of growth that is most likely to occur within the planning period. The purpose of the land use plan in the MTP is to pair with the transportation projects in the plan and inform the regional travel model, which forms the basis for the MTP. The SCS serves to more effectively link the land use and transportation components of the MTP.

As in the past, the proposed MTP/SCS will be constrained and based on the most current and reasonable projections. Pursuant to the requirements of SB 375, if the land use and transportation projects analyzed in the proposed MTP/SCS do not meet the greenhouse gas emissions reduction targets set for the region for either 2020 or 2035, the MPO is required to adopt an Alternative Planning Strategy (APS), in addition to the proposed MTP/SCS, that does meet the targets. The APS is not a regulatory document for transportation or land use projects and, therefore, would not have the same constraints as the proposed MTP/SCS. However, as the CEQA streamlining benefits of SB 375 (described below) are intended to help the region meet the greenhouse gas emissions reduction targets, in the event that an MPO is required to adopt an APS, the CEQA benefits will be activated by consistency with the APS rather than the proposed MTP/SCS.

Potential CEQA Streamlining Benefits for Land Use Projects
The second significant change to regional land use planning under SB 375 is that the plan now offers various levels of CEQA benefits to certain projects.

SB 375 provides three tiers of CEQA benefits for Residential Mixed Use Projects, Transit Priority Projects, and Sustainable Community Projects.

Generally, a Residential Mixed Use project must be at least 75 percent residential and be consistent with the general land use designation, density, building intensity, and applicable policies of an SCS or APS accepted by the California Air Resources Board (CARB) as achieving the greenhouse gas emissions reduction targets specified for the SACOG region. Environmental documents for these projects are not required to discuss growth inducing impacts, reduced density alternatives, or any project specific or cumulative impacts from cars and light-duty truck trips on global warming or the regional transportation network.

Transit Priority Projects (TPPs) must also be consistent with the SCS/APS as described above. In addition, the TPP must meet the following requirements: (1) the project must contain at least 50 percent residential based on total building square footage, but if less than 75 percent residential, it must have a minimum Floor Area Ratio of 0.75; (2) it must have a minimum net density of 20 dwelling units per acre; and (3) it must be located within one-half mile of a major transit stop or high quality transit corridor included in the regional transportation plan.

Projects meeting the above requirements will have all the benefits of Residential Mixed Use projects, plus the option to conduct a "Sustainable Communities Environmental Assessment" (SCEA). Under the SCEA, an Initial Study is prepared identifying significant or potentially significant impacts. Where the lead agency determines that cumulative impacts have already been addressed and mitigated in an SCS or APS accepted by CARB, they are not "considerable" for purposes of further environmental review. Also, traffic control and mitigation may be covered by jurisdiction-wide measures, and off-site alternatives do not need to be addressed. The standard of review for the SCEA is the "substantial evidence" standard, which is deferential to the agency. In the case of a legal challenge, the agency's analysis is presumed to be adequate and the burden of proof is on the plaintiff to demonstrate otherwise.

The highest level of CEQA clearance under SB 375 is provided to "Sustainable Community Projects," which must meet all the qualifications of a TPP as well as the following requirements, in return for complete exemption from CEQA review:

- served by existing utilities;
- no impacts to wetlands, riparian habitats, endangered species, or native plants;
- no impacts to historic resources;
- no risks from hazardous substances;
- no risk from wildfires, seismic issues, or floods;
- Fifteen percent more energy efficient than California requirements and 25 percent more water efficient than average for area;
- no more than eight acres in project area;
- no more than 200 units;
- no building greater than 75,000 square feet;
- no net loss of affordable housing for jurisdiction;
- compatible with surrounding industrial uses if applicable;
- within one half mile of rail or ferry stop or one quarter mile of high quality bus line; and
- meets affordable housing minimum or open space minimum or pay in-lieu fee.

Linking the Proposed MTP/SCS to the Regional Housing Needs Allocation

The last significant change to regional land use planning process under SB 375 is that the Regional Housing Needs Allocation (RHNA) process has been updated and linked to the MTP/SCS process. There are four areas of major change to the RHNA process under SB 375: extending the frequency of required updates to eight years, allowing some flexibility in the population projections used in the RHNA determination, allowing greater flexibility in implementation timelines, and timing the RHNA process to coincide with the MTP/SCS update process. For more information on how SB 375 affects the RHNA process, see Chapter 14 – Population and Housing.

Local Regulations

General Plans

The most comprehensive land use planning for the plan area is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plan contains goals and policies concerning topics that are mandated by state law or which the jurisdiction has chosen to include. Required topics include land use, circulation, housing, conservation, open space, noise, and safety. Other topics that local governments frequently choose to address are public facilities, parks and recreation, and agriculture, among others. County general plans cover the unincorporated areas. City general plans are required to cover an area that is generally larger than the existing city limits (i.e., portions of the unincorporated area that fall within a city's sphere of influence).

The 28 jurisdictions in the Sacramento region are at various stages of updating or augmenting their local land use plans. They can be described in the following ways:

- Local governments with recently adopted general plans (since 2004) include the City of Citrus Heights, El Dorado County, the City of Galt, the City of Lincoln, the City of Live Oak, the City of Rancho Cordova, the City of Sacramento, Sutter County, the City of Wheatland, Yolo County, Yuba County, and the City of Yuba City.
- Local governments that are currently undergoing general plan the City of Rocklin, Sacramento County, and the City of West Sacramento.
- Local governments that are not updating their general plans, but are currently developing area-specific land use plans, including the City of Davis, the City of Elk Grove, the City of Roseville, Placer County, the City of Placerville, and the City of Folsom.
- Local governments that are not currently updating general plans or community-level land use plans include the City of Auburn, the City of Colfax, the City of Isleton, the Town of Loomis, the City of Marysville, the City of Winters, and the City of Woodland.

The first three categories, those that recently updated general plans, are currently updating general plans, or are currently working community-level land use plans, represent 97 percent of regional growth during the MTP planning period.

Specific and Community Plans

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Specific and community plans are required to be consistent with the city's or county's general plan.

Zoning

The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan, except in charter cities.

Habitat Conservation Plans/Natural Community Conservation Plans

A summary of the current habitat conservation plans (HCPs) and natural community conservation plans (NCCPs) in the plan area is provided in Chapter 6 – Biological Resources. Not all of these plans have been adopted or fully implemented. During implementation of specific projects, an activity subject to Section 10 of the Endangered Species Act (ESA) of 1973 (16 U.S.C. §1531 et seq.) and considered a covered project under the implementing rules of an adopted HCP or NCCP may be able to participate in the plan in order to avoid adverse effects on covered species.

Airport Land Use Compatibility Plans

Pursuant to state law, each county has an Airport Land Use Commission (ALUC). The ALUC prepares an Airport Land Use Compatibility Plan for each general use airport. The plan provides for the orderly growth of the airport and the area surrounding the airport, excluding existing land uses. Its primary function is to safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. Cities and counties must submit their general and specific plans to the ALUC upon adoption or amendment. The plans must be consistent with the Airport Land Use Compatibility Plan.

Sacramento Area Council of Governments (SACOG) Blueprint Vision

In December 2004, the SACOG Board of Directors adopted the Blueprint Vision, a conceptual map and seven growth principles (hereafter referred to as Blueprint principles). Those principles are:

1. Housing Choice and Diversity
2. Using Existing Assets
3. Compact Development
4. Natural Resources Conservation
5. Design for Quality
6. Mixed Use Developments
7. Provide Transportation Choices

The Blueprint Vision is the result of a three-year regional visioning process, which engaged each of SACOG's member jurisdictions, the general public, and special interest groups on how the region should accommodate the future population and employment that is forecast to come

to the Sacramento region. Since it does not have land use planning authority, SACOG has served in an advisory role for its member jurisdictions regarding implementation of the Blueprint Vision.

The conceptual map depicts a way for the region to grow through the year 2050 in a manner generally consistent with the Blueprint principles. The map is the result of numerous public workshops and meetings with local staff and elected officials. While the adopted vision map is not intended to be implemented literally, the map is intended to be interpreted and used as a concept-level illustration of the growth principles. The goal and result of the Blueprint map and principles, is a reduction in traffic congestion, air pollution, and consumption of agricultural and resource lands through more efficient development within and contiguous to the existing urban area, paired with a transportation system that is more integrated with the land uses. The housing stock of the Blueprint map is more diverse than the current stock, which is dominated by single-family units; housing, shopping, and employment uses are closer together so that people are able to make shorter auto trips, or even non-auto trips, to reach their various destinations.

Since SACOG Board adoption of the Blueprint Vision, a number of jurisdictions in the region have begun implementing the Blueprint principles in their planning processes.

Metropolitan Transportation Plan for 2035 (2008 MTP)

In 2005, SACOG set out to adopt a new Metropolitan Transportation Plan for 2035 (2008 MTP), building upon the consensus achieved through the Blueprint process to develop a long-range regional transportation plan that supports the Blueprint Vision. SACOG worked with its member jurisdictions to develop a growth forecast and accompanying land use allocation that reflects each of their Blueprint implementation efforts. The 2008 MTP land use assumptions, therefore, were based on the Blueprint principles listed above, making it the first MTP for the Sacramento region to proactively link land use, air quality, and transportation needs.

Development of the 2008 MTP included an 18-month public priority-setting process to identify a list of transportation improvement projects to best meet the needs of the region as a whole. The development of the 2008 MTP used broad public outreach combined with extensive input from elected officials, community groups, and citizen planners to consider a host of potential transportation investments. Over 150 presentations, 17 community workshops, and an Elected Officials Summit were held. The plan was adopted in 2008.

Rural Urban Connections Strategy

The Rural-Urban Connections Strategy (RUCS) was launched at the conclusion of the 2008 MTP, in an effort to provide policy and technical approaches to addressing or avoiding impacts to rural resources in the Sacramento region. In the same way that Blueprint is seen as an economic development and environmental sustainability strategy for urban areas, the RUCS project is an economic and environmental sustainability strategy for rural areas. The RUCS project is thus seen as an integral piece of a regional strategy for the region's economic and environmental sustainability and viability.

SACOG assembled working groups around five broad topic areas to identify rural challenges and opportunities. These five topic areas include:

1. land use and conservation;
2. the infrastructure of agriculture;
3. economic opportunities;
4. forest management; and
5. regulations.

Working papers developed with input from local agriculture, planning, economic development, and environmental representatives to help the region better understand the unique issues in rural areas. Stakeholder workshops were conducted to vet the research and findings on each of the topics. The SACOG Board participated in a series of agriculture field trips to learn about the opportunities and challenges facing the agricultural economy in different parts of the region.

Several tools and supporting data have been developed, or are under development, to support policy discussion and understand the influence of the rural and urban economies on each other. These efforts are intended to broaden the region's understanding of how land use and transportation investments affect rural areas. The project is at mid-point in its process, with the ultimate goal of bridging the urban and rural planning needs in the region.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

In each MTP update cycle, SACOG prepares a land use forecast to accommodate the regional growth forecast of population, employment, and housing demand. The proposed MTP/SCS includes a forecast of the amount of growth that will occur in the study area over a 27-year period (2008-2035). The regional growth forecast is based on economic and demographic projections through the year 2035, adopted and pending land use plans and policies, market and economic considerations, and other state and federal policies and regulations that can affect the location and pace of growth. In the proposed plan, it also serves as the land use pattern of the SCS.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 –Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

For this analysis, the Land Use Forecast outlined above, was compared with the land use requirements of SB 375. The full list of SB 375 SCS requirements, as found in Government Code section 65080(b)(2)(B) and used in this analysis, are as follows:

1. Identify the general location of uses, residential densities, and building intensities within the region;
2. Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth;
3. Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Section 65584;
4. Identify a transportation network to service the transportation needs of the region;
5. Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Section 65080.01;
6. Consider the state housing goals specified in Sections 65580 and 65581;
7. Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emission reduction targets approved by the state board; and
8. Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act. (42 U.S.C. Sec. 7506).

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the proposed MTP policies, adoption of the proposed SCS, and adoption of the proposed transportation project list and proposed financing plan) would result in significant impacts under CEQA, if the following would occur:

1. Conflict with the land use requirements and objectives of Senate Bill 375.

Impacts and Mitigation Measures

Impact LU-1: Conflict with the land use requirements and objectives of Senate Bill 375.

A. Regional Impacts

1. Identify the general location of uses, residential densities, and building intensities within the region.

The proposed MTP/SCS identifies the general location of uses, residential densities, and building intensities within the region in the proposed MTP/SCS Land Use Forecast, described in detail in Chapter 2 – Project Description. The Land Use Forecast serves to identify housing by density and housing type, employment uses by industry, building intensity, and number of employees, as well as agriculture, open space, recreation areas, and other uses, by the following geographic area types: county, jurisdiction, Community Type, and TPA. Maps and tables with this information can be found in Chapter 2 – Project Description, Chapter 4 – Agriculture and Forestry Resources, Chapter 14 – Population and Housing, and Chapter 15 – Public Services and Recreation.

To accommodate a projected increase of approximately 871,000 people, about 303,000 new housing units, and approximately 361,000 new employees in the region through the year 2035, the proposed MTP/SCS projects the conversion of an additional 53,266 acres of land to developed uses. This new developable area represents 1.4 percent of the acreage of the region, or a seven percent increase in the development footprint of the region by 2035. Tables 12.6, 12.7, and 12.8 summarize housing growth, employment growth, and land uses by county.

Table 12.6
Summary of Expected Housing Growth by County (Dwelling Units)

County (incorporated and unincorporated areas)	2008		2008-2035		2035	
	2008 Dwelling Units[1,2]	Percent of Total	New Dwelling Units[1,2]	Percent of Total	2035 Dwelling Units[1,2]	Percent of Total
El Dorado	61,791	7.0%	12,822	4.2%	74,613	6.3%
Placer	136,709	15.4%	56,086	18.5%	192,782	16.2%
Sacramento	554,360	62.6%	179,810	59.3%	734,169	61.8%
Sutter	33,707	3.8%	12,278	4.1%	45,985	3.9%
Yolo	72,391	8.2%	30,592	10.1%	102,982	8.7%
Yuba	26,133	3.0%	11,538	3.8%	37,670	3.2%
Region Total	885,090	100.0%	303,122	100.0%	1,188,213	100.0%

Source: SACOG, MTP/SCS Land Use Forecast, June 2011
[1] Totals may not match due to rounding.
[2]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 12.7
Summary of Employment Growth by County (Employees)

County (incorporated and unincorporated areas)	2008		2008-2035		2035	
	2008 Employees[1, 2]	Percent of Total	New Employees[1, 2]	Percent of Total	2035 Employees[1, 2]	Percent of Total
El Dorado	44,764	4.6%	17,645	4.9%	62,409	4.7%
Placer	141,658	14.7%	68,055	18.8%	209,714	15.8%
Sacramento	622,579	64.4%	211,467	58.6%	834,047	62.8%
Sutter	31,751	3.3%	12,624	3.5%	44,376	3.3%
Yolo	102,379	10.6%	38,643	10.7%	141,022	10.6%
Yuba	23,177	2.4%	12,681	3.5%	35,858	2.7%
Region Total	966,309	100.0%	361,117	100.0%	1,327,426	100.0 %

Source: SACOG, MTP/SCS Land Use Forecast, June 2011
[1] Totals may not match due to rounding.
[2]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 12.8
Existing and Future Land Uses in the MTP/SCS Plan Area by County (Acres)

Development Types	El Dorado County	Placer County	Sacramento County	Sutter County	Yolo County	Yuba County	Regional Total
2008							
Residential[1]	194,106	122,005	161,172	25,284	26,142	69,981	598,690
Mixed Use (vertical)	0	17	234	3	6	0	260
Office & Commercial	1,559	4,960	15,281	847	2,068	602	25,317
Industrial	1,068	4,340	21,341	1,227	5,676	1,362	35,014
Public	2,355	5,685	22,451	803	7,060	24,237	62,591
Total Development Acres[2]	199,088	137,007	220,480	28,163	40,952	96,181	721,872
2008-2035 Growth							
Residential[1]	5,242	10,507	15,857	2,191	2,600	2,447	38,844
Mixed Use (vertical)	0	135	1,129	13	84	3	1,363
Office & Commercial	552	1,276	2,203	188	298	278	4,795
Industrial	429	945	2,722	307	702	160	5,265
Public	198	801	1,821	131	-52	102	2,999
Total Development Acres[2]	6,421	13,663	23,732	2,829	3,631	2,989	53,266
2035							
Residential[1]	199,348	132,512	177,029	27,476	28,742	72,427	637,534
Mixed Use (vertical)	0	152	1,364	16	90	3	1,623
Office & Commercial	2,111	6,236	17,485	1,034	2,366	880	30,111
Industrial	1,497	5,285	24,063	1,533	6,378	1,522	40,279
Public	2,553	6,486	24,272	934	7,008	24,338	65,591
Total Development Acres[2]	205,510	150,670	244,212	30,993	44,583	99,170	775,138

Source: SACOG, MTP/SCS Land Use Forecast, June 2011

[1] Because land use plans for future development do not consistently identify acres for public uses, the gross residential acres in this table include acreage set asides for parks and public services including fire stations, police stations, community centers, churches, etc. that are associated with forecasted residential growth.

[2] Excludes lands designated in adopted and proposed land use plans as Agriculture, Open Space, Parks, Recreation, and Vacant land estimate. For the purposes of the MTP/SCS, lands with these land use designations are not identified as Developed Acres.

2. Identify areas of the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth.

As described in Chapter 2 – Project Description, SACOG's regional forecast methodology identifies the total employment expected to occur in the region and the population that will occur in conjunction with that employment growth, taking into account net migration into the region, population growth within the region, and household formation. The new households are converted into housing unit demand for the forecasted workers and residents in the region. Thus, the SCS identifies areas of the region sufficient to house all the population of the region. The SCS does not assume development on all urban-designated land because the sum of all local land use plans, adopted and proposed, yields an amount of employment and housing growth that exceeds the total employment and housing growth forecast for the region to 2035.

The 2035 projections indicate that population in the plan area is expected to grow by approximately 871,000 people, an increase of about 39 percent from baseline population, between 2008 and 2035 (SACOG, 2011). The projections also indicate an anticipated need for about 303,000 new housing units to accommodate this population. The proposed MTP/SCS has identified 53,266 acres of land for new development, which has been shown sufficient to provide this housing (along with the projection of 361,000 new jobs) based on the Land Use Forecast of the proposed MTP/SCS (see Table 12.9).

Recent research suggests a shift in the housing products that will be needed to accommodate the region's population. Evolving demographics and preferences held by specific demographic groups, or generational cohorts are driving the change. On the housing demand side, the aging of the baby boom generation (those born between 1946-1964), the preferences of the more populous the Generation Y cohort (those born between 1978 and 1994), and continued immigration will have a major impact on demand. On the supply side, the type and location of new housing construction over the past few decades may not match anticipated future demand according to many researchers (SACOG, 2011).

Based on the available evidence, SACOG has concluded there will be higher demand for attached and small-lot single family housing products over the MTP/SCS planning period, along with lower demand for large lot-single-family housing products, which currently make up the majority of housing in the region. In addition, these housing types have also been shown to be beneficial for increasing densities and mixed uses in Center and Corridor Communities and near high quality transit, thus helping to encourage walkable communities, decrease single occupant vehicle mode share, and reduce greenhouse gas emissions (SACOG, 2011).

Based on this research, SACOG forecasted 71 percent of new housing in the proposed MTP/SCS to be small lot single family and attached housing products. Table 12.10 provides a full overview of the current housing product mix in the region in 2008, and the growth from 2008 to 2035.

Table 12.9
Summary of Potential Housing Growth by Community Type (Dwelling Units)

Community Type	2008		2008-2035		2035	
	2008 Dwelling Units[1,3]	Percent of Total	New Dwelling Units[1,3]	Percent of Total	2035 Dwelling Units[1,3]	Percent of Total
Center and Corridor Communities	103,479	11.7%	91,748	30.3%	195,227	16.4%
Established Communities	684,161	77.3%	79,445	26.2%	763,606	64.3%
Developing Communities	25,719	2.9%	126,629	41.8%	152,348	12.8%
Rural Residential Communities	71,733	8.1%	5,300	1.7%	77,033	6.5%
Lands not Identified for Development in the Proposed MTP/SCS[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Region Total	885,092	100.0%	303,122	100.0%	1,188,213	100.0%

Source: SACOG, MTP/SCS Land Use Forecast, June 2011

[1] Totals may not match due to rounding.

[2] The proposed MTP/SCS does not forecast or model growth in the Lands Not Identified for Development in proposed MTP/SCS Community Type during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, public lands such as waste water treatment facilities, etc.). As a result, existing developed acres in the Lands Not Identified for Development in the Proposed MTP/SCS Community Type was included in Established and Rural Residential Community Type totals.

[3] Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Table 12.10
Housing Product Mix in the Proposed MTP/SCS

	Center and Corridor Communities		Established Communities		Developing Communities		Rural Residential Communities		Regional Total	
2008 Baseline										
Rural Residential[1]	300	0%	14,281	2%	1,809	7%	47,561	66%	63,951	7%
Large Lot Detached[1]	31,666	31%	439,382	64%	20,051	78%	19,793	28%	510,892	58%
Small Lot Detached[1]	13,241	13%	61,809	9%	1,620	6%	1,749	2%	78,419	9%
Attached[1]	58,003	56%	168,657	25%	2,215	9%	2,593	4%	231,468	26%
Total[1]	103,210	100%	684,129	100%	25,695	100%	71,696	100%	884,730	100%
2035 (Growth)										
Rural Residential[1]	45	0%	457	1%	1,502	1%	2,053	38%	4,057	1%
Large Lot Detached[1]	2,552	3%	23,954	30%	55,710	44%	2,776	52%	84,992	28%
Small Lot Detached[1]	12,642	14%	29,882	38%	41,154	33%	457	9%	84,135	28%
Attached[1]	76,529	83%	25,073	32%	28,166	22%	80	1%	129,848	43%
Total[1]	91,768	100%	79,366	100%	126,532	100%	5,366	100%	303,031	100%

Source: SACOG, MTP/SCS Land Use Forecast, June 2011
[1]Due to different protocols among GIS models for tallying spatial data, housing unit numbers in this DEIR differ marginally (less than 0.3 percent) from those reported in the proposed MTP/SCS.

Rural residential housing consists of single family homes on large lots, typically over one acre in size. This type of housing is mostly located at the edges of the urbanized area. New development of this type will take place primarily through incremental construction of one house at a time. In 2008, rural residential housing represented seven percent of all housing units in the SACOG region, and will constitute just one percent of the growth expected through 2035.

Large lot detached housing is currently the predominant form of housing in the SACOG region. This type of housing, ranging in density from one to eight units per acre, is found throughout newer suburban subdivisions and also in older traditional neighborhoods of the region's communities. In 2008, it represented 58 percent of all housing in the SACOG region, but will account for just 28 percent of the growth through 2035.

Small lot detached housing consists of single family homes on lots smaller than one eighth of an acre. This housing type has historically had a minor role in the SACOG region, representing just nine percent of all housing. It has mainly been found in the region's older, more urbanized cities such as Sacramento, West Sacramento, and Davis. In the proposed MTP/SCS, this housing type will take on a more significant role in the region and will more than double in absolute numbers. Small lot units will be found in jurisdictions throughout the region both as freestanding homes as well as increasingly popular "accessory units" to large lot homes. Twenty-eight percent of the growth in housing through 2035 is expected to be small-lot, detached units.

Attached housing comprises the highest density form of housing in the region, but can take on a variety of forms, ranging from duplexes at densities similar to small-lot detached housing, up to mid-rise and high-rise multi-family buildings. Attached housing has always had a place in the region and represented 26 percent of all housing as of 2008. In the proposed MTP/SCS it will

constitute 43 percent of the expected growth through 2035, which is the highest percentage of growth among the housing types.

Providing a variety of housing options - apartments, condominiums, townhouses, and single-family detached homes on varying lot sizes - creates opportunities for the variety of people who need them: families, singles, seniors, and people living with special needs. The more diverse mix of housing in the proposed MTP/SCS, as identified in Table 12.10, provides more people with access to housing options that fit their circumstances and preferences.

3. Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Section 65584.

While the proposed MTP/SCS has a planning period of 2008-2035, a number of planning processes require SACOG to make some projections for the year 2020. SB 375 requires the SCS to demonstrate that it can achieve a target reduction in passenger vehicle greenhouse gas (GHG) emissions by the years 2020 and 2035. The year 2020 is also very close the horizon year of the next Regional Housing Needs Allocation (RHNA) cycle (2021) and the attainment year for the ozone State Implementation Plan (2018). For the RHNA cycle, SB 375 also requires that the RHNA be consistent with the growth pattern of the SCS and that the SCS identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region.

For these reasons, SACOG worked closely with the California Departments of Finance and Housing and Community Development to identify the most accurate population, housing, and employment projections for 2020. The same economic and demographic factors used to develop the 2035 regional growth forecast are used to develop the 2020 growth forecast. However, given the near-term time frame of 2020 and the expectation of some recovery from the 2008 economic recession, a number of other variables were scrutinized during this process, including vacancy rates, growth rates, household formation behavior, and the health of the home building industry. Thus, the 2020 forecast represents an interim snapshot of the proposed MTP/SCS growth forecast. Table 12.11, below, shows the regional growth forecast for the proposed MTP/SCS for the planning period of the associated Regional Housing Needs Plan.

Table 12.11
Proposed MTP/SCS Regional Growth Forecast

Year	Employees	Population	Housing Units
2008	966,309	2,215,044	884,964
2013	1,001,942	2,315,820	926,576
2020	1,068,839	2,519,947	1,004,710
2021	1,095,572	2,577,417	1,029,828
2035	1,327,424	3,086,213	1,188,474

Source: SACOG MTP/SCS Regional Growth Forecast, June 2011

In preparing to develop the proposed MTP/SCS 2020 Draft Preferred Scenario, SACOG staff met with each jurisdiction at countywide meetings to discuss the state-mandated factors that must be considered in developing the RHNA. All of the information provided to SACOG in the RHNA factors meetings was considered in the development of the 2020 Draft Preferred Scenario. Those RHNA-specific factors are summarized below as:

- Existing and projected jobs and housing relationship;
- Opportunities and constraints to development of additional housing, including:
  - Lack of capacity for sewer and water due to federal or state laws, regulations or regulatory actions, or supply and distribution decisions made by a sewer or water service provider that preclude the jurisdiction from providing necessary infrastructure for additional development during the planning period;
  - Availability of land suitable for urban development or for conversion to residential use, the availability of underutilized land, and opportunities for infill development and increased residential densities (SACOG may not limit its consideration based on the jurisdiction's existing zoning ordinances and land use restrictions);
  - Lands preserved or protected from urban development under existing federal or state programs, or both, designed to protect open space, farmland, environmental habitats, and natural resources on a long-term basis;
  - County policies to preserve prime agriculture lands within an unincorporated area
  - Distribution of household growth assumed for a comparable period in the regional transportation plan and opportunities to maximize the use of public transportation and existing transportation infrastructure;
- Market demand for housing;
- Agreements between a county and cities in the county to direct growth toward incorporated areas of the county;
- Loss of units contained in assisted housing developments;
- High housing cost burdens;
- Housing needs of farmworkers; and
- Housing needs generated by the presence of a private university or a campus of the California State University or the University of California.

4. Identify a transportation network to service the transportation needs of the region

The transportation network of the proposed MTP/SCS is identified in Figures 12.2, 12.3 and 12.4, and is described in the "Transportation System" section of Chapter 2 – Project Description. The transportation network was tailored to the Land Use Forecast to achieve the fiscal, system performance, and GHG reduction objectives of the plan.

The proposed MTP/SCS contains a mix of road and highway investments, including new facilities that serve new development and high growth areas, expansion of existing facilities to relieve existing or future bottlenecks, realignments and bypasses to improve or redirect traffic

flow, maintenance of existing infrastructure, and other operational and safety improvements such as the addition of guardrails to highways, rumble strips, intersection signalizations, restriping, etc. Bicycle and pedestrian projects include explicit bicycle and pedestrian investments such as new shared-use paths and trails, as well as complete streets projects which incorporate bicycle and pedestrian infrastructure into existing or new and expanded road and transit facilities. Two-thirds of the total transit investment is consumed by the cost of operating and maintaining the region's transit system. The balance pays for capital expenses such as purchasing new buses and rail vehicles, infrastructure associated with adding routes and stations to the bus and rail system, building new storage and maintenance facilities, and other improvements to help bus transit vehicles move quickly through traffic.

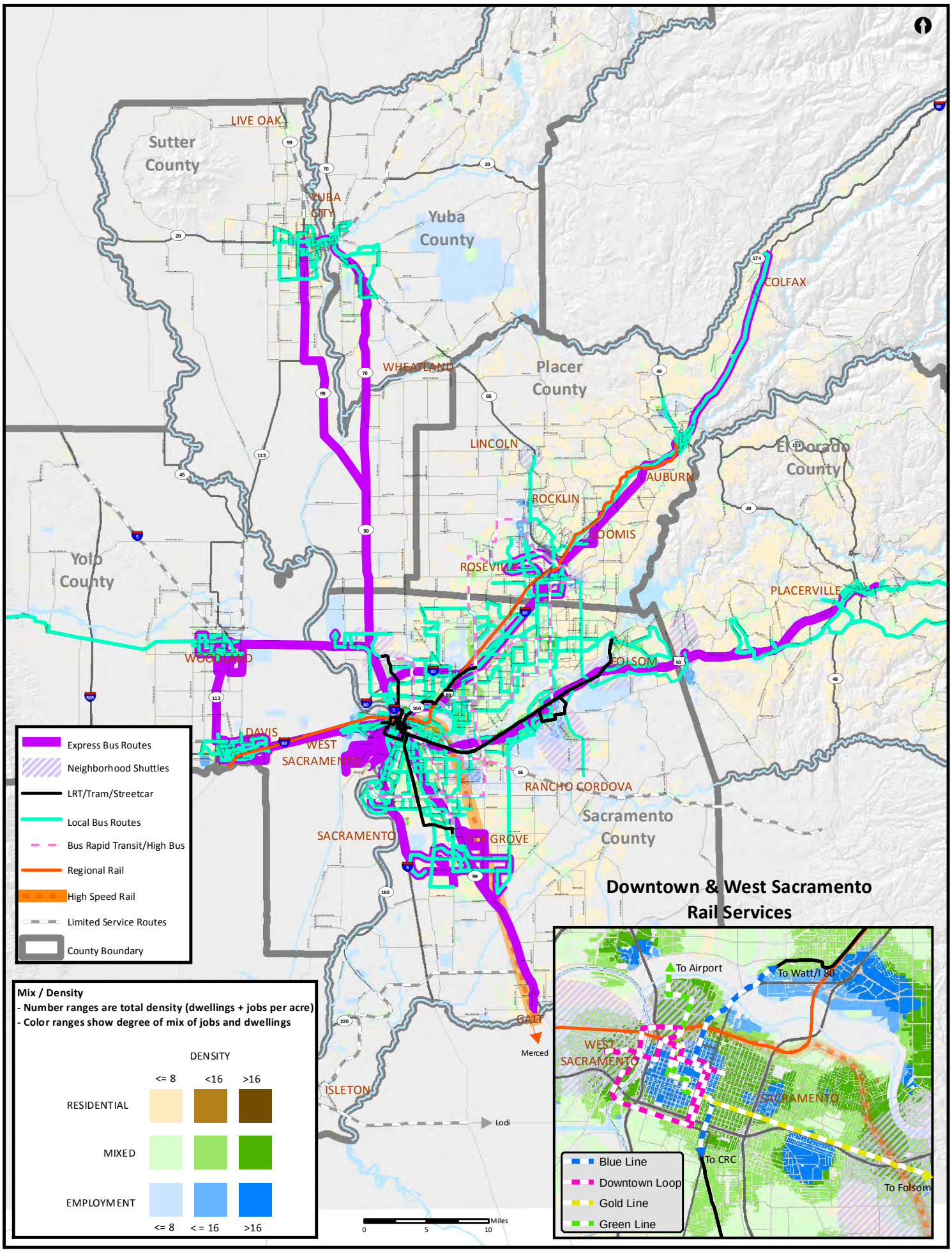


Figure 12.3 2035 Transit Network with 2035 Mixed Densities

Source :SACOG June 2011

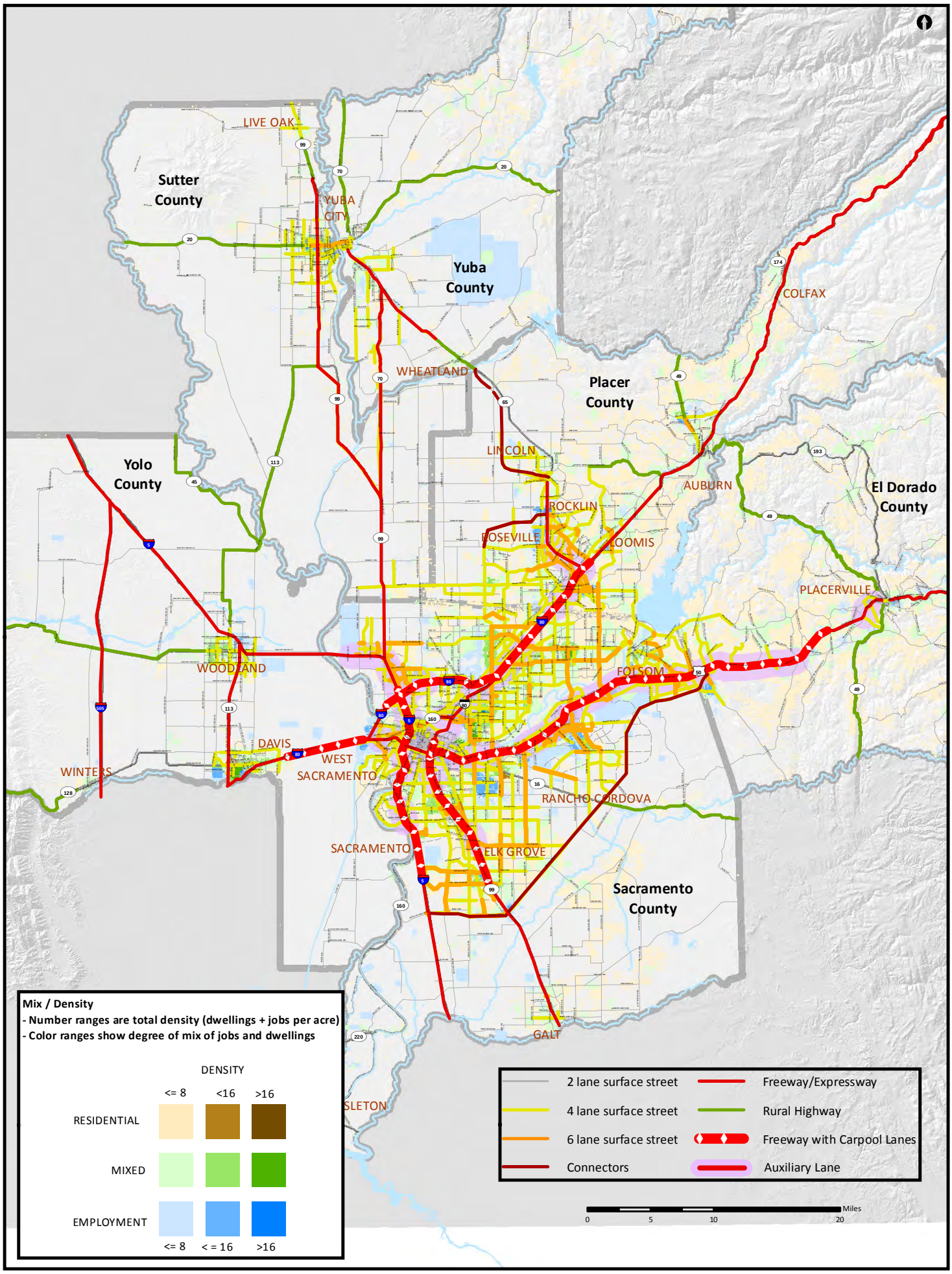


Figure 12.4 2035 Road Network with 2035 Mixed Density

Source :SACOG October 2011

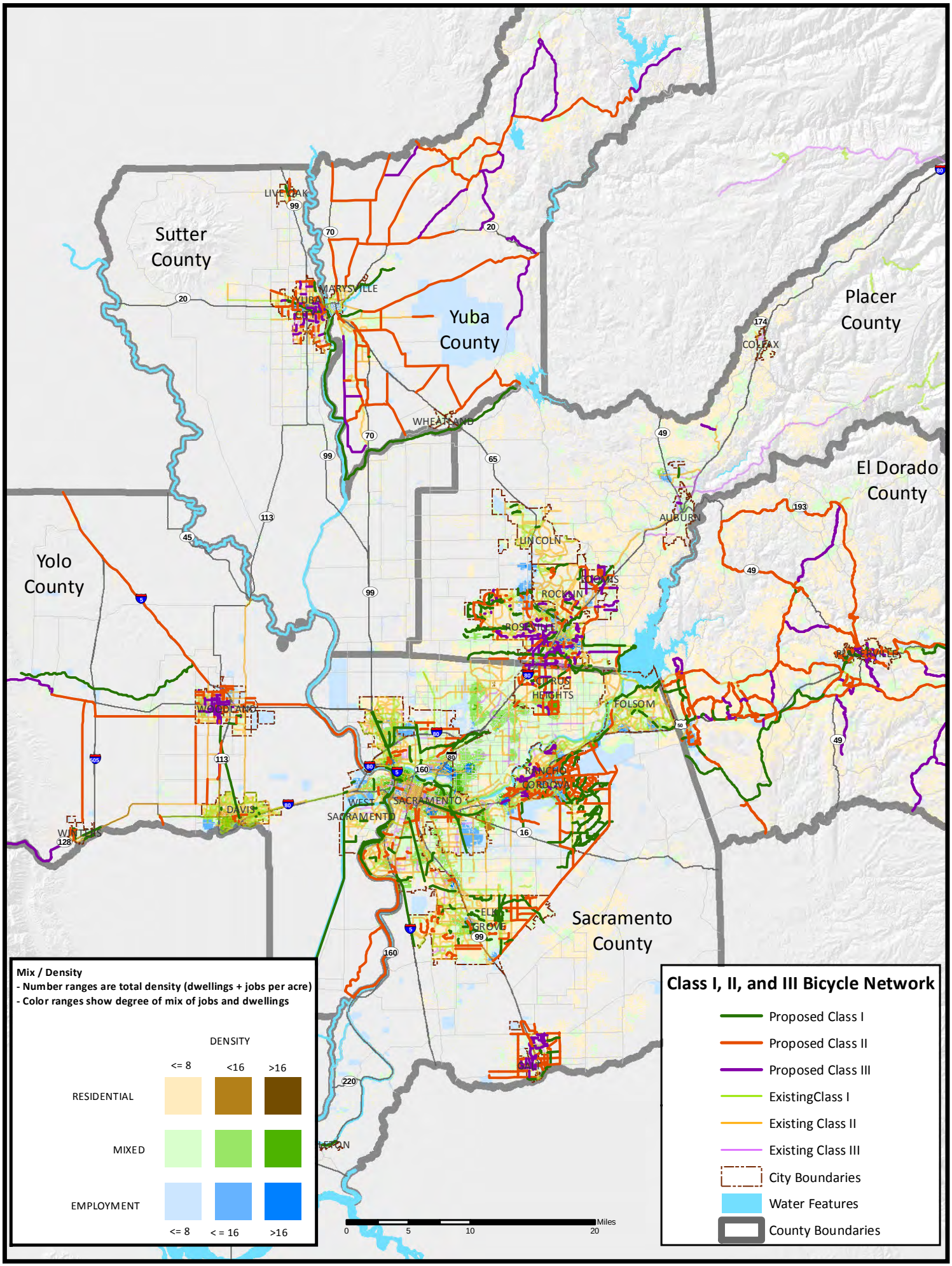


Figure 12.5 2035 Class I, II, and II Bicycle Network with 2035 Mixed Densities

5. Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Section 65080.01.

SB 375 requires MPOs to gather and consider information about the following natural resource areas and farmland:

- Open space or habitat areas protected by NCCPs, HCPS, other natural resource protection plans;
- Habitat for species identified as candidate, fully protected, sensitive, or species of special status by local, state, or federal agencies or protected by federal ESA, California ESA of 1984 (Fish & G. Code, § 2050 et seq.) or Native Plant Protection Act;
- Lands subject to conservation or agricultural easements for conservation or agricultural purposes;
- Areas designated for open space or agricultural uses in adopted open space elements or agricultural elements of local plans or ordinances;
- Areas containing biological resources as described in Appendix G of the CEQA Guidelines that may be significantly affected by the SCS;
- An area subject to flooding where a development project would not, at the time of development in the judgment of the agency, meet the requirements of the National Flood Insurance Program or where the area is subject to more protective provisions of state law or local ordinance;
- Farmland outside all existing city SOIs or city limits as of January 2008 and is one of the following: prime or unique farmland or farmland of statewide importance.

The proposed MTP/SCS Land Use Forecast was developed in consultation with local jurisdictions, with consideration of the above-listed resources. As discussed in Chapter 6 – Biological Resources, each of the counties in the plan area are engaged in habitat and/or natural communities planning, which has involved extensive inventorying and mapping of resources. SACOG consulted with cities and counties, local agency formation commissions, state and federal resource agencies, and other stakeholders on urban development and natural resource issues within each local jurisdiction. This included collecting information on agricultural and open space protection policies, the status of flood mapping and implications for future development, the status of habitat and/or natural communities planning, and the status of federal resource permits, where applicable. This level of data collection allowed SACOG to consider the limitations on urban growth due to various natural resource regulations and policies, as well as the impacts of urban growth on natural resources.

In addition to the above-noted consideration of natural resources and farmland, this draft EIR analyzes the potential impacts of the proposed MTP/SCS on the above resources in Chapter 4 – Agriculture and Forestry Resources, Chapter 6 – Biological Resources, Chapter 11 – Hydrology and Water Quality, and Chapter 15 – Public Services and Recreation.

6. Consider the state housing goals specified in Sections 65580 and 65581.

Providing a variety of housing options – apartments, condominiums, townhouses, and single-family detached homes on varying lot sizes – creates opportunities for the variety of people who need them: families, singles, seniors, and people living with special needs. By providing a diverse mix of housing choice, more people have access to housing options that fit their circumstances and preferences. Since the beginning of the Blueprint project, SACOG has used four categories to describe housing product mix:

- Rural Residential: single-family detached home built at densities less than 1 dwelling unit per acre;
- Large-Lot Single-Family: single-family detached homes built at densities between one and eight dwelling units per acre;
- Small-Lot Single-Family: single-family detached homes built at densities between eight and 25 dwelling units per acre; and
- Attached: Single-family and multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, row houses, half-plexes, etc. built at densities from eight to over 50 dwelling units per acre.

More recent demographic studies indicate that housing choice will become an increasingly important issue in the future as the population is dominated by older adults and ethnic families-(SACOG, 2011). Evolving demographics and preferences held by specific demographic groups, or generational cohorts are driving the change in housing preference and demand. Based on the available evidence, SACOG has concluded there will be higher demand for attached and small-lot single-family housing products over the planning period of the proposed MTP/SCS, along with lower demand for large-lot single-family housing products, which currently make up the majority of housing in the region. As a result of this need and the Blueprint supportive planning local agencies have adopted, the proposed MTP/SCS provides a mix of housing options that focuses on improving the current deficiencies of attached and small lot products.

Regionally, 43 percent of the new housing in the SCS is attached, 28 percent is small-lot single-family, 28 percent is large-lot single-family, and one percent is rural residential. This represents a significant change from 2008, in which the mix is 26 percent attached, nine percent single-family small-lot, 58 percent single-family large-lot, and seven percent rural residential (Table 12.12). New housing in Center and Corridor Communities is predominantly attached product, due to higher residential densities proposed or allowed in these areas by local jurisdictions. New housing in Established Communities is balanced between large-lot single-family, small-lot single-family and attached. New housing in Developing Communities is predominantly large-lot single-family and small-lot single-family product. New housing in Rural Residential Communities is almost entirely rural residential and large-lot single-family housing product.

7. Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve the greenhouse gas emission reduction targets approved by the California Air Resources Board if there is a feasible way to do so.

The forecasted development pattern of the proposed MTP/SCS was designed to achieve the greenhouse gas emission (GHG) reduction targets approved by the CARB of seven percent per capita GHG reduction below 2005 levels by 2020 and 16 percent per capita GHG reduction below 2005 levels by 2035.

In support of the Blueprint principles, one of the primary strategies to achieve greenhouse gas emission reduction targets is to increase the number of people – both residents and employees – who have access to high-quality transit. By 2035 the proposed MTP/SCS puts approximately 38 percent of new dwelling units and 39 percent of new employees within TPAs and brings high-quality transit service to additional 157,216 existing dwelling units and 240,013 existing employees. Table 12.12 summarized the existing and future housing and employment within TPAs.

Table 12.12

Summary of Housing and Employment within Transit Priority Areas[1]

	2008 Transit Priority Areas[1]		2035 Transit Priority Areas[1]					
Transit Priority Areas (TPA)[1]	Existing Dwelling Units	Existing Employees	Existing Dwelling Units	Existing Employees	New Dwelling Units	New Employees	All Dwelling Units	All Employees
Placer TPAs	2,788	5,843	9,553	37,226	2,561	10,150	14,902	53,219
Sacramento TPAs	107,069	230,081	125,729	182,471	92,124	107,520	324,922	520,072
Yolo TPAs	16,837	25,738	21,934	20,316	19,781	22,004	58,552	68,058
All TPAs	**126,694**	**261,662**	**157,216**	**240,013**	**114,466**	**139,674**	**398,376**	**641,349**

Source: SACOG MTP/SCS Regional Growth Forecast, June 2011

[1] Transit Priority Areas are those areas of the region within one-half mile of a major transit stop (existing or planned light rail, street car, or train station) or high-quality transit corridor. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Pub. Res. Code, § 1155).

In public workshops conducted to gather input during the development of the proposed MTP/SCS, public input strongly favored Scenario 3, which was designed to refine the transportation network and land use pattern to boost the percentage of transit, walking, and bicycle trips. Scenario 2, based on the SACOG Blueprint Vision, was also favored in Placer and Sutter counties. Both Scenarios 2 and 3 were found in preliminary modeling to meet the GHG reduction targets set by CARB (see Chapter 2 – Project Description for a description of the public workshop results).

Based on the results of the public workshops and SACOG Board direction, SACOG developed a Draft Preferred Scenario of transportation investments and land use growth assumptions based

on proposed MTP/SCS Workshop Scenario 3, with elements of Scenario 2 for Sutter and Placer counties. The proposed MTP/SCS considered adopted and proposed plans in each jurisdiction, market conditions, environmental constraints, and availability of funds for transportation and other infrastructure. Based on this framework, SACOG developed the proposed MTP/SCS, which is designed to meet the GHG targets set by CARB. Modeling of the proposed MTP/SCS has produced the following results: 10 percent per capita reduction below 2005 levels by 2020 and 16 percent per capita reduction below 2005 levels by 2035. See Chapter 8 – Energy and Global Climate Change for a detailed discussion on GHG emissions.

8. **Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act.**

As part of proposed MTP/SCS, SACOG must examine the long-term air quality impacts of the transportation system and ensure that it is compatible with the region's air quality goals. In doing so, regional agencies must work with state and local partner agencies to assess the impacts of growth on air pollution and decide how to manage growth.

Section 176 of the federal Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.) sets forth the definition of conformity for the MTP. SACOG must ensure that the MTP conforms to the state implementation plan (SIP). The determination of conformity must be based on the most recent estimates of emissions, and those estimates must be determined from the most recent population, employment, travel and congestion estimates as determined by the metropolitan planning organization or other agency authorized to make such estimates (42 U.S.C. § 7506).

In compliance with this requirement of the Clean Air Act, SACOG updated its baseline estimates, regional growth forecast, and Land Use Forecast using the most comprehensive, recent, and best available data. Chapter 1 – Introduction, provides a full description of the baseline for the proposed MTP/SCS and this EIR. The discussion of the above eight SB 375 requirements describes the information considered and used in creating both the regional growth forecast and translating that into the Land Use Forecast. The draft conformity determination for this proposed MTP/SCS is included in Appendix F of the draft plan and documents the most recent emissions estimates.

Because the proposed MTP/SCS complies with the eight SB 375 objectives listed above, as demonstrated in the preceding discussion, the impacts of the proposed MTP/SCS are considered less than significant (LS) for Impact LU – 1. No mitigation is required.

B. Localized Impacts

Because the land use requirements and objectives of SB 375 are regional in scope, no localized impact analysis was conducted.

C. Transit Priority Area Impacts

Because the land use requirements and objectives of SB 375 are regional in scope, no Transit Priority Area impact analysis was conducted.

CHAPTER 13 – NOISE

INTRODUCTION

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the noise environment within the MTP/SCS plan area. This chapter evaluates potential noise impacts that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

One comment pertaining to noise and vibration, submitted by Rick Bettis, was received during circulation of the Notice of Preparation (NOP). The comment letter requested that special consideration be given to natural habitat and recreational areas when performing analyses of mitigation measures to reduce noise impacts. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

Noise Background

Describing Noise

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the *frequency of sound*, and is expressed as cycles per second, called *hertz* (Hz). *Noise* is often described as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the *decibel scale* was devised. The decibel (dB) scale uses the hearing threshold of 20 micropascals as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. Another useful aspect of the decibel scale is that changes in levels correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise, levels can be approximated by weighting the frequency response of a sound-level measurement device (called a sound level meter) by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as sound levels in dB) and community response to noise. For this reason, the A-weighted sound pressure level (dBA) has become the standard tool of environmental noise assessment.

Because noise is measured on a logarithmic scale, two sources of equal noise added together result in an increase of 3 dBA. For example, 70 dBA plus 70 dBA yields a total noise level of 73 dBA. An increase of 3 dBA is also notable because changes of 3dBA or more are perceptible to the human ear, while changes of less than 3 dBA are only perceptible in laboratory settings.

Community noise is commonly described in terms of the *ambient noise level*, which is defined as the all-encompassing noise level associated with a given noise environment. It is the composite of sound from many sources in all directions with no particular sound being dominant. A common measure used to quantify the ambient noise level is the equivalent sound level (Leq), which corresponds to a steady-state sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptors such as Ldn, and shows very good correlation with community response to noise.

The following two composite noise descriptors are in common use today.

- Day-Night Average Level (Ldn). Ldn is based upon the average hourly Leq over a 24-hour day, with a 10 decibel weighting applied to nighttime (10:00 p.m. to 7:00 a.m.) Leq values. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures.
- Community Noise Equivalent Level (CNEL). CNEL, like Ldn, is based upon the weighted average hourly Leq over a 24-hour day, except that an additional 5-decibel penalty is applied to evening (7:00 p.m. to 10:00 p.m.) hourly Leq values. The CNEL was developed for the California Airport Noise Regulations, and is applied specifically to airport/aircraft noise assessment. For this reason, the Ldn descriptor, rather than CNEL, is used for the assessment of traffic noise levels in the MTP/SCS plan area.

Effects of Noise on People

Noise in a community has often been cited as a health problem, not in terms of actual damage such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the basis for land-use planning policies designed to prevent exposure of communities to excessive levels of noise.

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, parks, and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. Increases in noise near *sensitive receptors* are more likely to cause an adverse community response.

Noise Planning Standards and Ordinances

To control noise from fixed sources that have developed from processes other than zoning or land use planning, many jurisdictions have adopted community noise-control ordinances. Such

ordinances are intended to abate noise nuisances and to control noise from existing sources. They may also be used as performance standards to judge the creation of a potential nuisance, or potential encroachment of sensitive uses on noise-producing facilities. Community noise-control ordinances are generally designed to resolve noise problems on a short-term basis (usually by means of hourly noise-level criteria), rather than on the basis of 24-hour or annual cumulative noise exposures.

Noise ordinance criteria are not applicable to traffic on public roadways. However, general plan noise elements provide noise standards for new noise-sensitive land uses that may be affected by transportation noise sources or for new transportation sources that may affect existing noise-sensitive uses.

For new noise-sensitive land uses affected by transportation noise sources, many jurisdictions consider land use compatibility criteria of 60 to 65 dBA Ldn as being "normally acceptable." Typical options for mitigation of excessive traffic-noise levels include the use of setbacks or buffer areas between the roadway and the proposed noise-sensitive land use, noise barriers, residential unit design, and improvements to building façade construction.

Because many rural areas experience very low noise levels, residents may express concern about the loss of "peace and quiet" due to the introduction of a sound that was not audible previously. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels. A change in noise level and the loss of "peace and quiet" is the inevitable result of land use or activity changes in such areas. Neither audibility of a new noise source nor an increase in noise levels within recognized acceptable limits is usually considered to be a significant noise impact, but these concerns should be addressed and considered in the planning and environmental review processes.

Noise Mitigation

In locations where noise-sensitive uses are located close to a traffic noise source, placement of a barrier between the source and the receiver is the most effective way to reduce noise impacts.

The effectiveness of a barrier depends on blocking the line-of-sight between the traffic noise source and receiver, and is improved with increasing the distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. For a noise barrier to be effective, it must not only be sufficiently tall to intercept line of sight from noise source to receiver, but it must also be sufficiently long to reduce the potential for sound to flank around ends of the barrier. Barrier effectiveness depends on the relative heights of the source, barrier, and receiver. In general, barriers are most effective when placed close to either the receiver or the traffic noise source and are less effective if placed midway between the source and the receiver.

For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 lbs. per square foot, though a lesser mass may be acceptable if the barrier material provides sufficient transmission loss in the frequency range of concern. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to

intercept line of sight to all significant traffic noise sources. Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

There are practical limits to the noise reduction provided by barriers. For highway traffic noise, a 5 to 10 dBA noise reduction may often be reasonably attained. A 15 dBA noise reduction is sometimes possible, but a 20 dBA noise reduction is extremely difficult to achieve. Barriers usually are provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall will generally provide up to 3 dBA additional attenuation over that attained by a solid wall alone, due to the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls, and are often preferred for aesthetic reasons.

Noise barriers currently exist or are planned in many areas of the SACOG region adjacent to state highways. In cases of new residential development adjacent to a major roadway in the SACOG region, the responsibility for noise mitigation is typically placed on the project developer. In such cases, noise barriers are commonly constructed just inside the highway right-of-way. In some cases, local jurisdictions and Caltrans have built barriers as part of roadway improvement projects or barrier retrofit programs.

SETTING

Environmental Setting

The noise environment in the MTP/SCS plan area comprises two major categories of noise sources: transportation and non-transportation noise sources. Transportation noise sources include surface traffic on public roadways, railroad line operations, and aircrafts in flight. Non-transportation (or fixed) noise sources commonly consist of industrial activities, railroad yard activities, small mechanical devices (lawnmowers, leaf blowers, air conditioners, radios, etc.), and other sources not included in the traffic, railroad, and aircraft category.

Traffic Noise

The ambient noise environment in the MTP/SCS plan area is defined by a wide variety of noise sources. The most pervasive source of noise in the region is traffic noise. With thousands of miles of roadways in the region, it is difficult to escape the sound of traffic. Traffic noise exposure is mainly a function of the number of vehicles on a given roadway per day, the speed of those vehicles, the percentage of medium and heavy trucks in the traffic volume, and the receiver's proximity to the roadway. Every vehicle passage on every roadway in the region radiates noise.

The existing traffic noise environment in the MTP/SCS plan area has been characterized by using traffic noise modeling. The FHWA Traffic Noise Model (TNM) Version 2.5 and daily traffic volumes on major roadways in the MTP/SCS plan area were used to calculate the traffic noise level at a fixed distance of 150 feet from each roadway. SACOG performed noise analyses on nearly 700 roadway locations throughout the MTP/SCS plan area. The results indicated that noise levels in the MTP/SCS region vary between 36 dBA and 76 dBA, depending on the location.

Rail Noise

The region is also affected by noise from freight and passenger railroad operations and light-rail train operations. While these operations generate significant noise levels in the immediate vicinity of the railroad tracks during train passages, these operations are intermittent and the tracks are widely dispersed throughout the region. For these reasons, the contribution of railroad noise to the overall ambient noise environment in the SACOG region is relatively minor.

Aircraft Noise

The SACOG region is home to many airports, including public, private, and military airports. In addition to the numerous daily aircraft operations that originate and terminate at these airports, aircrafts not utilizing the regional airports frequently fly over the region. All of these operations contribute in some degree to the overall ambient noise environment in the MTP/SCS plan area. The intensity of aircraft noise exposure depends on one's proximity to the aircraft flight path; the type, speed, and altitude of airplane; and atmospheric conditions. The farther away the noise source, the more weather affects the sound propagation from source to receiver. A map of airport noise contours is shown in Figure 13.1.

Construction Noise

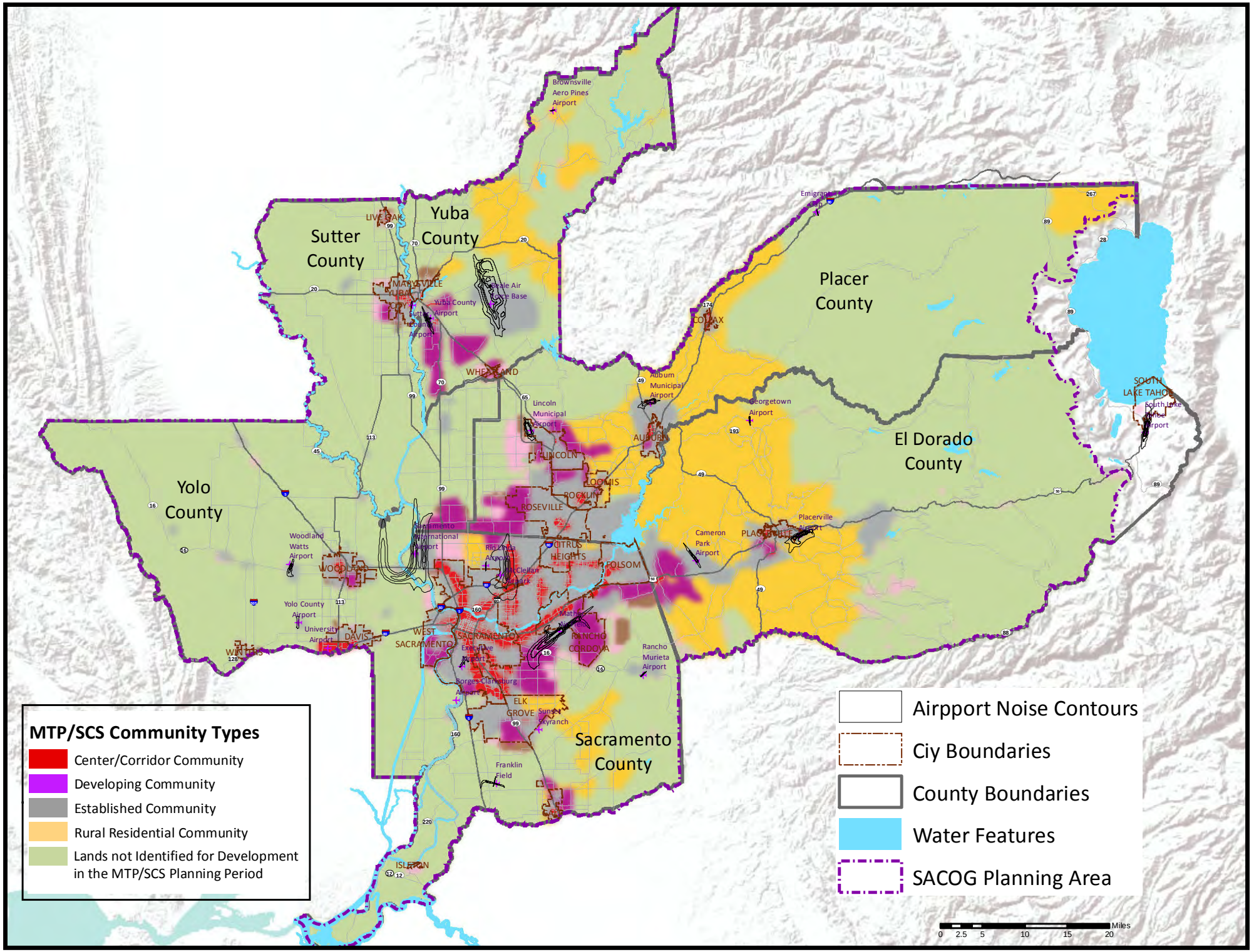
New development and implementation of transportation improvements involve construction activities that create new sources of short-term noise. Construction typically occurs in discrete steps, each of which has a distinctive mix of equipment and, consequently, distinctive noise characteristics. These various sequential phases change the character of the noise generated on each site and, therefore, the noise levels surrounding these sites as construction progresses. Construction activities typically involve several vehicles and equipment operating at various times within a fixed area. Construction noise sources can be both stationary and mobile. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table 13.1 lists typical construction noise levels for various phases of construction.

Table 13.1
Typical Commercial Construction Noise Levels

Construction Phase	Noise Level (dBA, Leq)[1]
Ground Clearing	84
Excavation	89
Pile Driving	100
Foundations	78
Erection	85
Finishing	89

[1] Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction phase. Noise levels correspond to commercial projects in a typical urban ambient noise environment. Source: US Environmental Protection Agency, 1971.

Figure 13.1 Airport Noise Contours



Industry and Other Non-Transportation Noise

A wide variety of industrial and other non-transportation noise sources are located in the MTP/SCS plan area, including manufacturing operations, power plants, food packaging and processing facilities, lumber mills, aggregate mining and processing plants, race tracks, shooting ranges, amphitheaters, and car washes, to name several. Noise generated by these sources varies widely, but in some cases can be a potentially significant contributor to the local ambient noise environment. Although non-transportation noise sources can define the ambient noise environment within a given distance to the noise source, the overall ambient noise environment is, nonetheless, defined primarily by traffic.

Non-transportation noise levels are difficult to quantify, as noise levels can vary dramatically from location to location, even in the same Community Type. The types of land uses, the distance between noise sources, and the presence or absence of barriers can all greatly affect noise levels in a given area. Typically, ambient noise levels in a quiet residential area with light background traffic noise will range from 50 dBA to 60 dBA. In busy central business districts or locations near freeways, ambient noise levels can reach 75 dBA or higher. Similarly, industrial activity also has a widely varying range of noise outputs, depending on the type of activity taking place and whether the activity is indoors or outdoors.

Regulatory Setting

Federal

Noise Control Act of 1972

The federal Noise Control Act of 1972 (42 U.S.C. § 4901 note) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare. The U.S. Environmental Protection Agency (US EPA) was given the responsibility for:

- providing information to the public regarding identifiable effects of noise on public health and welfare;
- publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety;
- coordinating federal research and activities related to noise control; and
- establishing federal noise emission standards for selected products distributed in interstate commerce.

The Noise Control Act also directed that all federal agencies comply with applicable federal, state, interstate, and local noise control regulations. Although the US EPA was given a major role in disseminating information to the public and coordinating with other federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs. The EPA can, however, require other federal agencies, such as those listed below, to justify their noise regulations in terms of Noise Control Act policy requirements.

- The Federal Highway Administration (FHWA) is responsible for noise standards for federally-funded highway projects.
- The Federal Transit Administration (FTA) is responsible for noise standards for federally-funded transit projects.
- The Federal Railroad Administration (FRA) is responsible for noise standards for federally-funded rail projects.

U.S. Environmental Protection Agency

In 1974, in response to the requirements of the federal Noise Control Act, the US EPA identified indoor and outdoor noise limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor Ldn limits of 55 dBA and indoor Ldn limits of 45 dBA are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. Sound-level criteria to protect against hearing damage in commercial and industrial areas are identified as 24-hour Leq values of 70 dBA (both outdoors and indoors).

Federal Highway Administration

FHWA regulations (23 C.F.R. § 772) specify procedures for evaluating noise impacts associated with federally-funded highway projects and for determining whether these impacts are sufficient to justify funding noise abatement actions. The FHWA noise abatement criteria are based on worst hourly Leq sound levels, not Ldn or CNEL values. The worst-hour 1-hour Leq noise abatement criteria are listed in Table 13.2.

Federal Transit Administration

FTA procedures for the evaluation noise from transit projects are specified in the document titled, “Transit Noise and Vibration Impact Assessment” (Federal Transit Administration, 2006). The FTA Noise Impact Criteria categorizes noise-sensitive land uses into the following categories.

- Category 1 includes buildings or parks where quiet is an essential element of their purpose.
- Category 2 includes residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3 includes institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, and active parks.

Ldn is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour Leq during the facility’s operating period is used. Noise impacts are identified based on absolute predicted noise levels and increases in noise associated with the project.

Table 13.2
Activity Categories and Noise Abatement Criteria

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

[1] The L_{eq} (h) activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).
[2] Includes undeveloped lands permitted for this activity category.
Source: 23 CFR 772

Federal Railroad Administration

FRA noise standards are the same as those specified by the FTA.

State

California Department of Transportation Traffic Noise Analysis Protocol

The California Department of Transportation (Caltrans) Traffic Noise Analysis Protocol (Protocol) specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction projects. The noise abatement criteria specified in the Protocol are the same as those specified in 23 C.F.R. § 772. The Protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA. The Protocol also states that a sound level is considered to approach a Noise Abatement Criteria (NAC) level when the sound level is within 1 dBA of the NAC identified in 23 C.F.R. § 772 (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

State of California General Plan Guidelines

The State of California General Plan Guidelines (California Governor's Office of Planning and Research, 2003) identifies guidelines for the noise elements of city and county general plans, including a sound level/land-use compatibility chart that categorizes, by land use, outdoor Ldn ranges in up to four categories (normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable). These guidelines provide the State's recommendations for city and county general plan noise elements. Compliance with the guidelines by the cities and counties is not required, but nonetheless is quite common because many general plan noise elements are based on these guidelines. These guidelines are not applicable to SACOG or projects without a city or county sponsor.

The noise element guidelines identify the normally acceptable range for low-density residential uses as less than 60 dBA, and the conditionally acceptable range as 55–70 dBA. The normally acceptable range for high-density residential uses is identified as Ldn values below 65 dBA, and the conditionally acceptable range is identified as 60–70 dBA. For educational and medical facilities, Ldn values below 70 dBA are considered normally acceptable, and Ldn values of 60–70 dBA are considered conditionally acceptable. For office and commercial land uses, Ldn values below 70 dBA are considered normally acceptable, and Ldn values of 67.5–77.5 are categorized as conditionally acceptable.

These overlapping Ldn ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land-use compatibility at specific locations.

California Noise Insulation Standards

Part 2, Title 24, of the C.C.R., "California Noise Insulation Standards," establishes minimum noise insulation standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than single-family residences. Under this regulation, interior noise levels attributable to exterior noise sources cannot exceed 45 Ldn in any habitable room. Where such residences are located in an environment where exterior noise is 60 Ldn or greater, an acoustical analysis is required to ensure that interior levels do not exceed the 45 Ldn interior standard.

Local

General Plans and Noise Ordinances

Each of the six counties and 22 cities in the MTP/SCS plan area has its own general plan noise element. Some jurisdictions also have noise ordinances. The noise element and local noise ordinances are the two primary documents that local jurisdictions use to set noise standards in their community. A noise element is a required component of each jurisdiction's general plan. The noise element provides information on the current and future noise levels associated with local noise sources such as freeways and freeways, major streets and arterials, rail operations, aviation activities, and local industrial plants. The noise element also includes planning policies and implementation measures for limiting the exposure of people to noise.

The noise elements of the cities and counties located within the MTP/SCS plan area typically apply land-use compatibility criteria of 60–65 dBA Ldn as being normally acceptable for new residential developments affected by transportation noise sources. The intent of these standards is to provide an acceptable noise environment for outdoor activities. In addition, an interior noise level criterion of 45 dBA Ldn is commonly applied to residential land uses. The intent of this standard is to provide a suitable environment for indoor communication and sleep.

SACOG 2008 Metropolitan Transportation Plan

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system and one of SACOG's primary statutory responsibilities. Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars for public transit, streets/roads, bicycles, and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region built on the Sacramento Region Blueprint. The 2008 MTP contains numerous policies and strategies that relate to noise.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact the noise environment. For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, refer to Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

The noise environment in 2011 is not demonstrably different from conditions in 2008, as there has been only limited regional growth due to the economic slowdown. Traffic levels, if

anything, are likely lower in 2011 than in 2008, but are expected to recover to and then exceed 2008 baseline conditions, as the economic recovery progresses.

For this noise analysis, the FHWA Traffic Noise Model TNM 2.5 and traffic data developed by SACOG for major roadways in the area were used to calculate the Ldn values associated with approximately 700 roadway segments within the MTP/SCS plan area. These roadway segments do not include every single potential roadway noise source in the region; rather, they constitute a representative sample of typical roadway noise sources seen throughout the MTP/SCS plan area. Locations where noise analyses were performed are displayed in Figure 13.2.

The noise analysis identifies the noise impact of the project by comparing predicted traffic noise levels under the proposed MTP/SCS to the 2008 baseline condition. For purposes of these comparisons, all values are calculated at a fixed distance of 150 feet from each roadway centerline. The evaluation does not take into account whether there are sensitive receptors located adjacent to the freeways and arterials but evaluates all roadways equally, as if all areas contain sensitive receptors.

Initial noise predictions did not account for existing sound barriers (i.e., soundwalls, berms). Therefore, for roadways that do have existing sound barriers, a 5 dBA reduction was applied to the predicted traffic noise level for that segment. Certain types of transportation projects, (e.g., road widenings, HOV lanes, transition lanes, road extensions, new interchanges) will require project-specific noise analyses. In locations where such a transportation project is proposed as part of the proposed MTP/SCS, it is possible that noise impacts will be mitigated as part of the individual project. However, because SACOG cannot require implementing agencies to implement mitigation, it is not guaranteed that these locations will be reduced to less than significant levels. Finally, in other locations where no specific project is included in the MTP/SCS, but where a "lump sum" quantity included in the proposed MTP/SCS would fund re-pavement or re-construction of roadways, opportunities for re-paving with rubberized asphalt or "quiet pavement" exist which could mitigate noise impacts in other, unknown locations.

In order to analyze the noise effects of implementation of the proposed MTP/SCS, SACOG developed noise thresholds for each Community Type. These thresholds are shown in Table 13.3. The thresholds were developed based on the California General Plan Guidelines (discussed above in the regulatory setting) and local jurisdiction general plan thresholds. Because the California General Plan Guidelines are suburban in nature, SACOG used the high end of the guidelines for Center and Corridor Communities and Established Communities, the middle of the range for Developing Communities, and the low end of the range for Rural Residential Communities and Lands Not Identified for Development. SACOG's thresholds are comparable to other urban jurisdictions in the region, including the city of Sacramento.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Result in noise levels that exceed the Community Type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions.
2. Result in excessive vibration and groundborne noise.
3. Result in construction impacts that would increase noise levels above the Community Type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions; or result in excessive levels of vibration and groundborne noise.

Table 13.3
Noise Thresholds by Community Type (Ldn)

Geography	Noise Threshold
Region	NA[1]
Center and Corridor Communities	70 dBA
Established Communities	65 dBA
Developing Communities	60 dBA
Rural Residential Communities	55 dBA
Lands Not Identified for Development	55 dBA

[1] Noise impacts are experience at the localized level. Therefore, one regional noise threshold cannot reflect the varied noise environments found in the MTP/SCS plan area.
Note: Because transit priority areas (TPAs) may overlap multiple Community Types, each roadway segment in a TPA was analyzed according to the noise threshold for the Community Type in which it is located.

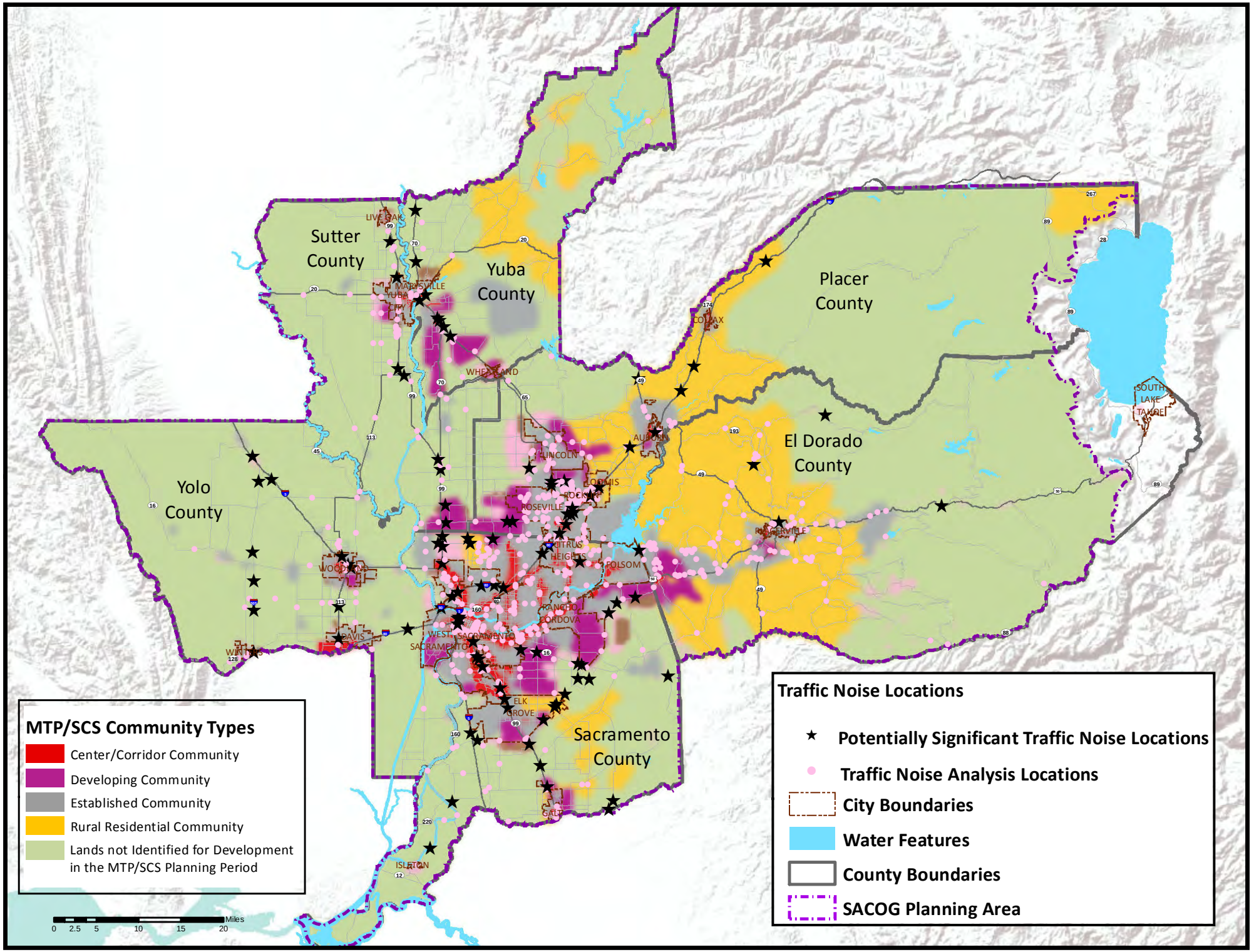
Impacts and Mitigation Measures

Impact NOI-1: Result in noise levels that exceed the Community Type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions.

A. Regional Impacts

As noted in Table 13.3, there is no regional noise threshold. Different types of land uses necessarily have different noise environments. For example, urban environments tend to be louder than suburban environments because urban environments typically have a wide variety of uses located in close proximity to one another. Suburban environments, where land uses are often more segregated, have more moderate noise levels. Agricultural areas also have a unique noise environment. Agricultural machinery and operations can often produce noise levels that are quite high. However, because agricultural areas are sparsely populated, noise generally does not impact surrounding land uses. One noise environment is not better than the others. The noise environments are simply a reflection of the types of uses occurring in each of these areas.

Figure 13.2 Traffic Noise Locations



Because the MTP/SCS plan area is made up of such a diversity of land uses, one regional noise threshold cannot reflect the varied noise environments found in the region. Without a noise threshold, it is infeasible to perform a regional noise analysis or reach a finding of significance for Impact NOI-1. Localized impacts are explored below in the Community Type and TPA discussions.

Of the 692 transportation segments analyzed, 90 segments exceeded the noise thresholds in Table 13.3 and increased noise levels by more than 3 dBA over baseline conditions. These segments are summarized in Table 13.4 and displayed spatially in Figure 13.2. However, as explained above, different noise environments will experience transportation noise in different ways. Because of the nature of noise impacts (noise dissipates with distance from the source), new transportation operations will have noise impacts, and those impacts may exceed applicable noise thresholds for determining significance, but such potentially significant noise impacts will be confined to specific geographies and therefore cannot be evaluated from a regional perspective.

Because the MTP/SCS plan area is made up of such a diversity of uses, one regional noise threshold cannot reflect the varied noise environments found in the region. Without a noise threshold, it is infeasible to perform a regional noise analysis or reach a finding of significance for Impact NOI-1 from a regional perspective. Localized impacts are explored below in the Community Type and TPA discussions.

B. Localized Impacts

Center and Corridor Communities

By 2035 Center and Corridor Communities are projected to increase by approximately 92,000 new housing units and 104,000 new jobs. This growth will consume approximately 4,400 acres. Regionwide, Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and 8 percent of acres developed. This indicates that Center and Corridor Communities will grow more compactly than baseline conditions.

Noise is an inevitable part of urban living. Urban areas experience noise from any number of sources associated with living in proximity to other people and among different land uses. Typical community noise sources include small mechanical devices (lawn mowers, leaf blowers, etc.), parks and playgrounds, restaurants and bars, commercial uses, and industrial plants. Traffic and transportation-related noise is also a dominant noise source in this Community Type; the noise impacts of transportation are discussed below. Center and Corridor Communities already experience higher levels of noise than the other Community Types, and noise is an expected part of life in this Community Type. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in Center and Corridor Communities because of the increased density in these areas. The compact nature of development in Center and Corridor Communities could potentially increase noise levels above 70 dBA Ldn and increases in noise levels of more than 3 dBA over baseline conditions.

Table 13.4
Number of Locations with Potentially Significant Transportation Noise Impacts Resulting from Implementation of the Proposed MTP/SCS

Geography	Potentially Significant Locations Pre-Mitigation	Locations Potentially Mitigated to LS			Total Locations Analyzed
		Locations with Soundwall Alone[1]	Locations with MTP Project[2] Alone	Locations with Soundwall and MTP Project	
Center and Corridor Communities	9	3	1	2	143
in Placer TPAs	0	0	0	0	8
in Sacramento TPAs	7	3	1	1	117
in Yolo TPAs	1	0	0	0	4
Established Communities	38	5	6	3	363
in Placer TPAs	3	0	3	0	9
in Sacramento TPAs	2	1	0	0	48
in Yolo TPAs	1	1	0	0	3
Developing Communities	8	0	5	0	43
in Sacramento TPAs	2	0	1	0	4
Rural Residential Communities	35	0	14	0	143
Subtotal		**8**	**26**	**5**	
Grand Total	**90**	**39**			**692**

[1] Noise barriers were not analyzed in the initial noise predictions. Therefore, in locations where an existing noise barrier is in place, a 5 dBA reduction was applied to the initial noise prediction. If that 5 dBA reduction reduced the location to a less than significant level, the location was included as a "location potentially mitigated to LS." If the 5 dBA reduction did not reduce the location to a less than significant level, the location remains potentially significant.

[2] Certain types of transportation projects, (e.g., road widenings, HOV lanes, transition lanes, road extensions, new interchanges) will require project-specific noise analyses. In locations where such a transportation project is proposed as part of the proposed MTP/SCS, it is possible that noise impacts will be mitigated as part of the individual project. However, because SACOG cannot require implementing agencies to implement mitigation, it is not guaranteed that these locations will be reduced to less than significant levels.

Therefore, the noise impacts related to land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Center and Corridor Communities will see a variety of transportation improvements by 2035 including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Such projects will contribute to increases in noise levels in Center and Corridor Communities.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in nine Center and Corridor Community roadway segments that increase noise levels to potentially significant levels. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts could be reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these

considerations, six locations were potentially mitigated to less than significant levels. More detail about these locations is given in Table 13.5.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3 dBA relative to baseline conditions.

Light rail improvements will include improvements to existing corridors and the addition of new corridors. In general, the proposed transit improvements along existing corridors will occur in developed urban areas where noise levels are already high from existing transportation systems. Because improvements along existing corridors would not double the number of daily trains along the corridors, these improvements are not expected to increase daily noise (Ldn) along these corridors by more than 3 dBA relative to baseline conditions. However, in areas that do not currently have light rail operations, implementation of the proposed MTP/SCS could increase noise levels above 70 dBA Ldn and increase daily noise (Ldn) by more than 3 dBA relative to baseline conditions.

Therefore, the noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Established Communities

Established Communities are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. Housing units will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will pretty much maintain their proportional shares, with jobs increasing by about 187,000 and acres developed increasing by 20,000 for regional shares of 59 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Although not as dense or loud as Center and Corridor Communities, Established Communities already experience a significant amount of noise from urban uses. Typical community noise sources include small mechanical devices (lawn mowers, leaf blowers, etc.), parks and playgrounds, restaurants and bars, commercial uses, and industrial plants. Traffic and transportation-related noise is also a dominant noise source in this Community Type; the noise impacts of transportation are discussed below. Noise is an expected part of urban life in this Community Type. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in Established Communities because of the increased density in these areas. Although the rate of growth is not as fast as in Center and Corridor Communities and Developing Communities, Established Communities will still add over one quarter of a million people by 2035. This growth has the potential to increase noise levels above 65 dBA Ldn and increases in noise levels of more than 3 dBA over baseline conditions.

Table 13.5
Location of Potentially Significant Transportation Noise Impacts in Center and Corridor Communities Before and After Mitigation

Location			Noise Threshold: 70 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
I-5	From O St to R St	Sacramento	70.7	74.9	4.17	x		
I-5	At I St	Sacramento	68.7	75.5	6.74			
I-5	North of I St	Sacramento	69.2	74.6	5.39			
I-80	East of Winters St	Sacramento	67.3	74.7	7.44		x	
I-80	East of I-5	Sacramento	68.9	75.0	6.14			x
SR-99	North of Florin Rd	Sacramento	69.6	74.8	5.26	x		
SR-99	South of Fruitridge Blvd	Sacramento	70.6	74.7	4.14	x		
SR-99	North of Fruitridge Blvd	Sacramento	67.9	75.2	7.27			x
I-80	South of Richards Blvd	Yolo	67.9	75.0	7.07			
					Subtotal	**3**	**1**	**2**
					Total Locations Potentially Mitigated to LS	**6**		

Therefore, the noise impacts related to land use changes from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

As with Center and Corridor Communities, Established Communities will see a variety of transportation improvements by 2035 that will increase the amount of noise in the region, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in 38 Established Community roadway segments that increase noise levels to potentially significant levels. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts were reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, 14 locations were potentially mitigated to less than significant levels. More detail on these locations is given in Table 13.6.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3 dBA relative to baseline conditions. Light rail improvements will include increasing frequency on and making improvements to existing corridors and adding new corridors. In general, the proposed transit improvements along existing corridors will occur in developed urban areas where noise levels are already high from existing sources.

Because improvements along existing corridors would not double the number of daily trains along the corridors, these improvements are not expected to increase daily noise (Ldn) along these corridors by more than 3dBA relative to baseline conditions. However, in areas that do not currently have light rail operations, implementation of the proposed MTP/SCS could increase noise levels above 65 dBA Ldn and increase daily noise (Ldn) by more than 3 dBA relative to baseline conditions.

Therefore, the noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in Established Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Developing Communities

Developing Communities are projected to have a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000 new housing units (a 492 percent increase over 2008), and about 65,000 new jobs (a 397 percent increase over 2008), developing nearly 24,000 acres to accommodate the growth. Developing Communities see the highest growth rate of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment.

Table 13.6
Location of Potentially Significant Transportation Noise Impacts in Established Communities before and after Mitigation

Location			Noise Threshold: 65 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
SR-65	Northwest of Taylor Rd	Placer	60.8	71.9	11.1			
SR-65	South of Sunset Blvd	Placer	62.9	71.8	9.0			
SR-65	North of Sunset Blvd	Placer	61.7	70.1	8.4			
I-80	North of Rocklin Rd	Placer	66.5	73.6	7.0			
I-80	East of SR-49	Placer	65.0	71.2	6.2			
I-80	East of Sierra College Blvd	Placer	70.5	73.7	3.2			
I-80	East of Taylor Rd	Placer	68.1	75.7	7.6		x	
I-80	East of Douglas Blvd	Placer	67.0	74.7	7.7		x	
I-80	At Cirby Way	Placer	64.9	73.1	8.1			x
I-80	South of Roseville Pkwy	Placer	70.7	76.1	5.4		x	
SR-99	South of Kammerer Rd	Sacramento	66.2	72.6	6.4			
I-80	Northeast of Antelope Rd	Sacramento	68.3	75.4	7.1	x		
I-80	East of Greenback Ln	Sacramento	69.7	75.6	5.9	x		
I-80	East of Raley Blvd	Sacramento	68.5	74.8	6.3			x
I-80	East of Norwood Ave	Sacramento	68.3	74.6	6.4			x
I-80	West of I-5	Sacramento	66.3	73.4	7.1		x	
I-80	At Sacramento River Crossing	Sacramento	66.4	72.9	6.4			
SR-99	South of Sheldon Rd	Sacramento	70.3	74.7	4.5			
SR-99	North of Sheldon Rd	Sacramento	69.9	75.1	5.2			
SR-99	North of Stevenson Ave	Sacramento	69.8	74.0	4.2			
SR-99	South of US-50	Sacramento	69.1	75.6	6.5	x		
SR-70/99	North of W Catlett Rd	Sutter	64.4	67.8	3.4			
SR-99	South of Striplin Rd	Sutter	60.9	65.1	4.2			
SR-99	North of SR-113	Sutter	60.5	65.3	4.8		x	

Table 13.6
Location of Potentially Significant Transportation Noise Impacts in Established Communities before and after Mitigation

Location			Noise Threshold: 65 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
SR-113	Between Russell Blvd and Covell Blvd	Yolo	63.0	67.7	4.7	x		
I-505	North of W Main St/Hwy 16	Yolo	62.5	69.9	7.4			
I-5	North of CR-102	Yolo	63.3	71.2	7.8	x		
I-5	North of East Main St	Yolo	66.2	72.0	5.9			
I-5	Between CR-10 and CR-12	Yolo	66.5	72.8	6.3			
I-505	South of Russell Blvd	Yolo	63.6	72.6	9.0			
I-5	North of I-505 South	Yolo	65.7	74.4	8.7			
I-5	North of SR-113 Or East St	Yolo	66.4	72.8	6.4			
I-80	At Yolo Causeway	Yolo	68.2	75.9	7.7		x	
SR-113	South of CR-27	Yolo	61.3	66.2	4.9			
I-505	South of I-5	Yolo	61.3	69.7	8.4			
I-505	South of W Main St/Hwy 16	Yolo	63.1	70.8	7.6			
I-505	South of CR-27	Yolo	63.0	71.5	8.6			
SR-70	North of SR-65	Yuba	62.9	68.8	5.9			
					Subtotal	**5**	**6**	**3**
					Total Locations Potentially Mitigated to LS	**14**		

Because Developing Communities may not be developed currently, the introduction of new noise sources will likely increase the perceived loudness in this Community Type. As discussed in the settings section the "loss of peace and quiet" does not necessarily constitute a significant impact. However, with the type of rapid growth forecasted for this Community Type, it is likely that implementation of the proposed MTP/SCS will expose Developing Communities to new or increased noise from mechanical systems, industrial operations, and other stationary sources of community noise. These areas could be exposed to noise in excess of 60 Ldn and increases greater than 3 dBA over baseline conditions.

Therefore, the noise impacts related to land use changes from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Implementation of the MTP/SCS will result in the construction of transportation improvement projects. However, Developing Communities will not necessarily see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing Communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. These areas will see road maintenance and rehabilitation projects, but because these areas have less transportation infrastructure to begin with, these projects will not be as prevalent as in Center and Corridor Communities and Established Communities. Developing Communities generally are not served by transit today, but new transit service will be added incrementally to align with the completion of new housing and employment centers. Pedestrian and bicycle infrastructure will be similarly phased in over the life of the proposed MTP/SCS.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in eight Developing Community roadway segments that increase noise levels to potentially significant levels. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts were reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, five locations were potentially mitigated to less than significant levels. More detail about these locations is given in Table 13.7.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3 dBA relative to baseline conditions.

Light rail improvements will include increasing frequency on existing corridors. Because improvements along existing corridors would not double the number of daily trains along the corridors, these improvements are not expected to increase daily noise (Ldn) along these corridors by more than 3 dBA relative to baseline conditions.

Therefore, the noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in Developing Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Table 13.7

Location of Potentially Significant Transportation Noise Impacts in Developing Communities Before and After Mitigation

Location			Noise Threshold: 60 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
Baseline Rd	West of Watt Ave	Placer	58.9	63.2	4.25		x	
Baseline Rd	East of Watt Ave	Placer	59.1	62.2	3.01		x	
S Watt Ave	North of Fruitridge Blvd	Sacramento	58.9	62.7	3.72			
Bradshaw Rd	South of SR-16/Jackson Highway	Sacramento	57.3	60.8	3.52		x	
Grant Line Rd	North of Elk Grove Blvd	Sacramento	57.7	61.7	4.01		x	
SR-70/99	South of W Elkhorn Blvd	Sacramento	66.3	70.9	4.62			
SR-99	North of Twin Cities Rd	Sacramento	67.2	72.7	5.50			
Riego Rd	East of SR-99	Sutter	57.4	62.7	5.27		x	
					Subtotal	**0**	**5**	**0**
					Total Locations Potentially Mitigated to LS	**5**		

Rural Residential Communities

Rural communities are very low-density communities with mostly residential development and some small-scale farming. These communities projected to have very limited growth by 2035. Housing units are expected to increase by about 5,300 (7 percent), and jobs are expected to increase by 4,000 jobs (12 percent). This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

As with Developing Communities, Rural Residential Communities have fewer sources of existing stationary noise sources than Center and Corridor Communities and Established Communities. Although these areas will see some growth over the MTP/SCS planning period, growth is expected to be minimal and of the same character as existing development. As noted in the Developing Communities analysis, the loss of "peace and quiet" is not in and of itself a significant impact, as long as daily noise levels remain within established thresholds. It is unlikely that the small amount of growth in these areas would expose Rural Residential Communities to noise in excess of 55 dBA Ldn and increase noise levels by more than 3 dBA over baseline conditions.

Therefore, noise impacts related to land use changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact NOI-1. No mitigation is required.

Existing transportation infrastructure in rural communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the region. Implementation of the proposed MTP/SCS will result in the construction of roadway improvements, including road maintenance and rehabilitation, roadway widenings, newly constructed roadways, and freeway improvements. There may also be limited improvements to transit service.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in 35 Rural Residential Community roadway segments that increase noise levels to potentially significant levels. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts were reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, 14 locations were potentially mitigated to less than significant levels. More detail about these locations is given in Table 13.8.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3dBA relative to baseline conditions. The proposed MTP/SCS does not include any improvements to light rail in Rural Residential Communities.

The noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Additionally, while noise impacts related to land use changes in Rural Residential Communities are considered less than significant (LS), new land use related noise sources in combination with transportation infrastructure related noise impacts could contribute to a potentially significant (PS) impact for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Existing development in these areas consists of primarily farm homes, agricultural-related uses, forestry, mining and public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses will occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, noise impacts related to land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-1. No mitigation is required.

Development in the Lands Not Identified for Development Community Type is expected to result in very small if any increases in traffic on roadways. Because of this, implementation of the proposed MTP/SCS is not expected to result in significant noise impacts along existing roadways or transit routes and is not expected to result in significant noise impacts associated with new roadways, bridges, and transit facilities.

Therefore, noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-1. No mitigation is required.

C. Transit Priority Area Impacts

Placer County Transit Priority Areas
The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and about 10,000 new jobs by 2035. This development will occur on about 315 acres. The Placer County TPAs overlap with both Center and Corridor Communities and Established Communities.

Noise is an inevitable part of urban living. Urban areas experience noise from any number of sources associated with living in proximity to other people and among different land uses. Typical community noise sources include small mechanical devices (lawn mowers, leaf blowers, etc.), parks and playgrounds, restaurants and bars, commercial uses, and industrial plants. Traffic and transportation-related noise is also a dominant noise source in this Community Type; the noise impacts of transportation are discussed below. The Placer County TPAs already experience higher levels of noise than the other Community Types, and noise is an expected part of life in these areas. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in the Placer County TPAs because of the increased density in these areas.

Table 13.8

Location of Potentially Significant Transportation Noise Impacts in Rural Residential Communities Before and After Mitigation

Location			Noise Threshold: 55 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
Icehouse Rd	North of US-50	El Dorado	52.6	58.5	6.0			
Green Valley Rd	West of Sophia Pkwy	El Dorado	55.6	59.4	3.7		x	
Fiddyment Rd	North of Athens Ave	Placer	51.3	56.8	5.4			
SR-49/Placer - Nevada CL	North of Lone Star Rd	Placer	59.3	63.8	4.5			
I-80	South of Applegate Rd	Placer	64.4	71.3	6.9			
I-80	South of Ridge Rd	Placer	64.7	73.1	8.4			
I-80	North of Placer Hills Rd	Placer	62.3	70.3	8.0			
I-80	North of Canyon Creek Dr	Placer	63.6	70.2	6.5			
Elverta Rd	East of Sorento Rd	Sacramento	57.2	60.2	3.0		x	
Hood Franklin Rd	West of Franklin Blvd	Sacramento	55.2	60.1	4.9		x	
White Rock Rd	East of Grant Line Rd	Sacramento	56.8	60.7	3.8		x	
White Rock Rd	West of Grant Line Rd	Sacramento	53.4	59.2	5.9		x	
Sorrento Rd	North of Elverta Rd	Sacramento	44.6	56.4	11.8			
Elverta Rd	West of SR-70/99	Sacramento	49.2	55.5	6.3			
White Rock Rd	West of Scott Rd	Sacramento	55.2	59.6	4.3		x	
Grant Line Rd	West of Sunrise Blvd	Sacramento	55.9	61.2	5.2		x	
Grant Line Rd	North of Wilton Rd	Sacramento	56.0	62.3	6.3		x	
Grant Line Rd	North of Sheldon Rd	Sacramento	56.9	62.9	6.0		x	
Grant Line Rd	North of Calvine Rd	Sacramento	55.2	61.5	6.3		x	
Twin Cities Rd	East of River Rd	Sacramento	52.7	57.9	5.2			
Jackson Rd	West of Sunrise Blvd	Sacramento	55.7	59.8	4.0		x	

Table 13.8

Location of Potentially Significant Transportation Noise Impacts in Rural Residential Communities Before and After Mitigation

Location			Noise Threshold: 55 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
I-5	South of Hood Franklin Rd	Sacramento	69.2	75.9	6.7			
Jackson Rd	East of Sunrise Blvd	Sacramento	55.6	62.9	7.3		x	
CA-160	North of Poverty Rd	Sacramento	51.6	55.7	4.1			
SR-99	South of Dillard Rd	Sacramento	66.2	72.6	6.4			
SR-16	West of Ione Rd	Sacramento	60.3	63.3	3.0			
SR-70/99	South of Elverta Rd	Sacramento	65.4	70.7	5.3		x	
SR-99	Between Elverta Rd and Riego Rd	Sacramento	65.7	71.8	6.1		x	
Simpson Lane	West of Davis Rd	Yuba	53.9	58.5	4.6			
SR-70	North of Surrey Way	Yuba	52.4	59.7	7.3			
SR-65	South of McGowan Pkwy	Yuba	55.4	62.8	7.5			
SR-70	At SH 65 junction	Yuba	64.2	68.2	4.0			
SR-65	South of SR-70	Yuba	59.7	66.9	7.2			
SR-70/Yuba River	Northwest of N. Beale Rd	Yuba	64.9	69.4	4.4			
SR-70	At Yuba-Butte CL	Yuba	59.3	62.6	3.2			
					Subtotal	**0**	**14**	**0**
					Total Locations Potentially Mitigated to LS	**14**		

The compact nature of development is likely to expose TPAs to noise levels in excess of the noise thresholds identified in Table 13.3 and increases in noise levels of more than 3 dBA over baseline conditions.

Therefore, the noise impacts related to land use changes from implementation of the proposed MTP/SCS in the Placer County TPAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Placer County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in three Placer County TPA roadway segments that increase noise levels to potentially significant levels, all of which occur in Established Communities. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts were reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, all three locations were potentially mitigated to less than significant levels. However, because SACOG cannot guarantee that these locations will be reduced to less than significant levels, they remain potentially significant. More detail about these locations is given in Table 13.9.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3dBA relative to baseline conditions. The proposed MTP/SCS does not include any improvements to light rail in the Placer County TPAs.

Therefore, the noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in the Placer County TPAs are considered potentially (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include the majority of the city of Sacramento and portions of Rancho Cordova, Folsom, and Citrus Heights. These areas are already urbanized with existing sources of urban noise. The Sacramento County TPAs will see approximately 92,000 new housing units and about 108,000 new jobs. This development will occur on about 5,000 acres. The Sacramento County TPAs overlap with Center and Corridor Communities, Established Communities, and Developing Communities.

Table 13.9
Location of Potentially Significant Transportation Noise Impacts in the Placer County TPAs Before and After Mitigation

Location			Noise Threshold: 65 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
I-80	East of Taylor Rd	Placer	68.1	75.7	7.60		x	
I-80	East of Douglas Blvd	Placer	67.0	74.7	7.72		x	
I-80	South of Roseville Pkwy	Placer	70.7	76.1	5.36		x	
					Subtotal	**0**	**3**	**0**
					Total Locations Potentially Mitigated to LS	**3**		

As discussed in the Placer County TPA analysis, noise is an inevitable part of urban living. The Sacramento County TPAs already experience higher levels of noise than the other Community Types, and noise is an expected part of life in these areas. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in the Sacramento County TPAs because of the increased density in these areas. The compact nature of development is likely to expose TPAS to noise levels in excess of the Community Type noise thresholds identified in Table 13.3 and increases in noise levels of more than 3 dBA over baseline conditions.

Therefore, the noise impacts related to the land use changes from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Sacramento County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in 11 Sacramento County TPA roadway segments that increase noise levels to potentially significant levels, of which seven will occur in Center and Corridor Communities, two will occur in Established Communities, and two will occur in Developing Communities. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts were reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, seven locations were potentially mitigated to less than significant levels. More detail about these locations is given in Table 13.10.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3 dBA relative to baseline conditions.

Light rail improvements will include increasing the frequency of and making improvements to existing corridors and adding new corridors. In general, the proposed transit improvements along existing corridors will occur in developed urban areas where noise levels are already high from existing transportation systems. Because improvements along existing corridors would not double the number of daily trains along the corridors, these improvements are not expected to increase daily noise (Ldn) along these corridors by more than 3 dBA relative to baseline conditions. However, in areas that do not currently have light rail operations, implementation of the proposed MTP/SCS could increase noise levels above acceptable Community Type noise levels (as identified in Table 13.3) and increase daily noise (Ldn) by more than 3 dBA relative to baseline conditions.

Table 13.10

Location of Potentially Significant Transportation Noise Impacts in the Sacramento TPAs Before and After Mitigation

Location			Noise Threshold: 60-70 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
I-5	From O St to R St	Sacramento	70.7	74.9[1]	4.17	x		
I-5	At I St	Sacramento	68.7	75.5[1]	6.74			
I-5	North of I St	Sacramento	69.2	74.6[1]	5.39			
I-80	East of Winters St	Sacramento	67.3	74.7[1]	7.44		x	
SR-99	North of Florin Rd	Sacramento	69.6	74.8[1]	5.26	x		
SR-99	South of Fruitridge Blvd	Sacramento	70.6	74.7[1]	4.14	x		
SR-99	North of Fruitridge Blvd	Sacramento	67.9	75.2[1]	7.27			x
S Watt Ave	North of Fruitridge Blvd	Sacramento	58.9	62.7[3]	3.72			
Bradshaw Rd	South of SR-16 /Jackson Highway	Sacramento	57.3	60.8[3]	3.52		x	
SR-99	North of Stevenson Ave	Sacramento	69.8	74.0[2]	4.20			
State Highway 99	South of US-50	Sacramento	69.1	75.6[2]	6.47	x		
					Subtotal	**4**	**2**	**1**
					Total Locations Potentially Mitigated to LS	**7**		

[1] These locations are within Center and Corridor Communities. The corresponding community noise threshold is 70 dBA Ldn.

[2] These locations are within Established Communities. The corresponding community noise threshold is 65 dBA Ldn.

[3] These locations are within Developing Communities. The corresponding community noise threshold is 60 dBA Ldn.

Therefore, the noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County TPAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Yolo County Transit Priority Areas

The Yolo County TPAs include the majority of West Sacramento and Davis. These areas are already urbanized with existing noise sources. Yolo County TPAs will see approximately 20,000 new housing units and about 22,000 new jobs. This development will occur on about 1,250 acres. The Yolo County TPAs overlap Center and Corridor Communities and Established Communities.

As discussed in the Placer County TPA analysis, noise is an inevitable part of urban living. The Yolo County TPAs already experience higher levels of noise than the other Community Types, and noise is an expected part of life in these areas. Implementation of the proposed MTP/SCS is likely to increase the amount of noise experienced in the Yolo County TPAs because of the increased density in these areas. The compact nature of development is likely to expose TPAs to noise levels in excess of the Community Type noise thresholds identified in Table 13.3 and increases in noise levels of more than 3 dBA over baseline conditions.

Therefore, the noise impacts related to land use changes from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Yolo County TPAs will see a variety of transportation improvements by 2035, including new HOV lanes, auxiliary lanes, roadway widenings, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Transit service will include increased frequency on local fixed route buses, new streetcar service in West Sacramento, and increased express service to downtown Sacramento.

As noted in Table 13.4 above, implementation of the proposed MTP/SCS will result in two Yolo County TPA roadway segments that increase noise levels to potentially significant levels, of which one will occur in a Center and Corridor Community and one will occur in an Established Community. However, as explained in the methods and assumptions section above, some segments that initially were projected to have significant noise impacts were reduced to less than significant levels after considering existing soundwalls or future MTP projects. After these considerations, one location was potentially mitigated to a less than significant level. More detail about these locations is given in Table 13.11.

Heavy rail improvements will include increasing the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (Ldn) along any given track by more than 3dBA relative to baseline conditions. The proposed MTP/SCS does not include any improvements to light rail in the Yolo County TPAs.

Table 13.11
Location of Potentially Significant Transportation Noise Impacts in the Yolo County TPAs Before and After Mitigation

Location			Noise Threshold: 65-70 dBA and 3 dBA above 2008 noise levels			Locations Potentially Mitigated to LS		
Street	Cross Street	County	2008 Noise Level	MTP/SCS Noise Level	Change from 2008 to MTP/SCS	Locations with Soundwall Alone	Locations with MTP Project Alone	Locations with Soundwall and MTP Project
I-80	South of Richards Blvd	Yolo	67.9	75.0[1]	7.07			
SR 113	between Russell Blvd and Covell Blvd	Yolo	63.0	67.7[2]	4.66	x		
					Subtotal	**1**	**0**	**0**
					Total Locations Potentially Mitigated to LS	**1**		

[1] This location is within a Center and Corridor Community. The corresponding community noise threshold is 70 dBA Ldn.
[2] This location is within an Established Community. The corresponding community noise threshold is 65 dBA Ldn.

The noise impacts related to transportation improvements from implementation of the proposed MTP/SCS in the Yolo County TPAs are considered potentially significant (PS) for Impact NOI-1. Mitigation Measure NOI-1 is described below.

Mitigation Measure NOI-1: Employ measures to reduce noise from new land uses and transportation projects.

For projects that have not undergone previous noise study and that exceed acceptable noise thresholds, the implementing agency should conduct a project-level evaluation of noise impacts in accordance with applicable federal, state, and local noise standards. Where significant impacts are identified, mitigation measures should be implemented, where feasible, to reduce noise to be in compliance with applicable noise standards. Measurements that can be implemented include but are not limited to:

- constructing barriers in the form of sound walls or earth berms to attenuate noise at adjacent residences;
- using land use planning measures, such as zoning, restrictions on development, site design, and buffers to ensure that future development is compatible with adjacent transportation facilities and land uses;
- constructing roadways so that they are depressed below-grade of the existing sensitive land uses to create an effective barrier between new roadway lanes, roadways, rail lines, transit centers, park-n-ride lots, and other new noise generating facilities;
- maximizing the distance between noise-sensitive land uses and new noise-generating facilities and transportation systems;
- improving the acoustical insulation of dwelling units where setbacks and sound barriers do not sufficiently reduce noise; and
- using rubberized asphalt or "quiet pavement" to reduce road noise for new roadway segments, roadways in which widening or other modifications require re-pavement, or normal reconstruction of roadways where re-pavement is planned.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact NOI-1 would be reduced but not to a less than significant level. Additionally, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact NOI-1 remains significant and unavoidable (SU).

Impact NOI-2: Result in excessive vibration and groundborne noise.

A. Regional Impacts

Development land uses have been classified into five general categories in the proposed MTP/SCS:

- Residential: residential uses include single-family and multi-family housing of all densities and types.
- Office and Commercial: this category includes commercial uses that offer goods for sale to the public (retail) and service and professional businesses housed in offices. Office and commercial businesses include those that service neighborhood needs, community or regional needs. Government office buildings are included in this category.
- Industrial: the industrial category includes a mix of manufacturing and light industrial uses, some of which are found in business, research, and development parks. Light industrial activities include warehousing and some types of assembly work. Wholesaling and warehousing are also included in this category.
- Public: non-office government buildings, public corporation yards, water and wastewater treatment plants, public utilities, libraries, schools, and other public institutions are found in this category. Hospitals are also included in this category.
- Mixed-Use (vertical): residential and commercial uses mixed within one building are included in this category.

Different types of land uses necessarily generate different amounts of vibration and groundborne noise. For example, industrial uses and certain public buildings generate substantially more vibration and groundborne noise than residential and commercial uses since the former often operate machinery and other vibration-inducing equipment. One environment is not better than the others. The amount of vibration and groundborne noise in an environment is simply a reflection of the types of uses occurring there.

Similarly, different types of transportation infrastructure generate different amounts of vibration and groundborne noise. Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. Rail operations, including freight and light rail trains, can also be a source of vibration.

Because the MTP/SCS plan area is made up of such a diversity of land uses and transportation infrastructure, one regional vibration and groundborne noise threshold cannot reflect the varied environments found in the region. Additionally, as with noise, vibration and groundborne noise are experienced at the localized level. Without a noise threshold, it is infeasible to perform a regional noise analysis or reach a finding of significance for Impact NOI-2. Localized impacts are explored below in the Community Type and Transit Priority Area discussions.

B. Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

Normal operation of residential, office and commercial, and mixed-use buildings are unlikely to generate substantial vibration or groundborne noise. Industrial and public buildings could generate vibration and groundborne noise during operations that involve the use of machinery or other vibration-inducing equipment. However, the amount of vibration produced is not

anticipated to be excessive, as workplace vibration is typically addressed from an occupational health and safety perspective. As with noise, vibration dissipates with distance from the source, so surrounding land uses would unlikely be affected.

Therefore, the vibration and groundborne noise impacts related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. However, such vibration is rarely high enough to cause annoyance to surrounding uses, as vehicles are supported on spring suspensions and pneumatic tires, which reduce the amount of vibration and groundborne noise generated from vehicular traffic. Rail operations, including freight and light rail trains, can also be a source of vibration. The Community Types will see increased levels of both heavy rail and light rail with implementation of the proposed MTP/SCS. Existing and future growth and development near existing or planned light rail or heavy rail lines could result in excessive levels of vibration and groundborne noise.

Therefore, the vibration and groundborne noise impacts related to rail improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact NOI-2. Mitigation Measure NOI-2 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the vibration and groundborne noise impacts related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

The MTP/SCS will make a limited number of transportation investments in Lands Not Identified for Development, including road maintenance, road widenings and safety enhancements, and other roadway improvements.

Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. However, such vibration is rarely high enough to cause annoyance to surrounding uses, as vehicles are supported on spring suspensions and pneumatic tires, which reduce the amount of vibration and groundborne noise generated from vehicular traffic. Rail operations can also be a source of vibration. However, because Lands Not Identified for Development are spread out over a vast land area, it is unlikely that increased freight rail will significantly impact levels of vibration and groundborne noise at the Community Type level.

Therefore, the vibration and groundborne noise impacts related to the transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

C. Transit Priority Area Impacts

The Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described above in the localized impacts discussion for Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities.

Therefore, the impacts on vibration and groundborne noise related to the land use changes from implementation of the proposed MTP/SCS in Transit Priority Areas are considered less than significant (LS) for Impact NOI-2. No mitigation is required.

The impacts on vibration and groundborne noise related to transportation improvements from implementation of the proposed MTP/SCS in Transit Priority Areas are considered potentially significant (PS) for Impact NOI-2. Mitigation Measure NOI-2 is described below.

Mitigation Measure NOI-2: Employ vibration-reducing measures on new and expanded rail systems.

The implementing agency should undertake a detailed evaluation of vibration and groundborne noise impacts and identify project-specific mitigation measures, as necessary to reduce vibration to a level that is in compliance with applicable local standards or FTA standards. The following are measures that may be implemented to minimize the effects of vibration and groundborne noise from rail operations:

- Comply with all applicable local vibration and groundborne noise standards, or in the absence of such local standards, comply with FTA vibration and groundborne noise standards. Methods than can be implemented to reduce vibration and groundborne noise impacts include but are not limited to:
    - maximizing the distance between tracks and sensitive uses;
    - conducting rail grinding on a regular basis to keep tracks smooth;
    - conducting wheel truing to re-contour wheels to provide a smooth running surface and removing wheel flats;
    - providing special track support systems such as floating slabs, resiliently supported ties, high-resilience fasteners, and ballast mats; and
    - implementing operational changes such as limiting train speed and reducing nighttime operations.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact NOI-2 would be reduced to less than significant (LS). However, because SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, Impact NOI-2 remains significant and unavoidable (SU).

Impact NOI-3: Result in construction impacts that would increase noise levels above the Community Type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions; or result in excessive levels of vibration and groundborne noise.

A. Regional Impacts

As noted in Table 13.3 and Impact AES-2, there are no regional thresholds for noise and vibration. Different types of land uses and transportation infrastructure necessarily have different noise and vibration environments. Because of the nature of noise and vibration impacts (noise and vibration dissipate with distance from the source), construction associated with new development and transportation projects will have noise and vibration impacts, but such potentially significant impacts will be confined to specific geographies and therefore cannot be evaluated from a regional perspective.

Because the MTP/SCS plan area is made up of such a diversity of land uses and transportation infrastructure, one regional noise and vibration threshold cannot reflect the varied environments found in the region. Without a threshold, it is infeasible to perform a regional noise analysis or reach a finding of significance for Impact NOI-3. Localized impacts are explored below in the Community Type and transit priority area discussions.

B. Localized Impacts

Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities

Construction of new developments could result in temporary noise and vibration impacts from grading, paving, clearing, landscaping, staging, excavation, earthmoving, and other related construction activities. Such construction activities will require the use of construction equipment (pile drivers, jackhammers, etc.) and vehicles that generate significant amounts of noise and vibration in the immediate vicinity of the source, often resulting in noise and vibration levels substantially higher than existing conditions. Table 13.1 shows typical construction noise levels for various construction activities. Noise and vibration impacts from construction activities depend on several factors including the types of surrounding land uses, duration and type of construction activities, distance between source and receptor, and the presence or absence of barriers between source and receptor.

Construction impacts are considered temporary and localized in nature, as they are limited to the time during which the project is being constructed and confined to areas adjacent to the construction site. After the project is completed, all construction equipment and vehicles are removed. Any noise or vibration impacts associated with the structure itself, once fully

completed and operational, are covered in Impact NOI-1 and NOI-2. However, while construction-related noise impacts would be short term, implementation of the proposed MTP/SCS could result in increases in noise or vibration that would result in significant impacts.

Therefore, the construction-related noise and vibration impacts related to the land use changes from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact NOI-3. Mitigation Measure NOI-3 is described below.

Construction of new transportation projects could result in temporary noise and vibration impacts from grading, paving, clearing, landscaping, staging, excavation, earthmoving, and other related construction activities. Such construction activities will require the use of construction equipment (pile drivers, jackhammers, etc.) and vehicles that generate significant amounts of noise and vibration in the immediate vicinity of the source, often resulting in noise and vibration levels substantially higher than existing conditions. Table 13.1 shows typical construction noise levels for various construction activities. Noise and vibration impacts from construction activities depend on several factors including the types of surrounding land uses, duration and type of construction activities, distance between source and receptor, and the presence or absence of barriers between source and receptor.

Construction impacts are considered temporary and localized in nature, as they are limited to the time during which the project is being constructed and confined to areas adjacent to the construction site. After the project is completed, all construction equipment and vehicles are removed. Any noise or vibration impacts associated with the structure itself, once fully completed and operational, are covered in Impact NOI-1 and NOI-2. However, while construction-related noise impacts would be short term, implementation of the proposed MTP/SCS could result in increases in noise or vibration that would result in significant impacts.

Therefore, the construction-related noise and vibration impacts related to transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities are considered potentially significant (PS) for Impact NOI-3. Mitigation Measure NOI-3 is described below.

Lands Not Identified for Development in the Proposed MTP/SCS

Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the construction-related noise and vibration impacts related to the land use changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact NOI-3. No mitigation is required.

With respect to transportation changes in Lands Not Identified for Development, the localized impacts associated with implementation of the proposed MTP/SCS are the same as described in the Community Types discussion above. Transportation projects in Lands Not Identified for Development have the potential to result in construction-related impacts that increase noise levels above the Community Type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions; or result in excessive levels of vibration and groundborne noise from regional growth and new and expanded transportation facilities.

Therefore, the construction-related noise and vibration impacts related to the transportation projects from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered potentially significant (PS) for Impact NOI-3. Mitigation Measure NOI-3 is described below.

C. Transit Priority Area Impacts

The Transit Priority Area impacts associated with implementation of the proposed MTP/SCS are the same in each of the TPAs as described above in the localized impacts discussion for Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities. Land use and transportation projects in all of the TPAs have the potential to result in construction impacts that would increase noise levels above the Community Type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions; or result in excessive levels of vibration and groundborne noise from regional growth and new and expanded transportation facilities.

Therefore, the construction-related noise and vibration impacts related to the land use changes and the transportation projects from implementation of the proposed MTP/SCS in each of the TPAs are considered potentially significant (PS) for Impact NOI-3. Mitigation Measure NOI-3 is described below.

Mitigation Measure NOI-3: Reduce noise, vibration, and groundborne noise generated by construction activities.

The implementing agency should reduce noise, vibration, and groundborne noise generate by construction activities by taking the following (or equivalent) actions:

- restrict construction activities to permitted hours in accordance with local jurisdiction regulations;
- properly maintain construction equipment and outfit construction equipment with the best available noise suppression devices (e.g., mufflers, silencers, wraps);
- prohibit idling of construction equipment for extended periods of time in the vicinity of sensitive receptors;
- locate stationary equipment such as generators, compressors, rock crushers, and cement mixers as far from sensitive receptors as possible; and
- predrill pile holes to the maximum feasible depth, provided that pile driving is necessary for construction.

Significance after Mitigation

If the implementing agency adopts this mitigation measure, Impact NOI-3 would be reduced but not to a less than significant level. Additionally, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, Impact NOI-3 remains significant and unavoidable (SU).

CHAPTER 14 – POPULATION AND HOUSING

INTRODUCTION

This chapter describes existing conditions (environmental and regulatory) for population and housing and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect population and housing within the MTP/SCS plan area. This chapter also evaluates the potential impacts on population and housing that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

SETTING

Environmental Setting

Existing Population, Housing, and Employment Distribution

The 2010 census indicates that the current population within the six counties, excluding the Tahoe Basin, is 2,275,401, representing a nearly 20 percent increase since 2000 (1,901,964). This is twice the growth rate of the state of California, which grew ten percent over the same period to a 2010 population of 37,253,956. As of 2010, the MTP/SCS plan area was home to six percent of the population of California (U.S. Census, 2010).

The population centers of the region are located in and around the region's geographic center. Approximately 61 percent of the region's population lives in incorporated cities, the largest of which are the cities of Sacramento, Elk Grove, and Roseville (US Census, 2011). Unincorporated Sacramento County itself is home to 554,000 people, making it the most populous of the jurisdictions in the region. The City of Sacramento, with 466,000 residents, is the largest incorporated city in the region, followed by Elk Grove, Roseville, and Citrus Heights, all of which are located close to the urban core. The smallest cities are located near the geographic edge of the region and include the cities of Isleton, Winters, Colfax, Live Oak, and Wheatland. Table 14.1 provides 2008 population, housing units, and employment for the region.

Table 14.1

Population, Housing Units, and Employees by Jurisdiction (2008)

	Population[1]	Housing Units	Employees
El Dorado[2]	151,258	61,822	44,764
Placerville	9,372	4,290	10,588
Unincorporated county	141,886	57,532	34,176
Placer[2]	336,188	136,670	141,636
Auburn	13,488	6,373	8,983
Colfax	1,706	814	987
Lincoln	45,025	17,679	7,997
Loomis	6,166	2,394	4,242
Rocklin	55,398	21,933	16,950
Roseville	119,853	46,730	69,062
Unincorporated county	94,552	40,747	33,415
Sacramento	1,376,868	554,360	622,579
Citrus Heights	84,457	36,179	19,219
Elk Grove	150,077	49,018	28,429
Folsom	66,227	25,888	34,920
Galt	24,246	7,791	4,826
Isleton	720	352	115
Rancho Cordova	59,979	24,868	47,385
Sacramento	447,571	191,499	285,977
Unincorporated county	543,591	218,765	201,708
Sutter	92,251	33,707	31,751
Live Oak	7,184	2,501	1,059
Unincorporated county	25,279	8,651	6,006
Yuba City	59,788	22,555	24,686
Yolo	189,506	72,391	102,378
Davis	63,923	25,639	16,015
Unincorporated county	23,958	7,614	26,210
West Sacramento	45,098	17,825	32,759
Winters	6,148	2,075	1,971
Woodland	50,379	19,238	25,423
Yuba	68,973	26,133	23,177
Marysville	12,672	5,263	8,285
Unincorporated county	52,846	19,563	14,155
Wheatland	3,455	1,307	737
Region Total	2,215,044	885,083	966,285

Source: SACOG, September 2011.

[1]Population estimates for 2008 are based on persons per household rates by housing type. County totals are for incorporated cities and unincorporated areas.

[2]Excludes the Tahoe Basin.

Since adoption of the Blueprint Vision, a number of jurisdictions in the region have begun implementing the Blueprint principles in their own planning efforts. Still, variations in population, housing, and employment patterns (due to topography, economics, or other factors) exist in the region. Such variations are apparent when comparing centralized, urban areas of the region with more rural, agricultural-based areas. The following paragraphs describe the existing population, housing, and employment trends in each of the six counties in the MTP/SCS plan area.

El Dorado County

Historically, El Dorado County has maintained a low ratio of jobs to housing. The majority of the county's recent residential and employment growth has occurred in the unincorporated communities of El Dorado Hills and Cameron Park at the western edge of the county. These new communities are characterized by low-density residential and commercial development. New business park development has also emerged in El Dorado Hills.

Placer County

Placer County's population has historically been concentrated along the southwest section of the Interstate 80 corridor (Roseville, Rocklin, Granite Bay), with tapering population densities towards the eastern end of the corridor (Colfax, Foresthill). The southwest Placer communities of Roseville and Rocklin have emerged as a regional job center in the past several years, accompanied by significant residential growth within and surrounding those communities.

Sacramento County

Sacramento County is the population center of the region, with the largest city – the City of Sacramento – and unincorporated area – the County of Sacramento. Sacramento County housed 63 percent of the region's population in 2008. Sacramento County, and the cities therein, also contained a majority (64 percent) of the region's employment in 2008.

Sutter County

Currently, Sutter County is somewhat removed from the urbanized core of the region and is largely agricultural. Housing development has generally occurred within or contiguous to the two incorporated cities – Live Oak and Yuba City, in accordance with the county's general plan policies on urban development. Single-family housing is also developed in the unincorporated county, though at rural densities in accordance with the provisions of agricultural zoning districts. The county has a low jobs/housing ratio and is expected to improve that ratio through 2035.

Yolo County

Yolo County and its jurisdictions have traditionally maintained strong land use policies to focus urban development towards incorporated cities and unincorporated communities such as Capay, Clarksburg, Dunnigan, Esparto, Guinda, Knights Landing, Madison, and Yolo. The highest

population and housing densities currently are in the City of Davis and the adjacent University of California at Davis due to the large student population, followed by the City of West Sacramento. Yolo County has a high jobs/housing ratio, with much of the employment located in the cities of Davis and West Sacramento.

Yuba County

Although historically an agricultural area, in recent years the Highway 70 corridor in unincorporated Yuba County and the City of Wheatland has seen several large residential developments. The county has a low jobs/housing ratio that is expected to improve through 2035. The county's current employment centers are the City of Marysville and Beale Air Force Base.

Regulatory Setting

Federal Regulations

The Civil Rights Act of 1968, Title VIII (Fair Housing Act)

The Civil Rights Act of 1968, Title VIII (Fair Housing Act) (42 U.S.C. 3601 et seq.), as amended, prohibits discrimination in the sale, rental, and financing of dwellings, and in other housing-related transactions, based on race, color, national origin, religion, sex, familial status (including children under the age of 18 living with parents or legal custodians, pregnant women, and people securing custody of children under the age of 18), and handicap (disability).

The Civil Rights Act of 1964, Title VI

Title VI of the Civil Rights Act (42 U.S.C § 2000d et seq.) prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance.

The Rehabilitation Act of 1973, Section 504

The Rehabilitation Act of 1973, Section 504 (Programs, Services and Activities) (29 U.S.C. § 794) prohibits discrimination based on disability in any program or activity receiving federal financial assistance.

The Housing and Community Development Act of 1974, Title I, § 109

The Housing and Community Development Act (42 U.S.C. § 5301 et seq.) prohibits discrimination on the basis of race, color, national origin, sex, or religion in programs and activities receiving financial assistance from HUD's Community Development and Block Grant Program.

The Americans with Disabilities Act of 1990, Title II

The Americans with Disabilities Act (ADA) of 1990 (42 U.S.C. § 12101 et seq.) prohibits discrimination based on disability in programs, services, and activities provided or made available by public entities. HUD enforces Title II when it relates to state and local public housing, housing assistance, and housing referrals.

The Architectural Barriers Act of 1968

The Architectural Barriers Act of 1968 (42 U.S.C. § 4151 et seq.) requires that buildings and facilities designed, constructed, altered, or leased with certain federal funds after September 1969 must be accessible to and usable by handicapped persons.

Age Discrimination Act of 1975

The Age Discrimination Act of 1975 (42 U.S.C. §§ 6101–6107) prohibits discrimination on the basis of age in programs or activities receiving federal financial assistance.

The Education Amendments Act of 1972, Title IX

The Education Amendments Act of 1972 (20 U.S.C. §§ 1681–1688) prohibits discrimination on the basis of sex in education programs or activities that receive federal financial assistance.

Fair Housing-Related Presidential Executive Orders:

Executive Order 11063
Executive Order 11063 prohibits discrimination in the sale, leasing, rental, or other disposition of properties and facilities owned or operated by the federal government or provided with federal funds.

Executive Order 11246
Executive Order 11246, as amended, bars discrimination in federal employment because of race, color, religion, sex, or national origin.

Executive Order 12892
Executive Order 12892, as amended, requires federal agencies to affirmatively further fair housing in their programs and activities, and provides that the Secretary of HUD will be responsible for coordinating the effort. The Order also establishes the President's Fair Housing Council.

Executive Order 12898
Executive Order 12898 requires that each federal agency conduct its program, policies, and activities that substantially affect human health or the environment in a manner that does not exclude persons based on race, color, or national origin.

Executive Order 13166
Executive Order 13166 eliminates, to the extent possible, limited English proficiency as a barrier to full and meaningful participation by beneficiaries in all federally assisted and federally conducted programs and activities.

Executive Order 13217
Executive Order 13217 requires federal agencies to evaluate their policies and programs to determine if any can be revised or modified to improve the availability of community-based living arrangements for persons with disabilities

The Native American Housing Assistance and Self Determination Act of 1996

The Native American Housing Assistance and Self Determination Act (NAHASDA) of 1996 (25 U.S.C. § 4101 et seq.) reorganized the system of housing assistance provided to Native Americans through HUD by eliminating several separate programs of assistance and replacing them with a block grant program. The two programs authorized for Indian tribes under NAHASDA are the Indian Housing Block Grant, which is a formula-based grant program and Title VI Loan Guarantee, which provides financing guarantees to Indian tribes for private market loans to develop affordable housing.

Native American Housing Enhancement Act of 2005

The Native American Housing Enhancement Act of 2005 (25 U.S.C. § 4101 et seq.) amends the Native American Housing Assistance and Self-Determination Act of 1996 in prohibiting the Secretary of HUD from restricting tribal access to housing grant funds if a tribe retains program income funds. The Act specifies that Title VI of the Civil Rights Act of 1964 and Title VIII of the Civil Rights Act of 1968 shall not apply to federally recognized tribes. The Act also amends the Cranston-Gonzalez National Affordable Housing Act of 1990 (42 U.S.C. § 12704) to make tribes and tribally designated housing entities eligible for YouthBuild grants.

Indian Veterans Housing Opportunity Act of 2010

The Indian Veterans Housing Opportunity Act (Veterans Act) of 2010 (25 U.S.C. § 4103) amends NAHASDA to exclude from consideration as income any amounts received by a family from the Department of Veterans Affairs (VA) as veterans' disability compensation or dependency and indemnity compensation for service-related disabilities of a member of the family.

Uniform Relocation Assistance and Real Property Acquisition Policies Act

The Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act) of 1970 (42 U.S.C. § 4601 et seq.) , passed in 1970 and amended in 1987, is intended to provide for uniform and equitable treatment for persons displaced through federally-funded or assisted transportation and redevelopment projects that require property acquisition. The act lays out rules for notification, relocation counseling, social services or assistance for disabled residents, and compensation for replacement housing and moving costs. The rules stipulate that

replacement housing must be comparable to previous housing in terms of location, size, access to employment and public facilities, and must be "decent, safe, and sanitary." The rules apply if federal funds are used in any phase of the program or project, even if the property acquisition itself is not federally funded.

23 U.S.C. ch.1 § 134

The Code of Federal Regulations pertaining to the Department of Transportation contains guidelines for statewide and metropolitan transportation planning. These were last updated on August 10, 2005 when the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (23 U.S.C. § 507) was enacted. The rules and regulations require that the metropolitan planning organization (MPO) review and update the transportation plan to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon.

State Regulations

Fair Employment and Housing Act

The Fair Employment and Housing Act (FEHA) of 1959 (Gov. Code, § 12900 et seq.) prohibits housing discrimination on the basis of race, color, religion, sexual orientation, marital status, national origin, ancestry, familial status, disability, or source of income.

The Unruh Civil Rights Act

The Unruh Civil Rights Act of 1959 (Civ. Code, § 51) prohibits discrimination in "all business establishments of every kind whatsoever." The provision has been interpreted to include businesses and persons engaged in the sale or rental of housing accommodations.

California Government Code, § 65008

Government Code Section 65008 prohibits, *inter alia*, discrimination of any group or individuals in the enjoyment of residence, landownership, tenancy, or any other land use or against any resident development or emergency shelter.

California Constitution, Article 34, Public Housing Project Law

The state Public Housing Project Law, Article 34 of the California Constitution, requires a majority vote of the electorate to approve the development, construction, or acquisition by a public body of any "low rent project" within that jurisdiction. In other words, for any project to be built and/or operated by a public agency where at least 50 percent of the occupants are low income and rents are restricted to affordable levels, the jurisdiction must seek voter approval.

California Building Standards Code

In 2001, the State of California consolidated the Uniform Building, Plumbing, Electrical, and Mechanical codes into the California Building Standards Code, which is contained in Title 24 of the California Code of Regulations. The California Building Standards Code contains nine parts: Electrical Code, Plumbing Code, Administrative Code, Mechanical Code, Energy Code, Elevator Safety Construction Code, Historical Building Code, Fire Code, and the Code for Building Conservation Reference Standards. These codes promote public health and safety and ensure that safe and decent housing is constructed in the San Diego region. The codes serve to protect residents from hazards and risks, and are not considered to be undue constraints to housing production. The 2010 triennial edition of the Code applies to all occupancies that applied for a building permit on or after January 1, 2011, and remains in effect until the effective date of the 2013 triennial edition.

California Transportation Commission (CTC) Regional Transportation Plan (RTP) Guidelines

Pursuant to Government Code Section 65080(c), each Regional Transportation Planning Agency (RTPA) is required to adopt and submit an updated Regional Transportation Plan (RTP) to the California Transportation Commission (CTC) and the Department of Transportation (Caltrans) every four years. SACOG is the designated RTPA for Sacramento, Yolo, Sutter, and Yuba counties. Under Government Code Section 14522, the CTC is authorized to prepare guidelines to assist in the preparation of RTPs. The CTC's RTP guidelines suggest that projections used in the development of an RTP should be based upon available data (such as from the U.S. Census Bureau), use acceptable forecasting methodologies, and be consistent with the Department of Finance baseline projections for the region. The guidelines further state that the RTP should identify and discuss any differences between the agency projections and those of the Department of Finance.

California Relocation Assistance Act

The California Relocation Assistance Act (Gov. Code, § 7260 et seq.) was passed in 1971, following the federal Uniform Relocation Assistance Act in 1970 (see above in Federal Regulations). California's version of the law has similar provisions requiring notification, counseling, social services, and financial assistance for persons displaced by transportation and land redevelopment projects. Under the California act, these procedural protections and benefits apply when the project causing the displacement has received state funding during any phase of the program or project, even if it did not receive federal funding. The law also requires that each city or county that has a redevelopment agency also have a relocation appeals board to hear public input from residents of project areas where relocation is occurring.

General Plan Law (Gov. Code, § 65000 et seq.)

Housing element law requires local governments to adequately plan to meet their existing and projected housing needs. Pursuant to Government Code Section 65580, a Housing Element of a General Plan must contain local commitments to:

- Provide sites with appropriate zoning and development standards, and with services and facilities to accommodate the jurisdiction's Regional Housing Needs Allocation (RHNA) for each income level. The RHNA is the only population and/or housing requirement that applies to the General Plan.
- Assist in the development of adequate housing to meet the needs of lower- and moderate-income households.
- Address and, where appropriate and legally possible, remove governmental constraints to the maintenance, improvement, and development of housing, including housing for all income levels and housing for persons with disabilities.
- Conserve and improve the condition of the existing affordable housing stock.
- Promote housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability.
- Preserve assisted housing developments for lower-income households.

State Housing Element law mandates specific topics and issues that must be addressed in the Housing Element. These include:

- An analysis of population and employment trends, documentation of projections, and quantification of existing and projected housing needs for all income levels.
- An analysis and documentation of household characteristics, such as the age of housing stock, tenancy type, overcrowded conditions, and the level of payment compared to ability to pay.
- An analysis and documentation of special needs, such as female-headed households, homeless individuals, persons with disabilities, large households, farmworkers, and the elderly.
- A regional share of the total regional housing need for all income categories.
- An inventory of land suitable for residential development, including vacant land and infill/redevelopment opportunities. This analysis also looks at potential residential sites and their accessibility to adequate infrastructure and services.
- Identifying actual and potential governmental and nongovernmental constraints that could potentially impede the maintenance, improvement, and development of housing for all income groups.
- Identifying and analyzing opportunities for energy conservation in residential developments.
- An inventory of at-risk affordable units that have the possibility of converting to market rate.
- A statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the improvement, maintenance, and development of housing.

SACOG, like other councils of governments in the state, receives an overall regional housing allocation, and must develop a methodology for calculating and distributing to each jurisdiction its fair share of the allocation. Each city and county in the plan area will receive an allocation of housing units, which it must accommodate with an eight-year zoned land supply. For the RHNA, SACOG must also plan for the Tahoe Basin portions of El Dorado and Placer County, which are outside of the plan area. Allocations are distributed to each jurisdiction based on the state-defined economic categories: very low income, low income, moderate income, and above moderate income. The sum of the allocations of these four categories must equal the overall allocation for that jurisdiction. Each jurisdiction must then develop its housing element to address how it will zone for enough housing units during the eight-year period to meet the overall allocation and allocations by income category.

A copy of the draft housing element must be sent to the California Department of Housing and Community Development (HCD) for review and comment before it may be adopted by the city or county. HCD will advise the local jurisdiction about the element's compliance with Housing Element Law (Gov. Code, § 65580 et seq.). A housing element approved by HCD is presumed to meet the requirements of Housing Element Law. Table 14.2 shows the Housing Element status of each jurisdiction in the SACOG region.

Table 14.2
Status of Housing Elements in the SACOG Region

Jurisdiction	Housing Element Status	Date Received	Date Reviewed	Compliance Status
Auburn	ADOPTED	1/7/2009	1/27/2009	IN
Citrus Heights	ADOPTED	10/22/2008	1/6/2009	IN
Colfax	ADOPTED	5/19/2009	7/15/2009	IN
Davis	ADOPTED	6/14/2010	8/11/2010	IN
El Dorado[2]	ADOPTED	5/4/2009	6/11/2009	IN
Elk Grove	ADOPTED	8/18/2009	9/15/2009	IN
Folsom	ADOPTED	7/28/2009	8/9/2009	IN
Galt	DRAFT	1/14/2011	3/10/2011	OUT
Isleton	DRAFT	6/28/2007	8/28/2007	OUT
Lincoln	ADOPTED	4/30/2010	5/28/2010	IN
Live Oak	ADOPTED	6/26/2009	8/13/2009	IN
Loomis	DRAFT	3/1/2010	4/30/2010	OUT
Marysville	ADOPTED	4/4/2003	7/1/2003	DUE[1]
Placer[2]	ADOPTED	5/26/2009	6/10/2009	IN
Placerville	ADOPTED	6/23/2010	9/21/2010	OUT
Rancho Cordova	ADOPTED	12/10/2009	1/13/2010	IN
Rocklin	ADOPTED	3/22/2010	4/12/2010	IN
Roseville	ADOPTED	8/10/2009	8/13/2009	IN
Sacramento	ADOPTED	11/20/2008	2/3/2009	IN
Sacramento County	ADOPTED	12/19/2008	1/27/2009	IN
South Lake Tahoe[2]	ADOPTED	12/18/2008	1/26/2009	IN
Sutter County	ADOPTED	4/26/2011	6/10/2011	IN
West Sacramento	ADOPTED	10/10/2008	12/24/2008	IN
Wheatland	ADOPTED	4/26/2005	6/27/2005	DUE[1]
Winters	ADOPTED	9/9/2009	10/29/2009	IN
Woodland	ADOPTED	3/25/2009	6/3/2009	IN
Yolo County	ADOPTED	11/24/2009	2/22/2010	IN
Yuba City	ADOPTED	8/6/2009	8/12/2009	IN
Yuba County	ADOPTED	12/30/2009	3/30/2010	IN

Source: Housing and Community Development website, June 2011

[1] **"**DUE" means Housing Element has not been submitted for current planning period.

[2] For the RHNA, SACOG is required by state law to plan for the Tahoe Basin portions of El Dorado and Placer County, including the city of South Lake Tahoe.

SB 375 – The Sustainable Communities and Climate Protection Act of 2008

Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375) focuses on aligning transportation, housing, and other land uses to achieve regional greenhouse gas (GHG) emission reduction targets established under the California Global Warming Solutions Act, also known as Assem. Bill No. 32 (Stats. 2005, ch. 488) (AB 32). SB 375 requires California MPOs to develop an SCS as part of the MTP, with the purposes of identifying policies and strategies to reduce per capita passenger vehicle-generated GHG emissions. In application, the SCS must identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population of the region; identify areas within the region sufficient to house an eight-year projection of the regional housing need; identify a transportation network to service the regional transportation needs; gather and consider the best practically available scientific information regarding resources areas and farmland in the region; consider the state housing goals; set forth a forecasted development pattern for the region; and allow the regional transportation plan to comply with the federal Clean Air Act (CAA) of 1970 (42 U.S.C. § 7401 et seq.) (Gov. Code, § 65080, subd. (b)(F)(2)(B)), of which, when integrated with the transportation network, and other transportation measures and policies will reduce the GHG from automobiles and light duty trucks to achieve, if there is a reasonable way to do so, the GHG emission reduction targets approved by the California Air Resources Board (ARB). If the SCS does not achieve the GHG emission targets set by ARB, an Alternative Planning Strategy (APS) must be developed to demonstrate how the targets could be achieved.

SB 375 also imposes a number of new requirements on the regional housing needs process. Prior to SB 375, the regional transportation plan and regional housing needs processes were not required to be coordinated. SB 375 now synchronizes the schedules of the regional housing needs allocation (RHNA) and regional transportation plan processes. The RHNA, which is developed after the regional transportation plan, must also allocate housing units within the region consistent with the development pattern included in the SCS. Previously, the RHNA determination was based on population projections produced by the Department of Finance. SB 375 requires the determination to be based upon population projections by the Department of Finance and regional population forecasts used in preparing the regional transportation plan. If the total regional population forecasted and used in the regional transportation plan is within a range of three percent of the regional population forecast completed by the Department of Finance for the same planning period, then the population forecast developed by the regional agency and used in the regional transportation plan shall be the basis for the determination. If the difference is greater than three percent, then the two agencies shall meet to discuss variances in methodology and seek agreement on a population projection for the region to use as the basis for the RHNA determination. If no agreement is reached, then the basis for the RHNA determination shall be the regional population projection created by the Department of Finance.

As discussed in the section above, existing law requires local governments to adopt a housing element as part of their general plan. Unlike the rest of the general plan, where updates sometimes occur at intervals of 20 years or longer, under previous law the housing element was required to be updated as frequently as needed and no less than every five years. Under SB 375, this time period has been lengthened to eight years and timed so that the housing element period begins no less than 18 months after adoption of the regional transportation plan, to encourage

closer coordination between the housing and transportation planning. SB 375 also changes the implementation schedule required in each housing element. Previous law required the housing element to contain a program which set forth a five-year schedule of to implement the goals and objectives of the housing element. The new law instead requires this schedule of actions to occur during the eight-year housing element planning period, and requires each action have a timetable for implementation.

Local Regulations

Housing Elements Required through City/County General Plans

The Housing Element is one of the seven mandated elements of the local general plan, but it is the only element which must be certified by the State of California. Housing element law, enacted in 1969, mandates that local governments adequately plan to meet the existing and projected housing needs of all economic segments of the community. The law acknowledges that, in order for the private market to address adequately housing needs and demand, local governments must adopt land use plans and regulatory systems which provide opportunities for, and do not unduly constrain, housing development. Though required by state law, this element (like others) is implemented at the local level. As a result, housing policy in the State rests largely upon the effective implementation of local general plans and, in particular, local housing elements.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how implementation of the proposed MTP/SCS, including changes to the land use pattern and transportation network, may impact population and housing. For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, land use and transportation impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types. The five Community Types are: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the proposed MTP/SCS. A full description of these Community Types is in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. A full description of TPAs is in Chapter 2 – Project Description.

The proposed MTP/SCS was evaluated to determine impacts on displacement of housing or people. The analysis evaluates the methodology used by SACOG to create the land use forecast and transportation system of the proposed MTP/SCS. This methodology is described below. For an analysis of direct and indirect growth inducement, see Chapter 19 – Other CEQA Considerations.

Methodology for Land Use Forecast and Transportation Network of the Proposed MTP/SCS

As discussed in Chapter 2 – Project Description, SACOG updates the MTP (now MTP/SCS) on a four-year cycle. This update commences with an update of the regional population, employment and housing growth forecast for the region. The Center for Continuing Study of the California Economy (CCSCE) develops regional growth projections for SACOG, including projections of future employment (by major employment sector), population, and household growth at the regional scale. The CCSCE's regional growth projection method follows three major steps: (1) employment projections based on projections of U.S. and California job growth and the competitive position of the Sacramento region to capture a share of the state and national job growth; (2) population projections based on projected job growth, accounting for foreign immigration and domestic migration into the region; and (3) household projections based on projected population growth. This forecasting methodology for population is similar to the California Department of Finance (DOF) methodology, except that DOF projections do not forecast employment or households. This draft information is summarized for, and reviewed by, the SACOG Board and staff, member cities and counties, and stakeholders, and is ultimately approved by the SACOG Board. Once the projections are approved by the SACOG Board, they become the growth forecast that is utilized for planning purposes in the MTP/SCS.

The growth forecast represents total growth in the region; SACOG staff then allocates the employment, population, and housing growth to specific geographic locations in consideration of multiple supply and demand variables, including local land use plans and policies (both adopted and proposed), availability of existing infrastructure and economic feasibility of providing needed additional infrastructure, floodplain issues and the timing and likelihood of successful provision of needed flood protection infrastructure, the need and timing of federal natural resource permits, timing of local entitlements, and historical and recent market trends for housing and employment. Using the regional growth forecast of employment and housing, SACOG then prepares an estimated growth pattern for the region. This growth pattern represents where the projected employment and housing will occur throughout the region during the MTP/SCS planning period. This process is governed by federal requirements related to regional transportation plans and the federal Clean Air Act, which require that land use, population, and employment model assumptions be based upon the best available information and establish a reasonable relationship between the expected land use and the envisioned transportation system. In the current planning cycle, this process is also governed by SB 375, and specifically its requirements to include a SCS that identifies areas within the region sufficient to house an eight-year projection of the regional housing need; identifies a transportation network to service the regional transportation needs; and demonstrates how the region can coordinate land use and transportation planning to meet the ARB GHG emissions reduction targets established pursuant to SB 375 for cars and light duty trucks.

The transportation network of the proposed MTP/SCS was tailored to the land use pattern that accommodates the forecasted employment, population and housing growth through 2035. This transportation network is constrained by a budget based on revenues that can be reasonably expected over the MTP/SCS planning period, which are based on the population growth forecast and the SACOG region's share of the state's population growth over the MTP/SCS planning

period. Both federal and state laws that govern regional transportation plans require this financial constraint test. In addition, transportation projects must be scheduled over the course of the planning period to match the pace at which revenues are available to pay for them. This also limits the number of projects that can be planned for any given year and necessitates decisions about the relative priority of projects. Because many local agencies want to build most of their projects within the first 10 years of the plan, SACOG and local agencies must collaborate to arrange projects in a priority order. The resulting transportation system investments of the proposed MTP/SCS are tailored to support the travel generated by the forecasted land use pattern, which is designed to accommodate the growth projected to occur in the region over the MTP/SCS planning period.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and vehicle miles traveled (VMT) data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to P.R.C. Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if the following would occur:

1. Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.

Impacts and Mitigation Measures

Impact POP-1: Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.

A. Regional Impacts

SB 375 requires that the SCS identify areas in the region sufficient to house all of the population of the region. The proposed MTP/SCS accomplishes this through the methodology for the land use forecast and transportation system, which analyzes a regional economic forecast of employees and population to determine how much housing and employment is required to accommodate this growth. The proposed MTP/SCS then allocates the housing needed to accommodate the growth throughout the region. This method, in conjunction with vacancy factors applied in the regional travel model to simulate market conditions, provides sufficient

housing supply in the proposed MTP/SCS for the population expected to reside in the plan area through 2035.

The proposed MTP/SCS utilizes the adopted and proposed land use plans of the cities and counties of the SACOG region to help determine where the housing and employment growth is likely to occur. It concentrates a higher percentage of growth than the 2008 MTP in and near existing developed areas, near high frequency transit, and in areas that would improve local jobs/housing balances (e.g., locating new homes near existing jobs or new jobs near existing homes). This land use pattern is a realistic forecast of the expected growth in the region which also supports fundamental objectives of the proposed MTP/SCS, including the continuing encouragement of the Blueprint Vision through a smart land use pattern, achieving the GHG emissions reduction targets of SB 375 by encouraging a reduction in miles driven by passenger vehicles, and locating growth near existing infrastructure to improve the financial stewardship of the transportation system.

To achieve these objectives, the land use forecast allocates housing and employment growth in areas of existing development, to a greater degree than in the past. Although much of the growth is expected to occur through infill of vacant lots, some of the growth may occur through the redevelopment of existing buildings. To model the potential extent of redevelopment, SACOG's land use forecasting methodology identifies non-residential parcels for potential redevelopment by screening for high land value to structure value ratio and general plan designation that is higher value than the existing use (for example, a commercial designation and an existing industrial use). However, this modeling exercise is not intended to dictate the exact parcels that may be redeveloped over the planning period and, therefore, the proposed MTP/SCS does not forecast the amount of housing and population that may be displaced by future land use changes. Instead, it assumes that the population and jobs forecast used to inform regional housing development is enough to meet the housing needs of that forecasted population. Therefore, although the amount of growth expected to occur during the MTP/SCS planning period could displace some existing homes and residents due to implementation of the land uses forecasted by the proposed MTP/SCS, the forecast and subsequent allocation of regional housing is enough to meet the demand and any displacement that occurs would not result in the need for new housing to be constructed.

In addition, the proposed MTP/SCS is a program level document that forecasts the growth in population and housing, and develops a transportation system to support that growth. It does not regulate where growth actually occurs. The approval of land use projects occurs at the local level. Any project level redevelopment that uses federal or state funds must follow the Uniform Relocation Assistance and Real Property Acquisition Policies Act, and the California Relocation Assistance Act to address the displacement of people or housing.

Therefore, the land use impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact POP – 1. No mitigation is required.

The proposed MTP/SCS transportation improvements are developed to most efficiently meet the demands created by the forecasted growth in population and jobs, and focus mainly on the

existing regional transportation system. Proposed improvements will largely be constructed within existing right-of-ways and without the acquisition of land, or within an urbanizing area. In some cases, residential structures may have to be removed in order to make way for new or expanded transportation facilities. In other cases, certain transportation improvements could permanently alter the characteristics and qualities of a neighborhood. In any case, the potential for displacement and disruption are considerations in the final design of individual transportation improvements and may be addressed in the project-level environmental review and mitigation process. From the regional perspective, it is assumed that some residential displacement and disruption will occur. However, because the proposed projects have not yet been designed, the exact number and location of displacements cannot be known at this time.

As described above, the housing developed in the proposed MTP/SCS accommodates the forecasted population for the region, taking into account market vacancy factors. For this reason, any displacement that occurs due to the construction of transportation projects in the proposed MTP/SCS is not expected to result in the construction of new housing units other than what is already included with the plan.

All transportation projects that use federal or state funds must follow the Uniform Relocation Assistance and Real Property Acquisition Policies Act, and the California Relocation Assistance Act for any displaced people or housing.

Therefore, the transportation impacts associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact POP – 1. No mitigation is required.

B. Localized Impacts

The type and character of land use and transportation development that occurs in the proposed MTP/SCS differs by each Community Type. However, the forecast and allocation of growth, as described above in the Regional Impacts section of Impact POP-1, has the same assumptions regarding accommodating the housing demand and transportation system to support the region's population during the planning period.

Therefore, like the regional impacts above, the localized impacts from the land use and transportation development of the proposed MTP/SCS are not anticipated to result in the displacement of people or housing that would require the construction of new housing. This impact from land use and transportation projects is considered less than significant (LS) for Impact POP – 1 for all Community Types. No mitigation is required.

C. Transit Priority Areas

The TPAs, in aggregate, have more infill and redevelopment as compared to the region, and could have more displacement of people and housing as a result of the implementation of the proposed MTP/SCS. However, the forecast and allocation of growth, as described above in the regional impacts section of Impact POP-1, has the same assumptions regarding accommodating

the housing demand and transportation system to support the region's population during the planning period.

Therefore, like the regional impacts above, the TPA impacts from the land use and transportation development of the proposed MTP/SCS are not anticipated to result in the displacement of people or housing that would require the construction of new housing. This impact for land use and transportation is considered less than significant (LS) for Impact POP – 1 for all TPAs. No mitigation is required.

CHAPTER 15 – PUBLIC SERVICES AND RECREATION

INTRODUCTION

This chapter describes existing conditions (environmental and regulatory) for public services and recreation and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the provision of public services (police protection, fire protection, emergency services, social services, schools, libraries, and parks and recreation) within the MTP/SCS plan area. This chapter evaluates potential impacts on public services that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

One comment, submitted by Rick Bettis, regarding public services was received in response to the Notice of Preparation (NOP). The comment letter requested that access to public services by the transit-dependent population be considered. Appendix PD-1 contains the full set of letters submitted during circulation of the NOP.

SETTING

Environmental Setting

Police Protection Services

Police protection services are provided at both the state and local level. Law enforcement services include crime investigation, crime prevention, traffic management, traffic collision investigation, homeland security activities, and emergency response.

California Highway Patrol (CHP)
The CHP service area is along the state route and interstate highway system that runs through the MTP/SCS plan area. The CHP provides traffic regulation enforcement, emergency accident management and service, and assistance on state roadways and other major roadways in unincorporated portions of the region. The CHP also provides state police for the Capitol. The CHP cooperates with both county and city police departments when the need arises.

Local Police Protection
Each of the six counties within the MTP/SCS plan area has its own county sheriff's department which is responsible for providing police protection within the unincorporated areas of counties. Each incorporated city and town in the MTP/SCS plan area also provides its own police services, or contracts with the sheriff's department for the provision of such services. The Sacramento Regional Transit District, University of California-Davis, California State University-Sacramento, and Los Rios Community College District have their own police departments. The locations of police facilities are shown in Figure 15.1.

Fire Protection Services

The region faces a number of fire threats, especially from wildfires in the foothill areas, as seen in the summer of 2008 when California experienced a record number of forest fires. Placer

County and Yuba County had significant fires, with over 1,000 acres burned. Described below are the two types of fire threats the region faces.

Wildfires

The wildfire season typically lasts from early spring to late fall. Hazards arise from a combination of hot weather, the accumulation of dried vegetation, and low moisture content in the air. These conditions, if coupled with high winds and drought, can compound the risk and potential impact of a fire. Fires are usually classified as either urban fires or wildland fires. However, growth into rural areas has increased the number of people living in heavily-vegetated areas where wildlands meet urban development, also referred to as the wildland-urban interface. This trend is spawning a third classification of fires: the urban wildfire. The 1991 "Tunnel Fire" in the East Bay hills above Berkeley and Oakland is an example of an urban wildfire. A fire along the wildland-urban interface can result in major losses of property and structures.

Three major factors sustain wildfires and allow for predictions of a given area's potential to burn. These factors include fuel, topography, and weather. Certain areas in and surrounding the region are extremely vulnerable to fires as a result of dense, grassy vegetation combined with a growing number of structures being built near and within rural areas.

Urban Fires

Urban fires occur in developed areas and include structural, chemical, and vehicular-related fires. Structural fires can result from mechanical failures, accidental occurrences, or arson. The building materials used in various structures can limit or be a catalyst for the spread of structural fires. Although structural fires can occur in any developed area, non-sprinklered commercial buildings in downtown areas and dwelling units in lower socio-economic areas appear to be more susceptible to fires, namely due to the age of the structures. Older structures are more susceptible to fire because they were built under older building standards and fire codes, are made from non-fire-resistive construction materials, and do not have internal sprinklers or other fire safety systems.

Fire Protection Agencies

Fire suppression is the responsibility of various fire departments and districts, which often also employ paramedics for emergency medical services. County fire departments provide fire prevention/suppression and emergency services to the unincorporated areas of the six counties, as well as those municipalities that contract for fire protection and emergency services. City fire departments are more prevalent among older and/or larger municipalities. The locations of fire stations are shown in Figure 15.1. Table 15.1 lists the local fire protection districts/departments in the MTP/SCS plan area.

U.S. Forest Service

USFS is responsible for fire prevention and suppression in the El Dorado National Forest and those privately-owned lands within the forest boundaries.

National Indian Forestry and Wildland Fire Management Program

The National Indian Forestry and Wildland Fire Management Program is a cooperative effort of the United States Department of the Interior, Bureau of Indian Affairs, Office of the Deputy Director - Trust Services, Division of Forestry and Wildland Fire Management, Intertribal Timber Council, and individual Tribal governments on reservations that contain forest resources. Additionally, many Tribal governments also operate their own fire protection districts and fire departments.

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE provides response to all wildland fires within the unincorporated, privately-owned areas of the MTP/SCS plan area. CAL FIRE is also called to assist with emergencies which require more effort than the local city/county emergency responders can handle. Because of the Department's size and major incident management experience, CAL FIRE is often asked to assist or take the lead in disasters, such as floods, toxic spills, earthquakes, and major urban and rural fires. Within the MTP/SCS plan area, CAL FIRE operates 23 fire stations – eleven in Placer County, seven in El Dorado County, four in Yuba County, and one in Yolo County. El Dorado County is also home to one conservation camp (California Department of Forestry and Fire Protection, 2011).

Local Fire Protection Services

The varied topographic features, environmental settings, and demographics of the region require fire protection personnel to respond to various types of emergencies in rural, suburban, and urban settings. The wide diversity of emergency incidents require firefighters to be proficient in wildland firefighting, structural firefighting, crash fire rescue, technical rescue, swift water rescue, hazardous material mitigation, and paramedic medical services.

Emergency Services

This section provides information on emergency preparedness, existing emergency response services, and disaster response services in the MTP/SCS plan area. The region potentially faces a number of emergency situations caused by events such as forest fires, flooding, and earthquakes. The agencies and programs listed below are charged with planning for and responding to such emergencies.

California Emergency Management Agency

The California Emergency Management Agency (Cal EMA) was established as part of the Governor’s Office on January 1, 2009, merging the duties, powers, purposes, and responsibilities of the former Governor’s Office of Emergency Services with those of the Governor’s Office of Homeland Security.

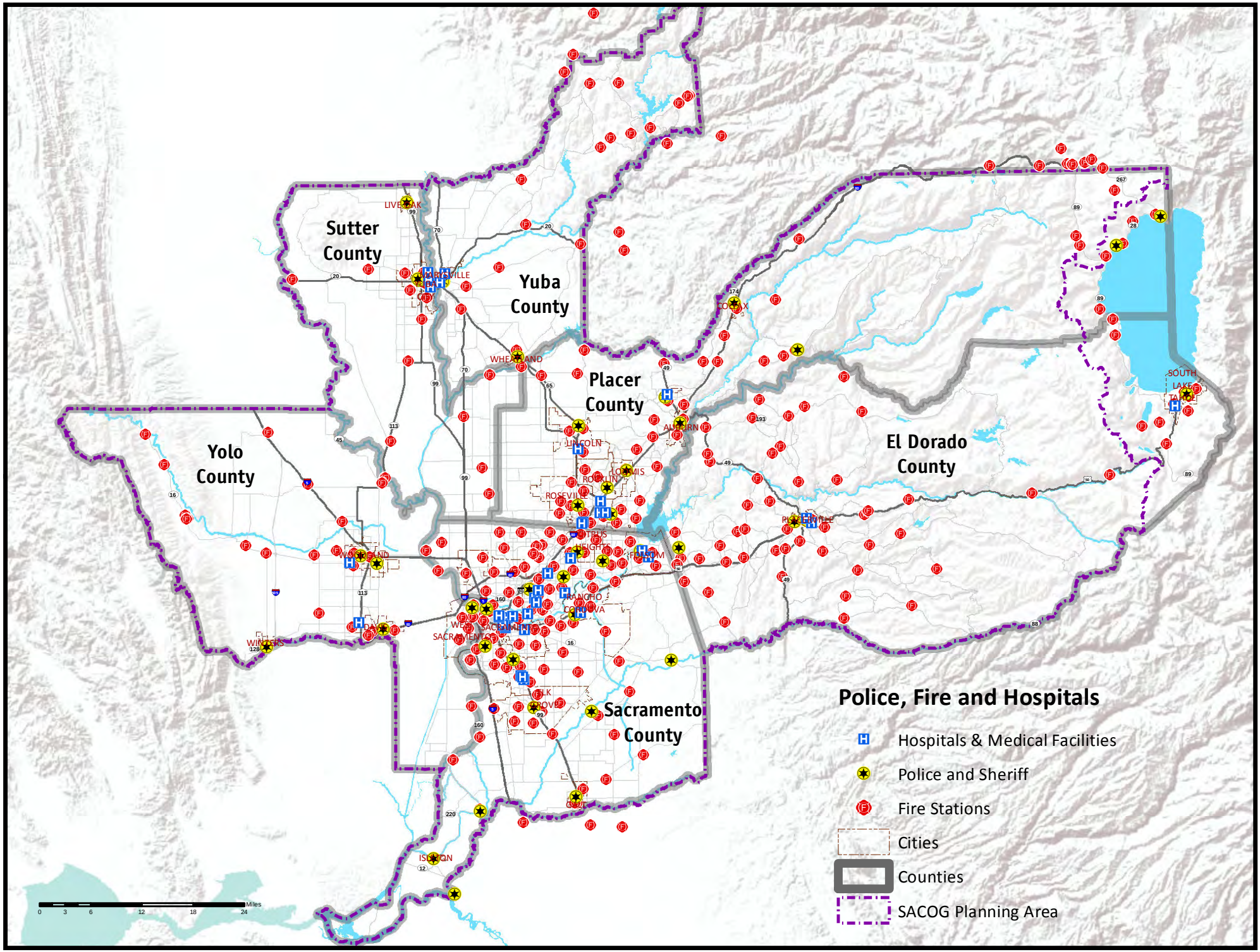


Figure 15.1 MTP/SCS Plan Area Police Stations, Fire Stations, and Hospitals

Table 15.1
MTP/SCS Plan Area Fire Protection Districts

El Dorado County		**Sutter County**
Cameron Park Community Services District		*Unincorporated*
Diamond Springs/El Dorado Fire District		County Service Area C (Nicolaus FD)
El Dorado County Fire Protection District		County Service Area D (Pleasant Grove FD)
El Dorado Hills Fire Department		County Service Area F (Live Oak, Sutter, and Oswold-Tudor Fire Stations)
Garden Valley Fire Protection District		Meridian Fire Protection District
Georgetown Fire Protection District		Sutter Basin (Robbins) Fire Protection District
Latrobe Fire Protection District		*Incorporated*
Mosquito Fire Protection District		City of Yuba City Fire Department
Pioneer Fire Protection District		
Rescue Fire Protection District		
Shingle Springs Rancheria Fire Department		
Placer County		**Yolo County**
Unincorporated		*Unincorporated*
Alta Volunteer Fire Protection District		Capay Fire Protection District
Foresthill Fire Protection District		Clarksburg Fire Protection District
Iowa Hill Volunteer Fire Protection District		Dunnigan Fire Protection District
Newcastle Fire Protection District		East Davis Fire Protection District
Penryn Fire Protection District		Elkhorn Fire Protection District
Placer Hills Fire Protection District		Esparto Fire Protection District
Sacramento Metropolitan Fire District		Knights Landing Fire Protection District
South Placer Fire Protection District		Madison Fire Protection District
Incorporated		No Man's Land Fire Protection District
City of Auburn Fire Department		Rumsey Rancheria Fire Department
City of Colfax Volunteer Fire Department		Springlake Fire Protection District
City of Lincoln Fire Department		UC Davis Fire Department
Town of Loomis Fire Department		West Plainfield Fire Protection District
City of Rocklin Fire Department		Willow Oak Fire Protection District
City of Roseville Fire Department		Yolo Fire Protection District
		Zamora Fire Protection District
		Incorporated
		City of Davis Fire Department
		City of West Sacramento Fire Department
		City of Winters Fire Department
		City of Woodland Fire Department

Sacramento County		Yuba County
Unincorporated		*Unincorporated*
Sacramento Metropolitan Fire District		Camptonville Volunteer
Courtland Fire Protection District		Dobbins-Oregon House Fire Protection District
Delta Fire Protection District		Foothill Volunteer Fire Department
Folsom State Prison Fire Department		Loma Rica-Browns Valley CSD
Herald Fire Protection District		Olivehurst Public Utility District
Sacramento County Airport Fire Department		Plumas-Brophy Fire Protection District
Sacramento Metropolitan Fire District		Marysville Fire Department
Wilton Fire Protection District		Smartsville Fire Protection District
Walnut Grove Fire Protection District		*Incorporated*
Incorporated		City of Marysville Fire Department
City of Folsom Fire Department		City of Wheatland Fire Department
City of Isleton Fire Department		
City of Sacramento Fire Department		
Cosumnes Community Services District		

Cal EMA is responsible for the coordination of overall state agency response to major disasters in support of local government. The Agency is responsible for assuring the state's readiness to respond to and recover from all hazards – natural, manmade, and war-caused emergencies and disasters – and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts (California Emergency Management Agency, 2011).

County Offices of Emergency Services

Each county has a local Office of Emergency Services (OES) which coordinates with the state during emergency situations. When local and mutual aid resources are exhausted, the state coordinates its emergency resources through its State Operations Center in Sacramento and its multiple Emergency Operations Centers throughout the region.

Emergency Operations Centers

In coordination with the local OES, jurisdictions house Emergency Operations Centers (EOC), which are command centers where emergency service providers (many from the local OES) meet and coordinate response, recovery, and resources during disasters. The following functions are performed in the EOC, as necessary:

- receiving and disseminating warnings;
- managing emergency operations;
- developing emergency response and recovery policies;
- collecting intelligence from, and disseminating information to, the various EOC representatives, and assuring coordination between the Field Operations Center locations, building managers, and departmental safety representatives throughout the regional system;
- coordinating information with Cal EMA, the Federal Emergency Management Agency, and other appropriate outside agencies;
- preparing intelligence/information summaries, situation reports, operation progress reports and other reports as required;

- preparing incident action plans;
- maintaining general and specific maps, information display boards, and other data pertaining to emergency operations;
- continuing analysis and evaluation of all data pertaining to emergency operations; and
- controlling and coordinating, within established policy, the operations and logistical support of resources committed to the EOC.

Emergency Healthcare Facilities

Providing access to healthcare and emergency medical services is a goal in every community in the region. However, most hospitals are private non-profit or for-profit organizations that operate independently from cities or counties. Individual hospital boards are responsible for the sizing and siting of hospital facilities in compliance with federal and state requirements, which may or may not occur in coordination with local jurisdictions. As a result, individual hospital organizations assess a community's needs for healthcare facilities and make decisions on where and when to locate medical facilities. Table 15.2 contains a list of acute care facilities in the MTP/SCS plan area.

Table 15.2
MTP/SCS Plan Area Acute Care & Hospital Facilities

El Dorado County	**City**
Marshall Hospital	Placerville
Placer County	**City**
Kaiser Permanente Medical Center	Roseville
Sutter Roseville Medical Center	Roseville
Sutter Auburn Faith Hospital	Auburn
Sacramento County	**City**
Kaiser Permanente Medical Center	Sacramento (north)
Kaiser Permanente Medical Center	Sacramento (south)
Mercy General Hospital	Sacramento
Mercy Hospital	Folsom
Mercy San Juan Medical Center	Sacramento
Methodist Hospital of Sacramento	Sacramento
Shriners Hospital for Children	Sacramento
Sutter General Hospital	Sacramento
Sutter Memorial Hospital	Sacramento
UC Davis Medical Center and Children's Hospital	Sacrmento
Sutter County	**City**
Fremont Medical Center	Yuba City
Yolo County	**City**
Sutter Davis Hospital	Davis
Woodland Memorial Hospital	Woodland
Yuba County	**City**
Rideout Memorial Hospital	Marysville

All of these facilities are designed and equipped to handle multiple, simultaneous patients during everyday activities and emergency situations. The MTP/SCS plan area is also served by a number of long-term acute care hospitals, psychiatric hospitals, convalescent homes, and veteran's hospitals. Many jurisdictions also provide emergency medical services through the fire department.

Figure 15.1 shows the location of hospitals and medical centers in the MTP/SCS plan area.

Mutual Aid Agreements

California's mutual aid system is designed to ensure that adequate resources, facilities, and other support are provided to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation. Each jurisdiction retains control of its own personnel and facilities, but can give and receive help whenever it is needed. State government, on the other hand, is obligated to provide available resources to assist local jurisdictions in emergencies.

To facilitate the coordination and flow of mutual aid, the state has been divided into six OES Mutual Aid Regions (and three administrative regions). Yuba and Sutter counties, and the jurisdictions therein, are in Region III. Sacramento, Yolo, Placer, and El Dorado counties, and the jurisdictions therein, are in Region IV. Through this mutual aid system, state OES can receive a constant flow of information from every geographic and organizational area of the state. This includes direct notification that a disaster exists or is imminent. In some cases, it also includes information that makes it possible to anticipate an emergency and mitigate its effects by accelerating preparations, or perhaps preventing a situation from developing to disaster proportions (California Emergency Management Agency, 2011).

To further facilitate the mutual aid process, particularly during day-to-day emergencies involving public safety agencies, Fire and Rescue Law Enforcement Coordinators have been selected and function at the Operational Area (countywide), Mutual Aid Region (two or more counties), and at the state (OES) level.

Homeland Security

The Sacramento Police Department's Office of Emergency Services and Homeland Security is a multi-agency, multi-jurisdictional office coordinates Homeland Security and Urban Area Security Initiative grants, conducts regional threat and vulnerability assessments, develops regional and agency terrorism response plans, coordinates and conducts regional interdisciplinary terrorism response training, designs and coordinates training exercises, and organizes volunteers to assist with disaster situations. The Office also coordinates with the Regional Terrorist Threat Assessment Center (RTTAC) and the Terrorism Liaison Officer Program. The Regional Community Policing Institute (RCPI) is also an integral part of the Office of Emergency Services and Homeland Security, facilitating the instruction of core community-based Homeland Security programs including the Community Emergency Response Teams (CERT), Neighborhood Emergency Training (NET), terrorist awareness presentations, and the Cultural Community Academies (Sacramento Regional Office of Homeland Security 2011).

Social Services

The following paragraphs describe the types of social services currently available in the MTP/SCS plan area. These services are provided by government agencies, private not-for-profit organizations, and private for-profit organizations. Figure 15.2 displays the locations of these services.

Alcohol, Drug, and Mental Health Services
Provides alcohol and drug abuse prevention and treatment services to adults and juveniles, and mental health services to seriously mentally ill adults, youth, and families.

Adult Education/Job Training
Provides educational and job training opportunities to give adult students the knowledge and skills necessary to participate effectively as citizens, workers, parents, and family members.

Child Support Services
Determines parentage, establishes orders for support and medical coverage, and collects and distributes funds from absent parents who have a financial responsibility to support their children.

Civic Buildings and Community Centers
Includes libraries, community centers, and other public buildings not otherwise classified.

Courts and Parole Offices
Hears and gives rulings on the following types of court cases: appeals, civil, criminal, family and children, juvenile, and traffic. Parole offices supervise defendants not yet sentenced to a term of incarceration, supervise offenders released from incarceration, and coordinate parole hearings.

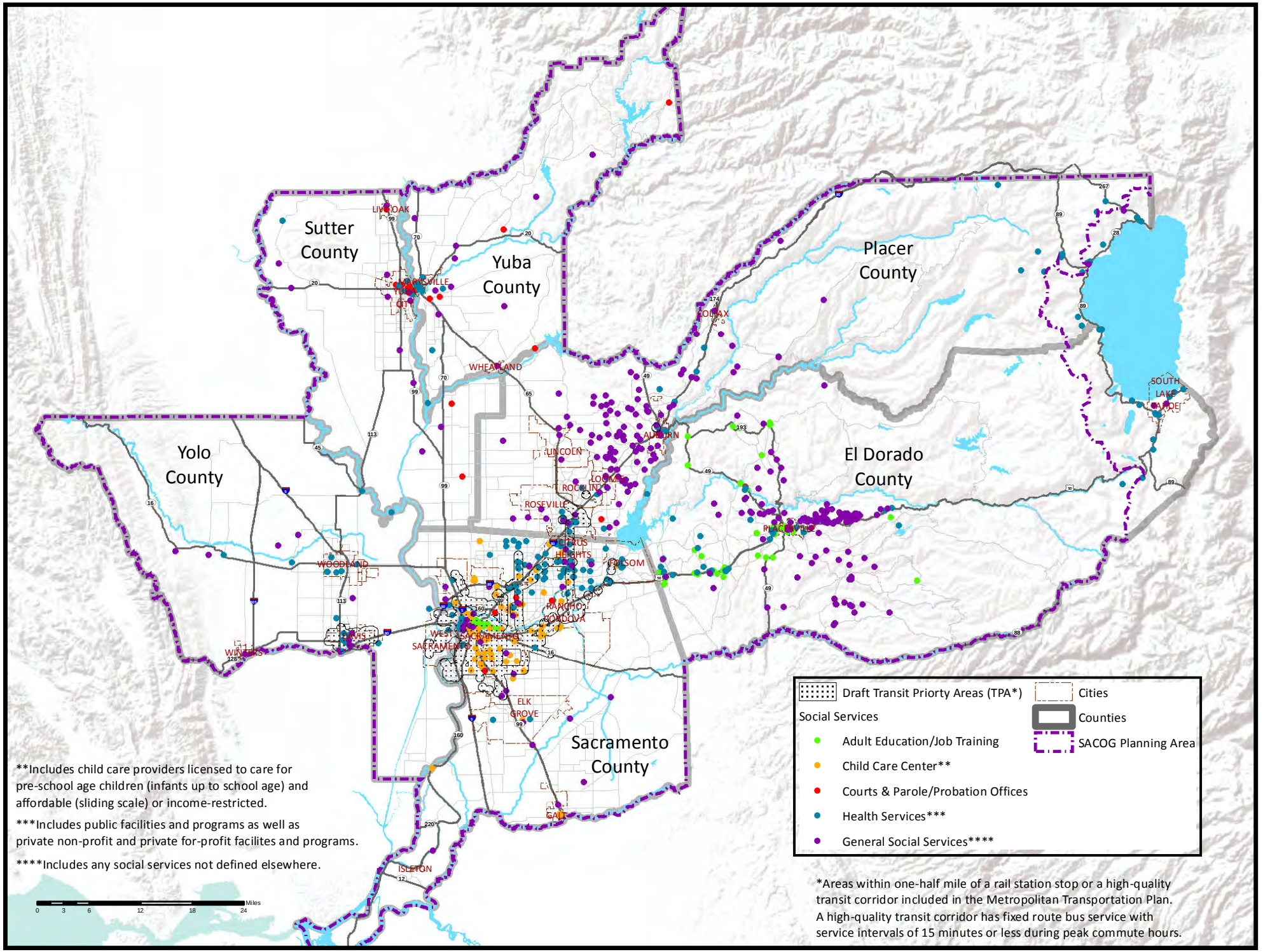
Heath and Disabled Services
Provides programs for the medically indigent, older adults, the disabled, and detainees; communicable disease prevention and control; protection of food and water; waste and vector control; vital records; nutrition and safety education; and public health nursing services.

Homeless and Housing Assistance
Provides temporary shelter, food assistance, mental health services, and transitional housing assistance to adults, juveniles, and families.

Human Assistance
Administers various federal, state, and local government programs designed to provide cash assistance, food stamps, and other social services not otherwise classified.

Veteran Affairs
Provides medical, mental health, vocational rehabilitation and employment, educational, and other training to veterans.

Figure 15.2 MTP/SCS Plan Area Social Service Access by Transit



Schools

Each of the jurisdictions within the MTP/SCS plan area provides public education facilities and services to its citizens including elementary schools, middle schools, secondary schools, post-secondary schools, and colleges/universities, as well as special and adult education. There are more than 700 elementary, middle, secondary, and post-secondary schools, colleges/universities, special education, and adult school services in the region. Table 15.3 lists the public school districts serving each of the six SACOG-region counties and the number of each type of school within that district. Figure 15.3 shows the location of public educational facilities.

Table 15.3
MTP/SCS Plan Area Public Education Facilities

	Number of Public Schools Serving ...						
Public School District	**K-8**	**K-12**	**Elementary**	**Middle/ Junior High**	**Secondary/ High School**	**College**	**Adult**
EL DORADO COUNTY							
Black Oak Mine Unified	2	1	1		2		
Buckeye Union			5	2			
Camino Union	1						
EDOE/Charter Community	1		1		4		1
El Dorado Union High					10		1
Gold Oak Union			2	1			
Gold Trail Union			2				
Indian Diggings	1						
Latrobe			2				
Los Rios CCD						1	
Mother Lode Union			1	1			
Pioneer Union			2	1			
Placerville Union			2	1			
Pollock Pines			1	1			
Rescue Union			5	2			
Silver Fork	1						
PLACER COUNTY							
Ackerman Charter	1						
Alta-Dutch Flat	2						
Auburn Union	1		3	1			
Colfax Elementary	1		1				
Dry Creek Joint Elementary			7	3			
Eureka Union			4	2			
Foresthill Union			1	1			
Loomis Union	6		1				
Newcastle Elementary	1		2				
Placer Hills Union			2				
Placer Union High					6		1
Rocklin Unified		1	10	2	3		1
Roseville City			14	4			
Roseville Joint Union High					9		
Sierra Joint Community						1	
Western Placer Unified			7	2	2		

	Number of Public Schools Serving ...						
Public School District	**K-8**	**K-12**	**Elementary**	**Middle/ Junior High**	**Secondary/ High School**	**College**	**Adult**
Western Sierra Collegiate Academy					1		
SACRAMENTO COUNTY							
Aroche Union	1						
Center Joint Unified			4	1	4		1
CSUS						1	
Elk Grove Unified	1		40	9	13		2
Elverta Joint			1	1			
Folsom Cordova Unified	1		19	5	8		1
Galt Joint Union			6	1			
Galt Joint Union High					3		1
Los Rios CCD						6	
Natomas Unified	1		9	4	4		
River Delta Unified			5	3	4		1
Robla			6				
Sacramento City Unified	10		56	10	14		4
San Juan Unified	8	1	36	9	12		3
Twin Rivers Unified			34	11	8		1
SUTTER COUNTY							
Brittan Elementary	1						
Browns Elementary	1						
East Nicolaus High					1		
Franklin Elementary	1						
Live Oak Unified		1	2	1	1		
Marcum-Illinois	1						
Meridian Elementary	1						
Nuestro Elementary	1						
Pleasant Grove Elementary	1						
Sutter County High							
Sutter Union High					1		
Winship-Robbins Elementary	2						
Yuba City Unified	3		10	1	2		
YOLO COUNTY							
Davis Joint Unified	1		8	4	3		1
Esparto Unified	1				2		
Washington Unified			9		4		
Winters Joint Unified			2	1	3		
Woodland Joint Unified			11	2	3		1
Los Rios CCD						2	
University of CA - Davis						1	
Yuba CCD						1	

	Number of Public Schools Serving ...						
Public School District	**K-8**	**K-12**	**Elementary**	**Middle/ Junior High**	**Secondary/ High School**	**College**	**Adult**
YUBA COUNTY							
Camptonville	1						
Marysville Joint Unified	2		13	3	6		
Plumas			3				
Wheatland Elementary	2		1				
Wheatland Union High					1		
Yuba CCD						2	

Libraries

Public libraries serve their communities by providing access to collections of broadly-based materials that interest and benefit all ages and abilities, and reflect community needs, wants, and use. Table 15.4 is an inventory of existing library facilities in the MTP/SCS plan area. The locations of these libraries are shown on Figure 15.3.

Parks and Recreation

Diverse natural resources provide a wide range of recreational opportunities for residents and tourists alike. Offerings range from small neighborhood parks featuring playground equipment and sports fields to vast expanses of wilderness with hiking trails, rafting, and camping. In addition to parks for active recreation, the MTP/SCS plan area also has a diversity of open space areas. As of 2011, the region contains approximately 921,655 acres of parks, recreation, and open space. These lands are governed by a variety of agencies, including dependent park districts, independent park districts, counties, cities, community service districts, and federal and state agencies.

Parks are classified into several subgroups: neighborhood parks, community parks, city parks, specialized recreation areas, state and federal recreation areas, and open space areas.

Neighborhood Park: A park or playground developed primarily to serve the recreational needs of citizens living within a half-mile radius of the park. These facilities include pocket parks and neighborhood playgrounds.

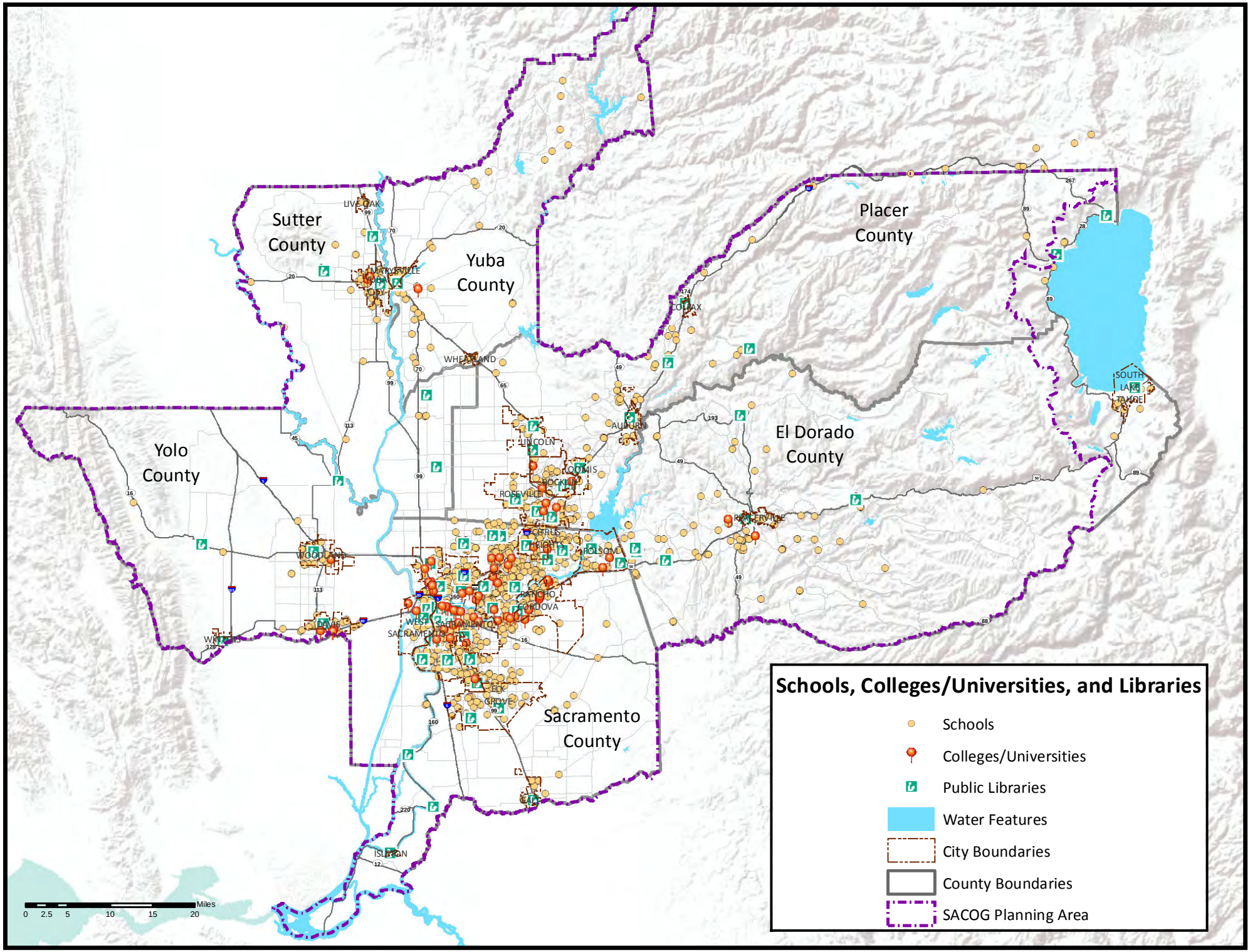
Community Park: A larger park or facility developed to meet the park and recreational needs of those living or working within a three-mile radius. Community parks may have a variety of playing fields and community recreation facilities.

Table 15.4
MTP/SCS Plan Area Public Libraries

County	Library
El Dorado County	Placerville Main Library Cameron Park Branch Library El Dorado Hills Branch Library Georgetown Branch Library Pollock Pines Branch Library
Placer County	Applegate Branch Library Auburn Branch Library Carnegie Public Library (Lincoln) Colfax Branch Library Foresthill Branch Library Granite Bay Branch Library Kings Beach Branch Library Loomis Branch Library Maidu Branch Library (Roseville) Martha Riley Community Branch Library (Roseville) Meadow Vista Branch Library Penryn Branch Library Rocklin Branch Library Roseville Downtown Public Library Twelve Bridges Branch Library (Lincoln)
Sacramento County	Arcade Branch Library Arden-Dimick Branch Library Belle Cooledge (Land Park) Branch Library Carmichael Branch Library Carmichael Branch Library Central Sacramento Public Library Colonial Heights Branch Library Courtland Branch Library Del Paso Heights Branch Library Elk Grove Branch Library Fair Oaks Branch Library Folsom Branch Library Franklin Branch Library Galt Branch Library Isleton Branch Library Martin Luther King, Jr. Branch Library (So. Sacramento) McClatchy Branch Library McKinley Branch Library North Highlands-Antelope Branch Library North Natomas Branch Library North Sacramento-Hagginwood Branch Library Orangevale Branch Library Rancho Cordova Branch Library Rio Linda Branch Library South Natomas Branch Library Southgate Branch Library

County	Library
	Sylvan Oaks Branch Library (Citrus Heights) Valley Hi-North Laguna Branch Library Walnut Grove Branch Library
Sutter County	Main Public Library (Yuba City) Barber Branch Library (Live Oak) Browns Branch Library (Rio Oso) Pleasant Grove Branch Library Sutter Branch Library
Yolo County	Clarksburg Branch Library Davis Branch Library Esparto Branch Library Knights Landing Branch Library Arthur F. Turner Branch Library (West Sacramento) Winters Branch Library Yolo Branch Library Woodland Public Library
Yuba County	Marysville Public Library

Figure 15.3 MTP/SCS Plan Area Schools, Universities, and Libraries



City Park: A park having a wide range of improvements not usually found in neighborhood and community parks and designed to meet the recreational needs of the entire city population. Recreational facilities might include a nature area, golf course, zoo, pool, skateboarding parks, playing fields, or structures like gymnasiums, community centers, and public or private educational institutions. Parks may also be themed, such as a park dedicated to the agricultural heritage of the area.

Specialized Recreation Area: A recreation area or facility devoted to a very specific activity or use. A linear park or trail is one example. The American River Parkway falls into this category, though it also includes a number of individual parks within it. Plazas and green space within commercial developments also fall into this category.

State and Federal Recreation Areas: A park maintained by state or federal agencies and typically providing recreational opportunities like camping, hiking, bird watching, rafting, boating, and fishing. Although this type of park is not found in every jurisdiction in the region, many jurisdictions have vast areas covered by state or federal parkland.

Open Space Areas: Open space refers to lands that are generally unimproved and used for resource conservation and/or the managed production of resources. Open space is comprised of both designated open space and "de facto" open space. Designated open space is land that has been left undeveloped by design. Other land is deemed open space not by design, but because the land is not involved in a productive use, or in the case of agricultural lands, the land is consumed by a productive use that contributes to the visual quality of the land or provides wildlife habitat.

Figure 15.4 shows existing land in the MTP/SCS plan area designated as parks and open space.

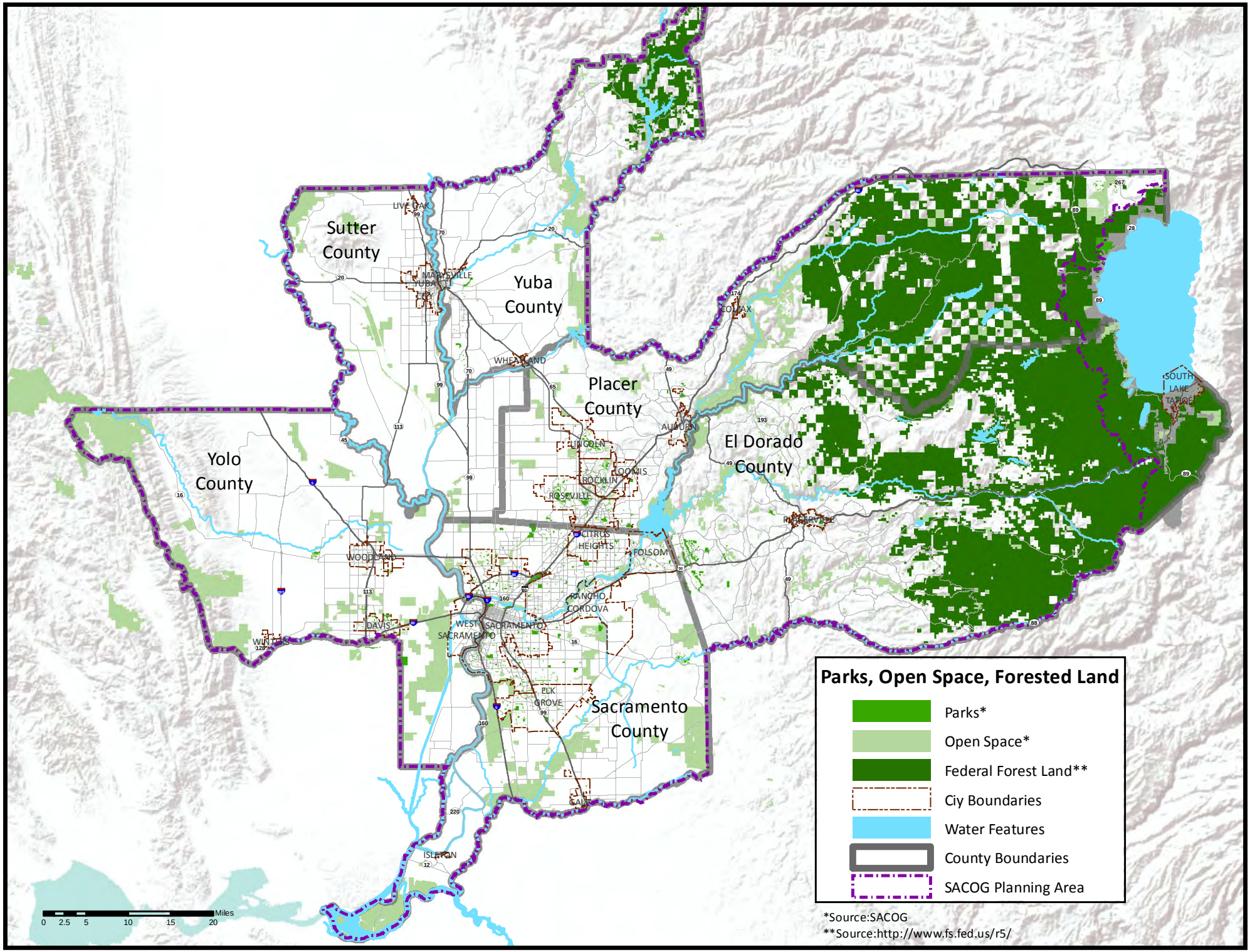
National Parks, Forests, and Wilderness Areas

The United States Forest Service manages two national forests in the MTP/SCS plan area: the El Dorado National Forest (El Dorado and Placer counties) and the Tahoe National Forest (Placer and Yuba Counties). The forests provide diverse recreational opportunities including:

- camping;
- fishing;
- rafting, canoeing, kayaking, and other water sports;
- motorized use trails (designated trails/roads);
- non-motorized use trails (hiking, cycling, equestrian);
- rental cabins;
- shooting (plinking and target shooting);
- cross-country skiing, downhill skiing, snowboarding, snowshoeing, and other winter sports; and
- snowmobiling.

There are three wilderness areas within the two National Forests: Granite Chief Wilderness (Tahoe National Forest), Desolation Wilderness (El Dorado National Forest), and Mokelumne Wilderness (El Dorado National Forest). All three of these wilderness areas are outside the MTP/SCS plan area. There are no national parks in the MTP/SCS plan area.

Figure 15.4 MTP/SCS Plan Area Parks, Open Space, and Forested Land



Tribal Lands

The Sacramento region includes reservation lands that provide open space, habitat, and recreational opportunities. Tribal sovereign lands within the plan area include Shingle Springs Band of Miwok Indians in El Dorado County, United Auburn Indian Community in Placer County, Wilton Miwok Indians in Sacramento County and Yocha Dehe Wintun Nation in Yolo County. These lands include both developed and undeveloped lands. Although the jurisdictions within the region have no direct authority over these lands, they work closely with the United States Bureau of Indian Affairs, United States Bureau of Reclamation, and the Tribes themselves to coordinate the protection and conservation of the region's wilderness.

State Parks, Recreation Areas, Historic Parks, Park Properties, and Points of Interest

State Parks within the MTP/SCS plan area include:

Table 15.5
MTP/SCS Plan Area State Parks, Recreation Areas, Park Properties, and Points of Interest

Park Name	Type of Park	Description
El Dorado County		
Auburn State Recreation Area	State Recreation Area	The Auburn State Recreation Area covers 40 miles of the North and Middle Forks of the American River. Major recreational uses include hiking, swimming, boating, fishing, camping, mountain biking, gold panning, equestrian/horseback riding trails, and off-highway motorcycle riding.
Folsom Lake State Recreation Area	State Recreation Area	Located at the base of the Sierra foothills, the lake and recreation area offer opportunities for hiking, biking, running, camping, picnicking, horseback riding, water-skiing and boating. Visitors can also see the Folsom Powerhouse (once called "the greatest operative electrical plant on the American continent"), which from 1885 to 1952 produced 11,000 volts of electricity for Sacramento residents.
Marshall Gold Discovery State Historic Park	State Historic Park	The purpose of Marshall Gold Discovery State Historic Park is to secure for the people and to make available for their observation, inspiration, and enjoyment, the gold discovery site and its environs as an accurate portrayal of the story that unfolded at the time of the discovery and Gold Rush.
Placer County		
Auburn State Recreation Area	State Recreation Area	See description above
Folsom Lake State Recreation Area	State Recreation Area	See description above
Sacramento County		
Brannan Island State Recreation Area	State Recreation Area	Brannan Island State Recreation Area is a maze of waterways through the Sacramento-San Joaquin Delta. One of the outstanding water-oriented recreation areas in the world, the area offers great fishing, including striped bass, sturgeon, catfish, bluegill, perch and bullhead. Frank's Tract, a protected wetland marsh, is home to beaver, muskrat, river otter, mink, and 76 species of birds.

Park Name	Type of Park	Description
Folsom Lake State Recreation Area	State Recreation Area	See description above
Prairie City	State Vehicular Recreation Area	This park is at the base of the Sierra Nevada. The park has flat, open grasslands, rolling hills with native blue oak trees, and acres of cobbled mine tailings. The area has motorcycle, all-terrain vehicle, and four-wheel drive open areas.
Folsom Powerhouse	State Historic Park	Visitors touring the powerhouse can see the massive General Electric transformers, each capable of conducting from 800 to 11,000 volts of electricity, in addition to the forebays and canal system that brought water from the dam.
Governor's Mansion	State Historic Park	California's executive mansion, popularly known at the Governor's Mansion, was built in 1877 for Albert and Clemenza Gallatin. The State of California purchased the house from Joseph and Louisa Steffens to use as a home for California's first families in 1903.
Leland Stanford Mansion	State Historic Park	Originally built in 1856 by Gold Rush merchant Sheldon Fogus, the Mansion was later purchased and remodeled by Leland and Jane Stanford. Leland Stanford served as Governor of California from 1862-1863. The Mansion served as the office of three governors during the 1860's - Leland Stanford, Fredrick Low, and Henry Haight.
Old Sacramento	State Historic Park	Old Sacramento State Historic Park is a cluster of noteworthy, early Gold Rush commercial structures. Historic buildings include the 1849 Eagle Theater; the 1853 B. F. Hastings Building, once home to the California Supreme Court; and the 1855 Big Four Building. Old Sacramento's historical significance comes from it being the western terminus of the Pony Express postal system, the first transcontinental railroad, and the transcontinental telegraph. Old Sacramento is a California Historical Landmark. The National Park Service named the entire original historic 1850s business district of Old Sacramento a National Historic Landmark in 1965. With over 50 historic buildings, Old Sacramento has more buildings of historic value in its 28 acres than any area of similar size in the West.
State Indian Museum	State Historic Park	The California State Indian Museum displays exhibits illustrating the cultures of the state's first inhabitants. California's prehistoric population, one of the largest and most diverse in the Western hemisphere, was made up of over 150 distinct tribal groups who spoke at least 64 different languages. California Indian cultural items in the museum include basketry, beadwork, clothing and exhibits about the ongoing traditions of various California Indian tribes.
Sutter's Fort	State Historic Park	The "Fort" was built by Swiss immigrant John Sutter more than 150 years ago. Today, the Fort is furnished and reconstructed to reflect its 1846 appearance. Many activities and programs recreate the past.
California State Capitol	Park Property	Visitors can tour the restored historic offices of the Secretary of State, Treasurer, and Governor of the State of California. Surrounding the Capitol is Capitol Park, which includes a Civil War Memorial Grove, a life-sized statue of Father Junípero Serra, the California Vietnam Veterans Memorial, the California Veterans Memorial, and various gardens and trees.

Park Name	Type of Park	Description
Delta Meadows	Park Property	Delta Meadows Park Property is closed. No services are provided.
Stone Lake	Park Property	The purpose of the Stone Lake property is to preserve and protect two rare natural Central Valley lakes and their surrounding riparian habitat and grassland areas. The property lies within the Pacific Flyway and provides wintering grounds for a variety of waterfowl and other migratory birds, as well as habitat for indigenous species such as the listed Swainsons hawk, the giant garter snake, and the longhorn elderberry beetle. The property contains a number of Native American occupancy sites. Located on the southern edge of the Sacramento metropolitan area, the property serves as valuable urban open space.
California State Railroad Museum	Point of Interest	The California State Railroad Museum houses more than 20 restored locomotives and railroad cars along with thousands of smaller artifacts and a variety of exhibits.
Sutter County		
Sutter Buttes State Park	State Park	In 2003, California State Parks acquired property on the north side of the Sutter Buttes, which represents a unique resource within the State Park System. There is currently no public access point to enter this park. This park has not been officially named.
Yolo County		
Woodland Opera House	State Historic Park	Built in 1885, the original Opera House burned down in 1892. It was rebuilt on the same site, using some of the remaining foundations and bricks from the walls, reopening in 1896.

Because of state budget cuts, up to 70 state parks are slated to be closed on or before July 1, 2012. MTP/SCS plan area parks on the closure list include Governor's Mansion State Historic Park, the Leland Stanford Mansion State Historic Park, and the Brannan Island State Recreation Area (California Department of Parks and Recreation, 2011).

Privately-Owned Open Space and Recreation Lands

In addition to the parks and recreation facilities offered by governmental agencies, many private landowners and nonprofit conservation organizations also contribute to the open space acreage in the region. Types of privately-owned open space can include private parks, private nature preserves, golf courses, playing fields, animal parks, off-road-vehicle parks, private arboretums, and fallow farmland.

Regulatory Setting

Federal Regulations

Federal Emergency Management Agency (FEMA)

In March 2003, the Federal Emergency Management Agency (FEMA) became part of the U.S. Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation

activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (42 U.S.C. § 5121 note) was signed into law to amend the Robert T. Stafford Disaster Relief Act of 1988 (42 U.S.C. §5121-5207). Among other things, this new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities. Some of the major provisions of the Act include:

- funding pre-disaster mitigation activities;
- developing experimental multi-hazard maps to better understand risk;
- establishing state and local government infrastructure mitigation planning requirements;
- defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP); and
- adjusting ways in which management costs for projects are funded.

The mitigation planning provisions outlined in Section 322 of the Act establish performance-based standards for mitigation plans and requires states to have a public assistance program (Advance Infrastructure Mitigation—AIM) to develop county government plans. The consequence for counties that fail to develop an infrastructure mitigation plan is the chance of a reduced federal share of damage assistance from 75 percent to 25 percent if the damaged facility has been damaged on more than one occasion in the preceding ten-year period by the same type of event.

United States Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act (DOT Act) of 1966 (49 U.S.C. § 303) was enacted to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration that involve the use – or interference with use – of the following types of land:

- public park lands;
- recreation areas;
- wildlife and waterfowl refuges; and
- publicly- or privately-owned historic properties of federal, state, or local significance.

This evaluation – called the Section 4(f) statement – must be sufficiently detailed to permit the U.S. Secretary of Transportation to determine that:

- there is no feasible and prudent alternative to the use of such land;
- the program includes all possible planning to minimize harm to any park, recreation area, wildlife and waterfowl refuge, or historic site that would result from the use of such lands; or that
- if there is a feasible and prudent alternative, a proposed project using Section 4(f) lands cannot be approved by the Secretary; or if there is no feasible and prudent alternative, the proposed project must include all possible planning to minimize harm to the affected lands.

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments.

In August 2005, Section 4(f) was amended to simplify the process for approval of projects that have only minimal impacts on lands affected by Section 4(f). Under the new provisions, the U.S. Secretary of Transportation may find such a minimal impact if consultation with the State Historic Preservation Officer (SHPO) results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In this instance, analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete.

Land and Water Conservation Fund Act, Section 6(f)(3)

Section 6(f)(3) of the Land and Water Conservation Fund Act (LWCF Act) of 1965 (16 U.S.C. § 460l et seq.) contains provisions to protect federal investments in park and recreation resources and the quality of those assisted resources. The law recognizes the likelihood that changes in land use or development may make park use of some areas purchased with LWCF Act funds obsolete over time, particularly in rapidly changing urban areas, and provides for conversion to other use pursuant to certain specific conditions.

Section 6(f)(3) - No property acquired or developed with assistance under Section 6(f)(3) shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he or she finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he or she deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

This requirement applies to all parks and other sites that have been the subject of LWCF Act grants of any type, and includes acquisition of park land and development or rehabilitation of park facilities. If a transportation project would have an effect upon a park or site that has received LWCF Act funds, the requirements of Section 6(f)(3) would apply.

State Regulations

13 California Code of Regulations Division 2

Division 2 of Title 13 of the C.C.R. governs the operations of the California Highway Patrol.

8 California Code of Regulations Sections 1270 and 6773

In accordance with C.C.R., Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration (Cal OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

14 California Code of Regulations Division 1.5

These regulations constitute the basic wildland fire protection standards of the California Board of Forestry. They have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in state recreation areas. Title 14 regulates that the future design and construction of structures, subdivisions, and developments in a state recreation area shall provide for basic emergency access and perimeter wildfire protection measures.

Uniform Fire Code

The Uniform Fire Code (UFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices, and fire suppression training.

19 California Code of Regulations Division 2 Section1 6

The State of California passed legislation creating the California Emergency Management Agency (Cal EMA) and authorizing it to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster.

Cal EMA serves as the lead state agency for emergency management in the state. Cal EMA coordinates the state response to major emergencies in support of local government. The primary responsibility for emergency management resides with local government. Local jurisdictions first use their own resources and, as they are exhausted, obtain more from neighboring cities and special districts, the county in which they are located, and other counties throughout the state through the statewide mutual aid system. In California, the Standardized Emergency Management System (SEMS) provides the mechanism by which local government requests assistance. Cal EMA serves as the lead agency for mobilizing the state's resources and obtaining federal resources; it also maintains oversight of the state's mutual aid system. During an

emergency, Cal EMA coordinates the state's response efforts. It is also responsible for collecting, verifying, and evaluating information about the emergency, facilitating communication with local government, and providing affected jurisdictions with additional resources when necessary. Cal EMA may task state agencies to perform work outside their day-to-day and statutory responsibilities.

AB 2926
In 1986, Assem. Bill No. 2926 (Stats. 1986, ch. 887) (AB 2926) authorized the levy of statutory fees on new residential and commercial/industrial development in order to pay for school facilities.

Class Size Reduction Kindergarten-University Public Education Facilities Bond Act of 1998
Proposition 1A, the Class Size Reduction Kindergarten-University Public Education Facilities Bond Act of 1998 (Ed. Code, §§ 100400. - 100405) is a school construction funding measure that was approved by the voters on the November 3, 1998 ballot. The Act created the School Facility Program where eligible school districts may obtain state bond funds.

Leroy Greene School Facilities Act of 1998
The Leroy Greene School Facilities Act of 1998 (Ed. Code, §§ 17070.10-17079.30) eliminated the ability of cities and counties to require full mitigation of school impacts and replaced it with the ability for school districts to assess fees directly to offset the costs associated with increasing school capacity as a result of new development. The Act states that payment of developer fees is "deemed to be complete and full mitigation" of the impacts of new development.

5 Code of Regulations Division 1-10
This Education Code governs all aspects of education within the state.

Quimby Act
The Quimby Act of 1975 (Gov. Code, § 66477) states that "the legislative body of a city or county may, by ordinance, require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative or parcel map." It should be noted that the Quimby Act only applies to the acquisition of new parkland and does not apply to the physical development of new park facilities or associated operations and maintenance costs. The Quimby Act effectively preserves open space needed to develop parkland and recreational facilities; however, the actual development of parks and other recreational facilities is subject to discretionary approval and is evaluated on a case-by-case basis with new residential development.

State Public Park Preservation Act of 1971
The primary instrument for protecting and preserving parkland is the State Public Park Preservation Act of 1971 (Pub. Resources Code, §§ 5400-5409). Under the Act, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

Local Regulations

Local Agency Formation Commission

LAFCOs are state-mandated quasi-judicial countywide commissions whose purview is to oversee boundary changes of cities and special districts, the formation of new agencies, including the incorporation of new cities and districts, and the consolidation or reorganization of special districts and or cities. LAFCOs control public service district boundaries.

Fire District Master Plans

Many jurisdictions and fire districts in the region have adopted or are planning to adopt Fire Department (District) Master Plans. A master plan addresses staffing needs, facility needs, and service goals for the service area and serves as a guiding document for the organization and daily functions of the department.

Emergency Operations Plans

Local jurisdictions maintain emergency operations plans that detail how emergency and disaster situations are to be handled within that jurisdiction. Jurisdictions may also have Multi-Hazard Emergency Plans that address various threats to the jurisdiction.

School District Master Plans

School District Master Plans are planning documents used to assess current school assets and needs. The documents often provide a schedule for performing maintenance on and making improvements to district facilities. The plans usually lay out a finance plan and may include demographic information and trends to help schools plan for future needs.

Public Library Facility Master Plans and Standards

Many public library systems have facility master plans that provide general standards and criteria for the renovation and construction of new libraries. Master plans establish preferred sizing and footprint, and desirable components such as volumes and collections, meeting rooms, study areas, computer terminals, and so on. Each of these items is standards driven. In systems without a master plan, community general plans typically set out policies for siting and level of service.

Recreation and Parks Master Plans

These plans outline projected needs and strategies for fulfilling those needs. The main purpose of the plans is to provide guidance for addressing preservation, use, development, and administration of recreation facilities. These policy and action documents ensure the preservation of the naturalistic environment, while providing developments to facilitate human enjoyment of the parks and recreation areas. Plans can target goals and future actions for a specific park or be generalized to a collection of parks in a larger system.

Bicycle, Pedestrian, and Trails Master Plans

Bicycle, Pedestrian, and Trails Master Plans are planning documents used to guide future development of a jurisdictions bicycle and pedestrian facilities. At a minimum these plans usually contain an inventory of existing facilities, a discussion of the plan's goals, recommendations for new projects, and an implementation plan.

General Plans

Local planning policies related to public services and recreation are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that public services must be provided at the same time (or in advance of) need for that service. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for police protection services might include language pertaining to the development of law enforcement programs to reduce and control crime, the planning of future law enforcement facilities concurrently with growth, and the prevention of crime through education. Many jurisdictions also have specific goals, such as a maintaining a certain ratio of sworn officers to citizens, reducing response times, or reducing the overall number of crimes in the community.

Policies and strategies for fire protection services might include goals for service provision (such as an average response time) and supporting policies to help meet those goals, such as implementing emergency signal activation or requiring sprinkler systems in new developments. Each jurisdiction's general plan policies and goals will differ slightly depending on the level of need and type of services being provided.

For emergency services, some of the relevant policies may include coordinating with other agencies that are responsible for planning medical facilities to meet the health care needs of residents in the region, retaining hospitals, evaluating medical facility proposals, providing emergency response services, and participating in mutual-aid agreements.

General plan policies relating to library services may involve the library level of service, capital facility funding, and library siting. In addition, general plans can evaluate proposed library facilities for consistency with library master plans and explore methods for financing new, expanded, or upgraded library facilities.

Policies and strategies for parks and recreation may include standards for park acreage and requirements for the provision of parks in new residential developments. They also contain policies to develop self-supporting recreation programs and pursue joint use of school sites, utility rights-of-way, and other public lands for park, recreation, and open space purposes.

SACOG Metropolitan Transportation Plan

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system and one of SACOG's primary statutory responsibilities. Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars for public transit, streets/roads, bicycles, and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region built on the Sacramento Region Blueprint.

The 2008 MTP sets principles and policies and proposes specific strategies relating to the provision of public services. Specifically, the 2008 MTP encourages local governments to direct

greenfield development to areas immediately adjacent to the existing urban edge, implement Blueprint-style growth, and create activity centers near high quality transit. These policies aim to maximize the effectiveness of existing public services and minimize the need for additional public services' infrastructure.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the Proposed MTP/SCS. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, refer to Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline year of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1-Introduction includes a more detailed discussion of the baseline year for the proposed MTP/SCS.

The land use analysis assesses the amount of growth (population, housing, and employment) projected for the region, in each Community Type, and in the TPAs by 2035 and how that growth might impact the provision of public services. Although the proposed project sites within the MTP/SCS plan area were not physically surveyed, a brief description of existing public services is given above in the settings section.

The proposed MTP/SCS contains $35.2 billion (in current year dollars) worth of roadway and transit investments by 2035. Of that amount, maintenance and rehabilitation projects will receive $11.5 billion; public transit will receive $11.3 billion; roadway and highway projects will receive $7.4 billion; pedestrian and bicycle projects will receive $2.8 billion; and programs and planning will receive $2.2 billion. Different project types will have different effects on the public services environment. This analysis examines categories of transportation investments in assessing the likely impacts of implementing the proposed MTP/SCS.

For transit projects, this analysis looks at the number of *daily vehicle service hours* and *daily vehicle route miles* of transit service added to the transit network. Daily vehicle service hours are the number of hours of service a transit vehicle (bus, light rail car, etc.) provides on a daily basis. For example, a transit service that has ten buses where each bus runs ten hours per day would provide 100 daily vehicle service hours (ten buses x ten hours each). If that same transit service

added five streetcars that operated ten hours per day, it would add 50 daily vehicle service hours (five vehicles x ten hours each) for a total of 150 daily vehicle service hours (100 bus hours plus 50 streetcar hours). Daily vehicle route miles are a measure of service coverage, not service intensity. For example, a one-mile stretch of road with one bus per hour is equal to one bus route mile; the same one-mile stretch of road with 20 buses per hour still equals only one vehicle route mile. All else equal, an increase in route miles will *always* include a corresponding increase in vehicle service hours. However, an increase in vehicle service hours may or may not include additional route miles.

It is important to clarify the infrastructure needs of increases in vehicle service hours and vehicle route miles. Additional vehicle service hours require more transit vehicles but do not add infrastructure to the transit network. Additional route miles require new infrastructure (stations, bus stops, light rail/streetcar tracks) in addition to the transit vehicles themselves.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS (including adoption of the MTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Impede achievement of acceptable parks and recreation facilities, schools, social services, libraries, and other public facilities including capital capacity, equipment, and personnel.
2. Result in impacts associated with the constructions of new or the expansion of existing facilities to maintain adequate police, fire, emergency services, school, library, social services, and park and recreation services including capital capacity, equipment and personnel, and response times.

Impacts and Mitigation Measures

Impact PS-1: Impede achievement of acceptable school, library, social service, and parks and recreation facilities including capital capacity, equipment, and personnel.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. Depending on the growth and housing patterns, some school, library, social service, and parks and recreation facilities may become overused. In these cases, implementation of the proposed MTP/SCS would require additional facilities to ensure acceptable levels of service.

As discussed above, public service standards, performance measures, and related policies are usually set in city and county general plans. For schools, standards relating to class size are predominately set at the state level, with school districts also planning for school facilities. For library and parks and recreation facilities, feet or acres per capita are typically used; for social services more subjective and varied standards are used depending on the type of services offered. To meet increased demand, existing facilities would likely need additional personnel and equipment to maintain adequate service levels. In some cases, depending on the pattern of development, it will be necessary to construct new facilities to maintain adequate response times, capital capacity, equipment, and personnel. Such construction could have impacts on aesthetics, air quality, cultural resources, geology, land use, noise, transportation, utilities, and other related environments. Construction impacts are analyzed in Impact PS-2.

Currently, the MTP/SCS plan area contains approximately 921,655 acres of open space and parkland and 2,215,044 people, which comes out to about .42 acres per person. Without increasing the amount of open space and parkland, implementation of the proposed MTP/SCS would result in the conversion of open space to urban uses and cause acres of parkland and open space per capita to decrease. Most local jurisdictions have their own goals and standards for acceptable amounts of parkland per capita and strive to ensure that new developments make adequate provisions for new parkland. However, there is no regional goal for per capita open space and parkland acreage.

Funding for new school construction is provided through state and local revenue sources in the form of development fees. Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) governs the amount of fees that can be levied against new development. Payment of fees authorized by the statute is deemed "full and complete mitigation." These fees would be used in combination with state and other funds to construct new schools. Because proposed projects would be required to pay applicable school fees up to the maximum amount authorized by statute to mitigate potential impacts such projects would result in a less-than-significant impact on the need for school facilities.

Historically, local jurisdictions have accommodated increases in demand for libraries, social services, and parks and recreation facilities by constructing new facilities and leveraging existing facilities, equipment, and personnel. Future increases in demand would likely be handled in the same way. The timing, siting, and project-specific details of individual development projects will dictate the necessity of increasing service in existing service areas or expanding service to new areas. In most cases, local jurisdictions will not grant building permits until public services are in place to serve the new development.

The proposed MTP/SCS land use forecast assumes increases in public service facilities and infrastructure as the population increases. However, because public services are regulated at the local level, local jurisdictions have different goals, standards, and policies related to the provision of public services. Without a common set of metrics by which to measure the impacts of implementation of the proposed MTP/SCS, it is infeasible to make a significance finding of less than significant at the regional level without mitigation.

Therefore, the impacts on services related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact PS-1. Mitigation Measure PS-1 is described below.

On the transportation side, the region will see more than 7,700 lane miles of additional capacity over existing conditions, including freeway, HOV, auxiliary, arterial, and surface street lane miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles.

Projects that increase capacity, such as road widenings, newly constructed roads, and HOV lanes, have the potential to improve access for school, library, social service, and parks and recreation facilities. For example, Safe Routes to School projects will improve pedestrian and bicycle facilities surrounding schools, thereby providing non-motorized access for schoolchildren. Similarly, implementation of the region's transit projects will increase access to public services by increasing the frequency of transit service and expanding the service area to include new public service facilities. Local service providers should coordinate with agencies implementing transportation infrastructure improvements to ensure that the siting of future public service facilities takes into account access issues, including access by persons dependent on public transportation.

New and expanded capacity projects, bicycle and pedestrian improvements, and increased transit service have the potential to convert open space to transportation uses. Most local jurisdictions have their own goals and standards for acceptable amounts of parkland per capita and strive to ensure that new developments make adequate provisions for new parkland. However, there is no regional goal for per capita open space and parkland acreage. Without a common set of metrics by which to measure the impacts of implementation of the proposed MTP/SCS, it is infeasible to make a significance finding of less than significant.

Therefore, the impacts on services related to transportation improvements associated with implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact PS-1. Mitigation Measure PS-1 is described below.

B. Localized Impacts

With one exception noted below, the localized impacts associated with implementation of the MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities and transportation project in Lands Not Identified for Development have the potential to impede achievement of acceptable school, library, social service, and parks and recreation facilities including capital capacity, equipment, and personnel.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities and transportation

project in Lands Not Identified for Development are considered potentially significant (PS) for Impact PS-1. Mitigation Measure PS-1 is described below.

The one Community Type excepted from the foregoing is the land use impacts in Lands Not Identified for Development. Existing development in these areas consists primarily of farm homes, agricultural-related uses, forestry, mining, public lands such as waste water treatment facilities, and other rural uses. Although some housing and employment growth, consistent with historical trends, associated with agriculture, forestry, mining, and other rural uses may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impacts on services related to land use improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less tha significant (LS) for Impact PS-1.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the MTP/SCS is the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to impede achievement of acceptable school, library, social service, and parks and recreation facilities including capital capacity, equipment, and personnel.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for all Transit Priority Areas are considered potentially significant (PS) for Impact PS-1. Mitigation Measure PS-1 is described below.

Mitigation Measure PS-1: Ensure adequate public services and utilities will be available to satisfy levels identified in local general plans or service master plans.

The implementing agency should ensure that public services and utilities will be available to meet or satisfy levels identified in the applicable local general plan or service master plan. This shall be documented in the form of a capacity analysis or provider will-serve letter.

Significance after Mitigation

If a public agency adopts this mitigation measure, the impact would be reduced to less than significant (LS). However, because SACOG cannot require a public agency to adopt this mitigation measure, this impact remains significant and unavoidable (SU).

Impact PS-2: Result in the construction of new, or the expansion of existing, facilities to maintain adequate police, fire, emergency services, school, library, social services, and park and recreation services including capital capacity, equipment and personnel, and response times.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert roughly 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

Implementation of the proposed MTP/SCS will result in denser and more compact development in developed areas of the region. This type of growth pattern should allow jurisdictions to leverage existing facilities and absorb some of the increased demand with facilities that are currently underutilized. The proposed MTP/SCS also allocates a significant amount of growth to the developing areas of the region, just outside existing developed areas. While these areas may have some existing public service facilities, the amount of growth allocated to these areas would likely result in the construction of additional facilities in order to maintain adequate service levels. Overall, the higher density of new growth overall in the region should limit the number of new facilities needed to maintain adequate levels of service and at the same time reduce per capita costs to construct and maintain those new facilities that are built.

The land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in public services facilities, including police, fire, emergency services, libraries, schools, parks and recreation facilities, social services, and other public facilities. This land supply is included in one of two ways: in cases where local plans identify specific locations and acreages for these services, they are included in the 'public' and 'office and commercial' development categories of the land use forecast; in cases where local plans did not identify specific locations and acreages, they are accounted for in the gross acreages of the "residential" development category of the land use forecast. For un-sited public service facilities, SACOG does not attribute them to specific parcels as timing and siting decisions related to public services are addressed by the local government and public service districts.

Therefore, because increases in demand for public services are accommodated in the land use forecast, the impacts on services related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact PS-2. No mitigation is required.

On the transportation side, the region will see more than 7,700 lane miles of additional capacity over existing conditions, including freeway, HOV, auxiliary, arterial, and surface street lane miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles.

Roadway improvements may increase the demand for police, fire, and emergency services. Most of the increased demand will occur in areas that are already covered by existing police, fire, and emergency services. The increase in demand is expected to be small when compared to baseline conditions and may not require additional services beyond what is provided today. However, as discussed above in the land use analysis, the land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in public services facilities, including police, fire, and emergency services. Schools, libraries, parks, and social services would not be needed to support the transportation facilities themselves, only the increase in population, as described in the land use analysis above.

Therefore, the impacts on services related to transportation improvements associated with implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact PS-2. No mitigation is required.

B. Localized Impacts

The localized impacts associated with implementation of the MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use forecasts in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development includes the land supply needed to accommodate necessary increases in public services facilities, including police, fire, and emergency services. Schools, libraries, parks, and social services would not be needed to support the transportation facilities themselves, only the increase in population, as described in the land use analysis above.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for these Community Types are considered less than significant (LS) for Impact PS-2. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the MTP/SCS is the same in each of the TPAs as described in the regional impacts discussion above. Land use forecasts in all TPAs include the land supply needed to accommodate necessary increases in public services facilities, including police, fire, and emergency services. Schools, libraries, parks, and social services would not be needed to support the transportation facilities themselves, only the increase in population, as described in the land use analysis above.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for all TPAs are considered less than significant (LS) for Impact PS-2. No mitigation is required.

CHAPTER 16 – TRANSPORTATION

INTRODUCTION

This chapter describes existing transportation conditions (environmental and regulatory) and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect the transportation environment within the MTP/SCS plan area. This chapter evaluates potential impacts on vehicular, transit, bicycle, and pedestrian components of the transportation system that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

Six comment letters were received on various aspects of the potential impacts of the proposed MTP/SCS on transportation and traffic. During circulation of the Notice of Preparation (NOP), letters were received from the following entities/individuals: Placer County Department of Public Works, Placer County Transportation Planning Agency, the California Department of Transportation, WALKSacramento, Walk Seifert, and one letter from Breathe California of Sacramento – Emigrant Trails, League of Women Voters of Sacramento County, and Sierra Club of Sacramento County. Appendix PD-1 contains each letter. The comment letters included requests that bicycle and pedestrian travel be analyzed and offered as a mitigation measure, safety benefits be considered, and that level of service standards for all modes be used.

SETTING

Environmental Setting

The MTP/SCS plan area consists of transportation routes, including highways, rail alignments, bicycle trails, state routes, roads, and other transportation right-of-way in the SACOG region. The major components of the existing transportation system within the SACOG region include three interstate highways, several state highways, numerous local arterial roadways, a deep water shipping port, a major international airport, numerous general aviation airports, freight and passenger rail service, and a public transit system that includes approximately 40 miles of light rail transit service and several thousand miles of regional and local bus routes.

The components of the existing and proposed transportation system in the MTP/SCS plan area are defined below.

Roadway System

For purposes of this report, the roadway network within the MTP/SCS plan area is categorized into several street classifications as follows:

- **Freeways**—A freeway may be defined as a divided highway with full control of access and two or more lanes for the exclusive use of high volumes of traffic in each direction. Intersections with other streets and roads are grade separated, and provide through ramps and connectors. Because of the grade-separations and access control,

these facilities do not provide direct access to land. These types of facilities serve primarily regional through-trips and connect to other regional and interregional facilities. Within the "Freeway" classification, several sub-classifications are of interest and importance to the MTP/SCS, since the prevalence of freeway projects and improvements varies widely by these sub-classifications:

- **High-Occupancy Vehicle (HOV) Lanes**—Lanes which are restricted to private vehicles with 2-or-more persons (exceptions are allowed for select partial or zero emission vehicles), motorcycles, and public transit vehicles during commute hours, but allow all private vehicles to use the lanes during non-commute hours. HOV lanes are intended to provide an incentive to commuters to carpool by providing faster travel speeds than the parallel mixed flow lanes during peak periods.
- **Freeway Ramps and Connectors**—Lanes which provide connections between the region's surface street system and the freeway system, or connect from one designated freeway to another designated freeway, are ramps or connectors.
- **Freeway Auxiliary Lanes**—Definitions of auxiliary lanes vary widely. For purposes of this document, the following definition is used: any freeway lane which is added at one on-ramp, and drops at the next upstream off-ramp. In some cases, such as locations where interchanges are closely spaced and no parallel local street is provided, a lane added at one on-ramp may pass through one or more interchanges, but still ultimately dropping at an upstream off-ramp, may be considered an auxiliary lane. Auxiliary lanes are primarily intended to provide additional distance for vehicles to divert off or merge on to a freeway from a ramp or connector lane, and not to accommodate longer "through" trips.
- **General Purpose Freeway Lanes**—Freeway lanes which do not fall into one of the three categories above are general purpose freeway lanes. These lanes allow all types and occupancy classes of vehicles at all times of the day.
- **Surface Streets**—Any street type which predominantly intersects with other streets at-grade are surface streets. There is a wide range of sub-classifications of surface streets. For many practical and historical reasons, surface streets often do not fall neatly into one sub-classification or another, and some surface streets may have characteristics of more than one sub-classification.
- **Expressways**—An expressway facility intersects other roadways at-grade, but direct land access to the facility is very limited. Where allowed, driveways are usually consolidated (i.e., one driveway serves several fronting properties), or mediated through frontage roadways. Spacing of signalized intersections is usually very wide, generally greater than one-half mile. Medians are raised, and midblock turns are disallowed.
- **Arterial Roadways**—Arterial facilities also limit direct land access, but are less restrictive than expressways. Intersection spacing is generally about one quarter mile and may be less. Arterials are usually multi-lane (i.e., two-or-more lanes per travel direction). Most arterial roadways have raised medians, but mid-block turns and two-way-left turn lanes are also common. Intersections usually include separate turning lanes.

- **Collector Streets**—Collector facilities generally do not limit direct land access. Intersection spacing is less than one-quarter mile, and unsignalized, stop-sign-controlled intersections are common. Collectors include a mix of two and four lane facilities. If provided, medians are usually striped and rarely raised.
- **Local Streets**—Local facilities are intended to provide land access. The majority of local streets are provided in residential areas, although local streets are provided in mixed and employment-oriented areas, too. Local streets are two lanes, one lane per travel direction. Most local streets do not have medians or center strips.

Table 16.1 provides a tabulation of roadway route miles and lane miles for the SACOG region for the baseline 2008, and for 2035 MTP/SCS.[1] "Route miles" are the centerline mileage of roads. "Lane miles" are route miles multiplied by the number of lanes on the roadway. Table 16.1 reports totals by roadway classes, with the two overall classifications being minor roadways (collectors/local streets) and major roadways (arterials/expressways, auxiliary lanes/ramps, HOV lanes, and general purpose freeways). Because the major roadways (arterial and above roadway classes) carry more traffic and transit trips, they have the greater effect on the transportation performance measures.

For arterial and above roadway classes, the MTP/SCS represents an 8 percent per capita decline in lane miles between 2008 and 2035. The per capita decline occurs because the increase of 420 route miles, and 1,730 lane miles by 2035 is slower than the rate of population growth for the region during the same time period. In general, route mileage is added by new roadways in new growth areas, although route mileage for some road classifications may be added to one category, and subtracted from another, by transitioning from one class to another (e.g., rural state highways transitioning to freeways, as at-grade intersections are replaced with interchanges). Lane mileage is added by constructing new roadways, and through widening existing roadways.

[1] For comparison, the 2008 MTP added about 2,500 lane miles of the arterial-and-above roadways.

Table 16.1
Roadway Route and Lane Mileage by Class Year 2008 and 2035 MTP/SCS

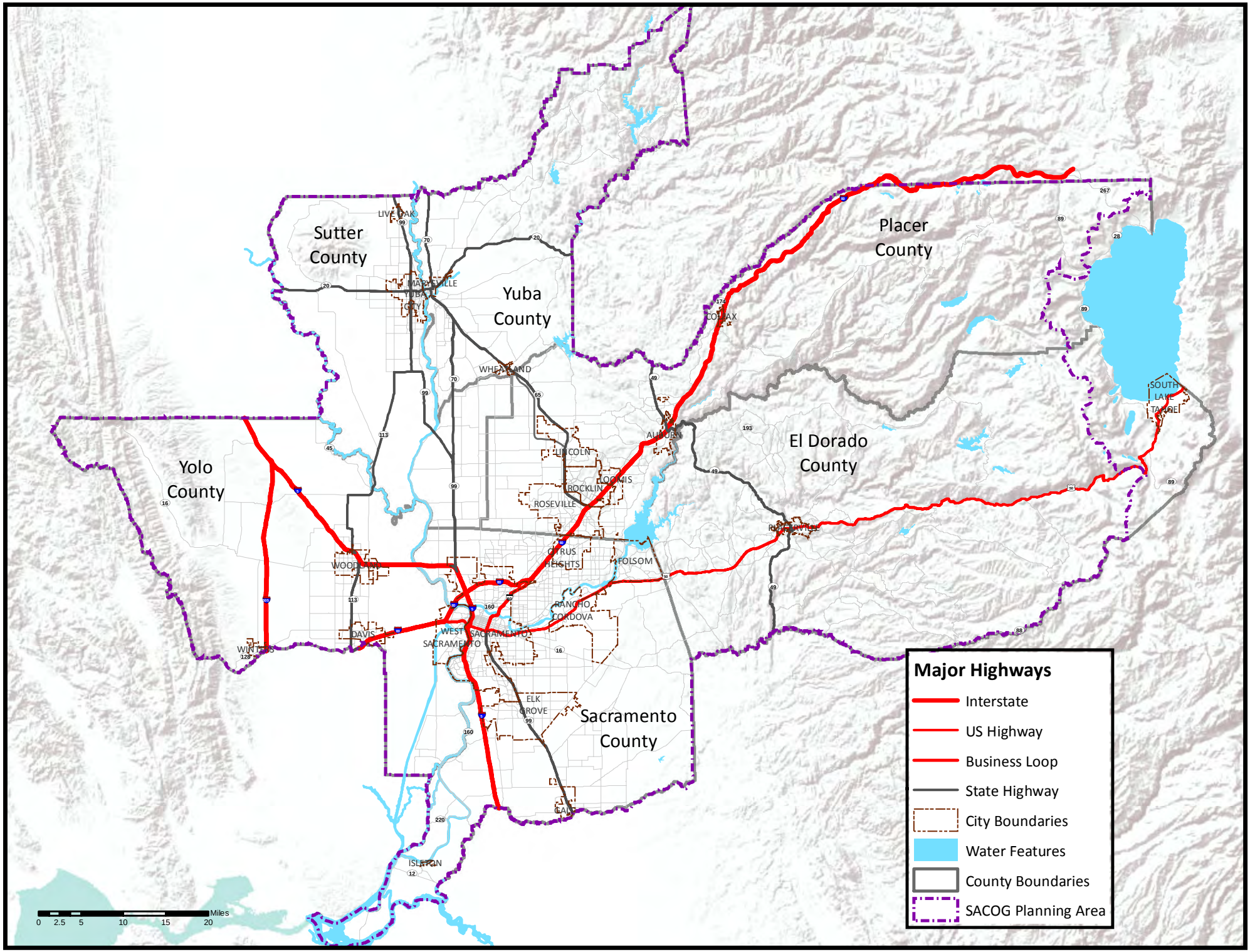
Roadway Class	2008[1]	2035 MTP/SCS	Change from 2008	% Change
Route Miles				
General Purpose Freeway	279	293	+14	+5%
HOV Lane	32	91	+59	+184%
Auxiliary Lanes/Ramps	91	122	+31	+34%
Arterials/Expressways	1,151	1,471	+320	+28%
Collectors/Local Streets	11,085	13,767	+2,682	+24%
All Roadway Classes	12,637	15,743	+3,106	+25%
Arterial & Above	1,552	1,976	+424	+27%
Lane Miles				
General Purpose Freeway	1,462	1,522	+60	+4%
HOV Lane	64	182	+118	+184%
Auxiliary Lanes/Ramps	196	262	+66	+34%
Arterials/Expressways	3,609	5,095	+1,486	+41%
Collectors/Local Streets [2]	22,000	28,000	+6,000	+27%
All Roadway Classes	27,331	35,061	+7,730	+28%
Arterial & Above	**5,331**	**7,061**	**+1,730**	**+32%**
Population	**2,215,000**	**3,086,200**	**+871,200**	**+39%**
Route Miles per Thousand People (Arterial & Above)	**12.34**	**11.36**	**-0.98**	**-8%**

Source: SACOG, November 2011.
[1] From "California Public Road Data Reports", assembled by SACOG.
[2] MTP/SCS quantity of local streets based on applying a per capita rate to population growth.

Several freeways and state highways serve the MTP/SCS plan area and are depicted in Figure 16.1. The freeway and highway system are under the jurisdiction of the California Department of Transportation (Caltrans). Below is a description of the major freeways and highways within the plan area.

- **Interstate 5 (I-5)** is a 4 to 8-lane freeway that runs from north to south through the western portion of the MTP/SCS plan area and is the largest of the major regional facilities in the area. I-5 is a major federal interstate freeway and travels from the Canadian border to Mexico.
- **Interstate 80 (I-80)** is a 6 to 8-lane freeway that runs from west to east through the plan area from the San Francisco Bay Area extending 132 miles, from the Yolo/Solano county line to the California/Nevada state line, passing through Yolo, Sacramento, and Placer counties. I-80 is also part of the federal interstate system, connecting the East Coast of the United States with the Pacific Rim.

Figure 16.1 Regional Major Highways



- **United States Highway 50 (US 50)** is a 4 to 10-lane east-west route that is part of the California State Highway system which predates the federal interstate system. US 50 traverses the MTP/SCS plan area from the eastern portion of Yolo County through Sacramento and El Dorado counties.
- **State Route 49 (SR49)** is also part of the state highway system. It is a 2 to 4-lane, north-south highway that traverses the central portion of the plan area through El Dorado, Placer and Yuba counties.
- **State Route 65 (SR 65)** is a 2 to 4-lane, north-south highway that traverses the east side of the plan area through Sacramento, Placer and Sutter counties. The route connects automobile and truck traffic originating in the I-80 corridor (in the Roseville/Rocklin area) to the SR70/99 corridor (in the Marysville/Yuba City area).
- **State Route 70 (SR 70)** is a 2 to 4-lane, north-south highway that travels the western side of the plan area through Sutter and Yuba counties. SR 70 currently travels through downtown Marysville as a local street.
- **State Route 99 (SR 99)** is the second largest regional facility in the plan area. SR 99 is a 2 to 8-lane north-south highway and freeway that traverses the central portion of the plan area through Sacramento and Sutter counties. SR 99 serves ten of the State's urbanized areas, making it an important corridor in the Central Valley. The route also serves as a main access between several small cities and urban areas in Sacramento County.

Transit System

Local transit service in the region is currently provided by 13 public transit operators and two private non-profit Consolidated Transportation Services agencies of varied size and type of service, as shown in Figure 16.2. These operators range from very large systems, such as the Sacramento Regional Transit District (RT) that operates over 200 buses, 90 rail cars and 40 miles of track, to the very small systems—the City of Auburn provides service with a fleet of only five vehicles.

For purposes of this report, transit services in the MTP/SCS plan area were categorized by "service type." Service type is defined according to unique combinations of right-of-way (e.g., exclusive vs. mixed with traffic), traction (rail/steel wheel vs. rubber tire), vehicle technology, and operational features like station or stop spacing and running speeds. As with roadway classifications, in some cases, actual transit service may include characteristics of more than one service type, and some "gray areas" between service types exist (e.g., between "light rail transit" and "streetcar/tram"). The following service types were used to develop and describe the MTP/SCS:

- **Intercity rail** service is an electric or diesel propelled railway for passenger train service that must be operated on a regular basis by Amtrak or under contract with a transit operator for the purpose of transporting passengers between and within urbanized and outlying areas. Such rail service is generally characterized by multi-trip tickets, specific station to station fares, railroad employment practices, and

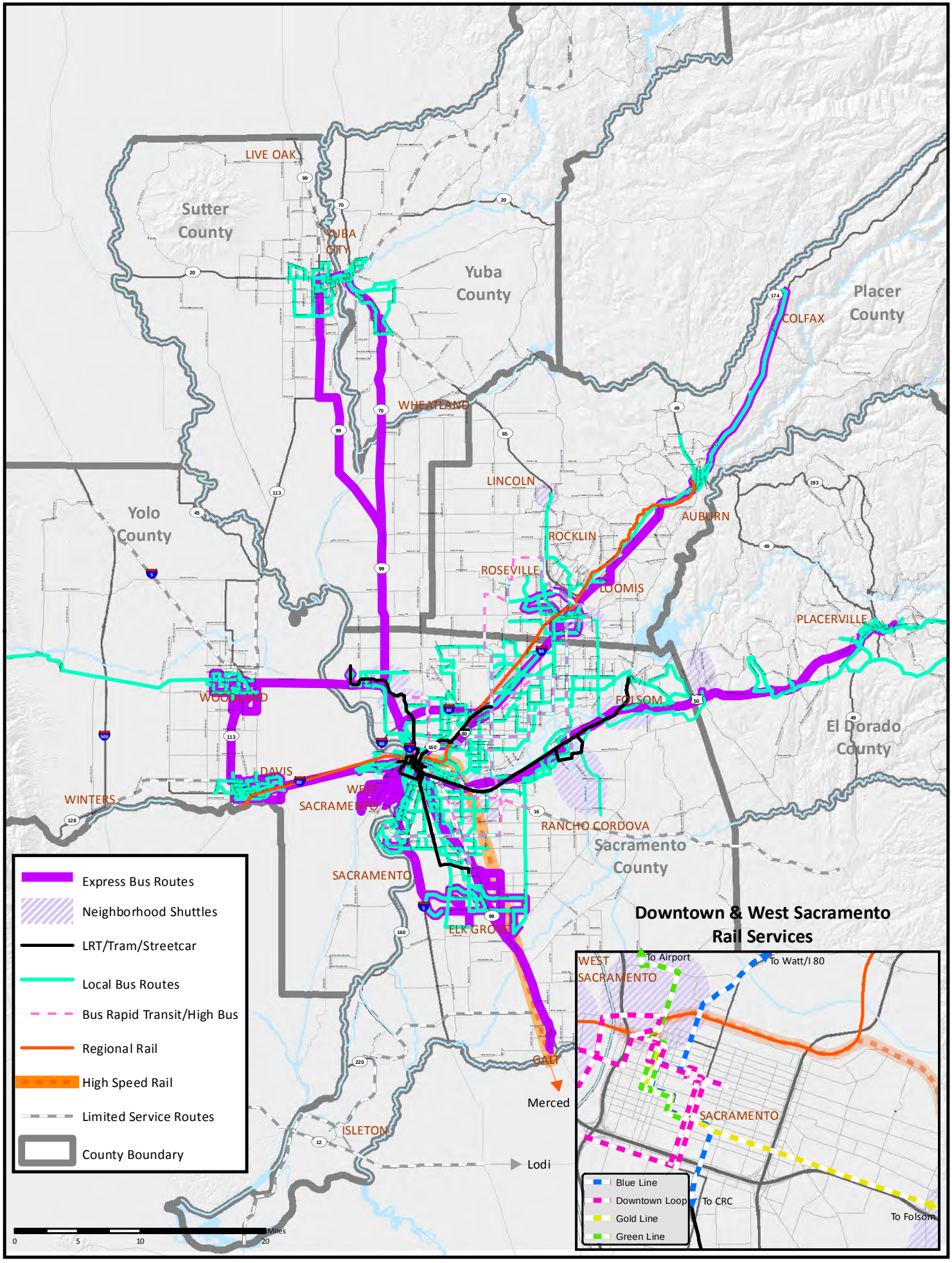


Figure 16.2 Transit Network

Source :SACOG June 2011

considerable distance between stations. Within the MTP/SCS plan area, there are two intercity rail services – the Capitol Corridor and the San Joaquin Corridor. The Capitol Corridor service operated by Amtrak is an intercity passenger train system serving Placer, Sacramento, and Yolo counties. It operates 32 trains daily carrying about 120,000 riders per month on average between Sacramento and Oakland, and is the fourth busiest Amtrak-operated route in the nation. Another intercity rail service in the region is the Amtrak San Joaquin Route that provides intercity rail service between the Bay Area and Sacramento and Bakersfield, with bus connections to Los Angeles, Redding, Yosemite National Park and Las Vegas, Nevada.

- **Light Rail (LRT)** is rail system designed for operating in lighter-demand, urban environments, with passenger rail cars operating up-to-four two-car consists, on fixed rails in a right-of-way exclusive in some locations, or mixed with street vehicle traffic in others. Light rail vehicles (LRVs) are typically driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. Streetcar vehicles are typically shorter and narrower than LRVs. Streetcars may be older cars that are refurbished (vintage trolley cars) or newer cars are built to look like older cars (heritage trolley cars), or they may be modern LRV-type vehicles of smaller dimensions. RT operates the only light rail service within the MTP/SCS plan area. In general, LRT operates with station spacing one-half mile or more, and with maximum running speeds of about 55 miles-per-hour.
- **Streetcar or Tram** is another form of urban rail transit service, similar in some ways to LRT. Similarities to LRT are: generally operated on rails with steel wheel traction; capable of operating either within roadway and mixed with vehicle traffic, or on exclusive right-of-way; operated with fixed stops and schedules. Characteristics which distinguish streetcar or tram from LRT are: generally closer station/stop spacing, usually less than one-half mile; slower running speeds; shorter train consists (more singles and doubles than four-car trains); and more likely to run in roadways and mixed with vehicle traffic.
- **Bus Rapid Transit (BRT)** is a type of limited-stop bus service that relies on technology to help speed up travel times. Limited-stop BRT service is a hybrid between local and express service, where the stops may be several blocks to a mile or more apart to speed up the trip. BRT can operate in exclusive transitways or in mixed-flow lanes along local streets. A BRT line typically runs along high traffic volume arterial corridors with land uses that are transit supportive. BRT systems often include intelligent transportation systems technology to improve the efficiency and operations of the service.
- **Express Bus** service is typically operated over long distances with limited stops. Express buses typically travel on highways and freeways with extended "closed door" (i.e., no passengers boarding or alighting) distances. Several transit operators within the MTP/SCS plan area operate express bus services during morning and evening commute periods.

- **Fixed Route Bus (or "Local Bus") service** is the largest share of bus transit services. Buses stop frequently along a route that is typically several miles long. This is the most common type of bus service in the plan area. Within the MTP/SCS plan area, the following operators provide fixed-route service in the Sacramento or Yuba City/Marysville urbanized areas:
    - City of Auburn – providing intra-city service
    - El Dorado County Transit – providing intra-city, intra-county and commuter service to Sacramento
    - e-Tran – serving the City of Elk Grove
    - Folsom Stage Lines – providing intra-city service
    - City of Lincoln – providing intra-city service
    - Placer County Transit with service connecting I-80 communities and service to the Regional Transit light rail stop at Watt Avenue and Interstate 80 (I-80).
    - Roseville Transit – operated by the City of Roseville, providing intra-city and commuter services to Sacramento
    - Sacramento Regional Transit (RT) – the largest fixed-route transit provider in the MTP/SCS area with extensive service coverage across urban Sacramento County
    - Unitrans – providing intra-city service in Davis
    - Yolobus – serving Davis, Woodland, West Sacramento, Downtown Sacramento, the Sacramento International Airport, and rural Yolo County
    - Yuba-Sutter Transit – providing intra-city service in the Marysville/Yuba City area, intercity service to Live Oak, Wheatland and the Yuba foothills, and commuter service to Sacramento

  Transit service in the non-urbanized portion of Sacramento County includes South County Transit Link fixed route services linking the Cities of Elk Grove, Galt, Isleton, Lodi, Sacramento and other delta communities. Also, Amador Regional Transit System provides additional fixed-route services that link Jackson in Amador County with Rancho Murieta, the 65th Street Light Rail station, and downtown Sacramento.
- **Community Shuttles** provide short-distance transit service within a small geographic area and are often called circulator, feeder, neighborhood, trolley, or shuttle services. Shuttles often have a lower fare than local fixed route service, frequently operate in a loop and connect to major routes for travel to more outlying destinations. Publicly operated shuttles in the MTP/SCS plan area are provided by the Sacramento Regional Transit District, California State University, Sacramento (CSUS) and the North Natomas Transportation Management Association.
- **Demand Responsive** services provide transportation service required by the Americans with Disabilities Act (ADA) of 1990 (42 U.S.C. § 12101 et seq.) for seniors or individuals with disabilities who are unable to use fixed-route transit systems. Under federal law, demand responsive services must be comparable in

service area coverage to fixed-route services in the same area. Demand responsive services providers within the MTP/SCS plan area include the following operators:

- Davis Community Transit - serving the City of Davis
- El Dorado County Transit, operating demand responsive services in El Dorado counties
- Paratransit Inc., the largest paratransit provider in the MTP/SCS plan area - providing door-to-door share-ride, subscription, and intermittent transportation service within the Sacramento Metropolitan area.
- Placer County Transit - serving the Rocklin/Loomis area, Granite Bay, and along the State Route 49 corridor
- Roseville Transit Dial-A-Ride - serving the City of Roseville
- South County Transit - providing service in the Galt area
- Yolo County Transportation District ADA Yolobus Special Program - serving Woodland, West Sacramento and intercity service needs throughout Yolo County and into Sacramento County
- Yuba Sutter Transit - serving the Marysville/Yuba City urban area

The MTP/SCS budget supports the 98 percent increase of fixed-route transit service hours in the plan area between 2008 and 2035. This increase in transit service hours is comprised of existing services (LRT, express bus, fixed route bus, BRT, and community shuttle) as well as new transit service types which were not present in 2008. The new transit services include: streetcars in Sacramento, West Sacramento, and Rancho Cordova; BRT (several corridors in Sacramento and Placer Counties); and, community shuttles in various communities across the six county SACOG region.

Table 16.2
Weekday Transit Revenue Service Hours by Service Type
2008 and 2035 Proposed MTP/SCS

			Change from 2008	
Service Types	**2008**	**2035 MTP/SCS**	**#**	**%**
Light Rail	248	429	+181	+73%
Tram/Streetcar	0	145	+145	n/a
Express Bus	221	286	+66	+30%
BRT/Fixed Route Bus	3,595	6,416	+2,821	+78%
Shuttle	0	758	+758	n/a
Regional Rail	10	29	+19	+186%
Regional Total	4,074	8,062	+3,989	+98%

Source: SACOG, November 2011.

Intercity Passenger Services

In addition to the public transit operators in the MTP/SCS plan area, the Sacramento region has access to intercity passenger rail and bus service through Amtrak and the Capital Corridor Joint Powers Authority (CCJPA) and intercity passenger bus service through Greyhound. Amtrak runs two long-distance trains – the Coast Starlight (Los Angeles to Seattle) and the California Zephyr (Oakland to Chicago) – which pass through the SACOG region stopping in Davis, Sacramento, Roseville, and Colfax. The Amtrak San Joaquin line runs from Bakersfield to Oakland twice per day with connecting bus service from Davis, Elk Grove, Marysville and Sacramento.

The CCJPA is responsible for managing a 170 mile passenger rail service from Auburn to San Jose. The service operates up to 16 round trips per day to Oakland with 7 of those round trips traveling past Oakland to San Jose. Stations in the SACOG region are Auburn, Davis, Sacramento, Rocklin and Roseville. The Capital Corridor service is supplemented by bus connections to Lake Tahoe, Reno, Emeryville and Richmond.

The Amtrak San Joaquin Route provides intercity rail service between the Bay Area and Sacramento and Bakersfield, with bus connections to Los Angeles, Redding, Yosemite National Park and Las Vegas, Nevada. The Sacramento-to-Bakersfield segment has two daily round trips. Four daily round trips between Oakland/San Francisco and Bakersfield are also accessible by Sacramento and Elk Grove riders through Amtrak connecting buses. Amtrak buses also serve the Davis station to allow riders to connect to all San Joaquin trains. The San Joaquin exceeded one million annual riders in September 2011. The San Joaquin shares rail equipment, train crews, and maintenance facilities in Oakland with the Capitol Corridor.

Greyhound Bus operates services in the region to connect to a variety of local and national destinations. There are station stops in Colfax, Marysville and Roseville with a major regional station in Sacramento at Richards Blvd. The Richards Blvd bus station connects with the RT light Rail Station at Township 9, a new mixed-use development currently under construction. Greyhound offers frequent service to San Francisco and Oakland from its Sacramento station.

Existing Conditions: Transportation Performance Measures

Regional conditions for a number of key performance indicators form the basis for the transportation impacts analysis presented in this EIR. These indicators include vehicle miles traveled (VMT), roadway congestion, shares of transit and non-motorized trips, transit productivity, and miles of bicycle and pedestrian routes. These indicators have been important performance measures throughout the development of the MTP/SCS, and all relate directly to the performance of the region's transportation system. In addition to the comparative indicators used in this EIR analysis, the discussion below includes some historical context on travel trends in the MTP/SCS plan area over the past decade.

Vehicle Miles Traveled (VMT)

A "VMT" is one vehicle traveling on a roadway for one mile. Regardless of how many people are traveling in the vehicle, each vehicle traveling on a roadway within the Sacramento region

generates one VMT for each mile it travels. For the purposes of the EIR, VMT is estimated and projected for a typical weekday. VMT has been a primary indicator of travel for policy-makers and transportation professionals for decades. The primacy of this measure is due to several factors:

- First, it is relatively easy to measure by counting traffic on roadways at different locations. It is one of the few measures of transportation performance which has been consistently and comprehensively monitored and documented over time in the Sacramento region.
- Second, VMT bears a strong and direct relationship to vehicle emissions –although the relationship is complex moving into the future. State and federal policies pertaining to vehicle efficiency and formulation of vehicle fuels suggest that on a per VMT basis, emissions for most pollutants will decline relative to today. However, even with these per VMT improvements due to fuel and vehicle technology changes, lower VMT will mean lower emissions.
- Third, VMT can be influenced by policy in a number of different ways. By providing more attractive alternatives to driving alone, VMT can be reduced by shifting from vehicle to non-vehicle modes (i.e., from a car trip to a bike or walk trip), or from low occupancy to higher occupancy vehicles (i.e., from a single-occupant vehicle trip to a carpool or transit trip). VMT can be influenced by land use patterns as well. A better mix of residential, employment, education, and service uses in an area can allow people to accomplish their daily activities with less driving, and consequently, less VMT.
- Fourth, VMT correlates with congestion. The more miles people are driving their vehicles, the more vehicles on the roadways at any given time, and higher numbers of vehicles eventually result in congestion.

As displayed in Table 16.3, the 2000 to 2008 growth rate for VMT (1.1%) was less than the region's population growth rate for the same period (+2.0%). Growth rates in both population and VMT for the years 2000 to 2005 were much higher than the rates for 2005 to 2008, though: population growth for 2000 to 2005 was +2.6% per year, compared to +1.0% for 2005 to 2008; VMT growth rates for the same periods were +2.0% and -0.4%, with average weekday VMT actually declining from 2005 to 2008.

Table 16.3
Average Daily Vehicle Miles Traveled in SACOG Region, 2000-2008

County	Daily VMT[1] (thousands)			Growth Rates		
	2000	2005	2008	'00 to '05	'05 to '08	'00 to '08
El Dorado [2]	4,148	4,404	4,249	+1.2%	-1.2%	+0.3%
Placer [2]	7,361	8,581	8,502	+3.1%	-0.3%	+1.8%
Sacramento	29,244	32,145	31,835	+1.9%	-0.3%	+1.1%
Sutter	2,150	2,374	2,444	+2.0%	+1.0%	+1.6%
Yolo	5,132	5,683	5,489	+2.1%	-1.2%	+0.8%
Yuba	1,745	1,849	1,787	+1.2%	-1.1%	+0.3%
Region	49,780	55,036	54,306	+2.0%	-0.4%	+1.1%
Pop. (thousands)	1,896	2,153	2,215	+2.6%	+1.0%	+2.0%
VMT per Capita	26.3	25.6	24.5	-0.5%	-1.4%	-0.9%

Source: SACOG, November 2011. From "California Public Road Data Reports", assembled by SACOG.
[1] Includes VMT from all sources (household-generated, commercial and external) on all roadways within the SACOG region. Estimates and forecasts from SACSIM regional travel demand model.
[2] Only the portions of Placer and El Dorado County outside the Tahoe Basin are reported. SACOG staff adjusted the full-county data reported in CPRD reports.

Roadway Congestion

Roadway congestion is an indicator with a much less specific and determined definition than VMT. In general, congestion occurs on roadways when the number of drivers who wish to use a particular route exceeds the capacity of that route. This condition leads to a reduction in travel speed below the free-flow or posted speed on the roadway. For freeways, typical signs of congestion are stop-and-go driving conditions or long queues at freeway on-ramp meters waiting to enter the freeway. On the local arterial and collector system, congestion is most commonly experienced as waiting at traffic signals and accompanied by driver and passenger frustration.

"Delay" in general refers to time wasted traveling on congested facilities. However, to quantify that delay requires some presumption of what time it should take to travel on a particular route, or a standard travel time which drivers and passengers should expect. Setting a standard by which delay can be quantified is a subjective exercise. For example, some might define a standard travel time as "free-flow" or totally uncongested conditions. The standard for freeways by this definition might be 60 mph or higher, and the "standard" travel time would be 1 minute for a one-mile stretch of freeway. If the actual travel speed, with congestion, was 40 mph, the travel time would be 1.5 minutes, and the delay for each driver and passenger in that condition would be 30 seconds. Others may define the standard as modest or "tolerable" level of congestion. For the same one-mile stretch of freeway, 35 mph could be used as the standard for measurement of delay. With the same 40 travel speed in the previous example, no delay would be experienced, because the actual speed is higher than the standard.

For this and other reasons, SACOG has always focused more on the presence of congestion on roadways rather than amount of delay. Specifically, SACOG estimates and tracks how much of the total VMT occurs on roadways that are at or above an assigned capacity threshold. SACOG defines a congested VMT (C-VMT) as VMT that occurs on roadways with volume-to-capacity (VC) ratios of 1.0 or greater. Capacity in this calculation is based on values used in the regional travel demand model (SACSIM) for trip assignment purposes and that vary by roadway functional classification (i.e., freeway lane capacities are higher than arterial lanes). The SACSIM average capacity values are not based on field measured traffic throughput at each location, but on reasonable values for roadways are approaching their operating capacity. An example of C-VMT is a vehicle and its drivers and passenger going westbound on I-80 in the morning commute period between Madison Avenue and the I-80/Capital City Freeway "Split," or on Hazel Avenue between Madison and Winding Way during commute hours and in the peak direction.

Table 16.4 provides observed data on congestion and delay in the Sacramento region for years 2000, 2005 and 2008. Two measures of delay are provided: one published annually by Caltrans, and one by the Texas Transportation Institute. Although these sources are collected by different means, and for different parts of the roadway system in the Sacramento region, both show a similar trend between 2000 and 2008: during the years 2000 to 2005, sharp increases in delay (9 to 15 percent per year); during the years 2005 to 2008, equally sharp decreases (10 to 19 percent per year); and a small overall increase in measured delay over the entire period from 2000 to 2008 (one to two percent per year). Also included in Table 16.4 is SACOG's estimate of C-VMT, described above. C-VMT follows a similar pattern over the 2000 to 2008 time period as the delay measures, although the extent of the increase from 2000 to 2005 and the decrease from 2005 to 2008 are more muted than the Caltrans and TTI delay measures.

Table 16.4
Weekday Congestion in the SACOG Region, 2000-2008

Congestion/Delay Measure	2000	2005	2008
Freeway Vehicle Hours Delay (daily) [1]	10,896	21,832	11,576
All Roads Traveler Hours (yearly, in thousands)[2]	24,506	38,076	27,781
Congested VMT (weekday, in thousands)[3]	**2,541**	**3,659**	**3,298**
Annual Average Growth Rates	**'00 to '05**	**'05 to '08**	**'00 to '08**
Freeway VHD[1]	+14.9%	-19.1%	+0.8%
All Roads THD[2]	+9.2%	-10.0%	+1.6%
Congested VMT[3]	**+7.6%**	**-3.4%**	**+3.3%**

Source: SACOG, November 2011.
[1] From Caltrans District 3 "Highway Congestion Monitoring" reports. Data collected and reported for a subset of freeways in the SACOG region.
[2] From Texas Transportation Institute "Urban Mobility Reports". Note that TTI re-tooled their process for estimating traveler delay in 2009, and re-estimated traveler delay for prior years. Data shown here are the re-tooled estimates of traveler delay.
[3] SACOG estimates, made using SACSIM regional travel demand model. Includes C-VMT from all sources (household-generated, commercial and external) on all roadways within the SACOG region. Estimates and forecasts from SACSIM regional travel demand model. "Congested" means that demand is near the assumed capacity for the roadway. Congested VMT are VMT occurring on roadways at or near generalized hourly capacity.

Travel by Bicycling, Walking, and Transit

Table 16.5 provides data and estimates on travel by walking, biking and transit in the region. The commuter travel estimates are survey data from the Decennial Census and the American Community Survey. These data show increases in the numbers of commuters by biking, walking and transit which largely track increases in the numbers of workers. The commute transit share varies between 2.4 and 2.6 percent, and walk share between 2.1 and 2.2 percent. Bicycle share increases from 1.3 to 1.5 percent.

The table also reports estimates of all purpose (work and all non-work travel purpose) trips by walking, biking or transit. All these numbers are estimates from the SACSIM travel demand model, calibrated to match available survey data. These estimates show walk, bike and transit trips increasing significantly faster than population growth, especially for the years 2005 to 2008. It should be noted that these years bracketed a period of very volatile and generally increasing gasoline prices, with the historic high in prices ($4.59 in 2008 dollars) occurring in mid-2008.

Table 16.5
Transit and Non-Motorized Weekday Mode Shares in the SACOG Region, 2000 -2008

Mode of Travel	2000	2005	2008
Commuter Travel [1]			
Public Transit Commuters	21,672	23,938	26,104
Bicycle Commuters	11,107	12,938	14,932
Walk Commuters	18,432	21,373	21,617
Combined Bicycle and Walk Commuters	29,539	34,311	36,549
Total Workers	852,400	1,001,600	1,020,500
Public Transit Share	2.5%	2.4%	2.6%
Bicycle Share	1.3%	1.3%	1.5%
Walk Share	2.2%	2.1%	2.1%
Combined Bicycle and Walk Share	3.5%	3.4%	3.6%
All Travel			
Public Transit Trips [2]	87,200	103,000	107,000
Bicycle Trips [3]	113,400	129,000	155,600
Walk Trips [3]	429,300	488,500	574,300
Total Person Trips (in thousands)	7,378	8,395	8,685
Public Transit Share	1.2%	1.2%	1.2%
Bicycle Share	1.5%	1.5%	1.8%
Walk Share	5.8%	5.8%	6.6%
Combined Bicycle and Walk Share	7.4%	7.4%	8.4%

Source: SACOG, November 2011.
[1] SACOG, April, 2010, based on data from the Year 2000 Decennial Census, and the American Community Survey 3-year sample data releases for 2005 and 2008. Data shown are 6-county totals, including Tahoe Basin.
[2]SACOG On Board Transit surveys for 1999 and 2005, interpolated to 2000 and 2008 based on boardings data from operators.
[3] SACOG estimates based on Year 2000 household travel survey, and SACSIM travel demand model for Year 2005 and 2008.

Regulatory Setting

Federal

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

Under SAFETEA-LU, the U. S. Department of Transportation, Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) require that Metropolitan Planning Organizations (MPOs) prepare and submit long-range transportation plans. In regions that are designated federal air quality non-attainment areas, these plans must be updated at least every

four years. The federal requirements for metropolitan transportation plans include a number of key provisions including (23 USC § 134(i)):

- Plans must be developed through an open process that encourages and includes public input and seeks out and considers the needs of those traditionally underserved by existing transportation systems;
- Plans must cover a period of at least 20 years into the future;
- Plans must reflect the most recent assumptions for population, employment, land use, travel, congestion, and economic activity;
- Plans must be financially constrained with reasonable revenue assumptions
- Plans must conform to the State Implementation Plan (SIP) for air quality (42 U.S.C. § 7506(c)).;
- Plans must consider seven planning factors and strategies in the local context: economic vitality, safety and security of the transportation system, accessibility/mobility, environment and quality of life, connectivity of the transportation system, efficiency, and preservation of the existing transportation system;
- Plans must describe all transportation facilities that are part of the integrated metropolitan transportation system;
- Plans must contain operational and management strategies to improve the performance of existing transportation facilities; and
- Plans must contain proposed transportation and transit enhancement activities

National Environmental Policy Act (NEPA)

The National Environment Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq.) requires federal agencies to assess the possible environmental consequences of projects which they propose to undertake, fund, or approve. While the MTP is not subject to NEPA, individual federally-funded programs or projects requiring federal approval will be subject to a NEPA evaluation at the time of project implementation.

State

State requirements for long-range transportation plans are similar to the federal regulations. However, key additional requirements described in Government Code Section 65080 include:

- compliance with CEQA
- consistency with State Transportation Improvement Program
- use of program level performance measures that include goals and objectives
- RTPs must include a policy element, an action element, and a financial element.

Plans must also include a Sustainable Communities Strategy (see SB375 discussion below).

California Transportation Commission Regional Transportation Plan Guidelines

The CTC publishes and periodically updates guidelines for the development of long range transportation plans that include SACOG's MTP/SCS. Pursuant to Government Code Section 65080(d), each regional transportation planning agency (RTPA) is required to adopt and submit an updated regional transportation plan (RTP) to the California Transportation Commission (CTC) and the Department of Transportation (Caltrans) every four years. SACOG is the designated RTPA for Sacramento, Yolo, Sutter and Yuba counties. The El Dorado County Transportation Commission (EDCTC) and the Placer County Transportation Planning Agency (PCTPA) are the RTPAS for their respective counties.

Under Government Code Section 14522, the CTC is authorized to prepare guidelines to assist in the preparation of RTPs. The CTC's RTP guidelines suggest that projections used in the development of an RTP should be based upon available data (such as from the Bureau of the Census), use acceptable forecasting methodologies, and be consistent with the Department of Finance baseline projections for the region. The guidelines further state that the RTP should identify and discuss any differences between the agency projections and those of the Department of Finance.

The most recent update to the RTP guidelines was published in 2010, and includes new provisions for complying with Senate Bill 375 (see below), as well as new guidelines for regional travel demand modeling. The regional travel demand model guidelines are "scaled" to different sizes of MPO's. SACOG is included in the "E" grouping of the MPO's serving the largest populations in the state. The guidelines for regional travel demand modeling are the most ambitious for the "E" group, and include (among many other things):

- Guidelines and standards for validation and sensitivity testing of the model;
- Transition to an activity-based demand model;
- Participate in peer review every ten years; and
- Build a microeconomic land use model as soon as is practical.

SACOG has already transitioned to an activity-based demand model. The guidelines and standards for model validation and sensitivity testing are being followed. SACOG participated in a peer review for its SACSIM travel demand model in November 2008. SACOG is developing a spatial economic model which would meet the terms of the "microeconomic land use model" described in the guidelines, but the model was not ready for this update. SACOG intends to complete development and testing work in time to use the model in the next MTP/SCS update.

Senate Bill 375

Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375) requires MPOs to prepare a Sustainable Communities Strategy (SCS) that demonstrates how the region will meet its greenhouse gas (GHG) reduction targets through integrated land use, housing and transportation planning. Specifically, the SCS must identify a transportation network that is integrated with the forecasted development pattern for the plan area and will reduce GHG emissions from

automobiles and light trucks in accordance with targets set by the California Air Resources Board. Chapter 8 – Energy and Climate Change includes a more in-depth discussion of SB 375 and its implications for the Proposed MTP/SCS.

Regional and Local

2008 Metropolitan Transportation Plan

The 2008 Metropolitan Transportation Plan (2008 MTP) was the last regional transportation plan adopted by SACOG. As a foundation for the MTP/SCS, many of the policies and strategies from the 2008 MTP remain relevant and have been carried forward. MTP/SCS changes to the policies and strategies in the 2008 MTP were primarily made for the following reasons: (1) to include policies and strategies related to SACOG's Rural-Urban Connections Strategy (RUCS) project; (2) to ensure consistency of the MTP/SCS with SB 375 and allow qualifying development projects to use the CEQA streamlining benefits of SB 375; (3) to delete strategies that were completed since the 2008 MTP. Upon approval, the MTP/SCS will supersede all of the policies and strategies in the 2008 MTP. Therefore, the specific policies and strategies contained in the 2008 MTP are not included in this analysis.

Regional Transportation Planning Agencies and Other Sub-Regional Agencies

Within the SACOG region are several sub-regional agencies which oversee some planning, programming, and administration functions related to transportation projects and coordinating directly with local agencies in their part of the SACOG region. In some cases, these sub-regional agencies also provide transportation services, such as transit. These sub-regional agencies include:

- Placer County Transportation Planning Agency (PCTPA) is designated in state law as the Regional Transportation Planning Agency (RTPA) for Placer County. PCTPA is also the county's Congestion Management Agency (CMA), a statutorily designated member of the Capitol Corridor Joint Powers Authority (CCJPA), and the airport land use planning body and hearing board for Lincoln, Auburn, and Blue Canyon Airports. As part of their Joint Powers Agreement, PCTPA is the designated administrator for the South Placer Regional Transportation Authority (SPRTA). Under an agreement with the Sacramento Area Council of Governments (SACOG), PCTPA also represents Placer jurisdictions in federal planning and programming issues. Since the PCTPA has a local Agency-State Agreement for federal aid projects, it is also eligible to administer federal projects. PCTPA is also responsible for adopting and implementing the Regional Transportation Plan (RTP) for Placer County. As part of a memorandum of understanding with SACOG, PCTPA's RTP is integrated into SACOG's regional MTP/SCS.
- El Dorado County Transportation Commission (EDCTC) is designated as the Regional Transportation Planning Agency (RTPA) for El Dorado County on July 23, 1975. As the RTPA, the EDCTC serves as the planning and programming authority for transportation projects on the western slope of El Dorado County, excluding those areas within the Tahoe Regional Planning Agency boundaries. In 2008, the

EDCTC was designated as the Airport Land Use Commission for the Placerville, Georgetown, and Cameron Park airports. EDCTC is also responsible for adopting and implementing the Regional Transportation Plan (RTP) for El Dorado County. As part of a memorandum of understanding with SACOG, EDCTC's RTP is integrated into SACOG's regional MTP/SCS.

- Sacramento Transportation Authority (STA) is a local transportation authority pursuant to the California Public Utilities Code Sections 131300—131304. The STA is primarily responsible for administering the Measure A program that is supported by a one-half percent sales tax in Sacramento County for transportation improvements. The STA also administers the Sacramento Metropolitan Freeway Service Patrol (FSP) program in cooperation with Caltrans and the California Highway Patrol. The FSP's primary objective is to reduce the traffic congestion caused by roadway incidents. The STA Governing Board and staff also serve as the Governing Board and staff of the Sacramento Abandoned Vehicle Service Authority (SAVSA). SAVSA provides funding to participating local jurisdictions for the abatement of abandoned vehicles and vehicle parts on streets and private property.

Local Agency General Plans

State law requires cities and counties to adopt general plans which must incorporate a transportation element. A general plan's transportation element describes the acceptable operating standards, levels of service, roadway classifications, and transportation related goals and policies of the city or county. Transportation elements also typically address public transit, bicycle, and pedestrian facilities. The performance measures used for evaluation of the MTP in this document are intended to supplement these local standards by focusing explicitly on overall system performance.

SUMMARY OF REGIONAL LAND USE AND TRANSPORTATION CHANGES

The plan area will add approximately 871,000 people, an increase of 3 percent, between the baseline year of 2008 and 2035. This increase will accompany about 303,000 new housing units and 361,000 new employees in the region through the year 2035. This growth is accommodated in the proposed MTP/SCS, as described in Chapter 2- Project Description, by locating people closer to jobs and transit services and generally developing in a compact form. Combined with the transportation investments, the land use patterns of the proposed MTP/SCS reduce the need to travel frequently or over long distances using single occupancy vehicles.

In terms of transportation improvements, the MTP/SCS emphasizes transit, biking, walking, and road operation investments to improve system productivity. More than two-thirds of the total road and highway investments in the MTP/SCS pay for operational or capacity improvements to existing facilities, while the remainder of the budget includes a mix of new road and highway investments to serve infill in Center and Corridor Communities and Established Communities and new growth areas in Developing Communities. In Rural Residential Communities, the MTP/SCS investments are focused on road maintenance, safety and operational improvements.

Road and highway projects concentrate on alleviating major bottlenecks and congestion points while other Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure. The result of these investments is a 2035 network that includes a doubling of total daily transit vehicle service hours, new or expanded roadways in growth and infill areas, and 873 miles of new Class 1 and 2 bicycle and pedestrian routes

COMMUNITY TYPE AREAS: SUMMARY OF LAND USE AND TRANSPORTATION CHANGES

Center and Corridor Communities

By 2035, Center and Corridor Communities are expected to see approximately 92,000 new housing units and 104,000 new jobs. This growth will consume approximately 4,400 acres. Region-wide, Center and Corridor Communities will account for 30 percent of housing unit growth, 29 percent of employment growth, and eight percent of new acres developed.

The compact and mixed use character of land uses in Center and Corridor Communities helps reduce vehicle miles traveled (VMT) by providing more opportunities for shorter trips by non-auto modes of travel. Center and Corridor Communities are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel.

In addition, Center and Corridor Communities will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Center and corridor communities receive new and expanded bus and rail transit and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure in the Center and Corridor Communities.

Established Communities

Similar to Center and Corridor Communities, Established Communities already have a significant amount of urban development, but these areas are generally not as dense as Center and Corridor Communities and will actually see their proportional share of regional population decrease from 2008 to 2035. The housing units in Established Communities will increase by approximately 79,000, but decrease in proportional share from 77 percent to 64 percent. Employment growth and acres developed will pretty much maintain their proportional shares, with jobs increasing by approximately 187,000 and acres developed increasing about 20,000 for regional shares of 52 percent and 37 percent respectively. This growth pattern indicates that while Established Communities will see population, housing, and employment growth, the

growth rate will be relatively modest when compared to Center and Corridor Communities and Developing Communities, which see a much higher rate of growth.

Established Communities are mostly lower density residential, office parks, and strip retail. They are considered to be mostly built-out, with most new development building out existing areas or through infill on vacant parcels. This type of growth takes advantage of existing transportation infrastructure and surrounding land uses. Established Communities are typically adjacent to and surrounding Center and Corridor Communities, taking advantage of the higher densities and mixed uses. Established Communities in the proposed MTP/SCS receive 52 percent of the employment growth, in an attempt to better balance the housing and job development.

The type of growth in Established Communities takes advantage of existing transportation infrastructure and surrounding land uses. However, Established Communities will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. As with Center and Corridor Communities, Established Communities receive new and expanded bus and rail transit and complete streets that serve supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points along major arterials and freeways leading to and from major employment centers in Sacramento, Rancho Cordova, and Roseville. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

Developing Communities

Developing Communities are expected to see a high rate of growth during the MTP/SCS plan period. They will see approximately 127,000 new housing units and 65,000 new jobs. Developing communities see the highest growth rate of any of the Community Types and will see substantial increases in their proportional share of population, housing, and to a lesser extent employment. As many of these communities become more established with a mix of housing and commercial uses, residents will be able to travel shorter distances to reach most routine destinations.

Developing communities will see a somewhat different mix of transportation projects in comparison to Center and Corridor Communities and Established Communities. Developing communities will see more road widening projects and newly constructed road projects to serve the new residential and employment developments that will be built by 2035. Developing Communities have little or no transit service in 2008, but with the proposed MTP/SCS, by 2035 some areas will include bus service every 30 minutes or less. These areas area will also include walk and bike facilities that are included in the new developments. Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of the transportation infrastructure supporting Developing Communities.

Rural Residential Communities

Rural residential communities are very low-density communities with mostly residential development and some small-scale farming. These communities are expected to see very limited growth by 2035. The proposed MTP/SCS forecast includes approximately 5,300 new housing units and 4,000 new jobs by 2035. This development will consume about 5,000 acres. This Community Type is expected to see the lowest rate of growth and will see a decreasing share of regional population, housing units, and employment.

While the land uses in Rural Residential Communities are staying largely the same in the proposed MTP/SCS, these communities benefit from changes in adjacent Developing and Established Communities that bring important destinations closer and reduce the need to travel long distances on a regular basis. Existing transportation infrastructure in rural residential communities consists primarily of roads serving automobile traffic with some very limited transit service in a few places in the plan area. Implementation of the proposed MTP/SCS will result in roadway improvements, with the focus on road maintenance and rehabilitation, safety projects and limited new or widened roadways or freeway improvements. Road projects in Rural Residential Communities focus on improving agricultural and goods movement travel as well as improving or maintaining accessibility for slow moving farm equipment. Rural Residential Communities will also benefit from improvements to lifeline and rural transit services that focus on bringing workers to job sites and providing access to crucial destinations such as hospitals, social services, and shopping. A number of road safety improvements, such as the addition of shoulders, in Rural Residential Communities create a safer environment for pedestrians and bicyclists.

Lands Not Identified for Development: Summary of Land Use and Transportation Changes

The proposed MTP/SCS does not forecast or model growth in Lands Not Identified for Development during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, and public lands such as waste water treatment facilities, etc.)

Since growth is not assumed in the proposed MTP/SCS for this Community Type, there will be a limited amount of transportation investments in these areas by 2035. Primarily, these investments will go towards ongoing road maintenance and targeted operational improvements to support safer and more efficient agricultural goods movement. A limited number of new or expanded roads are also planned, but they represent less than 2 percent of the total regional route miles added through the implementation of the MTP/SCS. Each of these proposed roadway projects is intended to connect growth areas in Established or Developed Communities and not induce growth in Lands Not Identified for Development. Most of these projects are along the MTP/SCS rural/urban edge and nearly all are expansions within an existing right-of-way with design features that provide access control.

TRANSIT PRIORITY AREAS: SUMMARY OF LAND USE AND TRANSPORTATION CHANGES

Placer County Transit Priority Areas

The Placer County TPAs include portions of Roseville, Rocklin, and Auburn (around the Amtrak station), in areas that are already developed with urban uses. Placer County TPAs will see approximately 2,600 new housing units and 10,000 new jobs by 2035. Jobs are primarily focused in existing job centers and residential growth in the TPAs is 78 percent attached. This development is generally more densely developed than surrounding areas.

The land use changes, together with the transportation investments in Placer County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Placer County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, but the majority of transit service increases will be commuter service to downtown Sacramento. The Placer TPAs are served by the Capital Corridor train, as well as high quality transit services in Roseville. These systems are connected to the larger regional transit network, making the Placer TPA a very accessible regional destination. The sum of the investments creates more efficient travel, as well as opportunities for non-auto modes of travel.

Sacramento County Transit Priority Areas

The Sacramento County TPAs include much of the City of Sacramento and portions of Rancho Cordova, Folsom, Citrus Heights, and unincorporated Sacramento County. The Sacramento County TPAs will see approximately 93,000 new housing units and 108,000 new jobs. The Sacramento County TPAs see a large amount of residential and employment growth, approximately 30 percent of regional growth, in the proposed MTP/SCS. Approximately 75 percent of all new residential products are attached.

The land use changes, together with the transportation investments in Sacramento County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter

vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Sacramento County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, major increases in light rail service, new streetcar service, and more express bus service. The Sacramento TPA is served by light rail, Capital Corridor, and numerous bus routes. In 2035, the Sacramento TPA has a streetcar corridor in downtown, and bus rapid transit service. The transit in the Sacramento TPA is connected to the larger regional transit network, giving more opportunities for shorter trips and non-auto forms of travel.

Yolo County Transit Priority Areas

The Yolo TPAs include the much of West Sacramento, all of Davis, and some portions of Yolo County near the Sacramento International Airport where Sacramento Regional Transit District will run light rail service. Yolo County TPAs will see approximately 20,000 new housing units and 22,000 new jobs. Approximately 79 percent of this residential growth is attached. The area has relatively balanced growth in residential and employment, bolstering the existing jobs centers in downtown West Sacramento and UC Davis.

The land use changes, together with the transportation investments in Yolo County TPAs, accommodate this growth while reducing the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. This is achieved through compact land uses which are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit and are close enough to walk or bike to the transit stops.

Yolo County TPAs will see a variety of transportation improvements by 2035 including new transit, non-motorized and roadway projects in addition to ongoing investments in transit operations and roadway maintenance. Transit service will include increased frequency on local fixed route buses, a major light rail extension to Sacramento International Airport, new streetcar service in West Sacramento, and increased express service to downtown Sacramento. In addition, the Yolo TPA is served by Capital Corridor as well as numerous bus routes. In 2035, the area will include bus rapid transit and a streetcar in West Sacramento. These new transit services will be connected to new and existing regional transit service.

Impacts and Mitigation Measures

Methods and Assumptions

This impacts analysis looks at each significance criterion individually, assessing how changes to the land use pattern and transportation network may impact the transportation environment. The analysis for each significance criterion examines its potential impact at a regional level, localized level, and transit priority area level.

The MTP/SCS is the first SACOG regional transportation plan since passage of SB375 (see above), which requires MPOs to explicitly account for the combined effects of land use and transportation projects in updates of the regional transportation plans. Informing the development of the MTP/SCS is a body of research and knowledge on relationship between characteristics of land use and travel behavior, often referred to as "the Ds." The land use characteristics which are recognized as being the most influential to travel behavior are listed below.[2]

- ***Regional Accessibility*** is a way of quantifying how "connected" a given area is to the existing development in a region, and is usually stated as the number of jobs within an "average" auto commute drive time. It is a measure of how many activities are within a reasonable drive time from a given place of residence. In areas within the existing urbanized area, regional accessibility is usually higher, because these areas are surrounded by other development. Outlying areas or areas on the urban edge, where a major part of the area within a given travel time is undeveloped, it tends to be lower. This factor has the strongest potential effect on VMT; a 10 percent increase in this measure would, on average, result in a 2 percent decline in VMT for residents of an area.
- ***Street Pattern/Urban Design*** refers to how "walkable" a given area is, based on characteristics of the street pattern in that area. It is usually measured as the density of intersections in a given area. The greater are the number of intersections, the smaller are the blocks and the more potential walking connections there are in that area. Although clearly other factors (presence/absence of sidewalks, pedestrian amenities on the street, traffic volumes on streets, presence/absence of crosswalks, treatment of pedestrians a signalized intersections, etc.) affect walkability and walk mode share, street pattern has been used as a proxy in research, in part because it is relatively easy to assemble data. In terms of VMT reduction, this is the second strongest factor, with 10 percent improvement resulting in a 1.2 percent reduction in VMT, a 2 percent increase in trips made by transit, and a 4 percent increase in trips made by walking.

[2] Definitions of land use characteristics and strength of effects on travel behavior are from: Ewing, R. and Cervero, R., "Travel and the Built Environment: A Meta-Analysis," Journal of the American Planning Association, Vol. 76, No. 3, Summer 2010.

- ***Mix of Use*** refers to the inclusion in an area of a range of complementary land uses, which allows for more activities (e.g., working, shopping, school, etc.) to be contained within that area. Good land use mix allows for reductions in VMT through shortening of vehicle trips or shifting to other non-vehicle modes of travel like walking. The most common measures of mix of use combine the relative proportions of residential, overall jobs, retail and other residential supporting land uses into an "entropy" formula. A 10 percent improvement in mix of use would, on average, result in a 0.9 percent reduction in VMT, and just over 1 percent increase in walk and transit trips.
- ***Distance to Transit*** refers to the distance from a residence to the nearest transit station or stop, with VMT declining, and both walking and transit use increasing, as distance to the nearest transit decreases. Although this factor has modest impact on VMT, with a 10 percent improvement resulting in, on average, a less-than-one percent decrease in VMT, the potential to increase transit trip-making is greater, with a nearly 3 percent increase.
- ***Residential Density*** refers to the number of persons or dwellings clustered into a given area. Conceptually, density is quite easy to understand—it's the number of persons or dwelling located in a given area. However, because there are different definitions of area (net acreage, gross acreage, total area, etc.) the effects of density are often over- or under- stated. Recent research shows that a 10 percent increase density at the place of residence might reduce VMT by about 0.4 percent.

These land use and transportation factors are obviously not the only factors influencing travel in the SACOG region. Other important factors, which are accounted for in the modeling and forecasting tools described in greater detail below, include: demographic factors such as age, income, household size, and number of workers; household transportation costs, in particular costs of fuel and transit fares; characteristics of travel in neighboring regions and the amount and extent of external, or through, travel they might generate in the SACOG region; and geographic features such as rivers which may separate or divide areas.

Through the development of the MTP/SCS, SACOG has taken into account the general land use and transportation relationships described above, and, along with other factors, applied them to the task of developing both the land use growth allocations on which the MTP/SCS area is based, and the transportation projects and improvements which are intended to serve the region. In particular, the following principles guided development of the MTP/SCS.

- The value of compact development and mixed use development to support an efficient transportation system and reducing the need for vehicle travel for future residents engaging in work, school and other activities within the region.
- The necessity of aligning transit services in corridors with sufficient density and concentration of uses in order to support more efficient, productive service.
- The value of providing options to driving alone, whether they be a bicycle route, a transit service, or a land use pattern which allows for walking to activities near home or work, to reducing the amount of vehicle travel.

- The value of creating pleasant, high quality pedestrian environments to encouraging residents to make more trips by walking.

Table 16.6 provides a tabulation of key land use characteristics reported above, for the baseline (2008) and for the future MTP/SCS (2035). The table provides information on the regional averages for all measures, and also splits the measures out by the MTP/SCS Community Types described in Chapter 2-Project Description.

- ***Regional Accessibility*** increases by 31.3 percent overall, with all community area types increasing by 29 percent or more, relative to 2008. Center and Corridor Communities have the highest level of regional accessibility in both 2008 and 2035 MTP/SCS—in both years, accessibility to jobs is nearly 50 percent higher for residents of these areas, compared to the regional average. Accessibility to jobs declines for the remaining area types, with residents of Rural Residential Communities and Lands Not Identified for Development having the lowest accessibility in both 2008 and 2035 MTP/SCS having 60 percent or more below regional averages. This reflects the fact that Center and Corridor Communities are centrally located in the region, and in general are surrounded by urban development. Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are located on the urban edge, or completely outside the urbanized area. Developing Communities, to the extent they are at the edge of the urbanized area, have access to jobs on only one side. These locational factors drive down regional accessibility, and, by extension, drive up VMT generation.
- ***Street Pattern*** follows a similar pattern as regional accessibility, with Center and Corridor Communities being the highest in both 2008 and 2035 MTP/SCS. Overall street pattern (in this case, intersection density) improves by 3.6 regionally. Each Community Type improves to some degree, except Center and Corridor Communities, which decrease by 3.5 percent. The decrease is related to the concentration of 2008 development in areas with extremely high intersection density, and future growth in Center and Corridor Communities occurring in areas which are well above regional average on this metric, but below the level in the existing development.
- ***Mix of Use*** is highest in Center and Corridor Communities and Established Communities, largely because these areas are located near jobs and commercial centers. In 2008, Developing Communities and Rural Residential Communities were very low in measured mix of land use, with both below 14 on the SACOG mix index3. In general, measured land use mix is low in these areas, because they are predominantly residential, with very little commercial, school or other supportive non-residential use within one-half mile of places of residence. The biggest change

[3] SACOG's mix index is a variant on an entropy index. It is defined as a residential mix, and measures the degree to which an optimal array of activities and services which support residents are present within a one-half mile radius (i.e., 502.6 acres) around the place of residence. The measure includes: total jobs per household; retail jobs per household; K12 school enrollments per household; and medical jobs per household. An area with a perfect balance of each of these factors would score 100; a completely homogenous area, with no mix of use, would score 0.

in mix of use between 2008 and 2035 MTP/SCS occurs in Developing Communities—this change is reflective of a significant amount of growth, especially in non-residential development and schools, in the planning for these areas.

- ***Distance to Transit*** as expected, is lowest (i.e., best) in Center and Corridor Communities, with distance to the nearest transit station or stop averaging less than one-quarter mile in 2008, and declining to about one-eighth mile by 2035 based on the MTP/SCS. Average distance to transit also improves, declining from 0.72 miles in 2008 to 0.55 mile by 2035. Distance to transit is greatest in Rural Residential Communities, where average distance to transit is over 2 miles.
- ***Residential density*** of developed parcels increases overall by about 27 percent, from an average of 1.5 dwellings per net residential acre to almost two units per acre. The biggest changes occur in Developing Communities, where growth as a percentage of 2008 existing development is high, and growth is significantly higher in density than the baseline due to the fact this land in the baseline is rural residential or undeveloped. Established Communities change little, simply because the amount of growth is relatively small compared to the amount of existing development in 2008. Center and Corridor Communities are both the highest in density, and show significant change, increasing from about 10 units per net acre to about 15 units per acre by 2035.

Table 16.6
Key Land Use / Transportation Characteristics of the MTP/SCS

Land Use / Transportation Factor	Community Area Type				
	Center and Corridor	Established	Developing	Rural Residential	Regional Average
Year 2008					
Regional Accessibility [1]	561,970	391,325	254,496	132,585	379,598
Street Pattern/Urban Design [2]	115	87	64	17	83
Mix of Use [3]	37	33	14	10	31
Distance to Nearest Transit [4]	0.21	0.55	1.22	2.91	0.72
Residential Density [5]	10.1	3.8	1.3	0.2	1.5
2035 MTP/SCS					
Regional Accessibility [1]	729,235	515,642	351,964	196,759	498,359
Street Pattern/Urban Design [2]	111	90	67	20	86
Mix of Use [3]	38	35	28	11	33
Distance to Nearest Transit [4]	0.12	0.42	0.7	2.65	0.55
Residential Density [5]	15.0	4.1	4.5	0.2	1.9
Change from 2008					
Regional Accessibility [1]	+29.8%	+31.8%	+38.3%	+48.4%	+31.3%
Street Pattern/Urban Design [2]	-3.5%	+3.4%	+4.7%	+17.6%	+3.6%
Mix of Use [3]	+2.7%	+6.1%	+100.0%	+10.0%	+6.5%
Distance to Nearest Transit [4]	-42.9%	-23.6%	-42.6%	-8.9%	-23.6%
Residential Density [5]	+48.5%	+5.7%	+240.5%	+6.0%	+27.1%

Source: SACOG, November 2011.
All numbers are averages for residences in each community area type across the region.
[1] Total jobs within 30 minute drive from place of residence.
[2] Intersection density, stated as intersections per square mile, within 1/2 mile of place of residence.
[3] SACOG entropy index, 0 to 100 scale with 0 = homogenous, 100 = perfect mix of use.
[4] Shown as distance from place of residence to nearest transit station or stop, in miles per resident.
[5] Dwelling units per net residential acre, within 1/2 mile of place of residence.

Travel Demand Forecasting Model

SACOG utilized its regional travel demand model to compare the MTP/SCS for 2035 conditions to the existing conditions for the 2008 base year. SACOG's primary model is the "Sacramento Regional Activity-Based Simulation Model" or "SACSIM." SACOG periodically updates and improves SACSIM, and releases versions of the model and data for use by member agencies when the MTP is adopted, with versions numbered according to the year the version was finalized. SACSIM07 was used for the 2008 update of the MTP. SACSIM11 was used for the analysis of this MTP/SCS. [4]

[4] Comprehensive documentation of the SACSIM model is available at SACOG for review during the comment period.

SACSIM includes four sub-models for predicting travel demand. The major sub-model is "DAYSIM," which is an advanced-practice[5] activity-based tour sub-model for predicting household-generated travel. DAYSIM is a state-of-the-art demand micro-simulation, which represents travel activities as "tours" or series of trips connecting the activities a person engages in during the course of a normal day. DAYSIM allows for much more detailed representation of key factors influencing household-generated travel, such as detailed characteristics of land use in the region, age of residents, household income, cost of fuel, and other factors.

SACSIM also includes a more conventional, state-of-practice[6] sub-model for predicting commercial vehicle travel. Two classes of commercial vehicles are modeled: 2-axle commercial vehicles, and 3-plus-axle commercial vehicles. 2-axle commercial vehicles include a wide range of vehicles, ranging from a passenger vehicle, which might be used to transport a computer repair person and their tools and equipment to an office to perform a repair, to a relatively small truck delivering produce to a restaurant or store. 3-plus-axle commercial vehicles also include a wide array of vehicles, ranging from medium-sized delivery trucks to large, 5-axle tractor-trailer combinations. The common element tying these vehicles together is that they are used to transport goods and services, and are not used for personal travel (household-generated) travel.

SACSIM also includes state-of-practice sub-models for predicting air passenger ground access to the Sacramento International Airport, and for predicting external travel (including travel by residents of the region to locations outside the region, residents outside the region traveling to locations within the region, and travel with goes through the region, but has not stop within the region).

Travel demand (vehicle or passenger trips) estimated using SACSIM are combined for assignment to detailed computer representations of the regions highway and transit networks using state-of-practice[7] software and programs. The resulting assignments are used for evaluation of VMT on roadways, and evaluation of congested travel.

The analysis period of SACSIM is a "typical weekday." A typical weekday is intended to represent weekday conditions during a non-summer month (i.e., a time period when most workers are at work, rather than on vacation, and when schools are normally in session). Where annual or other time periods are required, typical weekday estimates of travel are scaled up to represent those time periods. Within the typical weekday, are four demand periods: AM peak period (7:00-10:00AM); midday period (10:00AM to 3:00PM); PM peak period (3:00-6:00PM); and the late evening/overnight period (6:00PM to 7:00AM).

For impact analysis, all impacts and thresholds are defined as differences or changes between the baseline (2008) and the MTP/SCS horizon year (2035). If base year observed data are available for a performance measure, SACSIM estimates of 2008-to-2035 change are applied to

[5] Advanced practice travel demand modeling is defined in TRB Special Report 298, "Metropolitan Travel Forecasting: Current Practice and Future Direction".
[6] Ibid.
[7] Ibid.

the 2008 observed data to estimate 2035 totals. If observed data for 2008 are unavailable for a performance measure, SACSIM estimates are used directly to estimate 2008 and 2035 totals.

An overview of the SACSIM is included in Appendix C-4 of the MTP/SCS, with comprehensive documentation available at SACOG during the comment period. Year 2008 was utilized as the baseline for impact analysis for the reasons discussed in Chapter 1 – Introduction.

Key Performance Measures and Policy Objectives for Assessing the Transportation Impacts of the MTP/SCS

Four measures, described in greater detail below, are derived from the forecasting results of the SACSIM model: VMT, both in total from all sources, and household-generated; the subset of VMT which occurs on congested roadways; the number of person trips made by different non-private-vehicle modes (bicycling, walking or public transit); and the number of transit passenger boardings and amount of transit service provided.

Two other measures are related to the overall connectivity of the pedestrian and bicycle system, and the ability to move agricultural goods and farm products on roadways, are evaluated more qualitatively, and are also described in greater detail below.

Vehicle Miles Traveled Per Capita

The basic measure of the amount of vehicle travel generated by the project is VMT, defined and described above. Two slightly different measures of VMT are commonly used in analysis: household-generated VMT, and total VMT. Both measures are directly from SACSIM model outputs.

Household-generated VMT is the VMT generated by residents of the SACOG region, for all of their travel within the region. Household-generated VMT includes travel by residents for all purposes (e.g., going to/from work, to/from school, shopping, personal business, social/ recreational, etc.). Because this portion of travel is estimated using an advanced-practice travel demand micro-simulation, it is possible to tabulate all of the VMT generated by a household to its place of residence. In general, about 75 percent of all VMT is household-generated. This capability is unique to travel demand micro-simulation models, and allows for geographic comparisons of VMT generation by households, and evaluation of impacts for sub-areas within the region.

Total VMT includes household-generated, plus VMT from all other sources. SACSIM adds commercial vehicle, airport passenger ground access and external travel to household-generated travel to estimate total VMT. However, total VMT blends estimates of travel from the less-sophisticated commercial vehicle, airport passenger ground access, and external travel sub-models with the more-detailed estimates of household generated travel.

For the reasons described above, Household-generated VMT is the measure used in the analysis of impacts for the plan. Although the absolute amount of household-generated VMT is reported, impact analysis is based on VMT normalized to population as “per capita” rates. Given that expected population growth from the base year to 2035 is 871,000, it is not reasonable to expect

that the absolute quantity of VMT will decrease relative to 2008 for the MTP/SCS. A goal of the MTP/SCS is that VMT per capita decline, even though the absolute amount of VMT may increase. A per capita decline in VMT indicates that the transportation network is operating more efficiently, and that people have more travel choices.

Vehicle Miles Traveled on Congested Roadways Per Capita

The basic measure of congestion used is the subset of VMT which occurs on roadways which are near-or-above capacity, defined and described above. For each of the travel categories used in the VMT analysis described above (household-generated and total), congested travel impacts will be evaluated at regional level. For household-generated travel only, congested travel impacts will be evaluated at more detailed subareas below county level. As with VMT, the amount of C-VMT is converted to per capita values for impact analysis. A goal of the MTP/SCS is to see a decline in C-VMT relative to the regional baseline. While it is important to see a decline at the regional level, it is expected that the measures that help facilitate this decline – compact development, mixed-use, and infill- will cause some localized areas to see a limited C-VMT increase per capita from the baseline in the same geography. Notwithstanding these localized increases in C-VMT, these areas will experience shorter and fewer auto trips because of the land use changes and the expanded walk, bike and transit travel options. Therefore, with respect to the localized areas with some increase in C-VMT, impacts are only significant if the C-VMT per capita exceeds the regional baseline average.

Person Trips by Bicycle, Walk, or Transit Modes Per Capita

Estimates of person trips by walk, bike and public transit modes from SACSIM are the basic measure of non-private-vehicle travel for evaluating change in non-private-vehicle modes. A goal of the MTP/SCS is to enhance the region's bike, walk and transit systems, and to promote growth and land uses that maximize the potential for shorter trips, which are more likely to be made by walking, biking or transit. As with VMT and C-VMT, because of expected population growth, total trips are normalized to population, and reported as per capita rates for purposes of impact analysis.

An increase in bike, walk, and transit trips per capita indicate that the land use and transportation investments in the proposed MTP/SCS are effectively working together to improve the mode share of non-auto travel. Compact and mixed land uses more effectively serve transit, support higher rates of walking and biking, and generate less vehicle travel. While it is important that the regional bike, walk, and transit trips increase per capita regionally, it is expected that local areas will see variations on that trend. For example, local areas with exceptionally high shares of bike, walk, and transit travel in the baseline year due to their unique suitability for non-auto travel may experience a decline in the share of these trips by 2035 if the new growth occurs in other portions of the local area are not as uniquely suited for bicycle, walk or transit trips. As long as any decline in the percentage of non-auto trips does not result in the localized area having a lower share of these trips than the baseline regional share, there is no significant impact.

Transit Passenger Boardings per Vehicle Service Hour

The recent decline in operations funding for transit, and the service cuts made in response to that decline, underscore the importance of ensuring that transit service be productive, and serve the greatest number of passengers possible. Transit vehicles also need to be well-utilized to reduce GHG and air pollution emissions. For example, buses operate on fixed schedules throughout the day regardless of how many passengers are on board. Since buses are large and consume more fuel per mile than passenger cars, it is important for them to carry multiple passengers to achieve desired emissions reductions. It is a goal of the MTP/SCS to increase the productivity and efficiency of transit service provided in the region, through a combination of land use changes, which better support transit service, and transit services which better serve travel needs in the region. Passenger boardings per service hour is the most common and widely reported measure of the transit productivity and efficiency. In general, the more boardings per hour of transit service provided, the more productive and efficient is the system.

In addition to the performance measures described in the preceding section, the MTP/SCS also includes other performance objectives, including the following two that are analyzed as part of this EIR:

Connectivity of the Region's Pedestrian and Bicycle System

The MTP/SCS contains a number of bicycle and pedestrian projects. These projects are generally designed to expand and complement the existing bicycle and pedestrian network. A goal for the MTP/SCS is to increase connectivity of the bicycle and pedestrian networks through strategic investments and minimizing conflicts from MTP/SCS land use or transportation changes on the bicycle and pedestrian system.

Although some land use and transportation changes may disrupt existing or planned bicycle and pedestrian system segments, supportive land uses and strategic investments in the MTP/SCS are focused on improving the connecting of the bicycle and pedestrian system. If the MTP/SCS was significantly interfering with bicycle and pedestrian facilities, trips per capita would decrease as individuals were less likely or able to choose to walk or bicycle.

Movement of Agricultural and Farm Products on Rural Roadways

The movement of agricultural equipment and delivery of farm products to market are essential roles of the roadway system in many rural areas and parts of select urban areas. A goal of the MTP/SCS is to preserve and, where possible, enhance the efficiency of these movements. The challenge to achieving this objective include expanded roads that cut through existing agricultural lands, or disrupt agricultural equipment access to, along, or across roads used for accessing fields, processing destinations, or other agricultural goods movement routes.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to PRC Section 21155.2, SACOG has determined that adoption and/or implementation of the MTP (including

adoption of the MTP policies, adoption of the SCS, adoption of the transportation project list and financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Cause an increase in vehicle miles traveled (VMT) per capita that exceeds the applicable baseline average;
2. Cause an increase in VMT on congested roadways (C-VMT) per capita relative to the applicable baseline for the area, and cause an increase in C-VMT per capita that exceeds the baseline regional average;
3. Cause combined bicycle, walk, and transit person trips per capita to be lower than the applicable baseline average, and cause a decline in the bicycle, walk, and transit person trips per capita that exceeds the baseline regional average.
4. Cause average transit passenger boardings per vehicle service hour to be lower than the applicable average;
5. Cause interference with existing or planned bicycle and pedestrian facilities;
6. Cause a disruption to the movement of agricultural products on rural roadways;
7. Cause a disruption from construction activities to the ongoing operations of the applicable regional or local area transportation system.

Impact TRN-1: Cause an increase in vehicle miles traveled (VMT) per capita that exceeds the applicable baseline average.

A. Regional Impacts

A summary of land use and transportation changes for the Region / Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Table 16.7 provides estimates of total and household-generated VMT for the region as a whole. The proposed MTP/SCS results in total VMT that increases by 17 million miles per weekday (a 30 percent increase from the baseline VMT), due to the travel associated with 871,000 new residents (a 39 percent increase from baseline population) in the plan area. Given the expected population growth from the base year to 2035, the absolute quantity of VMT was expected to increase relative to 2008 for the proposed MTP/SCS. However, transportation system efficiency is better measured through a per capita change in performance measures. Using per capita VMT for the EIR impact analysis normalizes the absolute change between 2008 and 2035. A decline in VMT per capita is a good indication that the system is operating more efficiently because individuals are driving less on a daily basis. VMT per capita is discussed in more detail in the Methods and Assumptions section above.

The proposed MTP/SCS is based on a regional employment and population forecast, and accommodates this growth through land use and transportation projects. It does not create the growth, but is a strategy to accommodate it in a manner that increases transportation system efficiency and minimizes growth in vehicle miles traveled. While the MTP/SCS does not create

the forecasted growth, Chapter 19 considers whether the MTP/SCS has the potential to induce growth beyond the current forecasted growth.

Table 16.7
Regional Vehicle Miles Traveled Per Capita

Variable	Baseline (2008)	2035 MTP/SCS
Household-Generated VMT		
Household-Gen. VMT [1]	42,644,700	54,218,000
Population	2,215,000	3,086,200
HH-Gen VMT per Capita	19.3	17.6
% Change from Baseline		**-8.8%**

Source: SACOG, October 2011.
[2] Includes household-generated VMT for all residents of the SACOG region, for travel within the region. This is a subset of total VMT. Estimates and forecasts from SACSIM regional travel demand model.

The proposed MTP/SCS reduces both total VMT per capita and household-generated VMT per capita for the region as a whole, relative to 2008. Total VMT per capita declines from 25.8 miles to 24.0 miles per weekday, a reduction of 6.9 percent (see Table 16.7). Household-generated VMT per capita declines from 19.3 miles to 17.6 miles per weekday, a reduction of 8.8 percent (see Table 16.7). These declines indicate that the land use changes and transportation investments in the proposed MTP/SCS are effectively working together to improve system efficiency and minimize increases in total VMT. This is achieved through both land use and transportation changes in the MTP/SCS:

- Compact land uses across the region in the MTP/SCS are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.
- The MTP/SCS places an emphasis on transit service and complete streets near transit, walk, and bicycle supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points while other Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

B. Localized Impacts

Center and Corridor Communities

A summary of land use and transportation changes for the Center and Corridor Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes in Center and Corridor Communities reduce the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations and increasing opportunities to bicycle, walk, or ride transit. Table 16.8 provides estimates of household-generated VMT for Center and Corridor Communities. The proposed MTP/SCS reduces (relative to the baseline) household-generated VMT per capita in Center and Corridor Communities by 12.2 percent.

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.8
Local Area VMT Per Capita—Center and Corridor Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Center and Corridor Communities		
Household-Gen. VMT [1]	3,200,300	5,462,700
Population	224,300	436,100
HH-Gen VMT per Capita	14.3	12.5
% Change from Baseline		**-12.2%**

Source: SACOG, November 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Established Communities

A summary of land use and transportation changes for Established Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes in Established Communities decrease household-generated VMT by 9.8 percent, relative to the baseline year (see Table 16.9).

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.9
Local Area VMT Per Capita—Established Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Established Communities		
Household-Gen. VMT [1]	32,551,600	33,993,200
Population	1,744,000	2,019,700
HH-Gen VMT per Capita	18.7	16.8
% Change from Baseline		**-9.8%**

Source: SACOG, October 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Developing Communities

A summary of land use and transportation changes for the Developing Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes in Developing Communities experience a decline in household generated VMT per capita. Table 16.10 provides estimates of household-generated VMT for Developing Communities. The proposed MTP/SCS reduces, relative to the baseline, household-generated VMT per capita in Developing Communities by 5.4 percent.

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Developing Communities are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.10
Local Area VMT Per Capita—Developing Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Developing Communities		
Household-Gen. VMT [1]	1,714,500	9,498,100
Population	75,400	441,400
HH-Gen VMT per Capita	22.7	21.5
% Change from Baseline		**-5.4%**

Source: SACOG, October 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Rural Residential Communities

A summary of land use and transportation changes for the Rural Residential Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes in Rural Residential Communities result in a decline in household-generated VMT, relative to 2008, of 7.9 percent (see Table 16.11).

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.11
Local Area VMT Per Capita—Rural Residential Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Rural Residential Communities		
Household-Gen. VMT [1]	5,178,300	5,264,000
Population	171,300	189,000
HH-Gen VMT per Capita	30.2	27.9
% Change from Baseline		**-7.9%**

Source: SACOG, October 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Lands Not Identified for Development in MTP/SCS
A summary of land use and transportation changes for Lands Not Identified for Development is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

With no growth and limited transportation investments, household-generated VMT per capita in these areas is not expected to increase relative to 2008.

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Lands not Identified for Development are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

C. Transit Priority Area Impacts

The proposed MTP/SCS analyzes localized impacts using household-generated VMT per capita which constitutes about 75 percent of all VMT in the region. As discussed in the Methods and Assumptions section, regional non-household travel (commercial vehicles, airport access, thru traffic) is not attributable to specific sub-areas, including transit priority areas, leaving only household generated VMT for examining localized impacts.

Placer County Transit Priority Areas (TPAs): VMT Impacts
A summary of land use and transportation changes for the Placer County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes decrease household-generated VMT in Placer County TPAs, relative to 2008, by 10.0 percent (see Table 16.12).

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Placer County TPAs are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.12
Local Area VMT Per Capita—Placer County Transit Priority Area

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Placer County Transit Priority Area		
Household-Gen. VMT [1]	112,600	527,600
Population	6,700	34,900
HH-Gen VMT per Capita	16.8	15.1
% Change from Baseline		**-10.0%**

Source: SACOG, October 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Sacramento County Transit Priority Areas

A summary of land use and transportation changes for the Sacramento County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes decrease household-generated VMT in Sacramento County TPAs, relative to 2008, by 4.8 percent (see Table 16.13).

Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Sacramento County TPAs are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.13
Local Area VMT Per Capita—Sacramento County Transit Priority Area

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Sacramento County Transit Priority Area		
Household-Gen. VMT [1]	3,320,700	10,165,400
Population	234,300	753,800
HH-Gen VMT per Capita	14.2	13.5
% Change from Baseline		**-4.8%**

Source: SACOG, October 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Yolo County Transit Priority Areas

A summary of land use and transportation changes for the Yolo County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes decrease household-generated VMT in Yolo County TPAs, relative to 2008, by 9.3 percent (see Table 16.14).
Therefore, the VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Yolo County TPAs are considered less than significant (LS) for Impact TRN – 1. No mitigation is required.

Table 16.14
Local Area VMT Per Capita—Yolo County Transit Priority Area

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Yolo County Transit Priority Area		
Household-Gen. VMT [1]	917,300	1,934,200
Population	66,500	154,600
HH-Gen VMT per Capita	13.8	12.5
% Change from Baseline		**-9.3%**

Source: SACOG, October 2011.
[1] Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Impact TRN-2: Cause an increase in VMT on congested roadways (C-VMT) per capita relative to the applicable baseline for the area, and cause an increase in C-VMT per capita that exceeds the baseline regional average.

A. Regional Impacts

A summary of land use and transportation changes for the Region / Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Congested vehicle miles traveled (C-VMT) is a subset of total VMT. C-VMT comprises 5.8 percent of total VMT in both 2008 and 2035, and as with VMT, the region's population growth results in an absolute increase in the quantity of C-VMT by 2035 relative to the baseline year of 2008. Rather than basing plan performance on absolute VMT or C-VMT, this EIR analysis normalizes VMT and C-VMT to population as "per capita" rates in order to measure transportation system efficiency. The justification for using C-VMT per capita is provided in more detail in the preceding Methods and Assumptions section.

Combined with the transportation investments, the land use patterns of the proposed MTP/SCS reduce the need to travel frequently or over long distances using single occupancy vehicles. As a result, the impacts from C-VMT are minimized by compact and mixed land uses that locate people closer to their destinations and allow for more walk, bike and transit travel. Table 16.15 provides estimates of total and household-generated VMT on congested roadways for the

SACOG region. As with VMT, the total amount of C-VMT increases by somewhat less than the increase in population (30 percent for C-VMT, compared to 39 percent for population).

Collectively, the land use and transportation changes in the MTP/SCS result in a decline in total C-VMT per capita from 1.49 miles to 1.39 miles per weekday, a reduction of 6.9%. Household-generated C-VMT per capita declines from 1.19 miles to 1.07 miles per weekday, a reduction of 10.4% (see Table 16.15).

Therefore, the congested VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

Table 16.15
Regional Congested VMT Per Capita

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Weekday Household-Generated Congested VMT		
Cong. VMT (HH-Gen) [2]	2,632,600	3,287,800
Population	2,215,000	3,086,200
Cong. VMT per Capita	1.19	1.07
% Change from 2008		**-10.4%**

Source: SACOG, October 2011.
[1] Includes C-VMT from all sources (household-generated, commercial and external) on all roadways within the SACOG region. Estimates and forecasts from SACSIM regional travel demand model. "Congested" means that demand is near the assumed capacity for the roadway.
[2] Includes household-generated C-VMT for all residents of the SACOG region, for travel within the region. This is a subset of total VMT. Estimates and forecasts from SACSIM regional travel demand model.

B. Localized Impacts

The proposed MTP/SCS analyzes localized impacts using household generated C-VMT per capita. Household generated VMT constitutes about 75 percent of all VMT in the region. As discussed in the Methods and Assumptions section, regional non-household travel (commercial vehicles, airport access, thru traffic) is not attributable to specific sub areas, leaving only household generated VMT for examining localized impacts.

Center and Corridor Communities

A summary of land use and transportation changes for the Center and Corridor Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes result in a 2.1 percent increase in C-VMT per capita. However, C-VMT in Center and Corridor Communities is 29 percent below the baseline regional average (compare Table 16.15 to 16.16).

Therefore, the C-VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Center and Corridor Communities are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

16.16
Congested VMT Per Capita—Center and Corridor Communities

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Center and Corridor Communities		
Cong. VMT (HH-Gen) [1]	185,000	367,400
Population	224,300	436,100
Conge VMT per Capita	0.82	**0.84**
% Change from Baseline		**+2.1%**

Source: SACOG, October 2011.
[1] Includes household-generated congested VMT for all residents of the SACOG region, for travel within the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Established Communities
A summary of land use and transportation changes for the Established Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes result in a 12.4 percent decrease in congested VMT per capita compared to the baseline. C-VMT in Established Communities is 11 percent below the baseline regional average (compare Table 16.15 to 16.17).

Therefore, the congested VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Established Communities are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

Table 16.17
Congested VMT Per Capita—Established Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Established Communities		
Cong. VMT (HH-Gen) [1]	2,115,800	2,146,500
Population	1,744,000	2,019,700
Cong. VMT per Capita	1.21	**1.06**
% Change from Baseline		**-12.4%**

Source: SACOG, October 2011.
[1] Includes household-generated congested VMT for all residents of the SACOG region, for travel within the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
[2] An increase relative to baseline for the same area could (if higher than regional average) constitute an impact; because MTP/SCS congested VMT per capita is lower than baseline for the geography, the MTP/SCS would cause no significant impact.

Developing Communities

A summary of land use and transportation changes for Developing Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes result in a 1.6 percent increase in C-VMT per capita. Also, C-VMT in Developing Communities is 13 percent above the baseline regional average (compare Table 16.15 to 16.18).

Therefore, the congested VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the Developing Communities level are potentially significant (PS) for Impact TRN – 2. Mitigation is described below.

Table 16.18
Congested VMT Per Capita—Developing Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Developing Communities		
Cong. VMT (HH-Gen) [1]	100,300	596,800
Population	75,400	441,400
Cong. VMT per Capita	1.33	**1.35**
% Change from Baseline		**+1.6%**

Source: SACOG, October 2011.
[1] Includes household-generated congested VMT for all residents of the SACOG region, for travel within the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Rural Residential Communities
A summary of land use and transportation changes for the Rural Residential Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes result in a 28.9 percent decrease in congested VMT per capita (compare Table 16.15 to 16.19). C-VMT in Rural Residential Communities is 19 percent below the baseline regional average.

Therefore, the congested VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the Rural Residential Communities level are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

Table 16.19
Congested VMT Per Capita—Rural Residential Communities

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Rural Residential Communities		
Cong. VMT (HH-Gen) [1]	231,500	181,500
Population	171,300	189,000
Cong. VMT per Capita	1.35	**0.96**
% Change from Baseline		**-28.9%**

Source: SACOG, October 2011.
[1] Includes household-generated congested VMT for all residents of the SACOG region, for travel within the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Lands Not Identified for Development in MTP/SCS
A summary of land use and transportation changes for Lands Not Identified for Development is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

With no growth and limited transportation changes household generated C-VMT per capita in these areas is not expected to increase relative to 2008.

Therefore, the congested VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

C. Transit Priority Areas

The proposed MTP/SCS analyzes localized impacts using household generated congested VMT per capita. Household generated VMT constitutes about 75 percent of all VMT in the region. As discussed in the Methods and Assumptions section, regional non-household travel (commercial vehicles, airport access, thru traffic) is not attributable to specific sub areas, leaving only household generated VMT for examining localized impacts.

Placer County Transit Priority Areas

A summary of land use and transportation changes for the Placer County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As a result of the land use and transportation changes described, Placer County TPA areas experience 11.9 percent less congested VMT (1.64 miles compared to 1.45 miles) keeping consistent with the regional average (compare Table 16.15 to 16.20).

Although C-VMT in the Placer County TPAs is 22 percent higher than the baseline regional average The MTP/SCS land use and transportation changes result in an 11.9 percent decrease in C-VMT per capita (see Table 16.20).

Therefore, the congested VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS at the Placer County TPAs level are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

Table 16.20
Congested VMT Per Capita—Placer County Transit Priority Area

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Placer County Transit Priority Areas		
Congested VMT (HH-Gen.)/1/	11,000	50,500
Population	6,700	34,900
Cong. VMT per Capita	1.64	**1.45**
% Change from Baseline		**-11.9%**

Sacramento County Transit Priority Area

A summary of land use and transportation changes for the Sacramento County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes result in a 4.9 percent increase in C-VMT per capita. However, Sacramento County TPAs are 27 percent below the baseline regional average (compare Table 16.15 to 16.21).

Therefore, the C-VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Sacramento TPAs are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

Table 16.21
Congested VMT Per Capita—Sacramento County Transit Priority Area

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Sacramento County Transit Priority Areas		
Congested VMT (HH-Gen.) [1]	195,200	658,700
Population	234,300	753,800
Cong. VMT per Capita	0.83	**0.87**
% Change from Baseline		**+4.9%**

Source: SACOG, October 2011.
[1] Includes household-generated congested VMT for all residents of the SACOG region, for travel within the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Yolo County Transit Priority Area

A summary of land use and transportation changes for the Yolo County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes result in a 34 percent increase in C-VMT per capita. However, Yolo County TPAs are 30 percent below the baseline regional average (compare Table 16.15 to 16.22).

Therefore, the C-VMT per capita impacts related to land use and transportation changes from implementation of the proposed MTP/SCS in Yolo County TPAs are considered less than significant (LS) for Impact TRN – 2. No mitigation is required.

Table 16.22
Congested VMT Per Capita—Yolo Transit Priority Area

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Yolo County Transit Priority Areas		
Congested VMT (HH-Gen.) [1]	41,100	128,000
Population	66,500	154,600
Cong. VMT per Capita	0.62	**0.83**
% Change from Baseline		**+34.0%**

Source: SACOG, October 2011.
[1] Includes household-generated congested VMT for all residents of the SACOG region, for travel within the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Mitigation Measure TRN –1: Implement transportation demand management and investment strategies to reduce congested vehicle miles traveled (C-VMT)

In order to reduce the impact of congested vehicle miles traveled (C-VMT) in Developing Communities, one or more of the following transportation demand management and investment strategies should be considered for implementation in these areas.

- Promote ride sharing programs by methods that may include designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles;
- Provide public transit incentives such as free or low-cost monthly transit passes;
- Incorporate bicycle lanes and routes into street systems, new subdivisions, and large developments;
- Incorporate Neighborhood Electric Vehicle (NEV) lanes and supportive design features into street systems, new subdivisions, and large developments;
- Incorporate bicycle-friendly intersections into street design;
- For commercial projects, provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. For large employers, provide facilities that encourage bicycle commuting, including, for example, locked bicycle storage or covered or indoor bicycle parking;
- Create walking paths in the location of schools, parks and other destination points;
- Work with the school district to create and expand school bus services;
- Institute a telecommute work program. Provide information, training, and incentives to encourage participation.;
- Create unique transportation incentives such as free bikes or carpool concierge services.

Significance after Mitigation

Implementation of the transportation demand management and investment strategies included in Mitigation Measure TRN-1 would likely reduce the impact of congested vehicle miles traveled (C-VMT) in Developing Communities. However, the strategies identified are programmatic and general; they would need to be refined and matched to local conditions in any subsequent project level environmental analysis. The level of C-VMT reduction possible through these strategies would require project level environmental analysis, and therefore it is not known if these strategies will reduce the impact to a less then significant level.

Moreover, the MTP/SCS has policies and strategies to support these efforts, but SACOG cannot require implementing agencies to adopt these mitigation measures. It is ultimately the

responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact TRN-3: Cause combined bicycle, walk, and transit person trips per capita to be lower than the applicable baseline average, and cause a decline in the bicycle, walk, and transit person trips per capita that exceeds the baseline regional average.

A. Regional Impacts

A summary of land use and transportation changes for the Region / Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Table 16.23 provides estimates of weekday person trips by bicycle, walk or transit modes for the region as a whole. Total person trips by all three modes increase by 755,800 weekday (an 85 percent increase from the baseline). This is achieved through compact land uses which are more effectively served by transit and support potentially higher rates of walking and biking. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefits result from concentrating development in high-quality transit corridors, where residents are more likely to use available transit. The proposed MTP/SCS increases per capita trips by bicycle, walk or transit from 0.40 in 2008 to 0.53, a 32.8 percent increase.

Therefore, the impacts to bicycle, walk, or transit trips related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.23
Regional Bicycle, Walk or Transit Person Trips Per Capita

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Region Total		
Weekday Bike+Walk+Transit Trips [1]	889,100	1,644,900
Population	2,215,000	3,086,200
Trips Per Capita	0.40	0.53
% Change from Baseline		**+32.8%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

B. Localized Impacts

Center and Corridor Communities

A summary of land use and transportation changes for the Center and Corridor Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes results in trips by bicycle, walk or transit in Center and Corridor communities increasing per capita from 0.82 in 2008 to 1.13 in 2035, a 37.8 percent increase These trips are 183 percent above the regional baseline average (compare Table 16.23 to 16.24).

Therefore, the impacts to bicycle, walk, or transit trips related to land use and transportation changes from implementation of the proposed MTP/SCS at the center and corridor community level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.24
Bicycle, Walk or Transit Person Trips Per Capita—
Center and Corridor Communities

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Center and Corridor Communities		
Bike+Walk+Transit Trips [1]	183,300	491,000
Population	224,300	436,100
Bike+Walk+Transit Trips Per Capita	0.82	1.13
% Change from Baseline		**+37.8%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Established Communities
A summary of land use and transportation changes for the Established Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes results in trips by bicycle, walk or transit in Established Communities increasing per capita from 0.38 in 2008 to 0.49 in 2035, a 28.6 percent increase. These trips are 23 percent above the regional baseline average (compare Table 16.23 to 16.25).

Therefore, the impacts to bicycle, walk, or transit trips related to the land use and transportation changes from implementation of the proposed MTP/SCS at the Established Communities level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.25
Bicycle, Walk or Transit Person Trips Per Capita—
Established Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Established Communities		
Bike+Walk+Transit Trips[1]	661,100	984,500
Population	1,744,000	2,019,700
Trips Per Capita	0.38	0.49
% Change from Baseline		**+28.6%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Developing Communities

A summary of land use and transportation changes for the Developing Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Although bicycle, walk and transit trips in Developing Communities are 38 percent below the regional baseline average, the proposed MTP/SCS land use and transportation changes improve performance for this travel metric. The proposed MTP/SCS increases per capita trips by bicycle, walk or transit in Developing Communities from 0.21 in 2008 to 0.29 in 2035, a 39.7 percent increase (compare Table 16.23 to 16.26).

Therefore, the impacts to bicycle, walk, or transit trips related to the land use and transportation changes from implementation of the proposed MTP/SCS at the Developing Communities level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.26
Bicycle, Walk or Transit Person Trips Per Capita—
Developing Communities

Geography / Variable	Baseline (2008)	2035 MTP/SCS
Developing Communities		
Bike+Walk+Transit Trips[1]	15,900	130,000
Population	75,400	441,400
Trips Per Capita	0.21	0.29
% Change from Baseline		**+39.7%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Rural Residential Communities

A summary of land use and transportation changes for the Rural Residential Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Although bicycle, walk and transit trips in Rural Residential Communities are 90 percent below the regional baseline average, the proposed MTP/SCS land use and transportation changes improve performance for this travel metric. The proposed MTP/SCS increases per capita trips by bicycle, walk or transit in Developing Communities from 0.21 in 2008 to 0.29 in 2035, a 39.7 percent increase (compare Table 16.23 to 16.27).

Therefore, the impacts to bicycle, walk, or transit trips related to the land use and transportation changes from implementation of the proposed MTP/SCS at the rural residential communities level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.27
Bicycle, Walk or Transit Person Trips Per Capita—
Rural Residential Communities

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Rural Residential Communities		
Bike+Walk+Transit Trips[1]	28,900	39,400
Population	171,300	189,000
Trips Per Capita	0.17	**0.21**
% Change from Baseline		**+23.6%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Lands Not Identified for Development in MTP/SCS

A summary of land use and transportation changes for Lands Not Identified for Development in the MTP/SCS is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Because the proposed MTP/SCS does not forecast growth for this Community Type, there will be a very limited number of transportation investments in this Community Type by 2035. The focus for the limited investments is on road maintenance, safety enhancements, and other roadway operational improvements. These limited transportation investments in lands not identified for growth will not reduce baseline bicycle, walk, or transit trips within these areas. Therefore, any decrease if it were to occur, would not be a result of the MTP/SCS.

Therefore, the impacts to bicycle, walk, or transit trips related to land use and transportation changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

C. Transit Priority Areas

Placer County Transit Priority Areas

A summary of land use and transportation changes for the Placer County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes maintain per capita trips by bicycle, walk or transit in Placer County TPAs between 2008 and 2035, with a slight 1.6 percent increase (see Table 16.28). These trips are 30 percent above the regional baseline average (compare Table 16.23 to 16.28).

Therefore, the impacts to bicycle, walk, or transit trips related to land use and transportation changes from implementation of the proposed MTP/SCS at the Placer County TPAs level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.28
Bicycle, Walk or Transit Person Trips Per Capita—
Placer County Transit Priority Areas

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Placer County Transit Priority Areas		
Bike+Walk+Tran.Trips[1]	3,400	18,000
Population	6,700	34,900
Trips Per Capita	0.51	**0.52**
% Change from Baseline		**+1.6%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Sacramento County Transit Priority Areas

A summary of land use and transportation changes for the Sacramento County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes increase per capita trips by bicycle, walk or transit in the Sacramento County TPAs from 0.68 in 2008 to 0.87 in 2035, a 27.0 percent increase (see Table 16.29). These trips are 118 percent above the regional baseline average (compare Table 16.23 to 16.29).

Therefore, the impacts to bicycle, walk, or transit trips related to land use and transportation changes from implementation of the proposed MTP/SCS at the Sacramento County TPAs level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.29
Bicycle, Walk or Transit Person Trips Per Capita—
Sacramento County Transit Priority Areas

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Sacramento County Transit Priority Areas		
Bike+Walk+Tran.Trips[1]	160,000	654,000
Population	234,300	753,800
Trips Per Capita	0.68	**0.87**
% Change from Baseline		**+27.0%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Yolo County Transit Priority Area

A summary of land use and transportation changes for the Yolo County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The MTP/SCS land use and transportation changes decrease per capita trips by bicycle, walk or transit in the Yolo County TPAs from 1.46 in 2008 to 1.32 in 2035, a 9.6 percent decrease (see Table 16.30). This decrease, however, is primarily the result of West Sacramento's increasing proportional share of population within the Yolo County TPA. In 2008, the City of Davis has a much higher rate of non-auto trips that West Sacramento as well as a larger share of the Yolo County TPA population. By 2035, both Davis' and West Sacramento's non-auto trips increase on a per capita basis, however, West Sacramento's larger share of the population skews the average within the TPA towards its slightly lower non-auto use. Despite this anomaly, the Yolo County TPA's non-auto trips per capita remain 230 percent above the regional baseline average (compare Table 16.23 to 16.30).

Therefore, the impacts to bicycle, walk, or transit trips related to land use and transportation changes from implementation of the proposed MTP/SCS at the Yolo County TPAs level are considered less than significant (LS) for Impact TRN – 3. No mitigation is required.

Table 16.30
Bicycle, Walk or Transit Person Trips Per Capita—
Yolo County Transit Priority Areas

***Geography* / Variable**	**Baseline (2008)**	**2035 MTP/SCS**
Yolo County Transit Priority Areas		
Bike+Walk+Tran.Trips[1]	96,900	203,700
Population	66,500	154,600
Trips Per Capita	1.46	**1.32**
% Change from Baseline		**-9.6%**

Source: SACOG, November 2011.
[1] Estimates of weekday person trips by mode from SACSIM regional travel demand model.

Impact TRN-4: Cause a decrease in transit passenger boardings per vehicle service hour that results in transit passenger boardings that are lower than the baseline regional or local area average.

A. Regional Impacts

A summary of land use and transportation changes for the Region/Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

The land use changes in the proposed MTP/SCS, in combination with the transportation changes, improve transit productivity throughout the region. This is achieved by emphasizing transit service and complete streets near transit, walk, and bicycle supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Table 16.31 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for each county and the plan area as a whole. Transit productivity, as measured by passenger boardings per service hour, increases in all counties by 15 to 184 percent. Regionally, transit productivity increases by 118 percent.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

Table 16.31
Passenger Boardings Per Service Hour—Regional and Local Area

	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
County / Service	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Change
All Weekday Transit Service [1]							
El Dorado	1,110	2,070	92	149	12	14	+15%
Placer	2,736	17,819	291	668	9	27	+184%
Sacramento	118,092	551,387	2,749	5,583	43	99	+130%
Sutter	1,494	5,051	85	142	17	36	+103%
Yolo	23,072	58,814	764	1,345	30	44	+45%
Yuba	1,756	5,569	92	176	19	32	+67%
Total	148,260	640,710	4,074	8,062	36	79	+118%

Source: SACOG, November 2011.
[1] Includes all fixed route/fixed schedule transit services operating in the SACOG region.

B. Localized Impacts

Center and Corridor, Established and Developing Communities
While SACOG does not model passenger boardings and vehicle service hours at the Community Type level, Table 16.31 illustrates significant increases in transit productivity in all counties in the plan area and the region as a whole. It is anticipated that the regional and county level transit productivity improvements will extend to the Community Types. Centers and Corridors, Established and Developing Communities will each experience an increase in high quality local and commuter transit service and more transit-supportive land uses in 2035, as compared to the baseline.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS at the Center and Corridor, Established and Developing Communities level are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

Rural Residential Communities
While SACOG does not model passenger boardings and vehicle service hours at the Community Type level, Table 16.31 illustrates significant increases in transit productivity in all counties in the plan area and the region as a whole. It is anticipated that the regional and county level transit productivity improvements will also extend to Rural Residential Communities. Although transit trips will remain a small share of travel in these areas, strategic investments made to lifeline rural and commuter bus services that serve these areas are more productive in 2035, as compared to the baseline.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS at the Rural Residential Communities level are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

Lands Not Identified for Development in the MTP/SCS
Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS will make a very limited number of transportation investments in this Community Type by 2035. The limited number of transportation investments focus on road maintenance, safety enhancements, and other roadway operational improvements. With little to no transit service currently in these areas, the transportation investments in the proposed MTP/SCS will not negatively affect transit passenger boardings per service hour.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

C. Transit Priority Areas

Placer County Transit Priority Area

A summary of land use and transportation changes for the Placer County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel in the Placer County TPAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16.32
Passenger Boardings Per Service Hour—Placer County TPA

	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
County / Service	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Change
TPA-Qualifying All Service [1]							
Placer	0	5,035	0	61	n/a	88	n/a

Source: SACOG, November 2011.

[1] "TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency.

Table 16.32 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Placer County TPA. The table reflects only that transit service that meets the SB375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service increase from zero in 2008 to 88 in 2035, relative to the baseline.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS at the Placer County TPAs level are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

Sacramento County Transit Priority Area

A summary of land use and transportation changes for the Sacramento County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel in the Sacramento County TPAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16.33
Passenger Boardings Per Service Hour—Sacramento County TPA

	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
County / Service	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Change
TPA-Qualifying All Service [1]							
Sacramento	63,900	412,300	584	2,643	109	156	+43%

Source: SACOG, November 2011.
[1] "TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency.

Table 16.33 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Sacramento County TPA. The table reflects only that transit service that meets the SB375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service increase from 109 in 2008 to 156 in 2035, an increase of 43 percent relative to the baseline.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS at the Sacramento County TPAs level are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

Yolo County Transit Priority Areas

A summary of land use and transportation changes for the Yolo County TPAs level is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports higher rates of non-motorized travel in the Yolo County TPAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16.34
Passenger Boardings Per Service Hour—Yolo County TPA

	Passenger Boardings		Vehicle Service Hours		Passenger Boardings Per Service Hour		
County / Service	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Baseline (2008)	2035 MTP/SCS	Change
TPA-Qualifying All Service [1]							
Yolo	10,010	35,700	238	628	42	57	+35%

Source: SACOG, November 2011.
[1] "TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency.

Table 16.34 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Yolo County TPA. The table reflects only that transit service that meets the SB375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service increase from 42 in 2008 to 57 in 2035, an increase of 35 percent relative to the baseline.

Therefore, the impacts to transit passenger boardings per service hour related to land use and transportation changes from implementation of the proposed MTP/SCS at the Yolo County TPAs level are considered less than significant (LS) for Impact TRN – 4. No mitigation is required.

Impact TRN-5: Cause interference with existing or planned bicycle and pedestrian facilities.

A. Regional Impacts

A summary of land use and transportation changes for the Region / Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Compact land uses are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS supports higher rates of non-motorized travel. Table 16.35 provides estimates for total bicycle and walk trips and trips per capita in 2008 and 2035. Bicycle person trips are projected to increase from 152,300 in 2008 to 228,800 by 2035 in the proposed MTP/SCS, an increase of about 50 percent. Walk person trips increase from 626,700 to about 1,024,000, an increase of 58 percent. Combined bicycle and walk person trips increase by about 63 percent. Bicycle and walk trips per capita increase by 7.8 percent and 17.3 percent, respectively.

Table 16.35
Bicycle and Walk Travel in the SACOG Region, 2008 and MTP/SCS

Mode of Travel	2008	2035 Proposed MTP/SCS
Weekday Person Trips by Walk/Bike		
Bicycle Trips	152,300	228,800
Walk Trips	626,700	1,024,200
Per Capita Rates		
Population	2,215,000	3,086,200
Bicycle Trips	0.069	0.074
Walk Trips	0.283	0.332
Percent Changes in Trips Per Capita		
From 2008		
Bicycle Trips	n/a	+7.8%
Walk Trips	n/a	+17.3%

In terms of transportation investments, the proposed MTP/SCS invests in a number of improvements to the transportation system in the plan area. These investments include $4.0 billion (escalated) in exclusively bicycle and pedestrian investments and additional bicycle and pedestrian infrastructure as part of roadway projects in the MTP/SCS. An estimated 20-30 percent of roadway projects in the MTP/SCS include bicycle and pedestrian improvements and all projects awarded funds managed by SACOG are anticipated to maintain or improve bicycle and pedestrian travel. Despite this policy support for bicycle and pedestrian travel, some of these roadway projects in the MTP/SCS may interfere with the existing or planned bicycle or pedestrian system. Interferences may include:

- Roadway improvement projects or land use changes which result in higher vehicle volumes adjacent to Class 1 or Class 2 bike routes;
- Roadway improvement projects that eliminate Class 1 or Class 2 bike routes;
- Projects that make pedestrian or bicycle traffic crossing roadways more difficult by increasing roadway width or resulting in higher volumes of vehicles;
- Projects that interfere with the right-of-way or construction of future planned bike or pedestrian facilities, including Class 1 bike routes; and
- Other projects which may interfere with or interrupt bike routes or pedestrian facilities.

Although some MTP/SCS projects may interfere with existing or planned bicycle and pedestrian system elements, Table 16.35 illustrates significant increases in bike and walk trips in the plan area. As a result of MTP/SCS investments for bicycle and pedestrian supportive transportation infrastructure and the underlying land use patterns, the plan is forecasted to increase regional bicycle and pedestrian trips per capita. If the MTP/SCS was significantly interfering with bicycle and pedestrian facilities, trips per capita would decrease as individuals were less likely or able to choose to walk or bicycle.

The proposed MTP/SCS will also result in a significant expansion of the region's bicycle and pedestrian system. Table 16.36 provides tabulation of baseline mixed-use trail (Class 1) and on road bicycle route (Class 2) mileage, and an estimate of the increase in mileage which could be funded through the MTP/SCS. Total mileage increases 77 percent combining both Class 1 and Class 2 route types, and 27 percent on a per capita basis. Because the proposed MTP/SCS expands the network of Class 1 and Class 2 routes well above population growth, implementation of the proposed MTP/SCS will improve overall connectivity of the region's bicycle system. While Class 1 routes serve both bicyclists and pedestrians, they do not fully represent the full investment in pedestrian specific improvements such as sidewalks, crossing signals, and other intersection improvements. Although no quantifiable accounting of the region's pedestrian system is available, the overall improvements in land use pattern and street pattern described above will make walking a more attractive option.

Table 16.36
Bicycle Route Miles

County	Class 1	Class 2	Both Classes
2008 [1]			
El Dorado [2]	14	20	34
Placer [2]	53	214	267
Sacramento	244	587	831
Sutter	11	41	52
Yolo	66	165	231
Yuba	9	32	41
Region	397	1,059	1,456
Miles Per 100k Population	17.9	47.8	65.7
2035 MTP/SCS 3			
El Dorado [2]	56	201	257
Placer [2]	134	262	396
Sacramento	417	806	1,223
Sutter	25	64	89
Yolo	127	274	401
Yuba	34	174	208
Region	793	1,781	2,574
Miles Per 100k Population	25.8	57.8	83.6
Change from 2008			
El Dorado [2]	+300%	+905%	+656%
Placer [2]	+153%	+22%	+48%
Sacramento	+71%	+37%	+47%
Sutter	+127%	+56%	+71%
Yolo	+92%	+66%	+74%
Yuba	+278%	+444%	+407%
Region	+100%	+68%	+77%
Miles Per 100k Population	+44%	+21%	+27%

Source: SACOG, November 2011.
[1] 2008 route mileage from SACOG's regional GIS centerline data.
[2] El Dorado and Placer Counties exclude the Tahoe Basin portions.
[3] Estimates of 2035 MTP/SCS are based on explicitly identified bicycle lane projects, plus an estimate of currently adopted bicycle master plans which may be funded or implemented through other transportation projects, or as stand-alone projects.

Strategies in support of proposed MTP/SCS policies 13, 27, and 29 emphasize the importance of bicycle and pedestrian travel for local, regional, state and federal investment priorities. MTP/SCS policy 31 ensures that SACOG's Regional Bicycle and Pedestrian Funding Program continues to provide funding for bicycle and pedestrian travel.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to land use and transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN – 5. No mitigation is required.

B. Localized Impacts

Center and Corridor, Established and Developing Communities
A summary of land use and transportation changes for the Center and Corridor, Established, and Developing Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As discussed in the regional impacts section above, all Community Types will have various transportation improvements by 2035 and a limited number of these projects may create interference to the existing or planned bicycle or pedestrian system. Due to a land use pattern that is supportive of non-motorized travel and strategic investments in the plan area, the MTP/SCS is forecasted to increase regional transit, bicycle and pedestrian trips per capita. If the MTP/SCS was significantly interfering with bicycle and pedestrian facilities, trips per capita would decrease as individuals were less likely or able to choose to walk or bicycle.

It is anticipated that the regional and county level transit productivity improvements summarized in Table 16.31 will extend to the Community Type level. Centers and Corridors, Established and Developing Communities will each experience a substantial increase in bicycle and pedestrian infrastructure and more compact and mixed land uses in 2035 that are more supportive of walking and biking. Tables 16.25, 16.26, and 16.27 in the preceding impact discussion demonstrates that the combined walk, bike and transit mode shares increase significantly in each of these three Community Types by 2035, as compared to the baseline.

Combined with the land use changes in these Community Types, the transportation investments in the proposed MTP/SCS will improve connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to transportation changes from implementation of the proposed MTP/SCS at the Center and Corridor, Established, and Developing Communities level are considered less than significant (LS) for Impact TRN – 5. No mitigation is required.

Rural Residential Communities
A summary of land use and transportation changes for the Rural Residential Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

As discussed in the regional impacts section above, all Community Types will have various transportation improvements by 2035 and a limited number of these projects may create interference to the existing or planned bicycle or pedestrian system. Most existing and planned bicycle and pedestrian facilities in rural residential communities consist of Class 3 bicycle routes along rural roadways and limited sidewalks or shoulder paths. It is unlikely that the limited transportation improvements or traffic increases in these areas will significantly interfere with these types of facilities. If the MTP/SCS was significantly interfering with bicycle and pedestrian facilities, trips per capita would decrease as individuals were less likely or able to choose to walk or bicycle.

It is anticipated that the regional per capita increase in bike and walk travel identified in Tables 16.35will extend to the local level in Rural Residential Communities given the limited land use changes in these areas and the transportation investment focus on safety and road rehabilitation investments along county roads that also include Class 3 bicycle facilities. Furthermore, Table 16.27 demonstrates that the combined walk, bike and transit mode shares increase in Rural Residential communities by 2035, as compared to the baseline. Combined with the land use patterns in Rural Residential communities, the transportation investments in the proposed MTP/SCS will improve connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to land use and transportation changes from implementation of the proposed MTP/SCS at the Rural Residential level are considered less than significant (LS) for Impact TRN – 5. No mitigation is required.

Lands Not Identified for Development in MTP/SCS

A summary of land use and transportation changes for the Lands Not Identified for Development is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS will make a very limited number of transportation investments in this Community Type by 2035. The limited number of transportation investments focus on road maintenance, safety enhancements, and other roadway operational improvements that would not disrupt the minimal bicycle and pedestrian system in these areas.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to land use and transportation changes from implementation of the proposed MTP/SCS at the Rural Residential level are considered less than significant (LS) for Impact TRN – 5. No mitigation is required.

C. Transit Priority Areas

A summary of land use and transportation changes for the Placer County TPAs, Sacramento County TPAs, and Yolo County TPAs is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

It is reasonable to assume that the regional per capita increase in non-motorized travel identified in Tables 16.35will hold in all the TPAs given the land uses in these areas and the focus on bicycle and pedestrian investments. Furthermore, Tables 16.29, 16.30, and 16.31 demonstrates that the combined walk, bike and transit mode shares increase in each of the three county TPAs by 2035, as compared to 2008.

The land use changes in transit priority areas, in combination with the transportation investments, will improve the connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region's bicycle and pedestrian system related to land use and transportation changes from implementation of the proposed MTP/SCS at the Placer County TPA, Sacramento County TPA, and Yolo County TPA level are considered less than significant (LS) for Impact TRN – 5. No mitigation is required.

Impact TRN-6: Cause a disruption to the movement of agricultural products on rural roadways.

A. Regional Impacts

A summary of land use and transportation changes for the Region / Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

In terms of rural areas, less than two percent of the growth in housing and employment takes place in Rural Residential Communities keeping the makeup of the land use patterns in these areas largely the same as they are in the 2008 baseline. Forecasted growth along the urban/rural edge, however, will lead to some conversion of agricultural lands. Transportation projects to accommodate growth in these areas, however, may disrupt the movement of agricultural and farm products on rural roadways in the following situations:

- New or expanded roads that cut through existing agricultural lands and access roads.
- New or expanded roads that disrupt agricultural or farm equipment access to, along or across roads used for accessing fields, processing destinations, or other agricultural goods movement routes.

In cases where transportation projects may interfere with the movement of agricultural or farm products, the MTP/SCS includes a regional policy and related strategies to support transportation investments that help implement the Rural-Urban Connections Strategy (RUCS). This policy support has been reflected in the last two SACOG regional funding rounds that included funding support for regionally important farm-to-market goods movement travel investments.

Little growth and limited roadway expansions in the MTP/SCS occur in rural areas away from the edge or urban development. Also, rural roadways are a small share of the regional transportation network lane miles and an even smaller share of overall travel for both the baseline and 2035 horizon year. Two of the region's Community Types (Centers and Corridors and Established Communities) comprise the largest share of baseline and 2035 population, lane miles and travel demand. Neither of these Community Types contains agricultural land uses or rural roadways.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to land use or transportation changes from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN – 6. No mitigation is required.

B. Localized Impacts

Center and Corridor and Established Communities
A summary of land use and transportation changes for Center and Corridor and Established Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Center and Corridor and Established Communities do not contain rural land uses or rural roadways.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to land use changes from implementation of the proposed MTP/SCS for lands in the Center and Corridor and Established Communities are considered less than significant (LS) for Impact TRN – 6. No mitigation is required.

Developing Communities
A summary of land use and transportation changes for the Developing Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Developing communities will not see the same mix of transportation projects as Center and Corridor Communities and Established Communities. Developing communities will see more road widening projects and newly constructed road projects adjacent to agricultural areas to serve the new residential and employment developments that will be built by 2035. Therefore, there is a greater risk of disrupting the movement of agricultural products on rural roadways.

Transportation projects to serve development in Developing Communities may interfere with the movement of agricultural and farm products on rural roadways in the following situations:

- New or expanded roads that cut through existing agricultural lands and access roads.
- New or expanded roads that disrupt agricultural or farm equipment access to, along or across roads used for accessing fields, processing destinations, or other farm-to-market goods movement routes.

These disruptions are partially addressed through policies and investments to support agricultural goods movement travel. In cases where transportation projects may interfere with the movement of agricultural or farm products, the MTP/SCS includes a regional policy and related strategies to support transportation investments that help implement the Rural-Urban-Connections-Strategy (RUCS). This policy support has been reflected in the last two SACOG regional funding rounds that included funding support for regionally important farm-to-market goods movement travel investments.

Despite a regional policy commitment to efficient agricultural and farm product movement on rural roadways, a significant share of the new growth in the MTP/SCS is in areas adjacent to farmland and agricultural operations. The planning, design, construction and operation of expanded roadways adjacent to agricultural lands may take into account the needs of agricultural activity. However, it is possible that some of the new and expanded roadways in Developing Communities will have a negative impact on the movement of agricultural and farm products.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to land use and transportation changes from implementation of the proposed MTP/SCS at the Developing Communities level are considered potentially significant (PS) for Impact TRN – 6. Mitigation is described below.

Rural Residential Communities

A summary of land use and transportation changes for the Rural Residential Communities is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Rural Residential Communities will have significantly less growth than Developing Communities and limited new or expanded roadways. Disruptions to the movement of agricultural and farm equipment on rural roadways are possible, however, because virtually all growth in these areas will be near or adjacent to agricultural lands and the largest share of passenger travel increases will be on rural roadways that also support agricultural truck and equipment movements.

As described in the preceding Developing Communities impact discussion, some of the MTP/SCS transportation improvements may interfere with the movement of agricultural and farm products on rural roadways. These disruptions can be partially avoided through RUCS policies and investments to support agricultural goods movement travel, but it is possible that some of the MTP/SCS improvements will have a negative impact on the movement of agricultural and farm products in Rural Residential Communities. For example, an increase in higher-speed traffic volumes along rural roads may reduce safety and access to farm fields for agricultural vehicles.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to land use and transportation changes from implementation of the proposed MTP/SCS at the Developing Communities level are considered potentially significant (PS) for Impact TRN – 6. Mitigation is described below.

Lands Not Identified for Development in MTP/SCS
A summary of land use and transportation changes for the Lands Not Identified for Development is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS will make a very limited number of transportation investments in this Community Type by 2035. The limited number of transportation investments focus on road maintenance, safety enhancements, and other roadway operational improvements.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to land use and transportation changes from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN – 6. No mitigation is required.

C. Transit Priority Areas

The transit priority areas do not contain rural land uses or rural roadways.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to land use changes from implementation of the proposed MTP/SCS for lands in the MTP/SCS transit priority areas are considered less than significant (LS) for Impact TRN – 6. No mitigation is required.

Mitigation Measure TRN – 2: Strategies to support the movement of agricultural products on rural roadways near growth areas.

In order to reduce the impacts to the movement of agricultural products on rural roadways related to land use and transportation changes from the implementation of the proposed MTP/SCS, one or more of the following measures should be implemented by local agencies for new growth in Developing Communities or Rural Residential Communities.

- Consider access needs for agricultural uses in the site design and phasing of development adjacent to rural roads. Balancing the needs from increased passenger vehicle travel in Developing Communities with the preservation of key access points for trucks and agricultural equipment can increase safe and efficient agricultural operations.
- Prioritize safety and design improvements along rural roadways that are important farm-to-market routes and projected to accommodate future traffic increases from growth in Developing Communities and Rural Residential areas. Focusing available local funding on improvements to make these roadways consistent with local design

standards (such as horizontal curvature, site distance, etc.) improves safety and reduces friction between agricultural operations, trucks, and passenger vehicles on the corridors with the greatest need.

- Reduce the growth in passenger vehicle miles traveled (VMT) in Developing Communities and Rural Residential areas through increased local investments in transit and non-motorized improvements. Implementing transportation demand management strategies identified in Mitigation Measure TRN 2-1 that divert some single occupancy auto trips to alternative modes reduces friction with travel for agricultural operations along rural roadways.

Significance after Mitigation

Implementation of the strategies included in Mitigation Measure TRN-6 would likely reduce disruptions to the movement of agricultural products on rural roadways in Developing and Rural Residential Communities. However, the strategies identified are programmatic; they would need to be refined and matched to local conditions in any subsequent project level environmental analysis, and therefore it is not known if these strategies will reduce the impact to a less then significant level.

Moreover, the MTP/SCS includes policy support for addressing this impact, but SACOG cannot require implementing agencies to adopt these mitigation measures. It is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

Impact TRN-7: Result in construction activities that interfere with the ongoing operations of the regional or local area transportation system.

A. Regional Impacts

A summary of land use and transportation changes for the Region / Plan Area is provided in the section immediately preceding the Impact and Mitigation Measures section of this chapter.

Construction activities from the implementation of the MTP/SCS will be short term, intermittent, and dispersed geographically. At the regional level, these disruptions will likely impact a very small portion of the overall roadway network and will not significantly impact the operations of the overall regional transportation system.

Therefore, construction activities that interfere with the ongoing operations of the transportation system from the proposed MTP/SCS land use and transportation changes at the regional level are considered less than significant (LS) for Impact TRN – 6. No mitigation is required.

B. Localized Impacts

The construction activities associated with implementing the land use and transportation changes in the proposed MTP/SCS would potentially interfere with the normal operations of the localized transportation system. These construction activities include land development projects and new transit, non-motorized and roadway projects. Interference with the normal operations of

a local transportation system could occur from detours or bottlenecks where activities disrupt traffic in one or more travel lanes, sidewalks, or bicycle routes. Also, certain large construction projects may increase travel on local roads not designed for heavier traffic volumes as workers and supplies travel to and from the sites.

Large numbers of construction projects occurring at the same time in a local area, or the construction of many projects consecutively in a local area, could result in localized delay impacts or emergency response delays. These potential impacts should be evaluated at the project level as more information about the timing, design, scope and construction program are available.

Therefore, construction activities that interfere with the ongoing operations of the transportation system from the proposed MTP/SCS land use and transportation changes at the localized level are considered potentially significant (PS) for Impact TRN – 7. Mitigation Measure TRN 3 is described below.

C. Transit Priority Area (TPA) Impacts

TPA impacts would be identical to localized impacts.

Therefore, construction activities that interfere with the ongoing operations of the transportation system from the proposed MTP/SCS land use and transportation changes in the TPAs are considered potentially significant (PS) for Impact TRN – 7. Mitigation Measure TRN 3 is described below.

Mitigation Measure TRN – 3: Apply best practice strategies to reduce the localized impact from construction activities on the transportation system.

The implementing agency should implement some or all of the following strategies in order to reduce the localized transportation system impacts from construction activities.

- Apply special construction techniques (e.g., directional drilling or night construction) to minimize impacts to traffic flow and provide adequate access to important destinations in the area.
- Develop circulation and detour plans to minimize impacts to local street impacts from construction activity on nearby major arterials. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Establish truck “usage” routes that minimize truck traffic on local roadways to the extent possible.
- Schedule truck trips outside of peak morning and evening commute hours.
- Limit the number of lane closures during peak hours to the extent possible.
- Identify detours for bicycles and pedestrians in all areas potentially affected by project construction and provide adequate signage to mark these routes.

- Install traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Develop and implement access plans for potentially impacted local services such as police and fire stations, transit stations, hospitals, schools and parks. The access plans should be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions should be asked to identify detours for emergency vehicles, which will then be posted by the contractor.
- Store construction materials only in designated areas that minimize impacts to nearby roadways
- Coordinate with local transit agencies for temporary relocation of routes or bus stops in works zones, as necessary.

Significance after Mitigation

Implementation of the strategies included in Mitigation Measure TRN-3 would likely reduce the impacts from construction activities on the localized transportation system. However, these strategies would need to be refined in a subsequent project level environmental analysis to reflect the size of the construction activity and local conditions. Therefore, it is not known if these strategies will reduce the impact to a less then significant level.

Although the MTP/SCS includes policy support for addressing this impact, SACOG cannot require implementing agencies to adopt these mitigation measures. It is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable (SU).

CHAPTER 17 – UTILITIES AND SERVICE SYSTEMS

INTRODUCTION

This chapter describes existing conditions (environmental and regulatory) of utilities and service systems and assesses the potential of the Metropolitan Transportation Plan/Sustainable Communities Strategy for 2035 (proposed MTP/SCS) to affect utilities and service systems within the MTP/SCS plan area. This chapter evaluates potential impacts on utilities and service systems that may result from implementation of the proposed MTP/SCS. Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The MTP/SCS plan area consists of transportation routes, including highways, rail alignments, bicycle trails, state routes, roads, and Caltrans right-of-way. Although public utilities within the MTP/SCS plan area are operated and maintained by various agencies separately from the transportation system, they often share the right-of-way or are built and maintained in easements adjacent to transportation facilities. This chapter includes water supply systems, wastewater treatment systems, stormwater and sewer systems, solid waste management systems, petroleum pipelines, and natural gas, electrical, and telecommunications services.

No comments regarding utilities and service systems were received during circulation of the Notice of Preparation (NOP). Appendix PD-1 includes all NOP comments received.

SETTING

Environmental Setting

Water Supply Systems

Water supply systems obtain water from several sources including groundwater, surface water (lakes and rivers), and conservation. In most cases, the water is then purified, disinfected through chlorination, and sometimes fluoridated. Treated water then either flows by gravity or is pumped to reservoirs, which can be elevated (water towers) or on the ground. Once water is used, wastewater is typically discharged in a sewer system and treated in a wastewater treatment plant before being discharged into a body of water or reused for landscaping, irrigation, or industrial use. Wastewater treatment is discussed later in this chapter.

Potable water supply comes from *surface water* and *groundwater* sources. In most urban parts of the region, surface water makes up a majority of the water supply. In more rural areas of the region, where agricultural water demand is higher, groundwater and rainfall/snowmelt make up a larger percentage of water supply, though the amount of groundwater available largely depends on the geological makeup of the area. Water demand for non-potable uses, such as landscape irrigation, can take advantage of *recycled water*, in addition to the other sources mentioned above. Table 17.1 displays the agencies responsible for water supply in each county in the MTP/SCS plan area. For a more detailed description of surface water and groundwater sources, refer to Chapter 11 – Hydrology.

Table 17.1
Water Supply Coordination by County

County	Agencies Responsible for Water Supply and Water Planning
El Dorado County	El Dorado County Water Agency, El Dorado Irrigation District, Georgetown Divide Public Utility District, and Grizzly Flats Community Services District
Placer County	Placer County Water Agency, Environmental Utilities Water Utility (Roseville), Midway Heights Community Water District
Sacramento County	Sacramento County Water Agency coordinates over twenty different water purveyors.
Sutter County	City of Yuba City, City of Live Oak, Sutter Community Service District, East Nicolaus Mutual Water Company, Sutter County – Water Works District #1, and Natomas Central Mutual Water Company. The County is served by a number of agricultural irrigation water providers.
Yolo County	Yolo County Flood Control and Water Conservation District, North Delta Water Agency, Dunnigan Water District, Cities of Davis, West Sacramento, Winters, and Woodland, and various Community Service Districts and County Service Areas
Yuba County	Yuba County is served by over twenty different public agencies or districts and several private water companies. Rural areas are served by private wells.

El Dorado County

El Dorado County Water Agency

The El Dorado County Water Agency (EDCWA) is a long-term water planning organization that leads, assists, and participates in important projects such as securing water rights for El Dorado County and promoting water conservation. EDCWA was established in 1959. EDCWA also operates the El Dorado Water & Power Authority, a joint powers authority comprised of EDCWA, El Dorado County, and El Dorado Irrigation District. EDCWA does not provide or maintain water; however, EDCWA does work closely with the County's water purveyors in its planning and coordination efforts (El Dorado County Water Agency, 2011).

El Dorado Irrigation District

El Dorado Irrigation District (EID) is a water utility serving nearly 100,000 residents. EID was formally organized in 1925 under California's Irrigation District Law (Wat. Code, § 20500 et seq.). Today, EID's facilities and delivery infrastructure for drinking water include 1,200 miles of pipeline, 40 miles of ditches, six treatment plants, 33 storage reservoirs, and 21 pumping stations. The wastewater treatment system operates 64 lift stations, 561 miles of pipeline and force mains, and four treatment facilities. The El Dorado Hills and Deer Creek wastewater treatment plants produce recycled water — treated to California's stringent tertiary standards — that is used to irrigate front and back yards at nearly 4,000 homes, as well as commercial and public landscapes (El Dorado Irrigation District, 2011).

Georgetown Divide Public Utility District

Georgetown Divide Public Utility District (GDPUD) has approximately 3,564 treated water connections. Seventy-nine percent are single-family residences. One percent serve multi-family homes. Commercial, industrial, institutional (such as schools), and landscape uses account for

another 14 percent. There is a three percent loss, and unmetered connections account for another three percent. GDPUD's primary source of water is Stumpy Meadows Reservoir (Georgetown Divide Public Utility District, 2011).

Grizzly Flats Community Services District

The Grizzly Flats Community Services District is located in the foothills of the Sierra Nevada Range, southeast of Placerville, CA. The District has the responsibility of providing treated water for domestic use and fire protection to the residents within its service area. The District obtains its water supply by direct diversion of steam flows from North Canyon and Big Canyon Creeks, which are tributaries to the North Fork Consumnes River. The service area abuts the El Dorado National Forest. Approximately 1,228 parcels exist in the service area. The district has about 600 residential customers (Grizzly Flats Community Services District, 2011).

Placer County

Placer County Water Agency

The Placer County Water Agency (PCWA) was created under its own state legislation entitled the "Placer County Water Agency Act," adopted in 1957 by the California State Legislature. PCWA carries out a broad range of responsibilities including water resource planning and management, retail and wholesale supply of irrigation water and drinking water, and production of hydroelectric energy (Placer County Water Agency, 2011).

Environmental Utilities Water Utility

Environmental Utilities provides water, wastewater, recycled water, and solid waste utility services to residents and businesses residing in Roseville. Roseville water is supplied from two primary sources, surface water from Folsom Reservoir treated at a City-owned and operated water treatment plant and from groundwater wells located within the City water service area. Groundwater, primary from the City of Folsom, is used in time of drought to provide water reliability to the City of Roseville.

Midway Heights Community Water District

Midway Heights Community Water District serves water customers in the northern Meadow Vista and western Weimar area, delivering both treated and untreated water via underground lines. The District encompasses about 4.1 square miles between the Bear River to the west and Interstate 80 to the east.

Sacramento County

California American Water Company

In California, California American Water Company serves about 630,000 people in 50 communities in service areas in the Northern, Central, and Southern parts of the state (California American Water Company, 2011).

Carmichael Water District

Organized in 1916, the Carmichael Water District is an irrigation district located in the central portion of Sacramento County, northeast of the City of Sacramento and north of the lower American River. The area served by the District encompasses approximately eight square miles and serves a population of approximately 40,000. District customers receive approximately 70-80 percent of their water from the American River and 20-30 percent from District groundwater wells (Carmichael Water District).

Citrus Heights Water District

The Citrus Heights Water District (CHWD) is an Irrigation District, founded in 1920, operating under the State of California Water Code. CHWD provides drinking water to an estimated service area population of 64,000 customers via approximately 19,550 water service connections in Sacramento and Placer counties, including about 60 percent of the area within the boundaries of the City of Citrus Heights (City of Citrus Height Water District, 2011).

City of Folsom

The City of Folsom receives its water exclusively from Folsom Lake. The lake is supplied by the 1,875 square mile American River watershed. For residents and customers south of Lake Natoma, drinking water is supplied from the City's 40 million gallon per day filtration plant. For Folsom residents and customers north of Nimbus Lake, drinking water is supplied from San Juan Water District's filtration plant (City of Folsom, 2011).

City of Galt

The Utilities Division is responsible for providing potable water for residential and business customers as well as water for fire protection for the City of Galt. The current system is comprised of two three-million gallon storage tanks, two 1.5-million gallon storage tanks, booster pump stations, seven wells with filtration treatment systems, and chlorination for disinfection (City of Galt, 2011).

City of Roseville

Roseville's water supply comes from Folsom Lake and is treated at the Water Treatment Plant on Barton Road. In order to provide reliability in time of water shortage or emergency outages, the City also maintains five groundwater wells and several interties with surrounding water

agencies. In addition to supplying water to City of Roseville residents, the City also supplies water to a small portion of Sacramento County residents (City of Roseville, 2011).

City of Sacramento

The Department of Utilities is responsible for the distribution of water to homes and businesses within the City of Sacramento. The City brings over 46 billion gallons of water to over 132,000 customers. The City operates and maintains two water intakes and treatment plants, 1500 miles of pipelines, and fire hydrants, valves, and backflow devices (City of Sacramento, 2011).

Clay Water District

The Clay Water District was formed to contract with the Bureau of Reclamation for agricultural water from Folsom South Canal. It is also authorized to provide agricultural and urban drainage, flood control, and levee maintenance by contract with other agencies. The District serves 6,500 acres in southeastern Sacramento County (Southeast Sacramento County Agricultural Water Authority, 2011).

Del Paso Manor

The Del Paso Manor Water District was established in 1956 for the purpose of providing domestic water to a portion of unincorporated residents. This is an independent special district that serves approximately 1.2 square miles. Del Paso Manor Water District is located in the Arden area, generally bounded by Marconi Avenue on the north, Eastern Avenue on the east, Maryal Drive/ Ione Street/ Winding Creek Road on the south, and Watt Avenue on the west (Del Paso Manor, 2011).

El Dorado Irrigation District

See description above.

Elk Grove Water Service

The Elk Grove Water District (EGWD), previously known as Elk Grove Water Service (EGWS), which was previously known as Elk Grove Water Works, is a 100+ year-old water purveyor in the southern part of Sacramento County. It provides groundwater to approximately 12,125 connections and a customer base of approximately 36,000 within the City of Elk Grove. The EGWD's service area covers approximately 13 square miles bounded by Sheldon Road to the north, Highway 99 to the west, Grant Line Road to the east, and the Union Industrial Park to the south. The District services its customers with pumped groundwater and the purchase of treated surface and groundwater from the County of Sacramento (Elk Grove Water District, 2011).

Fair Oaks Water District

For over 40 years, the Fair Oaks Water District (FOWD) has purchased treated surface water from the San Juan Water District. The source of San Juan's surface water supply is the American River. This wholesale water, treated by the San Juan Water District before being transported to the FOWD, accounts for approximately 95 percent of FOWD's total water supply. The remaining five percent of our total water supply is regional groundwater (Fair Oaks Water District, 2011).

Florin County Water District

The Florin County Water District provides urban and rural water services to the South Sacramento area, serving approximately 2.5 square miles (Florin County Water District, 2011).

Fruitridge Vista Water Company

The Fruitridge Water Company provides urban water service to the South Sacramento County area, serving approximately 2.5 square miles (Fruitridge Vista Water Company, 2011).

Galt Irrigation District

The Galt Irrigation District delivers water from Laguna Creek to local irrigators. Temporary contracts with the Bureau of Reclamation are entered into during non-drought years. Water is purchased from SMUD and delivered into Laguna Creek from Rancho Seco. The District serves approximately 34,000 acres (Southeast Sacramento County Agricultural Water Authority, 2011).

Golden State Water Company

Golden State Water Company (GSWC) is a public utility in California and is a wholly owned subsidiary of American States Water Company. GSWC distributes water to over one million Californians through a variety of wells, pumping stations, and thousands of miles of mains and service lines (Golden State Water Company, 2011).

Natomas Central Mutual Water Company

The Natomas Central Mutual Water Company (NCMWC) is a private, not-for-profit corporation providing irrigation water to more than 33,200 acres of land north and west of the city limits of Sacramento. The Natomas service area is bordered on the west by the Sacramento River and stretches into Sutter County to the north (Natomas Central Mutual Water Company, 2011).

Omochumne-Hartnell Water District

Omochumne-Hartnell Water District has historically purchased and managed supplemental water from the Central Valley Project for the benefit of District agricultural users adjacent to the Cosumnes River and Deer Creek. In recent years, however, the number of riparian diverters has

decreased. Four flashboard dams that historically supported diversions are now maintained and operated by the District to increase the wetted perimeter of the river to affect greater groundwater recharge. The District serves approximately 30,000 acres (Southeast Sacramento County Agricultural Water Authority, 2011).

Orangevale Water Company

The Orangevale Water Company provides urban and rural water services for Orangevale and portions of Fair Oaks and the City of Folsom. OWC purchases treated water from the San Juan Water District and serves approximately 4.8 square miles (Orangevale Water Company, 2011).

Rancho Murieta Community Service District

Rancho Murieta Community Services District was formed in 1982 by State Government Code Section 61000 to provide essential services in Rancho Murieta. The source of water for all uses is primarily the Cosumnes River plus some direct rainfall into reservoir watersheds (Rancho Murieta Community Service District, 2011).

Rio Linda/Elverta Water District

The Rio Linda/Elverta Water District provides water services to the communities of Rio Linda and Elverta in northern Sacramento County (Rio Linda/Elverta Water District, 2011).

Sacramento County Water Agency

The State of California created the Sacramento County Water Agency in 1952 with the passage of the Sacramento County Water Agency Act. The Sacramento County Water Agency provides safe and reliable drinking water to over 55,000 homes and businesses in the Laguna-Vineyard area of the South County, Mather-Sunrise, Arden Park-Sierra Oaks, Hood, Northgate, and Southwest Track (Sacramento County Water Agency, 2011).

Sacramento Suburban Water District

The Sacramento Suburban Water District (SSWD) is a publicly owned and operated water utility regulated by the State of California Department of Public Health and State Water Code laws. SSWD provides water to its customers from 88 active groundwater wells. In addition, the District has contractual rights to 26,064 acre-feet from the City of Sacramento water entitlement and has a contract to purchase up to 29,000 acre-feet of surface water per year from Placer County Water Agency (Sacramento Suburban Water District, 2011).

San Juan Water District

San Juan Water District is a community services district established by a vote of the citizens in 1954. The District provides water service to both retail and wholesale customers in eastern Sacramento and southern Placer counties (San Juan Water District, 2011).

Tokay Park Water Company

The Tokay Park Water Company provides urban water service for the South Sacramento/Florin area, serving approximately two square miles (Tokay Park Water Company, 2011).

Sutter County

City of Live Oak

The City of Live Oak provides water services via groundwater supplied by groundwater wells located at various locations within the city limits.

City of Yuba City

The City of Yuba City's primary source of water supply is surface water diverted from the Feather River using water right permits. The City also maintains a groundwater well, located at the water treatment plant.

East Nicolaus Mutual Water Company

The East Nicolaus Mutual Water Company provides water to customers within a small portion of East Nicolaus.

Natomas Central Mutual Water Company

See description above.

Sutter Community Service District

The Sutter Community Service District supplies water via a looped distribution system that includes three wells and a storage tank.

Sutter County – Water Works District No. 1

Sutter County operates Water Works District No. 1, which serves the community of Robbins. The system is comprised of groundwater wells, one storage tank, and about five miles of water pipelines.

Agricultural irrigation entities in Sutter County include the following: Garden Highway Mutual Water Company; Pleasant Grove/Verona Mutual Water Company; Sutter Bypass Butte Slough Water User Association; Sutter Extension Water District; Sutter Mutual Water Company; Tisdale Irrigation and Drainage Company; Tudor Mutual Water Company; Butte Water District; Biggs-West Gridley Water District; Feather Water District; Oswald Water District; Pelger Water District; Tisdale Water District, and Swinford Tract Irrigation District.

Yolo County

Cacheville Community Service District

The Cacheville Community Service District (CSD) provides the domestic water supply for the town of Yolo. The Cacheville CSD has one main well and one backup well (Yolo County 2011).

City of Davis

The City of Davis Department of Public Works is responsible for water services within the city limits.

City of West Sacramento

The City of West Sacramento's Bryte Bend water treatment plant diverts water from the Sacramento River and provides treatment to serve residents. In addition to the plant, the City operates several water tanks to provide additional storage for fire and emergency needs.

City of Winters

The City of Winters Department of Public Works is responsible for water services within the city limits.

City of Woodland

The City of Woodland Department of Public Works is responsible for water services within the city limit.

Dunnigan Water District

The Dunnigan Water District receives a contractual water supply from the Central Valley Project via the Colusa-Tehama Canal that is currently used for agriculture in the Dunnigan area and is a potential future source of domestic water (Yolo County, 2011).

Esparto Community Service District

The town of Esparto receives its water from the Esparto Community Service District (CSD). The domestic water supply distributed by the Esparto CSD comes from four wells (Yolo County, 2011).

Knights Landing Community Service District

Residents of Knights Landing are served by the Knights Landing Community Service District, which pumps all water for domestic uses from three wells (Yolo County, 2011).

Madison Community Service District

Madison is served by the Madison Community Service District which pumps domestic water supply for the town from two wells. The water distribution system is made up of six-inch transite pipes (Yolo County, 2011).

North Davis Meadows County Service Area

While North Davis Meadows owns its own on-site water and drainage facilities, the communities of El Macero, Willowbank, and Royal Oaks are served by the City of Davis (Yolo County, 2011).

North Delta Water Agency

The North Delta Water Agency is the only water agency in Yolo County. It also serves parts of Sacramento, San Joaquin, and Solano counties. The North Delta Water Agency studies and identifies programs to protect the water supply of the lands within the agency's boundaries against the intrusion of ocean salinity and assures a dependable supply of water of suitable quality sufficient to meet the present and future needs of the lands within the agency's jurisdiction (Yolo County, 2011).

Wild Wings County Service Area

The Wild Wings County Service Area provides water to the 337-unit Wild Wings development and adjoining golf course in the Monument Hills area east of Woodland (Yolo County, 2011).

Yolo County Flood Control and Water Conservation District

The Yolo County Flood Control and Water Conservation District (YCFCWCD) was created by the California Legislature in 1951 as an independent special district. At its inception, its primary purpose was to seek new water sources and manage them efficiently. Initially, the YCFCWCD had no water rights and operated on a very small budget generated by property taxes. Today, the YCFCWCD provides agricultural water to approximately 195,000 acres, which represents approximately 40 percent of the valley lands in Yolo County. It includes the cities of Woodland, Davis, and Winters, along with the communities of Capay, Esparto, Madison, and other communities in the Capay Valley. The YCFCWCD owns, operates, and maintains three dams, two hydroelectric plants, two reservoirs, and 175 miles of irrigation and drainage facilities.

Agricultural irrigation in Yolo County is provided by five major water districts: the Colusa County Water District, the Dunnigan Water District, the Yolo-Zamora Water District, the Yolo County Flood Control and Water Conservation District, and the Knights Landing Ridge Drainage District. The water districts produce, store, and distribute water for irrigation, domestic, industrial, and municipal purposes. They also collect, treat, and dispose of sewage, waste, and stormwater (Yolo County, 2011).

Yuba County

Beale Air Force Base

Within Beale Air Force Base, the U.S. Air Force is responsible for providing municipal services, including water, and provides water extraction, treatment, and distribution services for domestic and industrial uses within the base. All water supply used within the base is from groundwater obtained from nine wells (Yuba County, 2011).

Brophy Water District

Brophy Water District was established to provide irrigation water to the farmers in the southwest portion of Yuba County. The boundaries of the District are roughly the area north and south of Hammonton-Smartville Road to State Highway 65 on the southwest and Beale Air Force Base to the east. The Brophy Water District encompasses approximately 17,000 acres, 13,000 of which are irrigated. The District has a project base contract of 43,470 acre-feet of water and a supplemental contract for additional 32,177 acre-feet which is bought wholesale from the Yuba County Water Agency. The District maintains approximately 17 miles of earthen canals and ditches (Yuba County, 2011).

Browns Valley Irrigation District

At 55,000 acres, Browns Valley Irrigation District (BVID) is the largest irrigation district in Yuba County and currently serves approximately 1,500 customers. BVID receives the water it distributes to its patrons from Collins Lake, Dry Creek, Yuba River surface water, a contract with the Yuba County Water Agency (YCWA), and surface water from Tennessee Creek. BVID provides non–potable irrigation water to the communities of Browns Valley and Loma Rica through an open ditch and underground pipe delivery system. The current boundary for BVID is roughly the Yuba River from above Englebright Dam to Daguerra Point Dam on the south and northward to the Butte County line (Yuba County, 2011).

California Water Services Company

The California Water Service Company (CWSC) has provided domestic water service to the City of Marysville since 1930. Approximately 84 percent of existing water connections are for residential service, with the remaining balance made up of commercial and industrial land uses. Water supply is obtained entirely from groundwater resources. Major infrastructure includes eight active groundwater wells, two water storage tanks, and 55 miles of pipelines (California Water Service Company, 2011).

Camp Far West Irrigation District

Camp Far West Irrigation District (CFWID) is an independent special district and was formed to provide irrigation water to landowners west of the Camp Far West Reservoir. CFWID's boundary lies within Yuba and Placer Counties and was formed in Placer County. The eastern portion of Wheatland sphere of influence is within CFWID's bounds. The boundary area extends north to Spenceville Road, west to SR 65, east to the Camp Far West Reservoir, and

south to Camp Far West Road in Placer County and beyond. CFWID boundaries cover approximately 4,700 acres (7.3 square miles). The CFWID water source is the Bear River watershed, which is primarily influenced by rainfall (Yuba County, 2011).

Camptonville Community Service District

Camptonville Community Services District (CCSD) supplies filtered and chlorinated water to residences and businesses (approximately 70 service connections) in the community of Camptonville for a fee. CCSD owns and operates a 64,000 gallon water storage tank, one mile of distribution pipelines, two wells, and water meters for each service connections. The District has pre-1914 water rights for 33.8 acre-feet of water from Campbell Gulch, and groundwater is used to augment surface water supplies (Yuba County, 2011).

Cordua Irrigation District

Cordua Irrigation District provides irrigation water to about 12,000 acres primarily used for rice farming and pasture areas. The District has 60,000 acre-feet of owned water rights from the Yuba River and a project base contract for 12,000 more acre-feet through the YCWA. There are about 80 landowners and 133 service connections served by the District. The District maintains a 15-mile long earthen main canal as well as 20 miles of earthen distribution lateral ditches (Yuba County, 2011).

Dry Creek Mutual Water Company

The Dry Creek Mutual Water Company (DCMWC) provides water for irrigation to an area southwest of SR 65 and the City of Wheatland. The service area covers 8.2 square miles. DCMWC was once within the Wheatland Water District, but split off in 1991 as a member unit of YCWA. Surface water is delivered to customers by way of the South Yuba Canal. Other infrastructure includes one pumping plant, pipelines, and earthen irrigation ditches (Yuba County, 2011).

Hallwood Irrigation Company

The Hallwood Irrigation Company (HIC) provides irrigation water to customers within an approximately 12,000-acre service area located northeast of the City of Marysville. Water delivery infrastructure includes 30 to 40 miles of gravity flow earth distribution canals and ditches (Yuba County, 2011).

Linda County Water District

Linda County Water District (LCWD) provides domestic water service to businesses and residences, water for fire protection, and wastewater collection, treatment, and disposal. The LCWD is located south of Marysville and serves a population of approximately 12,439 and has approximately 3,360 service connections. LCWD is an approximately eight square mile, unincorporated area of Yuba County with rough boundaries being south of the Yuba River and

east of the Feather River, south to roughly Erle Road and east to Griffith Avenue (Yuba County, 2011).

Nevada Irrigation District

The Nevada Irrigation District (NID) provides surface water to several communities within its 278,000-acre service area, which includes portions of Nevada and Placer Counties. NID also provides water to the community of Smartsville, located in Yuba County, although it is not located within NID's boundary. Although NID delivers water to Smartsville, Nevada LAFCO has jurisdiction over NID. NID has over 24,000 customers, but only has 44 connections for treated water and 18 connections for raw water in Yuba County. NID water is used in an area of approximately 2,330 in Smartsville. District infrastructure is extensive and includes ten storage reservoirs, seven water treatment plans, 37 storage tanks, seven hydroelectric plants, 475 miles of raw water ditches, and 300 miles of distribution pipelines. In Smartsville, there is a water treatment plant and a limited canal system.

North Yuba Water District

North Yuba Water District (NYWD) provides drinking water and irrigation water to a service area of about 128 square miles, including 25 square miles that is built-upon and protected by a hydrant system. The District serves approximately 730 residential customers and 100 agricultural customers. NYWD serves the communities of Oregon House, Dobbins, Challenge, Brownsville, Rackerby in Yuba County, and Forbestown in Butte County. The District currently owns and maintains 32 miles of distribution mains, 23 miles of irrigation canals, a water treatment plant, a Supervisory Control and Data Acquisition (SCADA) system, five storage tanks, and a storage pond (Yuba County, 2011).

Olivehurst Public Utilities District

The Olivehurst Public Utility District (OPUD) provides water for potable use, wastewater and drainage services, parks, lighting maintenance, and fire protection. OPUD service boundaries extend south from Hickory Lane (south of Erle Road) on the west side of Highway 70 to the Union Pacific Railroad and widen to include the Yuba County Airport on the west and land west of Highway 65 south to McGowan Parkway. OPUD also provides water, wastewater, and drainage services within portions of the Plumas Lake Specific Plan area to the south. The service boundary is approximately nine square miles and includes a total of 6,486 service connections. OPUD receives most of it water from groundwater supplies (Yuba County, 2011).

Plumas Mutual Water Company

The Plumas Mutual Water Company (PMWC) provides water diverted from the Feather River for irrigation to four customers in the central portion of the Plumas Lake Specific Plan area. Approximately 2,500 acres received surface water supplies. The PMWC maintains a pump station and irrigation piping (Yuba County, 2011).

Ramirez Water District

The Ramirez Water District is located in the north western section of Yuba County and extends into Butte County and provides water for irrigation and wildlife habitat. Ramirez Water District boundaries include approximately 5,874 acres, approximately 4,700 acres of which rely solely on surface water. Groundwater is also used to supplement surface water supplies. The Ramirez Water District buys 25,101 acre-feet of water wholesale from the Yuba County Water Agency which is delivered through the North Yuba Canal to the Ramirez Water District boundary (Yuba County, 2011).

River Highlands Community Service District

River Highlands Community Services District (RHCSD) is an independent special district and provides water, wastewater, and other services to a planned development called Gold Village. RHCSD's boundary consists of three noncontiguous areas along Hammonton-Smartville Road, just west of its intersection with SR 20 (see Exhibit IPS-4). RHCSD boundaries cover approximately 0.9 square miles. Water within the RHCSD is supplied entirely from the local groundwater aquifer. RHCSD key water infrastructure includes five wells (one of which is operated), a 285,000 gallon water tank, a pump, an inactive water treatment site, and underground pipelines (Yuba County, 2011).

South Feather Water and Power Agency

The South Feather Water and Power Agency's (SFWPA) service area is located primarily within Butte County, but includes two parcels within Yuba County located along the county line in the community of Loma Rica. The entire service area covers 28,974 acres. Butte LAFCO has jurisdiction over the agency. The SFWPA obtains water primarily from the South Fork of the Feather River. Major infrastructure includes a water treatment plant, five storage reservoirs, four storage tanks, 110 miles of ditches and canals, and 141 miles of pipeline (Yuba County, 2011).

South Yuba Water District

The South Yuba Water District provides agricultural surface water service to the South County area of Yuba County. South Yuba Water District boundary includes approximately 10,223 acres and provides water to customers for use on lands covering approximately 8,500 acres of the lands within the District. South Yuba Water District has a project base contract for 25,487 acre-feet and a project supplemental contract for 18,843 acre-feet through the YCWA, which controls and oversees the water. Groundwater is also used to supplement surface water supplies when needed (Yuba County, 2011).

City of Wheatland

The City of Wheatland provides retail water services to 1,058 customers in the form of groundwater pumping, treatment, water quality testing, conveyance, storage, and delivery. Wheatland provides all water service within the city limits with the exception of a private irrigation well in a senior apartment housing project. Water service is not provided outside of

the city limits. Key infrastructure includes six wells, two storage tanks, one pump station, 20.9 miles of pipeline, water meters, and SCADA system.

Wheatland Water District

Wheatland Water District (WWD) is located in the southeastern portion of the South Yuba Basin, with much of the district located between Best Slough and Dry Creek, east of Highway 65. WWD provides agricultural water for about 10,400 acres.

Yuba County Water Agency

Yuba County Water Agency (YCWA) was formed as an independent special district to provide wholesale water and flood control services to Yuba County. YCWA provides wholesale water service to its member units: South Yuba Water District (SYWD), Dry Creek Mutual Water Company, Brophy Water District, Cordua Irrigation District, Hallwood Irrigation Company, Ramirez Water District, Browns Valley Irrigation District, and Wheatland Water District (WWD). YCWA delivers approximately 310,000 acre-feet of surface water annually to its member units. In an average year, YCWA also transfers about 76,000 acre-feet to State and water providers outside the area.

Many districts in the MTP/SCS plan area have instituted water conservation strategies and programs. These programs can include water survey programs for residential customers, residential plumbing retrofits, system water audits, leak detection and repair, high-efficiency washing machine rebate programs, public information campaigns, school education programs, ultra-low flow toilet replacement program, and conservation pricing.

Wastewater and Wastewater Treatment Systems

Wastewater is generally classified as domestic, industrial, or storm, according to its origin. Wastewater contains dissolved organic and inorganic materials, suspended solids, and microorganisms, including bacteria and viruses. Domestic wastewater is generated through normal activity in homes, businesses, and institutions such as the use of toilets, urinals, bathroom sinks, showers and bathtubs, kitchen sinks, garbage disposals, dishwashers, and washing machines, to name a few. Wastewater from toilets and urinals is often referred to as *black water*, while the other types of domestic wastewater are often called *grey water*.

The character of *industrial wastewater* depends on the type of industry using the water. Some industrial wastewaters can be treated the same as domestic wastes without difficulty. Others may contain toxic substances or high percentages of organic materials or solids which make treatment difficult. In such cases, the industrial plant may have to pretreat its wastewater to remove these pollutants or reduce them to treatable levels before they are accepted into a publicly-owned treatment facility.

Although *stormwater* has its own collection process, it often goes through wastewater treatment plants (WWTP), despite its generally low pollutant level. Great amounts of stormwater can interfere with treatment efficiency by causing too much dilution of the wastewater and overloading the hydraulic systems of the plant.

The goal of wastewater treatment is to remove pollutants from the water by getting them either to settle or to float, and then removing the material. Some pollutants are easily removable. Others must be converted to a settleable form before they can be removed. Important characteristics to consider include the amount or flow of wastewater produced, the type of treatment provided onsite, and the amount and type of pollutant loadings contained in wastewater.

Treatment facilities are designed in stages. Each stage either removes particles from the wastewater or changes dissolved and suspended material to a form that can be removed. *Influent* is the raw material that has been collected and conveyed to the plant for treatment. It includes all the water and debris that entered the collection system.

Pretreatment removes materials that can be collected easily from the raw waste water before they damage or clog the pumps and skimmers of primary treatment clarifiers (trash, tree limbs, leaves, etc.). During *primary treatment* lighter organic solids remain suspended in the water and flow into large tanks. Here, the heavier organic solids settle by gravity. These settled solids, called *primary sludge*, are removed along with floating scum and grease and pumped to anaerobic digesters for further treatment. *Secondary treatment* involves continuing the process with biological decomposers to rid the effluent of living organisms. *Tertiary treatment* removes suspended and dissolved substances that remain after conventional secondary treatment. Tertiary treatment may be used to remove such things as color, metals, organic chemicals, and nutrients such as phosphorus and nitrogen. Before the final effluent is released into the receiving waters, it may be disinfected to reduce the disease-causing microorganisms that remain in it.

There are three basic types of treatment systems employed in the plan area. First, there are *municipal treatment systems*, which serve incorporated areas. In some cases, municipal systems may service unincorporated areas that are within the jurisdiction's sphere of influence or otherwise connected with the jurisdiction. The second type of system commonly found in the MTP/SCS plan area is the *community service district* (CSD) *system*. These systems usually service unincorporated areas that have concentrated population centers. Finally, the third type of system is the *on-site wastewater treatment system*, also known as a septic system. In unincorporated areas not served by a municipal system or a CSD, septic systems are used to treat wastewater from individual properties.

El Dorado County Wastewater Treatment

In El Dorado County, the El Dorado Irrigation District operates and maintains a total of four wastewater treatment facilities. Two provide secondary treatment and two provide tertiary treatment. The Georgetown Divide Public Utility District operates one community disposal system in the Auburn Lake Trails Subdivision. The remainder of the County includes individual homes using on-site wastewater treatment systems (OWTS) (El Dorado Irrigation District, 2011).

Placer County Wastewater Treatment

Most incorporated areas of Placer County are served by WWTPs. Rural, outlying, and low-density areas are served by individual septic systems.

Environmental Utilities Wastewater Utility provides wastewater treatment services for the City of Roseville. South Placer Municipal Utility District (SPMUD) provides sewer collection and maintenance service to the City of Rocklin, the Town of Loomis, the community of Penryn, and a portion of Granite Bay. The City of Auburn, the City of Colfax, and the City of Lincoln provide municipal wastewater treatment in their communities.

Placer County operates and maintains five wastewater treatment facilities. Areas served include unincorporated portions of North Auburn, Granite Bay, Loomis, western Placer County (Dry Creek), Livoti, Sunset Industrial area, Sheridan, Applegate and Blue Canyon.

Sacramento County Wastewater Treatment

The Sacramento Area Sewer District (SASD) is a sewer utility providing service to more than one million residential, commercial, and industrial customers in the MTP/SCS plan area, including the unincorporated areas of Sacramento County, the cities of Citrus Heights, Rancho Cordova, and Elk Grove, as well as portions of the cities of Folsom and Sacramento.

The SASD owns and operates thousands of miles of pipes to collect sewage. Once collected, sewage flows into the Sacramento Regional County Sanitation District (SRCSD) interceptor system, where it is conveyed to the Sacramento Regional Wastewater Treatment Plant (SRWTP) near Elk Grove.

The SRCSD provides regional wastewater conveyance and treatment services to residential, industrial, and commercial customers throughout unincorporated Sacramento County, and the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, and West Sacramento. The wastewater travels through 145 miles of interceptor pipelines to the SRWTP, where approximately 150 million gallons of wastewater are treated each day and discharged into the Sacramento River. The plant is designed as a secondary treatment plant at this time.

The City of Folsom and the City of Sacramento also operate over 1,200 miles of pipeline to collect wastewater and convey it to the SRCSD interceptor system to be treated at the SRWTP. Parts of the City of Sacramento use a combined sewer system (CSS). The CSS provides sewage and drainage service to more than 24,000 parcels in Downtown, Midtown, Land Park, and East Sacramento. The system, originally established in the 1800's, collects sewage and stormwater in the same pipe. The combined wastewater is pumped to the SRWTP where it is treated and released back to local rivers. During heavy rain events, excess stormwater is also treated at several City facilities before being released back to the rivers. When the SRWTP and two City-operated treatment facilities have reached capacity, excess flows are directly discharged into the Sacramento River without treatment.

Sutter County Wastewater Treatment

Privately owned septic systems provide for the treatment and disposal of wastewater throughout much of Sutter County. The cities of Yuba City, Live Oak, and the communities of Robbins and Rio Ramaza are the only areas with sanitary sewer collection systems and wastewater treatment facilities within the county. Throughout the remaining portion of the unincorporated county, wastewater from individual homes or businesses (or small groups of homes/businesses) is treated and disposed of through OWTS.

Yolo County Wastewater Treatment

In Yolo County, established sewerage exists in the concentrated urban centers of the City of Davis, City of Winters, and City of Woodland. These three jurisdictions have municipal wastewater treatment plants to treat domestic and industrial wastewater. The City of Davis and City of Winters facilities provide primary and secondary treatment, while the City of Woodland facility is able to provide tertiary treatment. These municipal facilities serve unincorporated areas of Yolo County only where the unincorporated area is within the sphere of influence of the cities and where annexation is anticipated. The Yocha Dehe Wintun Nation also has its own WWTP that provides tertiary treatment. This WWTP is not a public system. The University of California, Davis also operates a WWTP.

Although some unincorporated areas are served by municipal systems, the majority of the wastewater generated in the unincorporated areas of the County is treated through the use of OWTS. OWTS generally rely upon septic tanks and on-site disposal using leach fields and other types of soil absorption systems. The waste is pumped into septic trucks and then taken to a disposal facility. Typically, waste is taken to Vallejo Regional WWTP in Solano County or to a private facility in the City of Lincoln in Placer County.

Finally, some unincorporated areas are served by Community Service Districts (CSDs). Unincorporated areas that have a higher concentration of development typically use this method. CSDs usually treat wastewater by collecting wastewater through a system of pipes that transfers wastewater to a WWTP that uses stabilization and evaporation ponds to dispose of treated wastewater (Yolo County, 2011).

Yuba County Wastewater Treatment

In Yuba County, there are four small treatment plants that serve the communities of Marysville, Linda, Olivehurst, and Wheatland. These WWTPs provide secondary treatment. Most rural Yuba County residents are served by individual septic systems.

Stormwater

Stormwater is water that originates during precipitation events. It may also be used to apply to water that originates with snowmelt that enters the stormwater system. Stormwater that does not soak into the ground becomes *surface runoff*, which flows directly into surface waterways, is absorbed underground, is collected in roadside swales and ditches, or is channeled into storm sewers, which eventually discharge to surface waters.

Stormwater is of concern for many reasons. First, excess stormwater can result in localized flooding. During a storm event, stormwater not absorbed into the ground runs off and collects in drainage facilities, which may be in the form of roadways, storm drains, and natural creeks and rivers. When the water volume exceeds the capacity of the drainage channel to convey water, flooding can occur, especially in urbanized areas that have large expanses of impervious surfaces. Second, stormwater can deposit contaminants that it is carrying (i.e. pollution) into the surface waterways to which it ultimate returns. Stormwater can become polluted by eroded soil, pesticides, paint, fertilizers, animal waste, litter, oil and other automotive fluids, and household chemicals.

Other problems connected with increased stormwater runoff include erosion, sedimentation, and degradation of water quality. Increased stormwater runoff can increase erosion and facilitate the movement of pollutants and soils into bodies of water, to the detriment of aquatic wildlife habitats. Also, increased stormwater runoff may impair the use of downstream water bodies for beneficial uses (i.e. recreation, irrigation, water consumption). This section focuses on the provision of stormwater drainage systems. Chapter 11 – Hydrology discusses water quality and flooding issues and regulations.

Stormwater is collected in municipal systems within urbanized areas of the MTP/SCS plan area and conveyed to the rivers, in accordance with state water quality regulations. Stormwater services are provided by municipal public works departments, community service districts, reclamation districts, or other special districts. In addition to stormwater collection services, many agencies in the MTP/SCS plan area coordinate comprehensive stormwater management systems. For example, the Sacramento Stormwater Quality Partnership, of which Sacramento County, City of Sacramento, City of Citrus Heights, City of Rancho Cordova, City of Elk Grove, City of Galt, and City of Folsom are partners, is a partnership agency that aims to educate the public about stormwater runoff issues and encourage pollution prevention.

Solid Waste Management

County governments generally address solid waste management by both providing solid waste treatment facilities within their own jurisdictions and by exporting waste outside the MTP/SCS plan area. Sacramento and El Dorado counties, and to a more limited extent, Placer County, export a nontrivial amount of waste to landfills in Nevada. Table 17.2 shows major landfill information for facilities in the MTP/SCS plan area.

El Dorado County Solid Waste Management

El Dorado County and the City of Placerville have entered into franchise agreements with solid waste companies, which provide solid waste collection, recycling, and disposal. The Union Mine Disposal Site is the last remaining and active landfill property in the county.

Placer County Solid Waste Management

In Placer County, the Western Placer Waste Management Authority (WPWMA), a regional agency comprised of the cities of Lincoln, Rocklin, and Roseville, and the County of Placer, provides recycling and waste disposal services to these communities as well as the City of Auburn and the Town of Loomis. County-owned facilities include the Eastern Regional Landfill and Material Recovery Facility in the Tahoe area and transfer stations in Meadow Vista and Foresthill, as well as closed landfills in Loomis, Meadow Vista, and Foresthill. WPWMA operates the Western Regional Sanitary Landfill.

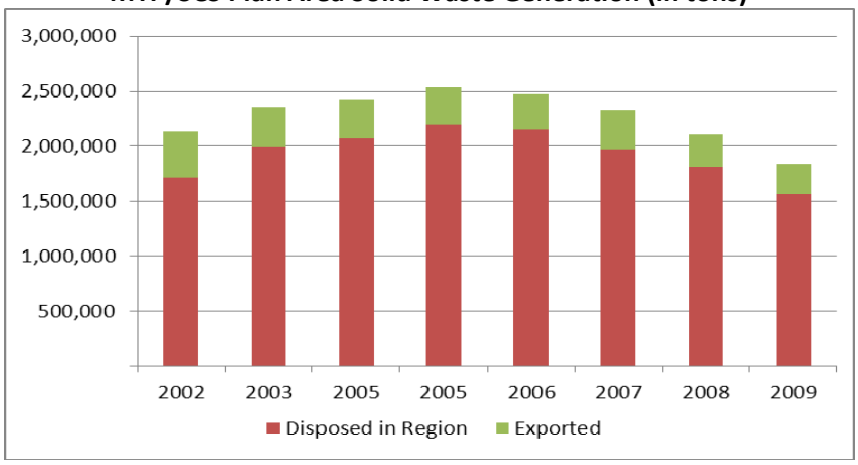
Sacramento County Solid Waste Management

The Sacramento County Department of Waste Management and Recycling provides solid waste services to the unincorporated portions of Sacramento County, while the City of Sacramento provides solid waste services to city residents and businesses. Kiefer Landfill is the primary solid waste disposal facility in the County. The landfill facility sits on 1,084 acres located near the intersection of Kiefer Boulevard and Grant Line Road. Currently using 250 acres, the State permitted landfill is permitted to use 660 acres. Sacramento County also owns and operates the North Area Recovery Station (NARS) located in North Highlands. There are various other transfer stations and small, privately-owned landfills throughout Sacramento County, located mainly within the boundaries of the City of Sacramento (Municipal Services Agency, 2011).

Sutter and Yuba Counties Solid Waste Management

The Yuba-Sutter Regional Waste Management Authority (RWMA) was formed in 1990 to provide solid waste services to Sutter and Yuba counties. The RWMA works in conjunction with Recology Yuba-Sutter (formerly Yuba-Sutter Disposal, Inc.) to provide for the collection, recycling, and disposal of municipal solid waste from each member jurisdiction. Recology Yuba-Sutter operates the largest landfill within Sutter and Yuba Counties, serving Beale Air Force Base, Live Oak, Marysville, Wheatland, Yuba City, and the counties of Yuba and Sutter. The Ostrom Landfill is the primary disposal site for waste collected by Recology Yuba-Sutter. The Yuba-Sutter RWMA and Recology Yuba-Sutter provide a number of recycling facilities and programs.

Figure 17.1
MTP/SCS Plan Area Solid Waste Generation (in tons)



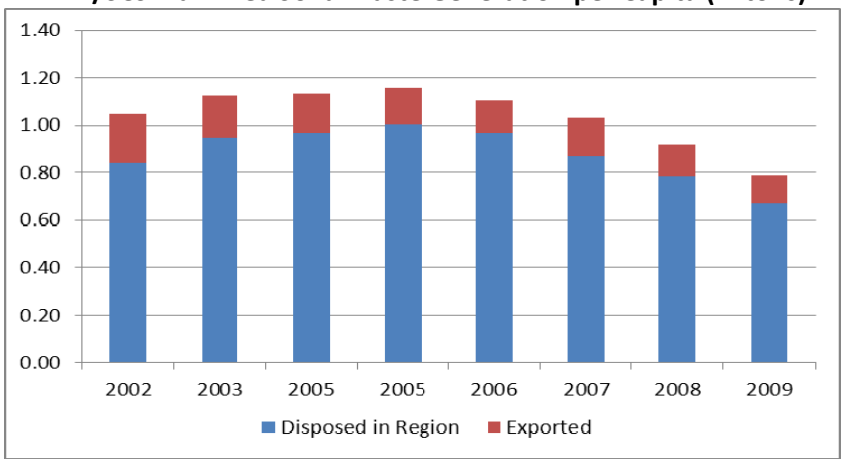
Source: California Department of Resources Recycling and Recovery (CalRecycle) Disposal Reporting System (DRS)

Yolo County Solid Waste Management

In Yolo County, 88 percent of waste generated in the county is taken to either the Yolo County Central Landfill, located two miles northeast of the City of Davis, or the Esparto Convenience Center. The UC Davis Landfill, Grover Landscape Services Composting Facility, and Davis Waste Removal's Green Material Facility also provide solid waste disposal and greenwaste processing services. At the current rate of disposal, the Central Landfill has an estimated closure date of January 1, 2081 (Yolo County 2009).

Figure 17.1 (above) and Figure 17.2 (below) show the historical waste generation total and the historical waste generation rate (tons per capita) for the MTP/SCS plan area, respectively.

Figure 17.2
MTP/SCS Plan Area Solid Waste Generation per Capita (in tons)



Source: California Department of Resources Recycling and Recovery (CalRecycle) Disposal Reporting System (DRS) and California Department of Finance Population Statistics

Natural Gas and Electricity Services

Pacific Gas and Electric Company

Pacific Gas and Electric Company (PG&E) is one of the largest combination natural gas and electric utilities in the United States. The company, a subsidiary of PG&E Corporation, serves approximately 15 million people in northern and central California. Within the MTP/SCS plan area, PG&E provides electric service to El Dorado, Sutter, Yolo, and Yuba counties, and large portions of Placer County west of the Tahoe Basin; PG&E also provides gas service to the entire Sacramento metropolitan area. PG&E obtains its electricity from natural gas/fossil fuels, nuclear, and hydroelectric and other renewable sources. On average, approximately half of the electricity PG&E delivers to its customers comes from a combination of renewable and greenhouse gas-free resources.

Sacramento Municipal Utilities District

The Sacramento Municipal Utilities District (SMUD) supplies electric service to Sacramento County and to a five-square-mile area in the Dry Creek/West Placer area west of the City of Roseville in Placer County. SMUD is the sixth-largest publicly-owned utility in the United States, in terms of the number of customers served. SMUD obtains its electricity from a variety of sources, including hydro-generation, cogeneration plants, advanced and renewable technologies (such as wind, solar, and biomass/landfill gas power), and power purchased on the wholesale market.

A large portion of SMUD's generated power is produced by the Upper American River Project, a hydroelectric facility on the western slope of the Sierra Nevada. This project, consisting of 11 reservoirs and eight powerhouses, generates enough electricity to meet about 20 percent of SMUD's customer demand. In a normal water year, the Upper American River Project (UARP) provides roughly 1.8 billion kilowatt-hours of electricity, which is enough to power 180,000 homes.

SMUD offers a variety of programs that serve to preserve natural resources and reduce pollution. Through SMUD's Greenergy program, members can choose to buy energy from natural resources, such as the sun, wind, or methane gas. SMUD also offers incentives to its residential customers for purchasing and installing photo-voltaic solar panels. With regard to wind energy, the recent addition of eight wind turbines to SMUD's wind farm in Solano County produces up to 39 megawatts of power. SMUD owns additional land in the area with room for expansion to 200 megawatts pending approval by the Board of Directors (Sacramento Municipal Utilities District, 2011).

City of Roseville

The City of Roseville supplies its own electrical service to its residents with power generated from the Roseville Energy Park, a natural gas fire plant that generates enough energy to meet 40 percent of the City's needs. The remainder of Roseville's electricity is purchased. The City serves 52,000 residential and business customers (City of Roseville, 2011).

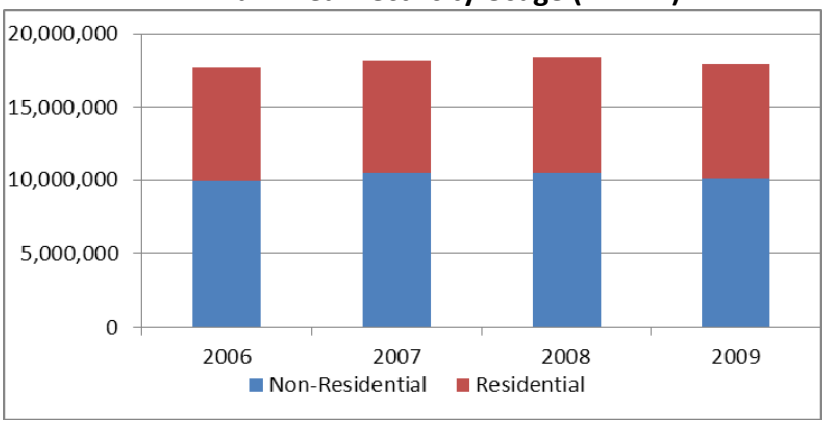
Table 17.2
Major Landfills in the MTP/SCS Plan Area, Capacity, and Estimated Closure

Landfill Name	Location	Capacity	Used	% Used	Remaining	% Remaining	Estimated Closure
Union Mine Disposal Site	5700 Union Mine Road El Dorado CA, 95623	195,000	60,000	31%	135,000	69%	2040
L&D Landfill Co	8635 Fruitridge Road Sacramento CA, 95826	6,031,055	1,931,055	32%	4,100,000	68%	2016
Recology (Norcal) Ostrom Road LF Inc.	5900 Ostrom Road Wheatland CA, 95692	43,467,231	4,244,231	10%	39,223,000	90%	2066
Kiefer Landfill	12701 Kiefer Blvd Sloughhouse CA, 95683	117,400,000	4,500,000	4%	112,900,000	96%	2064
Western Regional Landfill	3195 Athens Road Ap #17-060-02 Lincoln CA, 95648	36,350,000	7,256,181	20%	29,093,819	80%	2036
Yolo County Central Landfill	County Road 28h & County Road 104 Davis CA, 95616	49,035,200	no data available				2081
University of California Davis Sanitary Landfill	West End Of UCD Campus On County Road 98 Davis CA, 95616	954,571	360,132	38%	594,439	62%	2040

Source: All data as of 2000. Taken from the Department of Resources Recycling and Recovery Solid Waste Information System (CalRecycle SWIS). Accessed August 11, 2011. No usage data was available from the SWIS for the Yolo County Central Landfill, nor was data available from the Yolo County General Plan EIR.
Table is reflective of major landfills in the MTP/SCS plan area. Smaller disposal sites, for which capacity information was unavailable, are described in the text but not included in the table.
Landfills outside the MTP/SCS plan area that are used by MTP/SCS plan area jurisdictions are described in the text but not included in the table.

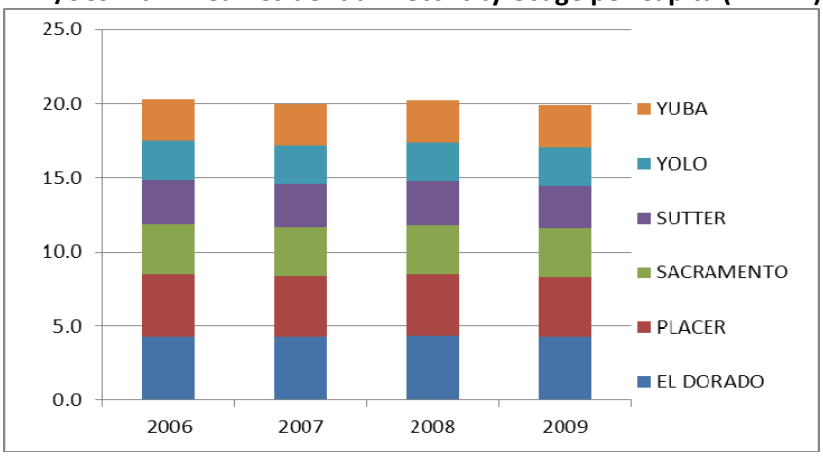
Figure 17.3 shows MTP plan area electricity usage from 2006 to 2009, and Figure 17.4 shows residential electricity use per capita for 2006-2009.

Figure 17.3
MTP Plan Area Electricity Usage (in MW)



Source: The California Energy Commission Energy Consumption Data Management System

Figure 17.4
MTP/SCS Plan Area Residential Electricity Usage per Capita (in MW)



Source: The California Energy Commission Energy Consumption Data Management System

Petroleum Pipelines

Propane, also known as liquefied petroleum gas, can be used as an additional energy source in areas without access to natural gas distribution lines. From the refinery or processing plant, propane is shipped to an intermediate terminal; from there, it is shipped to the local propane supplier for delivery to commercial and residential end users. Propane is transported under pressure in its more compact liquid form. Typically, propane is transported by trucks or pipelines.

Within the MTP/SCS plan area, there is a petroleum oil transmission pipeline located adjacent to the Union Pacific Railroad right of way near I-80 and SR 65 in Placer County. There are no petroleum refineries located in the MTP/SCS plan area, as the majority of the state's refineries are located in the San Francisco Bay Area, Los Angeles, and other parts of the Central Valley.

Telecommunications Services

Telephone and Cellular Phone Service

Local phone service is provided primarily by AT&T, Inc. (AT&T), although a number of independent telephone companies operate in the MTP/SCS plan area as well, including Frontier Communications, Pacific Bell, and SureWest Communications. Long distance telephone service is provided by several carriers, including AT&T and Sprint, among others.

AT&T, Sprint, T-Mobile, and Verizon Wireless are among the multiple cellular telephone providers that provide service in the region.

Cable Television and Internet Service

Internet services are provided by AT&T, Comcast, SureWest, and Integra Telecom, Inc., in addition to satellite and other providers. Cable television is primarily provided by Comcast Cable, AT&T, and SureWest Communications.

Cable fibers are generally co-located and installed concurrently with other utility infrastructure. This infrastructure is installed underground within new development in order to reduce visual and aesthetic impacts and any potential safety hazards.

Regulatory Setting

Federal Regulations

Clean Water Act (CWA) of 1972

Enacted in 1972, this federal legislation completely revised the pre-existing Water Pollution Control Act. Section 304 of the Clean Water Act (CWA) of 1972 (33 U.S.C. § 1251 et seq.) established primary drinking water standards. States are required to ensure that potable water retailed to the public meets these standards.

Construction of wastewater and stormwater infrastructure and facilities may have impacts (erosion and sedimentation) that would be regulated by the Clean Water Act. The 1972 amendments to the federal CWA prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The CWA requires NPDES permits for stormwater discharges caused by general construction activity. The purpose of the NPDES program is to establish a comprehensive stormwater quality program to manage urban stormwater, reducing pollution of the environment as much as possible. The NPDES program involves characterizing the quality of receiving water, identifying harmful constituents, targeting potential sources of pollutants, and implementing a comprehensive stormwater management program. NPDES permits are issued by the Regional Water Quality Control Board.

Safe Drinking Water Act (as amended) of 1974

The Safe Drinking Water Act (SDWA) of 1974 (42 U.S.C. § 300f et seq.) promulgated by Congress in 1974, amended in 1986 and 1996, establishes a Federal program to monitor and increase the safety of the nation's drinking water supply. The SDWA authorizes the U.S. Environmental Protection Agency (EPA) to set and implement health-based standards to protect against both naturally occurring and man-made contaminants in drinking water. The EPA is also responsible for assessing and protecting drinking water sources; protecting wells and collection systems; making sure water is treated by qualified operators; ensuring the integrity of distribution systems; and making information available to the public on the quality of their drinking water.

Resource Conservation and Recovery Act of 1976

Within the Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. § 6901 et seq.)
40 C.F.R., Part 258, Subtitle D establishes minimum location standards for siting municipal solid waste landfills. Because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the EPA has delegated the enforcement responsibility to the State of California. California laws and regulations governing these facilities are summarized in the section below.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission regulates the transmission and sale of electricity in interstate commerce, oversees licensing of hydroelectric projects, and provides oversight of related environmental matters.

Federal Power Act of 1935

The Federal Power Act of 1935 (16 U.S.C. § 791 et seq.) created the Federal Energy Regulatory Commission (FERC), an independent regulatory agency with authority over both the interstate transmission of electricity and the sale of hydroelectric power at the wholesale level. The Act requires the commission to ensure that electricity rates are "reasonable, nondiscriminatory, and just to the consumer." The Federal Power Act of 1935 also amended the criteria that the commission must apply in deciding whether to license the construction and operation of new hydroelectric facilities. The FERC acts under the legal authority of the Federal Power Act of 1935, the Public Utility Regulatory Policies, and the Energy Policy Act (EPAct) of 1992 (42 U.S.C. § 13201 note), as well as other federal acts.

Natural Gas Act of 1938

Together with the Federal Power Act of 1935, the Natural Gas Act (NGA) of 1938 (15 U.S.C. § 717 et seq.) was an essential piece of energy legislation in the first half of the twentieth century. These statutes regulated interstate activities of the electric and natural gas industries, respectively. The acts are similarly structured and constitute the classic form of command-and-

control regulation authorizing the federal government to enter into a regulatory compact with utilities. In short, the NGA enabled federal regulators to set prices for gas sold in interstate commerce in exchange for exclusive rights to transport the gas.

Natural Gas Policy Act of 1978

The Natural Gas Policy Act (NGPA) of 1978 (15 U.S.C. § 3301 et seq.) granted the Federal Energy Regulatory Commission (FERC) authority over intrastate as well as interstate natural gas production. The NGPA established price ceilings for wellhead first sales of gas that vary with the applicable gas category and gradually increase over time.

Energy Policy Act of 1992

The Energy Policy Act (EPAct) of 1992 (42 U.S.C. § 13201 note) addressed energy efficiency, energy conservation and energy management, natural gas imports and exports, alternative fuels, electric motor vehicles, radioactive waste, coal power and clean coal, renewable energy, and other issues. It reformed the Public Utility Holding Company Act (Wheeler-Rayburn Act) of 1935 (15 U.S.C. § 79 et seq.) and amended parts of the Federal Power Act of 1935.

U.S. Department of Transportation

Propane transportation is regulated by the U.S. Department of Transportation (US DOT). With authority stated in Title 49 of the C.F.R., US DOT requires that all shipping papers contain a 24-hour-a-day telephone number where emergency assistance and information can be obtained. This service must be able to provide information about any cargo that is classified by US DOT as a hazardous material. There are several sources in the United States that an emergency response crew leader can contact in the case of a transportation accident (NPGA 2002).

Telecommunications Act of 1996

The Telecommunications Act of 1996 (47 U.S.C.) was the first major overhaul of United States telecommunications law in nearly 62 years, amending the Communications Act of 1934 (47 U.S.C. § 151 et seq.). It was approved by Congress on January 3, 1996. The Act deregulates of local phone service, and allows long-distance carriers and cable television companies to provide local phone service, as well as allowing local telephone companies to provide long distance service.

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Saf. Code, § 25249.5, et seq.) was enacted as a ballot initiative in November 1986. The Act was intended by its authors to protect California citizens and the State's drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm, and to inform citizens about exposures to such chemicals.

Water Code Sections 10910-10915

California Water Code Sections 10910-10915 provides that before a city or county can consider a large project (typically defined as a residential project of 500 or more units or greater than ten percent of existing units) it must request of the prospective water supplier a water supply assessment (WSA). The purpose of the WSA is to disclose the availability of short-term and long-term water supplies to serve the project in normal, dry, and multiple-dry years. This information must be included in the EIR or Negative Declaration being prepared for the project. It will be considered by the city or county when deciding whether to approve the project.

The Water Conservation Act of 2009

The Water Conservation Act of 2009 (Wat. Code, § 10608 et seq.), also known as Sen. Bill No. 7 (Stats. 2009, 7th Ex. Sess., ch. 4) (SB X7-7) which became effective January 1, 2010, requires the state to achieve a 20 percent reduction in urban-per-capita-water use by December 31, 2020. The state is required to make incremental progress towards this goal by reducing per capita water use by at least ten percent on or before December 31, 2015. The Act requires each urban retail water supplier to develop both long-term urban water use targets and an interim urban water use target. The Act also creates a framework for future planning and actions for urban and agricultural users to reduce per capita water consumption 20 percent by 2020.

Urban Water Management Planning Act of 1983

The Urban Water Management Planning Act of 1983 (Wat. Code, §§ 10610-10656) mandates that every urban water supplier providing water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. Typically, these suppliers include water districts, irrigation districts, and cities. The Act requires each such agency to prepare an Urban Water Management Plan on a regular basis and establishes the contents of those plans. The Urban Water Management Plans are submitted to the Department of Water Resources every five years. The Urban Water Management Plan can be used as the basis for WSAs for individual projects, as well as background information for the preparation of city and county general plans. The intention of the Act is to foster better awareness among local governments of the water supply available to support future growth.

Groundwater Management Act of 1992

The Groundwater Management Act of 1992 (Wat. Code, § 10750 et seq.), also known as Assem. Bill No. 3030 (Stats. 1992, ch. 947) (AB 3030) provides guidance for applicable local agencies to develop voluntary Groundwater Management Plans in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facility maintenance, and water quality.

California Water Recycling Act of 1991

The California Water Recycling Act of 1991 (Wat. Code, § 13577) established water recycling as a priority in California. The Act encourages municipal wastewater treatment districts to implement recycling programs to reduce local water demands. The Act set recycling goals of 700,000 acre-feet of water annually by year 2000 and 1 million acre-feet annually by 2010.

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act (Porter Cologne Act) of 1969 (Wat. Code, § 13000 et seq.) directs the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) to prepare Water Quality Control Plans (Basin Plans), establishing water quality objectives and beneficial uses for each body of water within the regional boundaries including groundwater basins. The RWQCB issues waste discharge requirements (WDRs) for discharges of privately- or publicly-treated domestic wastewater to locations other than surface water. These WDRs are usually designed to protect beneficial uses of groundwater basins but can be issued to protect surface waters in areas where groundwater is known to infiltrate into surface waters. Many municipal wastewater treatment facilities do not have NPDES permits, but rather are issued WDRs for discharges to surface impoundments and percolation ponds. The RWQCB also issues waste reclamation requirements (WRRs) for treated wastewater used exclusively for reclamation projects such as irrigation and groundwater recharge. The Porter Cologne Act empowers the SWRCB and RWQCBs to protect the beneficial use of California waters. Thereby, it provides broader authority than offered by the Federal CWA alone.

Regional Water Quality Control Boards (RWQCB)

New or expanded landfills must submit Reports of Waste Discharge to RWQCBs prior to landfill operations. In conjunction with the California Integrated Waste Management Board (now CalRecycle) approval of SWFPs, RWQCBs issue Waste Discharge Orders, which regulate the liner, leachate control and removal, and groundwater monitoring systems at Class III landfills. While Waste Discharge Orders only apply to landfills, RWQCBs also regulate surface water runoff for all solid waste facilities by issuing stormwater discharge permits under the NPDES program. Separate NPDES permits are issued for the construction and operation of these facilities.

22 California Code of Regulations Div. 4

Wastewater reclamation in California is regulated under Title 22, Division 4, of the C.C.R. The intent of these regulations is to ensure protection of public health associated with the use of reclaimed water. The regulations establish acceptable levels of constituents in reclaimed water for a range of uses and prescribe means for assurance of reliability in the production of reclaimed water. The California Department of Health Services (DHS) has jurisdiction over the distribution of reclaimed wastewater and the enforcement of Title 22 regulations. The Regional Water Board is responsible for issuing waste discharge requirements (including discharge prohibitions, monitoring, and reporting programs).

Subdivision Map Act of 1974

One of the powers granted to local jurisdictions by the Subdivision Map Act of 1974 (Gov. Code, § 66410 et seq.) is the authority to impose drainage improvements or drainage fees and assessments. Specifically, local jurisdictions may require the provision of drainage facilities, proper grading and erosion control, dedication of land for drainage easements, or payment of fees needed for construction of drainage improvements. The types and applicable standards of the improvements may be specified in the local ordinance.

23 California Code of Regulations Division 3 Section 2-3

Title 23, Division 3, Article 2 (Waste Classification and Management), Article 3 (Waste Unit Classification and Siting), and Class III (municipal solid waste) establish criteria for the siting of landfills. These regulations address design, construction, operation, and groundwater monitoring requirements of solid waste landfills.

14 California Code of Regulations Division 3

Title 14, C.C.R., Chapter 3 establishes minimum standards for solid waste handling and disposal. Article 6.0 of Chapter 3 establishes minimum standards for solid waste transfer stations. Composting facility operating requirements are found in Chapter 3.1. Both of these chapters establish different standards for different size facilities. Standards found in these chapters relate to the cleaning of these facilities, drainage control, dust control, the detection of household hazardous waste, litter control, noise control, vectors, odors, and other potential impacts resulting from the operation of these facilities.

Integrated Waste Management Act of 1989

The Integrated Waste Management Act (IWMA) of 1989 (Pub. Resources Code, § 40000 et seq.), also known as Assem. Bill No. 939 (Stats. 1989, ch. 1095) (AB 939), established the California Integrated Waste Management Board (CIWMB) and set forth aggressive solid waste diversion requirements. Under the Act, every city and county in California is required to reduce the volume of waste sent to landfills by 50 percent through recycling, reuse, composting, and other means. Counties are required to prepare a Countywide Integrated Waste Management Plan (CIWMP). An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, information about existing and proposed solid waste facilities, and an overview of specific steps that will be taken to achieve the goals outlined in the components of the CIWMP. On January 1, 2010, the CIWMB's duties and responsibilities were transferred to the California Department of Recycling and Recovery (CalRecycle).

California Integrated Waste Management Board Model Ordinance

Subsequent to the Integrated Waste Management Act, additional legislation was passed to assist local jurisdictions in accomplishing the goals of the IWMA. The California Solid Waste Re-use and Recycling Access Act of 1991 (Pub. Resources Code, § 42900-42911) directs the CIWMB to draft a "model ordinance" relating to adequate areas for collecting and loading recyclable materials in development projects. The model ordinance requires that any new development project, for which an application is submitted on or after September 1, 1994, include "adequate, accessible, and convenient areas for collecting and loading recyclable materials." For subdivisions of single-family detached homes, recycling areas are required to serve only the needs of the home within that subdivision.

27 California Code of Regulations Division 2

The California Integrated Waste Management Board (CIWMB) and the State Water Resources Control Board (SWRCB) completed a parallel rulemaking as a result of Assem. Bill No. 1220 (Stats. 1993, ch. 656) (AB 1220). AB 1220 required clarification of the roles and responsibilities of the two boards, the Regional Water Quality Control Boards and the CIWMB's local enforcement agencies in regulating solid waste disposal sites. The approved Title 27 regulations combine prior disposal site/landfill regulations of the CIWMB and SWRCB that were maintained in Title 14 C.C.R. and Chapter 15 of Title 23 C.C.R. (which contains requirements for disposal of hazardous waste). The regulations were adopted at a joint meeting of the CIWMB and SWRCB on January 23, 1997.

Waste Diversion Programs

In order to comply with 27 C.C.R. Div. 2, a significant proportion of the waste stream must be diverted from landfill disposal. Objectives of waste diversion programs address individual diversion techniques, including source reduction, curbside recycling, green waste collection, and load-checking to prevent illegal disposal at dump sites.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The CPUC sets forth specific rules that relate to the design, installation, and management of California's public utilities. CPUC Decision #77187 and #78500 state that utilities must be underground if the developable lots are less than three acres in size. CPUC Decision #81620 states that lots over three acres (large lot subdivision) are not required to underground utilities. A formal waiver from the CPUC is required for an exemption from complying with these decisions. CPUC Decision 95-08-038 governs the planning and construction of new transmission facilities, distribution facilities, and substations.

California Energy Commission (CEC)

The CEC is the State's primary energy policy and planning agency. Its responsibilities include forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 megawatts or larger; promoting energy efficiency through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing State response to energy emergencies.

20 California Code of Regulations and 24 California Code of Regulations

New buildings constructed in California must comply with the standards contained in Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards, of the C.C.R. Assem. Bill No. 970 (Stats. 2000, ch. 329) (AB 970), also known as Title 24 of the C.C.R., contains energy efficiency standards for residential and nonresidential buildings based on a State mandate to reduce California's energy demand.

Warren-Alquist Energy Resources Conservation and Development Act

The State Energy Commission regulates energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption, through the Warren-Alquist State Energy Resources Conservation and Development Act (Warren-Alquist Act) of 1974 (Gov. Code, § 25000 et seq.).

Government Code Section 50030

Any permit fee imposed by a city, including a chartered city, a county, or a city and county, for the placement, installation, repair, or upgrading of telecommunication facilities such as lines, poles, or antennas by a telephone corporation that has obtained all required authorizations to provide telecommunication services from the Public Utilities Commission and the Federal Communications Commission, shall not exceed the reasonable costs of providing the service for which the fee is charged and shall not be levied for general revenue purposes.

Local Regulations

Water Management Plans

Water Management Plans are prepared by California's water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 or more connections is required to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. Smaller water providers may also produce water management plans voluntarily.

Stormwater Management Plans and Programs

Many jurisdictions have stormwater management plans and programs. These plans and programs usually identify best management practices to reduce pollutants and develop a strategy to reduce pollutants in stormwater runoff to the greatest extend feasible.

Utility Master Plans & Utility Capital Improvement Programs

Jurisdictions usually have utility master plans or other planning documents that identify and prioritize projects needed to maintain adequate levels of utility service in the jurisdiction.

General Plans

Local policies related to utilities and service systems are established in each jurisdiction's general plan. . In general, jurisdictions have policies in place that state that utility and service systems must be provided at the same time (or in advance of) need. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for water supply might include relying on public water systems rather than individual wells where feasible, limiting additional contamination of groundwater and ensuring safe groundwater supply, and requiring new development to demonstrate availability of long-term reliable water supply.

Wastewater treatment services policies and strategies might include provisions for equal access to utilities, promote innovative and efficient solutions for wastewater treatment, encourage extension of sewer services to currently unserved areas, develop level of service standards, and encourage design and operation standards that minimize impacts to environmentally-sensitive areas and habitats.

Stormwater management policies and strategies might include provisions to ensure equal access to services, encourage sustainable practices for stormwater management, ensure that new developments are consistent with target levels of service for stormwater management services, adopt design standards to reduce impervious surfaces, and encourage coordination with regional stormwater management agencies.

Solid waste management policies and strategies may address issues such as ensuring adequate facilities for waste removal, establishing collection procedures, ensuring adequate buffers between waste facilities and other land use types, establishing collection fees, and encouraging alternative uses of waste such as energy production.

For electricity and natural gas service, some of the policies relevant to this issue include working closely with utility companies on long-range planning for newly developing areas, supporting and encouraging the utility companies to place utilities underground in new development areas, minimizing visual intrusion through siting guidelines, mitigating biological

impacts, and providing guidance for land use decisions regarding cogeneration and solar facilities, as well as conventional electric facilities.

Local general plans contain policies and implementation measures relevant to the provision of telecommunications service. Some of the goals and policies related to telecommunications include working closely with utility companies on long-range planning for newly developing areas and supporting and encouraging the utility companies to place utilities underground in new development areas.

SACOG Metropolitan Transportation Plan

The Metropolitan Transportation Plan (MTP) is a long-range comprehensive plan for the region's multi-modal transportation system and one of SACOG's primary statutory responsibilities. Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars for public transit, streets/roads, bicycles, and pedestrian improvements. In 2008, SACOG adopted the Metropolitan Transportation Plan for 2035 (2008 MTP), a long-range plan for transportation in the region built on the Sacramento Region Blueprint.

The 2008 MTP sets principles and policies and proposes specific strategies relating to utilities and service systems. Specifically, the 2008 MTP encourages local governments to direct greenfield development to areas immediately adjacent to the existing urban edge and implement Blueprint-style growth. These policies aim to maximize the efficiency of existing utility and service system infrastructure and minimize the need for additional infrastructure.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

Impacts to utilities were identified based on available data regarding existing service provision and acceptable service levels. Over time, population growth and implementation of the proposed MTP/SCS may require additional utility infrastructure to maintain acceptable levels of service. This analysis discusses and assesses potential impacts to utilities that may be generated from implementation of the proposed MTP/SCS.

This analysis looks at each significance criterion individually, assessing how changes to the land use pattern and transportation network may impact the utilities environment. For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level. Second, the analysis breaks the region down into five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS Planning Period. A full description of these Community Types can be found in Chapter 2 – Project Description. Finally, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region's Transit Priority Areas (TPAs). TPAs are areas of the region that are within one-half mile of a major transit stop or high-quality transit corridor. For a full description of TPAs in the region, refer to Chapter 2 – Project Description.

For each of the three levels of analysis (regional, Community Type, and Transit Priority Areas), impacts are assessed in terms of both land use and transportation impacts. By 2035, implementation of the proposed MTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed MTP/SCS refers to conditions in the baseline of 2008. The proposed MTP/SCS uses 2008 because it is the most recent year for which comprehensive land use, demographic, traffic count and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.

The land use analysis assesses the amount of growth (population, housing, and employment) projected for the region, in each Community Type, and in the TPAs by 2035 and how that growth might impact the utilities environment compared to existing conditions. Although the proposed project sites within the MTP/SCS plan area were not physically surveyed, a brief description of the existing utility infrastructure is given above in the settings section.

The proposed MTP/SCS contains $35.2 billion (in current year dollars) worth of roadway and transit investments by 2035. Of that amount, maintenance and rehabilitation projects will receive $11.5 billion; public transit will receive $11.3 billion; roadway and highway projects will receive $7.4 billion; pedestrian and bicycle projects will receive $2.8 billion; and programs and planning will receive $2.2 billion. Different project types will have different effects on the utility and service system environment. This analysis examines categories of transportation investments in assessing the likely impacts of implementing the proposed MTP/SCS.

For transit projects, this analysis looks at the number of *daily vehicle service hours* and *daily vehicle route miles* of transit service added to the transit network. Daily vehicle service hours are the number of hours of service a transit vehicle (bus, light rail car, etc.) provides on a daily basis. For example, a transit service that has ten buses where each bus runs ten hours per day would provide 100 daily vehicle service hours (ten buses x ten hours each). If that same transit service added five streetcars that operated ten hours per day, it would add 50 daily vehicle service hours (five vehicles x ten hours each) for a total of 150 daily vehicle service hours (100 bus hours plus 50 streetcar hours). Daily vehicle route miles are a measure of service coverage, not service intensity. For example, a one-mile stretch of road with one bus per hour is equal to one bus route mile; the same one-mile stretch of road with 20 buses per hour still equals only one vehicle route mile. All else equal, an increase in route miles will *always* include a corresponding increase in vehicle service hours. However, an increase in vehicle service hours may or may not include additional route miles.

It is important to clarify the infrastructure needs of increases in vehicle service hours and vehicle route miles. Additional vehicle service hours require more transit vehicles but do not add infrastructure to the transit network. Additional route miles require new infrastructure (stations, bus stops, light rail/streetcar tracks) in addition to the transit vehicles themselves.

Criteria for Determining Significance

For the purposes of this EIR and subsequent projects evaluated pursuant to P.R.C. Section 21155.2, SACOG has determined that adoption and/or implementation of the MTP (including adoption of the proposed MTP policies, adoption of the proposed SCS, adoption of the proposed

transportation project list and proposed financing plan) would result in significant impacts under CEQA, if any of the following would occur:

1. Result in an increased demand for surface or groundwater in excess of available supply.
2. Exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.
3. Result in impacts that would require the construction of new, or the expansion of existing, facilities to maintain adequate utility infrastructure and/or service capacity including sewage, storm drainage, fire flows, solid waste, power, and telecommunications.

Impacts and Mitigation Measures

Impact USS-1: Result in an increased demand for surface or groundwater in excess of available supply.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

New population, employment, and housing growth could increase the demand for surface or groundwater for a variety of uses. Domestic usage could increase as more residents and businesses use water for purposes like cleaning, sanitation, and landscaping. Industrial usage could also increase as more businesses locate in the MTP/SCS plan area. As development occurs outside urbanized areas, some open space and farmland could be converted to urban uses. In these instances, the demand for agricultural water supply would decrease but be met with an increase in urban water demand. Demand will likely increase for both potable and reclaimed (recycled) water.

Currently, many efforts are underway to reduce per capita rates of water consumption. Water agencies may offer free water audits or rebate programs for consumers who purchase more efficient appliances and bathroom fixtures. These programs have the potential to reduce future demand for certain types of water uses. However, because many of these programs and initiatives are voluntary, it is unclear what effect they will ultimately have on overall water demand. These programs will likely continue to decrease per capita rates, but the overall demand for water, from population, housing, and employment growth, may still increase in such a way as to exceed available supply.

Historically, water purveyors have accommodated increases in water demand by coordinating with local jurisdictions and project developers to ensure that projects were met with adequate supply. Future increases in demand will likely be handled is the same way, with water purveyors, local jurisdictions, and project developers coordinating to ensure adequate water supply to meet future demand. In most cases, local jurisdictions will not grant building permits until utility and service systems are in place to serve the new development. However, local jurisdictions have different goals, standards, and policies related to water supply. Without a common set of metrics by which to measure the impacts of implementation of the proposed MTP/SCS, it is infeasible to make a significance finding of less than significant at the regional level without mitigation.

Therefore, the impacts on services related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact USS-1. Mitigation Measure USS-1 is described below.

On the transportation side, the region will see approximately 7,700 lane miles of additional capacity over existing conditions, including freeway, high-occupancy vehicle (HOV) lanes, auxiliary, arterial, and surface street lane miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles.

The proposed MTP/SCS also contains numerous rehabilitation and maintenance projects. Transit improvements will include 3,989 new daily vehicle service hours (VSH), 437 new bus route miles, 56 new light rail route miles, new transit facilities, and numerous transit operational improvements.

The ongoing operation of new transit facilities, bicycle and pedestrian facilities, and roadway facilities could result in marginal increases in water demand for things like sinks, toilets, water fountains, and landscaping associated with the implementation of such projects. Although these increases in demand for water are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase demand in such a way as to impact the availability of water supply.

Therefore, the impacts on services related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact USS-1. Mitigation Measure USS-1 is described below.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the proposed MTP/SCS is the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities, and transportation projects in Lands Not Identified for Development have the potential to increase the demand for surface and groundwater in excess of available supply.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for these Community Types, noting the exception for land uses in Lands Not Identified for Development, are considered potentially significant (PS) for Impact USS-1. Mitigation Measure USS-1 is described below.

The one Community Type excepted from the foregoing is the land use impacts in Lands Not Identified for Development. The proposed MTP/SCS does not forecast any development in these areas by 2035.

The impact on services related to land use improvements in Lands Not Identified for Development Community Type, are considered less than significant (LS) for impact USS-1. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the proposed MTP/SCS is the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to increase demand for surface and groundwater in excess of available supply.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for all Transit Priority Areas are considered potentially significant (PS) for Impact USS-1. Mitigation Measure USS-1 is described below.

Mitigation Measure USS-1: Implement Mitigation Measure PS-1.

Significance after Mitigation

If a public agency adopts this mitigation measure, the impact would be reduced to less than significant (LS). However, because SACOG cannot require a public agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

Impact USS-2: Exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions. An increase in population and employment will, assuming similar consumption rates, result in a proportional increase in demand for water

supply and likewise increase the demand for additional capacity of water storage, conveyance, distribution, and treatment facilities.

In more urbanized portions of the region, where water supply systems are already in place, population, housing, and employment growth could place an increased demand on these existing systems. Some of this increased demand will likely be met with existing infrastructure. However, it is likely that by the end of the MTP/SCS planning period increases in water usage will cause existing or planned water storage, conveyance, distribution, and treatment facilities to exceed capacity, requiring additional facilities to be constructed. In developing portions of the region, where water systems might not be as developed as more urbanized parts of the region, population, housing, and employment growth will likely require additional investment in water systems infrastructure to ensure that increases in water demand will not exceed the capacity of existing or planned water storage, conveyance, distribution, or treatment facilities.

Construction of new utility and service system infrastructure could result in construction-related impacts to aesthetics, air quality, geology, land use, noise, public services, transportation, and other related environments. These impacts are analyzed in Impact USS-3.

Currently, many efforts are underway to reduce per capita rates of water consumption. Water agencies may offer free water audits or rebate programs for consumers who purchase more efficient appliances and bathroom fixtures. These programs have the potential to reduce future demand for certain types of water uses and therefore reduce demand for water storage, conveyance, distribution, and treatment facilities. However, because many of these programs and initiatives are voluntary, it is unclear what effect they will ultimately have on overall water demand. These programs will likely continue to decrease per capita rates, but the overall demand for water, from population, housing, and employment growth, may still increase in such as to exceed capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.

Historically, water system providers have increased the capacity of water storage, conveyance, distribution, and treatment facilities when demand warranted such investments. Local jurisdictions work with water purveyors and project developers to ensure that existing demand is met and that future demand has been taken into account. Future increases in demand will likely be handled in the same way, with water purveyors, local jurisdictions, and project developers coordinating to ensure adequate infrastructure to meet the needs of a growing population with a growing demand for water supply. However, local jurisdictions have different goals, standards, and policies related to water supply. Without a common set of metrics by which to measure the impacts of implementation of the proposed MTP/SCS, it is infeasible to make a significance finding of less than significant at the regional level without mitigation.

Therefore, the impacts on services related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact USS-2. Mitigation Measure USS-2 is described below.

On the transportation side, the region will see almost 7,700 lane miles of additional capacity over existing conditions, including freeway, HOV, auxiliary, arterial, and surface street lane

miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles.

The proposed MTP/SCS also contains numerous rehabilitation and maintenance projects. Transit improvements will include 3,989 new daily VSH, 437 new bus route miles, 56 new light rail route miles, new transit facilities, and numerous transit operational improvements.

The ongoing operation of new transit facilities, bicycle and pedestrian facilities, and roadway facilities could result in marginal increases in water conveyance, storage, distribution, and treatment for things like sinks, toilets, water fountains, and landscaping associated with the implementation of such projects. Although these increases in demand are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase demand in such a way as to impact water conveyance, storage, distribution, and treatment systems.

Therefore, the impacts on services related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact USS-2. Mitigation Measure USS-2 is described below.

B. Localized Impacts

Except as provided below, the localized impacts associated with implementation of the MTP/SCS is the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, and Rural Residential Communities, and transportation projects in Lands Not Identified for Development have the potential to exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for these Community Types, noting the exception for land uses in Lands Not Identified for Development, are considered potentially significant (PS) for Impact USS-2. Mitigation Measure USS-2 is described below.

The one Community Type excepted from the foregoing is the land use impacts in Lands Not Identified for Development. The proposed MTP/SCS does not forecast any development in these areas by 2035.

Therefore, the impact on services related to land use changes in Lands Not Identified for Development Community Type, are considered less than significant (LS) for impact USS-2. No mitigation is required.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the MTP/SCS is the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the

potential to exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for all Transit Priority Areas are considered potentially significant (PS) for Impact USS-2. Mitigation Measure USS-2 is described below.

Mitigation Measure USS-2: Implement Mitigation Measure PS-1.

Significance after Mitigation

If a public agency adopts this mitigation measure, the impact would be reduced to less than significant (LS). However, because SACOG cannot require a public agency to adopt this mitigation measure, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, this impact remains significant and unavoidable (SU).

Impact USS-3: Result in the construction of additional utilities and service system infrastructure to maintain adequate sewer, wastewater treatment, fire flows, solid waste, power, and telecommunications systems.

A. Regional Impacts

By 2035, the MTP/SCS plan area will grow by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

Implementation of the proposed MTP/SCS will result in denser and more compact development in developed areas of the region. This type of growth pattern should allow jurisdictions to leverage existing utility and service system facilities and infrastructure by absorbing some of the increased demand with facilities that are currently underutilized. However, because implementation of the proposed MTP/SCS will result in a higher concentration of residents within existing service areas, it may result in the construction of additional facilities or infrastructure to maintain adequate utility and service systems. The proposed MTP/SCS also allocates a significant amount of growth to the developing areas of the region, just outside existing developed areas. While these areas may have some existing utility and service system infrastructure serving existing developments, the amount of growth allocated to these areas would likely result in the construction of additional facilities in order to provide utility service to newly developed areas.

Construction of new facilities or infrastructure could have impacts on aesthetics, air quality, cultural resources, geology, land use, noise, transportation, utilities, and other related environmental resources. The land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in utilities and services, including

water supply, conveyance, storage, and distribution systems; energy and power systems; telecommunication systems; or sewer systems. This land supply is included in one of two ways: in cases where local plans identify specific locations and acreages for these services and utilities, they are included in the 'public' development categories of the land use forecast; in cases where local plans did not identify specific locations and acreages, they are accounted for in the gross acreages of the "residential" development category of the land use forecast. For un-sited facilities, SACOG does not attribute them to specific parcels as timing and siting decisions related to public services are addressed by the local government and public service districts. For larger regional facilities such as those for wastewater treatment and solid waste disposal, the proposed plan does not forecast specific sites for expansion of existing or creation of new facilities. It is possible that the increase in population in the region may result in a need for new or expanded wastewater treatment and solid waste disposal facilities to accommodate demand that exceeds the capacity at existing facilities.

Therefore, the impacts on services related to the land use changes from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact USS-3. Mitigation Measure USS-1 is described below.

On the transportation side, the region will see almost 7,700 lane miles of additional capacity over existing conditions, including freeway, HOV, auxiliary, arterial, and surface street lane miles. Class I bicycle facilities will increase by 396 miles, and Class II bicycle lanes will increase by 722 miles. Depending on the timing and location of projects, it is possible that implementation of the proposed MTP/SCS would increase demand for utility and service systems in such a way as to require the construction of additional facilities.

Construction of new roadway capacity, bicycle and pedestrian facilities, transit facilities, and rehabilitation of existing roadway infrastructure could increase the demand for water for construction-related activities such as concrete mixing, dust settling, and landscaping. Similarly, construction activities could increase the amount of wastewater generated at construction sites and increase demand on local wastewater collection, storage, conveyance, and treatment facilities. Construction activities like demolition, grading, and excavation could generate solid waste, which may be disposed of in municipal waste systems. Finally, construction activities related to the implementation of the proposed MTP/SCS could result in an increased demand for energy to power construction lighting, equipment, and vehicles. Because utility infrastructure often shares the right-of-way with transportation infrastructure, there is the possibility that construction activity related to implementation of the proposed MTP/SCS could disrupt the provision of utility services.

The ongoing operation of new transit facilities, bicycle and pedestrian facilities, and roadway facilities could result in increases in electricity to power streetlights, traffic control devices, signage, and intelligent transportation systems (ITS) infrastructure. Similarly, ITS infrastructure often relies on communication systems to relay real-time information to travelers. New transportation infrastructure could require toilets, sinks, drinking fountains, and drains that would generate a small amount of additional wastewater. These projects could result in the conversion of undeveloped land to transportation uses, thereby increasing the amount of

impervious surfaces in the region and possibly increasing the amount of runoff. These projects could also potentially increase the amount of waste collected from rubbish bins.

Although these increases in demand for utility and service systems are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase demand in such a way as to require the construction of new infrastructure in order to maintain adequate service capacity. Construction of new facilities or infrastructure could have impacts on aesthetics, air quality, cultural resources, geology, land use, noise, transportation, utilities, and other related environmental resources. As discussed above, the land use growth footprint of the proposed MTP/SCS includes the land supply needed to accommodate necessary increases in utilities and services with the exception of wastewater treatment and solid waste disposal facilities. The construction and operation of an expanded transportation system may contribute to the demand on these facilities resulting in the need to expand existing or construct new facilities to accommodate the increased demand.

Therefore, the impacts on services related to transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered potentially significant (PS) for Impact USS-3. Mitigation Measure USS-3 is described below.

B. Localized Impacts

The localized impacts associated with implementation of the MTP/SCS are the same in each of the Community Types as described in the regional impacts discussion above. Land use and transportation projects in Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development have the potential to result in the construction of additional utilities and service system infrastructure to maintain adequate sewer, wastewater treatment, fire flows, solid waste, power, and telecommunications systems.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for these Community Types are considered potentially significant (PS) for Impact USS-3. Mitigation Measure USS-3 is described below.

C. Transit Priority Area Impacts

As with the localized impacts discussed above, the Transit Priority Area impacts associated with implementation of the MTP/SCS is the same in each of the TPAs as described in the regional impacts discussion above. Land use and transportation projects in all of the TPAs have the potential to result in the construction of additional utilities and service system infrastructure to maintain adequate sewer, wastewater treatment, fire flows, solid waste, power, and telecommunications systems.

Therefore, the impacts on services related to land use and transportation improvements from implementation of the proposed MTP/SCS for all Transit Priority Areas are considered potentially significant (PS) for Impact USS-3. Mitigation Measure USS-3 is described below.

Mitigation Measure USS-3: Perform Project-Level Environmental Review for New Wastewater Treatment Plants, Landfills, and Similar Large Utility Facilities

The implementing agency should undertake project-level review as necessary to provide CEQA clearance for new wastewater treatment plants, landfills, and similar large utility facilities.

Significance after Mitigation

If a public agency adopts this mitigation measure, the impact would be reduced, but not necessarily to a less than significant level. The land use forecast does not forecast specific sites for the expansion of wastewater treatment or solid waste disposal facilities that may be required to accommodate increased demand from population growth. For these reasons and because SACOG cannot require a public agency to adopt this mitigation measure, this impact remains significant and unavoidable (SU).

CHAPTER 18 – ALTERNATIVES ANALYSIS

INTRODUCTION

The purpose of this chapter is to identify and describe alternatives to the proposed MTP/SCS. The primary intent of the alternatives analysis in an EIR, as stated in §15126.6(a) of the California Environmental Quality Act (CEQA) Guidelines, is to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Further, the State CEQA Guidelines provide that "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (CEQA Guidelines §15126.6(b)).

Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: failure to meet most of the basic project objectives; infeasibility; and, inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6(a)(c)). "Feasible" is defined as "capable of being accomplished within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines Section 15364). The feasibility of an alternative may be determined based on a variety of factors, including but not limited to economic viability, availability of infrastructure, and other regulatory limitations (CEQA Guidelines Section15126.6(f)(1)).

PROJECT OBJECTIVES

SACOG's mission is to "provide leadership and a dynamic, collaborative public forum for achieving an efficient regional transportation system, innovative and integrated regional planning, and a high quality of life within the greater Sacramento region." SACOG's purpose in proposing the MTP/SCS is to provide a strategy to approach the many challenges faced by the Sacramento region as the population grows and the region expands over the next few decades. The proposed MTP/SCS seeks to guide the Sacramento region toward a more sustainable future through better integration of smart land use decisions with a well-managed transportation system, as envisioned by the Blueprint and the Proposed Project. The intent of the proposed MTP/SCS is to accommodate the expected population growth and accompanying demand for transportation in the region through a multi-modal approach based on the following objectives.

The alternatives are organized by the same general classifications used in the MTP/SCS discussion of policies and strategies. The one exception is the merging of System Maintenance & Operations with System Expansion because of the overlap in these project objectives.

Objectives related to Land use and Environmental Sustainability:

1. Support local land use authority with data, tools, incentives, and programs that reinforce the region's voluntary implementation of the Blueprint;

2. Support housing choice and diversity for all segments of the population that respond to changing economics and demographics in the region;

3. Support improved jobs-housing balance in subareas of the region and complete mixed-use communities;

4. Minimize direct and indirect land use and transportation impacts on agriculture and natural resources;

5. Meet regional air quality plans and goals;

6. Meet federal and state requirements for regional transportation plans, including SB 375 and AB 32;

7. Achieve the greenhouse gas reduction targets assigned to SACOG by the California Air Resources Board; and

8. Activate the CEQA streamlining benefits of SB 375.

Objectives related to Financial Stewardship:

1. Support transportation investments that provide high performance benefits for all community types in the region;

2. Improve the condition of the existing transportation system through the maintenance of transportation corridors that can support various modes of travel;

3. Deliver cost-effective results from investments in each transportation mode and is feasible to construct and maintain;

4. Satisfy financial constraint requirements, such that all revenues reasonable to assume are used and matched to eligible projects; and

5. Deliver more productive and cost-effective public transit services.

Objectives related to the Existing & Planned Transportation System:

1. Support transportation choice and diversity for all segments of the population through a balanced transportation system where investments in various modes complement each other and support the diversity of travel demand in various community types;

2. Reduce both VMT and congested VMT;

3. Broaden mobility options, as measured by an increase in the transit, bicycle, and pedestrian travel mode share;

4. Connect workers to jobs across the region, as measured by reducing congestion levels and increasing the mode share of non-automobile travel options;

5. Support the economic vitality of the region through efficient goods movement that includes minimizing disruptions to the movement of agricultural products on rural roadways; and

6. Support safety and emergency preparedness, as demonstrated by land use and transportation changes that include capital investments in disaster-prone areas, transit services, and improved system maintenance.

ANALYSIS OF ALTERNATIVES

The following alternatives were identified for examination and analysis in this EIR:

Alternative 1: No Project/Workshop Scenario 1
Alternative 2: Workshop Scenario 2
Alternative 3: Workshop Scenario 3
Alternative 4: Bicycle, Pedestrian, and Transit Projects Only
Alternative 5: Bicycle and Pedestrian Projects Only
Alternative 6: Transit-Only
Alternative 7: Road-Only
Alternative 8: Four-Lane Only Road Expansions
Alternative 9: Base Case Land Use Pattern

Alternatives Considered but Not Carried Forward for Detailed Analysis

Several of the alternatives considered by SACOG were ultimately not carried forward for detailed analysis. Some of these proposed alternatives were raised in Notice of Preparation response letters. Reasons for rejecting these alternatives include: major elements of the alternative are already included in the proposed MTP/SCS, the alternative is infeasible due to economic and legal considerations, or the alternative fails to meet fundamental project objectives.

Alternatives 4, 5, 6, and 7: Extreme Funding Options

- **Alternative 4: Bicycle, pedestrian, and transit projects only.** In this alternative there would not be any road expansion projects built.
- **Alternative 5: Bicycle and pedestrian projects only.** In this alternative there would be no transit or road expansion projects built.
- **Alternative 6: Transit-only alternative.** In this alternative there would be no road or bicycle and pedestrian projects.
- **Alternative 7: Road-only alternative.** In this alternative there would be no transit or bicycle and pedestrian projects built.

Reasons for rejection of Alternatives 4, 5, 6, and 7: An alternative that focuses funding on one of these combinations of transportation modes exclusively is not based on reasonable revenue availability, and is therefore not economically or legally feasible. Consistent with 23 CFR section 450.322 (b) (11), SACOG is required to prepare a regional transportation plan (RTP) that is supported by revenues that are reasonable to assume. This requirement limits the total funding available and requires that the RTP reflect the fact that individual revenue sources have eligibility requirements that restrict the types of projects that can funded. For this reason, these alternatives were rejected for detailed consideration. Also, these alternatives were rejected because they are not fully integrated alternatives that can meet the fundamental project objectives of the MTP/SCS including supporting housing choice, jobs-housing balance, meeting regional air quality goals and SB375 requirements, meeting federal requirements for regional transportation plans, transportation investments that provide high performance benefits for all community types, providing cost-effective investments for all transportation modes, using all revenues that are reasonable to assume, reducing VMT and congested VMT, supporting transportation choice, broadening mobility options, supporting economic vitality, and increasing safety and emergency preparedness.

Alternative 8: Four Lane-Only Road Expansions

This alternative was proposed in an NOP comment letter, based on the assumption that it would allow for more funding for transit and non-motorized transportation. The alternative would reduce any proposed new or widened six-lane roads to a maximum of four lanes.

Reasons for rejection of Alternative 8: Redirecting all revenue saved from reducing road expansions to transit and bicycle and pedestrian projects is economically and legally infeasible. Consistent with 23 CFR section 450.322 (b) (11), SACOG is required to prepare a regional transportation plan (RTP) that is supported by revenues that are reasonable to assume. This requirement limits the total funding available and requires that the RTP reflect the fact that individual revenue sources have eligibility requirements that restrict the types of projects that can be funded. Also, this alternative was rejected because it is not a fully integrated alternative that can meet the fundamental project objectives of the MTP/SCS including supporting transportation choices that provide high performance benefits in all community types throughout the region, satisfying financial constraint requirements (all revenues reasonable to assume must be matched to eligible projects), supporting transportation choice and diversity for all segments of the population through a balanced transportation system, reducing congested VMT, connecting workers to jobs, and enhancing goods movement.

Alternative 9: Base-Case Land Use Pattern

The land use pattern for this alternative would be based on trend-line growth patterns when the Blueprint started, nine years ago, which were dominated by large-lot single family construction and little or no infill and redevelopment. The transportation system would be designed to serve low-density, sprawling growth largely with highways and large arterials.

Reason for Rejection of Alternative 9: This alternative was rejected because extensive analysis done over the last several years has demonstrated that this growth pattern and accompanying

transportation system will achieve few of the project objectives for the MTP/SCS, including promoting housing choice and diversity, minimizing direct and indirect land use and transportation impacts on agriculture and natural resources, meeting regional air quality goals and plans, achieving the greenhouse gas reduction targets assigned to SACOG by the California Air Resources Board, activating the CEQ streamlining benefits of SB375, delivering more productive and cost-effective public transit service, supporting transportation choice and diversity, reducing both VMT and congested VMT, and broadening mobility options by increasing use of transit, bicycle, and pedestrian mode share. Additionally, market performance since the adoption of the Blueprint in December, 2004 has also demonstrated a substantial decline in large-lot single family construction and an increase in infill and redevelopment activity beyond that forecasted in the Base Case. Therefore, an MTP/SCS alternative based on this land use pattern would be inconsistent with the shifting consumer preference towards small-lot single-family and attached housing products.

Comparative Analysis of Alternatives Carried Forward for Detailed Analysis

A total of three alternatives were carried forward for detailed analysis: the No Project Alternative (Alternative 1) and two other potentially feasible alternative MTP/SCS scenarios (Alternatives 2 and 3).

The No Project alternative is required to be analyzed under CEQA. It is also referred to as Workshop Scenario 1. The three workshop scenarios were designed to allow for analysis of truly distinct alternatives within the bounds of the type of land development and transportation investments that could realistically be expected to occur over the MTP/SCS planning period. In essence, the alternatives reflect different growth patterns and different investment decisions for the transportation system. The alternatives assume the same regional employment, population, and housing growth projections and roughly the same overall transportation budget. Land use patterns were designed first and then a transportation system was customized to support the land use pattern of each scenario. The transportation budget ranged from a low of $34.6 billion in Workshop Scenario 1 to a high of $36.1 billion in Scenario 3, reflecting a farebox recovery rate range that varied from 31 percent in Workshop Scenario 1 to 52 percent in Workshop Scenario 3 (Scenario 3 contained the highest share of transit-supportive land uses). All other revenue assumptions were constant across scenarios. Land use and transportation variables varied in the following ways:

Land Use Variables:

- The amount of compact development—compact development has been shown to be more effectively served by transit, to support potentially higher rates of walking and biking, and to generate less vehicle travel. This variable is measured in terms of housing product mix (the mix of high and low density housing units) and amount of development occurring in existing developed versus undeveloped areas.
- The amount of development in high-quality transit corridors, where residents are more likely to use available transit.
- The amount of complementary, mixed-use development, which supports shorter vehicle trip making, and higher rates of non-motorized travel.

Transportation Variables:

- The location, intensity, and type of transit service, based on the extent of transit supportive land uses in corridors. Higher density, mixed-use corridors provide greater opportunities for higher capacity transit, such as light rail and streetcars.
- The amount, location, and type of investment in complete streets projects, which serve multiple users in locations where land use generates a mix of travel modes.
- The extent and location of roadway and other projects to alleviate major bottlenecks and congestion points and the extent to which investments were made to alleviate existing bottlenecks, compared to reserving investments for future bottlenecks.
- The level of investment in Blueprint supportive programs and transportation systems management (TSM) strategies, including technology and demand management programs, that allow for greater optimization of existing transportation infrastructure. More compact and mixed-use development patterns can allow some shifts in investment priorities away from road extensions and expansions to improving the function of existing roads for multi-modal travel.

The land use components of the scenarios were designed in a progression from most dispersed development pattern to least dispersed development pattern; the corresponding transportation components followed a progression of most auto-oriented transportation system to most multi-modal transportation system. The alternatives identified for comparative analysis in this EIR are described according to this progression in Table 18.1 below. As stated above, all Alternatives analyzed accommodate the same amount of regional growth: 871,000 new people, 361,000 new jobs, and 303,000 new housing units.

Table 18.1
Description of MTP/SCS Land Use and Transportation Scenarios

Scenario Name	Land Use	Transportation
Alternative 1: No Project/ Workshop Scenario 1	▪ Developing and Established Communities receive highest share of region's growth ▪ Highest growth in Rural Residential Communities of all three scenarios ▪ Smallest share of new compact housing[1] share (61%, same as 2008 MTP) ▪ Least amount of new development near high-frequency transit ▪ Smallest share of growth in Transit Priority Areas[2] (20% of new homes, 26% of new jobs) ▪ Most dispersed development pattern / highest amount of developed acres ▪ Highest amount of agricultural and natural resource lands urbanized	▪ Highest investment in new and expanded roads, with focus on both existing and future bottlenecks ▪ Least amount of bicycle and pedestrian street and trail projects, including complete streets ▪ Lowest investment level in bus and rail transit service ▪ Lowest investment level in road maintenance and rehabilitation ▪ Largest decrease in congested vehicle miles of travel and delay ▪ Largest increase in commute carpooling ▪ Smallest increase in transit ridership ▪ Smallest increase in bicycle and pedestrian trips ▪ Smallest decrease in VMT and transportation greenhouse gas (GHG) emissions per capita
Alternative 2: Workshop Scenario 2	▪ Established, Developing, and Center & Corridor Communities receive nearly even shares of growth ▪ More new homes attached versus small-lot and large-lot single-family units ▪ Jobs/Housing balance in major employment centers further improved	▪ Transportation investments focus on existing bottlenecks in Center & Corridor Communities and Established Communities ▪ More transit service than Alternative 1 ▪ Less new road and road expansion than Alternative 1, but more than Alternative 3 ▪ More road maintenance and rehabilitation than

	▪ More homes and jobs near high-frequency transit service (compared to Alternative 1) allow for greater realization of complete streets opportunities ▪ Higher share of new compact housing[1] (68%, same as Blueprint growth strategy) ▪ More growth in TPAs[2] ▪ Less dispersed development pattern than Alternative 1/ fewer developed acres	Alternative 1 and the same level of investment as Alternative 3 ▪ More bicycle and pedestrian street and trail projects than Alternative 1 ▪ Emphasis on a balance of roadway capacity and operational improvements across all community areas ▪ Performs in-between Alternatives 1 and 3 on most key metrics, including: non-auto mode share; share of bike and walk trips; decreases in VMT and GHG emissions per capita
Alternative 3: Workshop Scenario 3	▪ Center & Corridor Communities receive highest share of growth ▪ Least amount of growth in Rural Residential Communities ▪ Highest share of new homes that are attached (50%) ▪ Highest share of new compact housing[1] share (75%) ▪ Highest share of growth in TPAs[2] ▪ Least dispersed development pattern/ fewest developed acres ▪ Jobs/Housing balance in major employment centers is the most improved of all scenarios ▪ Highest number of homes and jobs near high-quality transit ▪ Lowest amount of agricultural and natural resource lands urbanized	▪ Highest level of investment in bus and rail transit services ▪ Lowest level of investment in new and expanded roads with the greatest reliance on operational enhancements for roadways (e.g., Intelligent Transportation Systems) ▪ Same investment level in road maintenance and rehabilitation as Alternative 3, but higher than Alternative 1 ▪ Highest level of investment in bicycle and pedestrian projects, including complete streets ▪ The highest level of investment in Blueprint supportive programs (e.g. Community Design, Air Quality, Transportation Demand Management) ▪ Largest increase in transit and bicycle and pedestrian trips ▪ Lowest reduction in congested VMT ▪ Largest decrease in VMT and transportation GHG emissions per capita

Notes:
[1] Compact housing is defined as small-lot single-family (8 to 25 dwelling units per acre) and attached residential (attached single-family or multi-family homes ranging from duplexes, triplexes, apartments, condominiums, townhomes, rowhouses, halfplexes, etc. built at densities from 8 to over 50 dwelling units per acre.)
[2] Transit Priority Areas (TPAs) are defined as areas within one-half mile of a rail station stop or a high-quality transit corridor. A high-quality transit corridor has fixed-route bus service with service intervals of 15 minutes or less during peak commute hours.

A more detailed description of each of these alternatives is provided below, followed by a comparative analysis of how well the alternative would achieve the project objectives and the relative level of environmental impact associated with each alternative as compared to implementation of the project. For each resource area evaluated in this EIR the text summarizes whether the impacts of the alternative would generally be more or less severe than those of the project.

The proposed MTP/SCS falls between Alternative 2 and Alternative 3 in terms of the amount of new compact housing (71 percent), the amount of growth in TPAs, and the compactness of the development footprint. To support the land use pattern, the Proposed Project has a level of transit service, BRT, streetcar, and light rail investment in between those of Alternatives 2 and 3. It has more new roads and road expansions than Alternative 3, but fewer than Alternative 2.

Table 18.2 provides an "at a glance" comparison of existing conditions, the three alternatives, and the project.

Table 18.2
Comparison of Baseline, Proposed Project, and Alternatives

Land Use Characteristics	2008 Baseline	MTP/SCS for 2035 (Proposed Project)	Alternative 1 (Workshop Scenario 1)	Alternative 2 (Workshop Scenario 2)	Alternative 3 (Workshop Scenario 3)
Share of homes in Center & Corridor Communities[1]	103,209	92,046	57,320	83,306	109,044
(percent of homes)	12%	30%	19%	28%	36%
Share of homes in Established Communities[1]	684,129	79,362	91,640	84,013	81,490
(percent of homes)	77%	26%	30%	28%	27%
Share of homes in Developing Communities[1]	25,717	126,310	138,469	125,228	105,342
(percent of homes)	3%	42%	46%	41%	35%
Share of homes in Rural Residential Communities[1]	71,670	5,301	15,860	9,569	6,765
(percent of homes)	8%	1%	5%	3%	2%
Share of homes in rural residential and large-lot single-family[1] homes	574,956	89,080	118,769	98,801	74,555
(percent of homes)	65%	28%	39%	33%	25%
Share of homes in small-lot, single-family[1] homes	78,603	84,144	89,557	77,225	70,412
(percent of homes)	9%	28%	30%	25%	23%
Share of homes in attached homes[1]	231,492	129,978	95,670	126,829	158,057
(percent of homes)	26%	43%	31%	42%	52%
Gross Acres of development[1,4]	721,425	53,266	78,421	62,419	46,594
(percent increase in developed acres from 2008)	N/A	7%	12%	9%	7%
Transportation Attributes	**2008 Baseline**	**MTP/SCS for 2035 (Proposed Project)**	**Alternative 1 (Workshop Scenario 1)**	**Alternative 2 (Workshop Scenario 2)**	**Alternative 3 (Workshop Scenario 3)**
Road Lane Miles[2]	27,300	35,100	36,000	35,800	34,500
(new or expanded roads lane miles, percent increase from 2008)	n/a	29%	32%	31%	26%
Transit Service	4,100	8,100	6,300	7,700	9,300
(vehicle service hours, percent increase from 2008)	n/a	98%	54%	88%	127%
Funding for transit *($ in billions)*	n/a	$11.3	$10.7	$11.7	$13.7
Farebox Recovery *(percent of transit costs recovered by ticket sales)*	23%	38%	38%	41%	51%
Funding for road, bike and ped maintenance and operations *($ in billions)*[8]	n/a	$11.3	$10.9	$11.0	$11.0
Funding for new road capacity *($ in billions)*[8]	n/a	$7.4	$8.7	$8.0	$6.7
Funding for bike/ped street and trail improvements *($ in billions)*[8]	n/a	$3.0	$2.8	$2.9	$3.0

Funding for programs (community design, tdm, etc.) *($ in billions)*[8]	n/a	$2.2	$1.5	$1.6	$1.7
Performance Outcomes	**2008 Baseline**	**MTP/SCS for 2035 (Proposed Project)**	**Alternative 1 (Workshop Scenario 1)**	**Alternative 2 (Workshop Scenario 2)**	**Alternative 3 (Workshop Scenario 3)**
Square miles of farmland converted to development[6] *(4,166 square miles of farmland in 2008)*	n/a	57	93	70	50
Square miles of vernal pools affected by development[7]	n/a	7	9	8	7
Total number of homes near high-frequency transit[3] *(share of all homes near high-frequency transit)*	134,990 15%	400,538 34%	260,853 22%	337,955 28%	417,877 35%
Total number of jobs near high-frequency transit[3] *(share of all jobs near high-frequency transit)*	264,287 27%	648,670 49%	468,172 35%	566,584 43%	691,676 52%
Mode share for transit, walking and bicycling[5] *Percent of all person trips*	9%	13%	11%	12%	12%
Vehicle miles traveled (VMT)[5] *Per capita per day*	19.3	17.6	18.1	17.8	17.6
Vehicle miles traveled in heavy congestion *(percent of total VMT)*	6%	6%	5%	6%	7%
Weekday passenger vehicle CO_2 emissions *(percent change per capita from 2005)*	n/a	-16%	-14%	-16%	-17%

[1]Values shown are for growth assumed in the MTP/SCS between 2008-2035, except in 2008 where values are total for 2008.
[2]Values represented are for new or expanded roads in the MTP/SCS between 2008-2035, except for the 2008 scenario where values are total for 2008
[3]Values represented are total (in 2008 scenario values are total for 2008 and in all other scenarios the value is existing plus new growth)
[4]Except for 2008 acres which represent net acres, for which roads and other public uses have been excluded.
[5]Values for workshop scenarios adjusted to account for changes to forecasting model made since the workshop, in order to make the comparable to the current baseline and Proposed Project results.
[6]A generalized analysis of impacts to farmland was conducted for the workshop scenarios based on all Farmland Monitoring and Mapping Program categories; the same method was applied to the proposed project to allow for comparison.
[7]A generalized analysis of impacts to vernal pools was conducted for the workshop scenarios using Central Valley Vernal Pool Complexes (Holland), 2009; the same method was applied to the proposed project to allow for comparison.
[8]Proposed project budget allocations have been re-calculated to match the same categorical classifications as the workshop alternatives (Alternatives 1, 2, 3).

Alternative 1: No Project/Workshop Scenario 1

Description of Alternative 1

Alternative 1, the No Project Alternative, was constructed to be consistent with the growth patterns and transportation investment priorities of the 2008 MTP. The growth in population, jobs, and houses is much less as a result of a new growth forecast reflective and current economic conditions and projected changes in future economic conditions. Projected revenues for transportation investments are also significantly lower. Table 18.1 summarizes key characteristics of all the alternatives, while Table 18.2 compares performance characteristics of each alternative.

Land Use Pattern: Alternative 1 assumes the same basic growth pattern as the 2008 MTP, just less total growth. The percentage of the new housing that is rural residential, large-lot single-family, small-lot single-family, and attached is the same; the amount of new growth that is projected to occur through infill versus greenfield development is the same; the proportion of housing and jobs growth expected to occur through redevelopment is also the same; and the jobs-housing balance within major sub-areas of the region is the same. Compared to the other two alternatives, this scenario provides the most amount of large lot single family and rural residential new housing, the least amount of growth through infill and redevelopment, and the least improvement in jobs-housing balance within sub-areas of the region.

Transportation: The transportation system for Alternative 1 matches the investment priorities in the current plan. Although the total budget is smaller, the percentage of the budget dedicated to operations and maintenance, transit, new road capacity, bicycle and pedestrian improvements, and programs is the same as the current plan. Compared to the other two alternatives, Alternative 1 has a higher amount of funding for, and the largest number of, new roads and road expansion projects. Alternative 1 has significantly lower investments in road maintenance and transit than the other two alternatives.

Alternative 1 Attainment of Project Objectives

This alternative attains many project objectives, but less effectively and successfully than the proposed MTP/SCS.

Land use and Environmental Sustainability Objectives: While the land use pattern of this alternative builds on the Blueprint, it would provide the lowest increase in housing options and the lowest increase in transportation options. Specifically, this alternative has the lowest share of housing in small-lot single-family and attached homes combined and the lowest number of housing and jobs near high-frequency transit. This alternative would have the greatest amount of developed acres of all the alternatives due to its dispersed development pattern which forecasts the highest proportion of growth in Developing and Rural Residential Communities. This alternative would have the lowest funding amount for Blueprint-supportive programs.

Through the combination of land use and transportation changes, Alternative 1 would have the highest direct and indirect impacts to the environment. This scenario would not achieve the GHG reduction targets assigned to SACOG by the ARB and would not, therefore, activate the CEQA streamlining benefits of SB 375. SB375 requires SACOG to adopt an MTP/SCS that meets the GHG reductions if it finds that it is feasible to do so.

Finance Objectives: Alternative 1 meets some, but not all, of these project objectives. The financial constraint objective is met by fully allocating the available revenues and matching the budget to eligible investments. However, the alternative does not meet clearly the project objective to fund investments that are feasible to construct and maintain because it has a significantly higher level of investment in road capacity projects, but the second lowest level of funding for the maintenance of these facilities.

Existing and Expanded Transportation System Objectives: Alternative 1 meets many, but not all of these objectives. The alternative reduces both VMT and congested VMT from the baseline, though the VMT change is the worst of the alternatives and the congested VMT change is the best. The objective for connecting workers to jobs is achieved through reduced congested VMT and increased non-auto trips. Alternative 1 does not meet the project objective related to economic vitality. The alternative has the smallest increase in commute travel alternatives to driving, and goods movement activities are not fully supported. The larger urban footprint and more dispersed growth pattern makes goods movement travel less efficient between locations, encroaches on agricultural lands, and results in commuter traffic along rural roadways that may complicate safe and efficient farm-to-market access to farmlands. Also, the alternative does not meet the objective to support safety and emergency evacuations; it has the lowest level of investment in operational improvements, including safety enhancements and transit services, that may assist in evacuations. This alternative also has fewer new bridge crossings over the Sacramento River of the three alternatives.

Alternative 1 Environmental Impacts

Aesthetics: Light and glare impacts under this alternative would likely be greater than under the proposed MTP/SCS because this alternative assumes a development pattern that is more dispersed over more acres. As such, building and site lighting is likely to occur over a larger geographic area. Also because there are more detached units under this alternative, there are fewer shared walls which may result in the need for greater nighttime lighting as compared to attached structures which share walls. Light and glare associated with transportation projects are likely to be similar to the proposed MTP/SCS because the number of transportation projects that would be delivered under this alternative is similar.

Adverse effects of shadows from both land uses and transportation projects under this alternative would likely be less than under the proposed MTP/SCS, assuming lower density and intensity of development. Structures are likely to be lower and more dispersed with less likelihood of adverse shadows.

Impacts to views from land uses under this alternative would likely be less than under the proposed MTP/SCS, assuming lower density and intensity of development. Structures are likely to be lower and more dispersed with less likelihood of adverse impacts to views. Impacts to views from river crossings would be decreased because there are fewer bridge projects as a part of this alternative.

Degradation of visual character or quality is likely to be greater under this alternative as compared to the proposed MTP/SCS because it assumes the same amount of development dispersed over a greater area.

Construction-related aesthetic impacts are likely to be similar under this alternative for both land use and transportation projects. This would occur because this alternative assumes the same employment, population, and housing units and similar number of transportation projects. There is the potential that this alternative could result in increased aesthetic impacts because it assumes

the lowest number of attached units, resulting in a larger number of individual detached structures.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Agriculture and Forestry Resources: Conversion of both farmland and timberland under this alternative would be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over more acres. Approximately 93 square miles of farmland would be converted to development under this alternative as compared to 57 square miles under the proposed MTP/SCS. The potential for conflicts with zoning, land use designations, and/or other applicable regulations would also be greater for the same reason. Similarly, the potential for other changes that could result in the conversion of farm land or timberland to alternate uses would be greater due to increases in urban-rural edge areas under this alternative as compared to the proposed MTP/SCS.

Construction-related impacts to farm land or timberland are likely to be greater under this alternative than the Proposed Project for both land use and transportation projects, both because there is more growth and transportation projects in these areas, and because the alternative has more funding for new road capacity projects and less funding for road maintenance and operations.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Air Quality*:* It is likely that air emissions will be greater under this alternative than the project alternative. This is because this alternative has the most dispersed development pattern, coupled with the least amount of transit service and the highest amount of new roads and road expansions. This would encourage trips, rather than offer alternatives, eliminate the need for them, or discourage them.

Operational air emissions under this alternative would be increased as compared to the proposed MTP/SCS. This is because development would be less efficient -- the same number of housing units, employment, and population spread over a greater area. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

Potential exposure to toxic air contaminants is unlikely to change though it is possible that it could be lower due to greater dispersal of development over a larger area. However, this could be counteracted by the higher levels of vehicle miles traveled in this alternative.

Potential exposure to odors is unlikely to change. It is possible it could be lower due to greater dispersal of development over a larger area and therefore fewer people likely to be impacted at any one location. It is also possible however, that this could result in increased exposure to odors because it becomes more difficult to locate land uses with potential odor emissions in areas away from the population.

Construction-related air quality impacts would potentially be greater under this alternative related to the increased number of rural residential units and large-lot single-family units. This

would increase the number of separate construction sites which could exacerbate overall air emissions associated with the construction phase of development. Construction impacts to transportation projects are likely to be similar because this alternative assumes a similar number of transportation projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Biological Resources: Impacts on special status species (including plants, wildlife, and fish) under this alterative would be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over a greater area. The potential for impacts to riparian habitats, oak woodlands, and wetlands would also be greater for the same reason. Approximately nine square miles of vernal pools are projected to be adversely impacted under this alternative as compared to seven square miles under the proposed MTP/SCS. Similarly, impacts to migratory wildlife corridors and native wildlife nursery sites would be greater because development would be dispersed over a greater area.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, is likely to be similar or greater under this alternative, due to the larger area of development impact.

Construction-related impacts to biological resources are likely to be greater under this alternative for both land use and transportation projects, both because there is more growth and transportation projects in these areas, and because the alternative has more funding for new road capacity projects and less funding for road maintenance and operations.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Cultural Resources: Impacts to cultural resources (historic, archeological, paleontological, and human remains) under this alterative would be greater than under the proposed MTP/SCS because this alternative assumes a development pattern that is dispersed over more acres.

This alternative is likely to result in increased impacts to cultural resources during the construction phase because it assumes the lowest number of attached units resulting in a larger number of individual detached structures. These individual structures require independent surface and subsurface soil preparation and excavation which increases the likelihood of encountering unknown subsurface cultural resources. Construction impacts from transportation projects are likely to be greater under this alternative, both because of the larger land area for growth and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

***Energy and Global Climate Change*:** Per capita energy consumption under this alternative would be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over more acres. The share of homes in rural residential communities types and in large-lot single-family configurations is larger under this alternative (39 percent) than under the proposed MTP/SCS (28 percent). This will contribute to greater

energy consumption overall as compared to other community types and neighborhood configurations. It is likely that use of natural gas and oil under this alternative would also be greater for the same reasons. Use of some renewable energy sources could be assisted by this alternative while use of other renewable energy sources could be hindered. The economics of some small-scale renewable energy sources benefit from serving higher density development and development patterns that produce balanced loads and minimize peak demand; other renewable energy sources require larger areas of land to site, making lower density patterns more optimal. Like other infrastructure, the feasibility of all sources of renewable energy depends, in part, on the condition and capacity of the existing transmission and distribution system in the immediate area. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

This alternative is more likely to conflict with AB 32 and SB 375 as related to greenhouse gas emissions reduction goals/targets (both per capita and total) because it is more difficult to achieve decreases in greenhouse gases with a more dispersed development pattern that generates higher VMT.

This alternative is likely to result in increased use of energy and increased greenhouse gas emissions during the construction phase because it assumes the fewest attached units resulting in a larger number of individual detached structures. These individual structures require more energy for materials, more materials overall, and more fuels to build than attached structures. Construction impacts of transportation projects are likely to be greater, both because of the larger land area for growth and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Geology, Soils, Seismicity and Mineral Resources: Impacts associated with geology and soils under this alterative could be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over more acres. Therefore, the potential for exposure of a greater proportion of the population and housing to hazards associated with a specific geologic unit or soil type (e.g. expansive or otherwise unstable soils, subsidence, liquefaction, lateral spreading, etc.) could increase under this alternative. This would be true for both construction impacts and operational impacts.

Impacts associated with seismicity are more regional in nature, and therefore, unlikely to change under this alternative.

Impacts associated with mineral resources would be greater under this alternative than under the proposed MTP/SCS because this alternative assumes a more dispersed development pattern. If located in an area with mineral resources, this alternative would result in restricted access to and potentially the inability to harvest a greater proportion of the resource.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hazards and Hazardous Materials: Impacts associated with hazards and hazardous materials under this alterative are anticipated to be similar or potentially slightly greater than under the

proposed MTP/SCS for both construction and operational phases. This alternative assumes the same amount of development dispersed over more acres. This could expose more people to hazardous sites and/or to land uses with the potential for accidental releases of hazardous materials. The fact that development is more dispersed under this alternative could adversely affect emergency response times and complicate emergency evacuation plans that rely in part on public transit. This could place more people in the vicinity of airports and air strips, and place more people in wildland fire areas.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hydrology and Water Quality: Impacts associated with hydrology and water quality under this alternative could be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development (dispersed over more acres) and a greater proportion of homes in rural residential and large-lot single-family configurations. Rural residential development typically relies on roadside ditches and individual (voluntary) personal systems for control, management, and treatment of stormwater drainage. Overall this is generally less effective than municipal systems in addressing water quality, and therefore, associated impacts such as potential for polluted runoff, alterations to existing drainage patterns, potential for flooding, and potential for erosion and /or siltation are likely to be greater.

Current state law establishes a 200-year flood protection planning threshold for urban areas and a lesser 100-year flood protection planning threshold for rural areas. This alternative has more people in the 100-year floodplain and fewer people in the 200-year floodplain than under the Proposed Project. However, because this alternative assumes lower density and intensity of development, it is also possible there will be more single story structures and fewer multi-story structures within both floodplains, thereby increasing the percentage of people living within the floodplain that area at greater risk of exposure to flooding. All things considered the flood related impacts are similar.

The greater number of rural residential homes under this alternative could mean more people using groundwater rather than surface water; however this is somewhat speculative as municipal supply, depending on location, may also rely on groundwater. As such, it is difficult to determine whether this alternative would result in different impacts related to land subsidence. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

Construction-related impacts to hydrology and water quality would potentially be greater under this alternative because of the increased number of rural residential units and large-lot single-family units. This would increase the number of separate construction sites which could exacerbate overall runoff, drainage, erosion, and siltation associated with the construction phase of development. Construction impacts to transportation projects are also likely to be greater because of more road capacity projects generally.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Land Use and Planning: This alternative would satisfy many of the land use requirements and objectives of SB 375, though not as well as the proposed MTP/SCS because its performance falls short of the greenhouse gas emissions reduction target set by the CARB.

Noise: This alternative is anticipated to generate noise levels similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could exacerbate the exposure of sensitive receptors to noise adverse conditions as a result of increased dispersal of residential units and more rural residential units.

Construction-related noise impacts would potentially be greater under this alternative related to the increased number of rural residential units and large-lot single-family units. This would increase the number of separate construction sites which could exacerbate overall noise emissions associated with the construction phase of development. Construction impacts to transportation projects are also likely to be greater because of more growth in rural areas and a higher budget for road capacity projects generally.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Population and Housing: Impacts related to population and housing should be similar under all alternatives because the same number of people and dwelling units are assumed. Mitigation measures identified for the proposed MTP/SCS would be applicable.

Public Services and Recreation: This alternative is anticipated to result in public service and recreation impacts (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could exacerbate the ability to achieve local levels of service due to a more dispersed development pattern that makes it more difficult to efficiently service the population.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Transportation and Traffic: This alternative is anticipated to generate more trips and higher vehicle miles traveled than under the proposed MTP/SCS as a result of increased dispersal of residential units and more rural residential units. This alternative is anticipated to result in fewer trips by bicycle, walking, and/or transit for the same reasons. Similarly, this alternative is expected to result in greater interference with the movement of agricultural equipment and farm products on rural roadways because the trips associated with the greater number of rural residential units will be competing for the same road capacity. However, it results in the least amount of congested VMT, a measure that primarily affects the region's major highways, because it includes more capacity investments in these areas.

This alternative assumes the least amount of transit service, the least amount of road maintenance and rehabilitation, and the least amount of bicycle and pedestrian street and trail projects.

Construction-related impacts to transportation and traffic are likely to be greater under this alternative for land use and greater for transportation projects due to the higher budget for capacity enhancing projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Utilities and Service Systems: This alternative is anticipated to result in impacts to utilities and service systems (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could adversely affect the cost of the necessary utility conveyance and distribution systems (e.g. water, sewer, storm drain, electricity, and pipelines) due to a more dispersed development pattern that makes it more difficult to efficiently service the population. With respect to sewer service, this alternative in anticipated to result in fewer units on municipal systems and more units on individual septic systems as a result of the greater number of rural residential units. Municipal systems overall are generally better for the environment than larger number of individual septic systems.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Alternative 2: Workshop Scenario 2

Description of Alternative 2

This alternative assumes the same growth as the proposed MTP/SCS but distributes the growth differently as described below. Overall, this alternative would be less dispersed than Alternative 1, but more dispersed than the proposed MTP/SCS.

Table 18.1 summarizes key characteristics of all the alternatives, while Table 18.2 compares performance characteristics of each alternative.

Land Use Pattern: Compared to Alternative 1, this alternative would have a higher share of new compact housing (68 percent), more growth in TPAs and fewer developed acres due to a more compact development pattern. This is in part due to a higher percentage of new homes in Center and Corridor Communities and Established Communities, when compared to Alternative 1.

Transportation System: This alternative would have more transit service, including more new BRT, streetcar, and light rail service than Alternative 1. Alternative 2 would have an 88 percent increase in transit service from 2008. It also would have more bicycle and pedestrian improvements, and fewer new roads and road expansions, than Alternative 1. These differences in the transportation system would support a more compact development pattern.

Alternative 2 Attainment of Project Objectives

This alternative attains most project objectives, but less effectively and successfully than the proposed MTP/SCS.

Land use and Environmental Sustainability Objectives: While the land use pattern of Alternative 2 builds on the Blueprint, it would provide fewer new housing and transportation options than the Proposed Project and Alternative 3. Specifically, this alternative has 68 percent of new housing in small-lot single-family and attached homes and 28 percent of all homes and 43 percent of all jobs near high-frequency transit. Alternative 2 would consume more developed acres (62,419) than the Proposed Project and Alternative 3 due to a more dispersed development pattern which forecasts a higher share of growth in Developing and Rural Residential Communities. This alternative would have lower funding for Blueprint-supportive programs ($1.6 billion) than the Proposed Project and Alternative 3. Alternative 2 would achieve the GHG reduction targets assigned to SACOG by the ARB and would, therefore, activate the CEQA streamlining benefits of SB 375.

Finance Objectives: Alternative 2 meets all these objectives, but not as effectively as the Proposed Project. Progress is made in this alternative towards an improved state of good repair through increased maintenance and it delivers cost-effective and productive public transit results for the investments made. The alternative also meets the financial constraint objectives.

Existing & Expanded Transportation System Objectives: The alternative meets all but two of these objectives. The diversity of access and mobility needs in the various community types are met through a balance of investments. VMT declines from the baseline level, congested VMT stays the same, and the alternative results in an increase in the mode share for transit, bike and walk trips. Workers are connected to jobs through reducing commute congestion levels and increasing ridership for non-auto commute options. Alternative 2 does not meet the project objectives to minimize interferences to bicycle and pedestrian network connectivity and the movement of agricultural products on rural roadways. In neither case does the alternative minimize interferences because it has a more dispersed growth pattern overall and includes more growth in Developing and Rural Residential Communities than Alternative 3 or the Proposed Project. More growth in these communities and new or expanded roads to serve the relatively dispersed growth may interfere with bicycle and pedestrian connectivity objectives and may lead to conflicts along rural roadways for safe and efficient agricultural operations.

Alternative 2 Environmental Impacts

Aesthetics: Light and glare impacts under this alternative would likely be greater than under the proposed MTP/SCS because this alternative assumes a development pattern that is more dispersed over more acres. As such, building and site lighting is likely to occur over a larger geographic area. Also because there are more detached units under this alternative there are fewer shared walls which may result in the need for greater nighttime lighting as compared to attached structures that share walls. Light and glare associated with transportation projects are likely to be greater than the proposed MTP/SCS because there is more funding for capacity enhancing projects.

Adverse effects of shadows from both land uses and transportation projects under this alternative would likely be less than under the proposed MTP/SCS assuming lower density and intensity of development. Structures are likely to be lower and more dispersed with less likelihood of resulting adverse shadows.

Impacts to views from land uses under this alternative would likely be less than under the proposed MTP/SCS assuming lower density and intensity of development. Structures are likely to be lower and more dispersed with less likelihood of adverse impacts to views. Impacts to views from river crossings would be decreased because there are fewer new or expanded bridge projects as a part of this alternative.

Degradation of visual character or quality is likely to be greater under this alternative as compared to the proposed MTP/SCS because it assumes the same amount of development dispersed over a greater area.

Construction-related aesthetic impacts are likely to be greater under this alternative for both land use and transportation projects, both because the land area required for development is greater and this alternative has a higher budget for new transportation capacity. There is the potential that this alternative could result in increased aesthetic impacts because it assumes a lower number of attached units resulting in a larger number of individual detached structures.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Agriculture and Forestry Resources: Conversion of both farm land and timber land under this alternative would be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over more acres. Approximately 70 square miles of farmland would be converted to development under this alternative as compared to 57 square miles under the proposed MTP/SCS. The potential for conflicts with zoning, land use designations, and/or other applicable regulations would also be greater for the same reason. Similarly, the potential for other changes that could result in the conversion of farm land or timber land to alternate uses would be greater due to increases in urban-rural edge areas under this alternative as compared to the proposed MTP/SCS.

Construction-related impacts to farm land or timber land are likely to be greater under this alternative than the Proposed Project for both land use and transportation projects, both because there is more growth and transportation projects in these areas, and because the alternative has more funding for new road capacity projects and less funding for road maintenance and operations.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Air Quality: It is likely that air emissions will be greater under this alternative. This is because this alternative has a more dispersed development pattern, coupled with less transit service and more new roads and road expansions. This would encourage automobile trips, rather than offer mobility alternatives, that eliminate or reduce automobile trips.

Operational air emissions under this alternative would be increased as compared to the proposed MTP/SCS. This is because development would be less efficient, as it includes the same number of housing units, employment, and population spread over a greater area.

Potential exposure to toxic air contaminants is unlikely to change, though it is possible that it could be lower due to greater dispersal of development over a larger area. However, this alternative would also have more vehicle miles traveled, which might increase the exposure to TACs. There is insufficient information to draw conclusions about the net impact.

Potential exposure to odors is unlikely to change. It is possible that it could be lower due to greater dispersal of development over a larger area and therefore fewer people likely to be impacted at any one location. It is also possible however, that this could result in increased exposure to odors because it becomes more difficult to locate land uses with potential odor emissions in areas away from the population. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

Construction-related air quality impacts would potentially be greater under this alternative, due to the higher number of rural residential units and large-lot single-family units. This would increase the number of separate construction sites which could exacerbate overall air emissions associated with the construction phase of development. Construction impacts to transportation projects are likely to be somewhat greater also, due to the more dispersed transportation system and the larger budget for road capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Biological Resources: Impacts on special status species (including plants, wildlife, and fish) under this alterative would be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over a larger area. The potential for impacts to riparian habitats, oak woodlands, and wetlands would also be greater for the same reason. Approximately eight square miles of vernal pools are projected to be adversely impacted under this alternative compared to seven square miles under the proposed MTP/SCS. Similarly impacts to migratory wildlife corridors and native wildlife nursery sites would be greater because development would be dispersed over a greater area.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, is likely to be similar or greater under this alternative, due to the larger area of development impact.

Construction-related impacts to biological resources are likely to be greater under this alternative for both land use and transportation projects, both because of the larger land area affected by growth and transportation projects and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Cultural Resources: Impacts to cultural resources (historic, archeological, paleontological, and human remains) under this alterative would be greater than under the proposed MTP/SCS because this alternative assumes a development pattern that is dispersed over more acres.

This alternative is likely to result in increased impacts to cultural resources during the construction phase because it assumes the lowest number of attached units resulting in a larger

number of individual detached structures. These individual structures require independent surface and subsurface soil preparation and excavation which increases the likelihood of encountering unknown subsurface cultural resources. Construction impacts to transportation projects are likely to be greater under this alternative, both because of the larger land area for growth and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

***Energy and Global Climate Change*:** Per-capital energy consumption under this alternative would be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over more acres. The share of homes in rural residential communities types and in large-lot single-family configurations is larger under this alternative (33 percent) than under the proposed MTP/SCS (28 percent). This will contribute to greater energy consumption overall as compared to other community types and neighborhood configurations. It is likely that use of natural gas and oil under this alternative would also be greater for the same reasons. Use of some renewable energy sources could be assisted, while the use of other renewable energy sources could be hindered by this alternative. The economics of some small-scale renewable energy sources benefit from serving higher density development and development patterns that produce balanced loads and minimize peak demand; other renewable energy sources require larger areas of land to site, making lower density patterns more optimal. As with other infrastructure, the feasibility of all sources of renewable energy depends, in part, on the condition and capacity of the existing transmission and distribution system in the immediate area. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

This alternative is more likely to conflict with AB 32 as related to greenhouse gas emissions reduction goals/targets (both per capita and total) because it is more difficult to achieve decreases in greenhouse gases with a more dispersed development pattern that generates higher VMT, although it would meet the SB375 target for greenhouse gas emissions reduction set by CARB.

This alternative is likely to result in increased use of energy and increased greenhouse gas emissions during the construction phase because it assumes the fewest attached units resulting in a larger number of individual detached structures. These individual structures require more energy for materials, more materials overall, and more fuels to build than would be needed for attached structures. Construction impacts to transportation projects are likely to be greater, both because of the larger land area for growth and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Geology, Soils, Seismicity and Mineral Resources: Impacts associated with geology and soils under this alterative could be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over more acres. Therefore, the potential for exposure of a greater proportion of the population and housing to hazards associated with a specific geologic unit or soil type (e.g. expansive or otherwise unstable soils, subsidence,

liquefaction, lateral spreading, etc.) could increase under this alternative. This would be true for both construction impacts and operational impacts.

Impacts associated with seismicity are more regional in nature and therefore, unlikely to change under this alternative.

Impacts associated with mineral resources would be greater under this alternative than under the proposed MTP/SCS because this alternative assumes a more dispersed development pattern. If located in an area with mineral resources, this alternative would result in restricted access to resources and potentially the inability to harvest a greater proportion.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hazards and Hazardous Materials: Impacts associated with hazards and hazardous materials under this alterative are anticipated to be similar or potential slightly greater than under the proposed MTP/SCS for both construction and operational phases. This alternative assumes the same amount of development dispersed over more acres. This could expose more people to hazardous sites and/or to land uses with the potential for accidental releases of hazardous materials. The fact that development is more dispersed under this alternative could adversely affect emergency response times. This could place more people in the vicinity of airports and air strips, and place more people in wildland fire areas. There are also fewer new and enhanced bridges across major rivers in this alternative.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hydrology and Water Quality: Impacts associated with hydrology and water quality under this alternative could be greater than under the proposed MTP/SCS because this alternative assumes the same amount of development (dispersed over more acres) and a greater proportion of homes in rural residential and large-lot single-family configurations. Rural residential development typically relies on roadside ditches and individual (voluntary) personal systems for control, management, and treatment of stormwater drainage. Overall, this is generally less effective than municipal systems in addressing water quality and, therefore, associated impacts such as potential for polluted runoff, alterations to existing drainage patterns, potential for flooding, and potential for erosion and /or siltation are likely to be greater.

Current state law establishes a 200-year flood protection planning threshold for urban areas and a lesser 100-year flood protection planning threshold for rural areas. This alternative has more population in the 100-year floodplain and less population in the 200-year floodplain than under the Proposed Project. However, because this alternative assumes lower density and intensity of development, it is also possible there will be more single story structures and fewer multi-story structures within both floodplains, thereby increasing the percentage of people living within the floodplain that are at greater risk of exposure to flooding.

The greater number of rural residential homes under this alternative could mean more people using groundwater rather than surface water, however this is somewhat speculative as municipal supply, depending on location, may also rely on groundwater. As such it is difficult to determine

whether this alternative would result in different impacts related to land subsidence. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

Construction-related impacts to hydrology and water quality would potentially be greater under this alternative related to the increased number of rural residential units and large-lot single-family units. This would increase the number of separate construction sites, which could exacerbate overall runoff, drainage, erosion, and siltation associated with the construction phase of development Construction impacts to transportation projects are also likely to be greater because of more road capacity projects generally.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Land Use and Planning: This alternative is expected to substantively satisfy most of the land use requirements and objectives of SB 375, though not as well as the proposed MTP/SCS.

Noise: This alternative is anticipated to generate noise levels similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed.

Construction-related noise impacts would potentially be greater under this alternative, due to the increased number of rural residential units and large-lot single-family units. This would increase the number of separate construction sites which could exacerbate overall noise emissions associated with the construction phase of development. Construction impacts to transportation projects are likely to be greater, both because of the larger land area for growth and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Population and Housing: Impacts related to population and housing should be similar under all alternatives because the same number of people and dwelling units are assumed. Mitigation measures identified for the proposed MTP/SCS would be applicable.

Public Services and Recreation: This alternative is anticipated to result in public service and recreation impacts (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could exacerbate the ability to achieve local levels of service due to a more dispersed development pattern that makes it more difficult to efficiently service the population.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Transportation and Traffic: This alternative is anticipated to generate more trips and higher vehicle miles traveled than under the proposed MTP/SCS as a result of increased dispersal of residential units and more rural residential units. Congested VMT is the same as under the Proposed Project. This alternative is anticipated to result in fewer trips by bicycle, walking,

and/or transit for the same reasons. Similarly, this alternative is expected to result in greater interference with the movement of agricultural equipment and farm products on rural roadways because the trips growth may limit efficient access to farmland and the trips associated with the greater number of rural residential units will be competing for the same road capacity.

As compared to the proposed MTP/SCS, this alternative includes less bus and rail transit service, less bicycle and pedestrian street and trail projects, and more new and expanded roads.

Construction-related impacts to transportation and traffic are likely to be greater under this alternative for land use and for transportation projects, both because of the larger land area for growth and the higher budget for transportation capacity projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Utilities and Service Systems: This alternative is anticipated to result in impacts to utilities and service systems (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could adversely affect the cost of the necessary utility conveyance and distribution systems (e.g. water, sewer, storm drain, electricity, and pipelines) due to a more dispersed development pattern that makes it more difficult to efficiently service the population. With respect to sewer service, this alternative in anticipated to result in fewer units on municipal systems and more units on individual septic systems as a result of the greater number of rural residential units. Municipal systems overall are generally better for the environment than larger number of individual septic systems.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Alternative 3: Workshop Scenario 3

Description of Alternative 3

This alternative assumes the same growth as the proposed MTP/SCS but with more compact and mixed land uses. Overall this alternative would be less dispersed than the proposed MTP/SCS. At the start of the MTP/SCS planning process, the SACOG Board wanted to analyze an alternative that maximized transit ridership for the purposes of gaining an understanding of what would be required to generate a high increase in transit ridership. To achieve this performance for Alternative 3, land use assumptions were made that go beyond the federal requirements of what is reasonable to assume. For instance, the alternative relies on a higher amount of attached housing, especially near transit, than the market, local land use plans and financial incentives currently will support. Therefore, this alternative may not be feasible to implement.

Table 18.1 summarizes key characteristics of all the alternatives, while Table 18.2 compares performance characteristics of each alternative.

Land Use Pattern: Alternative 3 has the highest percentage of new compact housing (75 percent), the highest share of growth in TPAs, and the smallest development footprint in comparison to the proposed MTP/SCS and the alternative scenarios described above. This

alternative would have the highest percentage of new homes in Center and Corridor Communities and the least amount of new growth in Developing Communities and Rural Residential Communities.

Transportation System: Because it has the least dispersed development pattern, this alternative has the highest amount of bus and rail projects of all of the alternatives and would increase transit service (vehicle service hours) by 127 percent from 2008. It also has the highest amount of bicycle and pedestrian projects, and the fewest new roads and road expansions.

Alternative 3 Attainment of Project Objectives

Land use and Environmental Sustainability Objectives: This alternative would have the lowest number of total new homes in developing communities and rural residential communities (112,107) as compared to all of the alternatives being analyzed. It would have the highest number of homes (417,877) and jobs (691,676) near high frequency transit. Alternative 3 would have the highest number of attached homes (158,057). While this alternative is consistent with the objective of increasing housing choice, it may result in more attached housing than the market, local land use plans, and financial incentives currently will support. This alternative would have the smallest amount of developed acres (46,594) of all the alternatives due to the fact that it has the highest proportion of growth in Center and Corridor Communities and the highest proportion of compact housing of all of the Alternatives. As such, this alternative would also result in the smallest amount of converted farmland and impacted biological resources. Under this alternative, weekday passenger vehicle CO_2 emissions decrease the most (-17 percent) and exceeds SACOG's SB 375 target for GHG emissions reduction.

Finance Objectives: Alternative 3 successfully meets project objectives related to the efficient use of existing assets and demonstrating progress towards a state of good repair. However, the alternative relies on the development of attached housing, especially near transit, at levels that may exceed what the market, local land use plans and financial incentives currently will support. The speculative land use assumptions result in an exceptionally high transit farebox recovery rate that generates and additional $1.4 billion in revenue generated by fares that is dedicated to more transit and other projects that reduce emissions, speculative. Therefore, the project objectives related to financial constraint are not met.

Existing and Expanded Transportation System Objectives: All but two of these project objectives are met by Alternative 3. The alternative includes a balance of investments that support differences in the access and mobility needs of each community type. Also, the transit, bike and walk travel mode shares increase substantially due to the supportive land uses and the focus on these investments. Safety and emergency preparedness objectives are also met as the compact land use pattern minimizes interference with agricultural lands, there are strategic investments in disaster prone areas, and the increase in transit service levels under this alternative may assist emergency evacuations. Alternative 3 does not meet, however, the objective to reduce both VMT and congested VMT from the baseline level; VMT declines, but congested VMT is higher than the baseline; only the No Project performs worse for this metric. Because of the increase in congested VMT, the project objective to connect workers to jobs is also not fully met.

Alternative 3 Environmental Impacts

Aesthetics: Light and glare impacts under this alternative would likely be lower than under the proposed MTP/SCS because this alternative assumes a denser development pattern that is dispersed over fewer acres. Because there are more attached units under this alternative there are fewer shared walls which may decrease the need for nighttime lighting as compared to detached structures. Light and glare associated with transportation projects are likely to be similar to the proposed MTP/SCS because the number of transportation projects that would be delivered under this alternative is similar (more transit capacity expansion and less new road capacity).

Adverse effects of shadows from both land uses and transportation projects under this alternative would likely be greater than under the proposed MTP/SCS assuming higher density and intensity of development. Structures are likely to be higher and less dispersed with more likelihood of resulting adverse shadows.

Impacts to views from land uses under this alternative would likely be greater than under the proposed MTP/SCS assuming higher density and intensity of development. Structures are likely to be higher and land uses are likely to be more dense with more likelihood of adverse impacts to views. Impacts to views from river crossings would be similar under this alternative because there are a similar number of bridge projects.

Degradation of visual character or quality is likely to be equal or less under this alternative as compared to the proposed MTP/SCS because it assumes the same amount of development dispersed over a smaller area.

Construction-related aesthetic impacts are likely to be less under this alternative for land use projects because they occur over a smaller land area than under the Proposed Project. Transportation project impacts are likely to be similar to those under the Proposed Project (the alternative has more transit capacity projects but fewer road capacity projects). There is the potential that this alternative could result in decreased aesthetic impacts because it assumes a higher number of attached units resulting in a lower number of individual detached structures.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Agriculture and Forestry Resources: Conversion of both farmland and timberland under this alterative would be less than under the proposed MTP/SCS because this alternative assumes the same amount of development dispersed over fewer acres. Approximately 50 square miles of farmland would be converted to development under this alternative as compared to 57 square miles under the proposed MTP/SCS. The potential for conflicts with zoning, land use designations, and/or other applicable regulations would also be lower for the same reason. Similarly, the potential for other changes that could result in the conversion of farm land or timber land to alternate uses would be lower due to decreases in urban-rural edge areas under this alternative as compared to the proposed MTP/SCS.

Construction-related impacts to farm land or timber land are likely to be less under this alternative for land use projects because they occur over a smaller area than with the Proposed Project. Transportation project impacts are likely to be similar to those with the Proposed Project (the alternative has more transit capacity projects but fewer road capacity projects). Mitigation measures identified for the proposed MTP/SCS would be applicable.

Air Quality: It is likely that air emissions would be similar under this alternative. This is because this alternative has a less dispersed development pattern, coupled with more transit service and fewer new roads and road expansions. However, these benefits are likely offset by increased emissions related to higher levels of congestion.

Operational air emissions under this alternative would be decreased as compared to the proposed MTP/SCS. This is because development would be more compact, as it includes the same number of housing units, employment, and population developed within a smaller area.

Potential exposure to toxic air contaminants is unlikely to change though it is possible that it could be higher under this alternative due to greater concentration of development over a smaller area. However, there are also less total vehicle miles traveled, so the net effect could be similar. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

Potential exposure to odors is unlikely to change. It is possible that it could be higher due to greater concentration of development within a smaller area and therefore more people likely to be impacted at any one location. It is also possible however, that this could result in decreased exposure to odors because it becomes easier to locate land uses with potential odor emissions in areas away from the population. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

Construction-related air quality impacts would potentially decrease under this alternative, due to the lower number of rural residential units, higher number of small-lot single-family units, and higher number of attached units. This would decrease the number of separate construction sites thus minimizing overall air emissions associated with the construction phase of development. Construction impacts to transportation projects are likely to be similar because this alternative assumes a similar number of transportation projects (more transit expansion but less road expansion).

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Biological Resources: Impacts on special status species (including plants, wildlife, and fish) under this alterative would decrease as compared to the proposed MTP/SCS because this alternative assumes the same amount of development concentrated within a smaller area. The potential for impacts to riparian habitats, oak woodlands, and wetlands would also decrease for the same reason. Impacts to vernal pools are projected to be the same under this alternative (seven square miles). Similarly impacts to migratory wildlife corridors and native wildlife nursery sites would decrease because development would be concentrated within a smaller area.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, is likely to be similar or lower under this alternative, due to the smaller area of development impact.

Construction-related impacts to biological resources are likely to be less under this alternative because the projects occur on a smaller land area than under the Proposed Project. Mitigation measures identified for the proposed MTP/SCS would be applicable.

Cultural Resources: Impacts to cultural resources (historic, archeological, paleontological, and human remains) under this alterative would decrease as compared to the proposed MTP/SCS because this alternative assumes a development pattern that is more concentrated over fewer acres.

This alternative is likely to result in decreased impacts to cultural resources during the construction phase because it assumes the highest number of attached units resulting in fewer individual detached structures. These individual structures require independent surface and subsurface soil preparation and excavation which increases the likelihood of encountering unknown subsurface cultural resources. Construction impacts to transportation projects are likely to be less under this alternative because they occur on a smaller land area than under the Proposed Project.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

***Energy and Global Climate Change*:** Per-capita energy consumption under this alternative would be lower than under the proposed MTP/SCS because this alternative assumes the same amount of development concentrated in a smaller area. The share of homes in rural residential communities types and in large-lot single-family configurations is smaller under this alternative (25 percent) than under the proposed MTP/SCS (28 percent). This will result in lower energy consumption overall as compared to other community types and neighborhood configurations. It is likely that use of natural gas and oil under this alternative would also be lower for the same reasons. Use of renewable energy sources could be improved by this alternative, while use of other renewable energy sources could be hindered. The economics of some small-scale renewable energy sources benefit from serving higher density development and development patterns that produce balanced loads and minimize peak demand; other renewable energy sources require larger areas of land to site, making lower density patterns more optimal. As with other infrastructure, the feasibility of all sources of renewable energy depends, in part, on the condition and capacity of the existing transmission and distribution system in the immediate area. Insufficient information exists at this time to reach a conclusion about the net effect of all these considerations.

This alternative is less likely to conflict with AB 32 and SB 375 as related to greenhouse gas emissions reduction goals/targets (both per-capita and total) because it is easier to achieve decreases in greenhouse gases with a more concentrated development pattern that generates lower VMT.

This alternative is likely to result in decreased use of energy and increased greenhouse gas emissions during the construction phase because it assumes the fewest detached units resulting in a larger number of attached structures. Detached structures require more energy for materials, more materials overall, and more fuels to build than would be needed for attached structures. Construction impacts to transportation projects are likely to be similar because this alternative assumes a similar number of transportation projects (more transit expansion but less road expansion).

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Geology, Soils, Seismicity and Mineral Resources: Impacts associated with geology and soils under this alterative could be lower than under the proposed MTP/SCS because this alternative assumes the same amount of development concentrated in a smaller area. Therefore, the potential for exposure of a greater proportion of the population and housing to hazards associated with a specific geologic unit or soil type (e.g. expansive or otherwise unstable soils, subsidence, liquefaction, lateral spreading, etc.) could decrease under this alternative. This would be true for both construction impacts and operational impacts.

Impacts associated with seismicity are more regional in nature, and therefore, unlikely to change under this alternative.

Impacts associated with mineral resources would decrease under this alternative as compared to the proposed MTP/SCS, because this alternative assumes a more concentrated development pattern.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hazards and Hazardous Materials: Impacts associated with hazards and hazardous materials under this alterative are anticipated to be similar or potential lower than under the proposed MTP/SCS for both construction and operational phases. This alternative assumes the same amount of development concentrated over fewer acres. Under this alternative fewer people would be exposed to hazardous sites and/or to land uses with the potential for accidental releases of hazardous materials. The fact that development is more concentrated under this alternative could improve emergency response times and increase efficiency for emergency evacuation planning that includes public transit because more growth is closer to transit lines and the alternative has the greatest amount of transit services. This would likely place fewer people in the vicinity of airports and air strips, or in wildland fire areas.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Hydrology and Water Quality: Impacts associated with hydrology and water quality under this alternative would decrease as compared to the proposed MTP/SCS because this alternative assumes the same amount of development (concentrated in fewer acres) and a lower proportion of homes in rural residential and large-lot single-family configurations. Rural residential development typically relies on roadside ditches and individual (voluntary) personal systems for control, management, and treatment of stormwater drainage. Overall, this is generally less

effective than municipal systems in addressing water quality. Therefore, under this alternative, the potential for impacts such as polluted runoff, alterations to existing drainage patterns, potential for flooding, and potential for erosion and /or siltation are likely to decrease.

Current state law establishes a 200-year flood protection planning threshold for urban areas and a lesser 100-year flood protection planning threshold for rural areas. This alternative has fewer people in both the 100-year and 200-year floodplains than under the Proposed Project. Because this alternative assumes higher density and intensity of development, it is also possible there will be more multi-story structures and fewer single-story structures within the 200-year floodplain. As people on the first floor of a structure are the most vulnerable during a flood event, development of multi-story structures as opposed to single-story structures could reduce the percentage of people located within the floodplain that are at the greatest risk of exposure.

The lower number of rural residential homes under this alternative could mean fewer people using groundwater (in the form of wells) rather than surface water, however, this is somewhat speculative as municipal supply, depending on location, may also rely on groundwater. As such, it is difficult to determine whether this alternative would result in different impacts related to land subsidence.

Construction-related impacts to hydrology and water quality would potentially decrease under this alternative related to the decrease in the number of rural residential units, large-lot single-family units, and detached units. This would decrease the number of separate construction sites which minimizes overall runoff, drainage, erosion, and siltation associated with the construction phase of development. Construction impacts of transportation projects are likely to be less because this alternative assumes a fewer road capacity projects generally.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Land Use and Planning: This alternative is expected to substantively satisfy most of the land use requirements and objectives of SB 375

Noise: This alternative is anticipated to generate noise levels similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed.

Insufficient information exists to estimate differences in construction-related noise impacts. Construction impacts to transportation projects are likely to be similar because this alternative assumes a similar number of transportation projects (more transit expansion but less road expansion).

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Population and Housing: Impacts related to population and housing should be similar under all alternatives because the same number of people and dwelling units are assumed. Mitigation measures identified for the proposed MTP/SCS would be applicable.

Public Services and Recreation: This alternative is anticipated to result in public service and recreation impacts (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could improve the ability to achieve local levels of service due to a more concentrated development pattern that makes it more efficient to service the population.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Transportation and Traffic: This alternative is anticipated to generate fewer trips and lower vehicle miles traveled than under the proposed MTP/SCS as a result of the increased concentration of residential units in urban areas and fewer rural residential units. This alternative is anticipated to result in more trips by bicycle, walking, and/or transit for the same reasons. Similarly, this alternative is expected to result in less interference with the movement of agricultural equipment and farm products on rural roadways because the compact growth maintains efficient access to farmland and there will be fewer trips from rural residential units competing for the same road capacity.

As compared to the proposed MTP/SCS, this alternative assumes: more bus and rail transit services, fewer new roads and road expansions, and more bicycle and pedestrian street and trail projects. However, it results in higher levels of congested VMT.

Construction-related impacts to transportation and traffic are likely to be lower under this alternative for land use and transportation projects.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Utilities and Service Systems: This alternative is anticipated to result in impacts to utilities and service systems (both construction-related and operational) similar to those that would be generated under the proposed MTP/SCS because the same total population, housing, and employment are assumed. However, this alternative could improve the efficiency of necessary utility conveyance and distribution systems (e.g. water, sewer, stormdrain, electricity, and pipelines) due to a more concentrated development pattern that makes it easier to provide service to the population. With respect to sewer service, this alternative in anticipated to result in more units on municipal systems and fewer units on individual septic systems as a result of the lower number of rural residential units. Municipal systems, overall, are generally better for the environment than larger number of individual septic systems. The higher levels of development in Centers and Corridors and Established Communities could result in higher development costs in areas where existing infrastructure capacity is insufficient to meet the new demand.

Mitigation measures identified for the proposed MTP/SCS would be applicable.

Environmentally-Superior Alternative

CEQA requires that an EIR identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. CEQA Guidelines Section 15126.6(d)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative from among the other alternative.

This chapter analyzes the effectiveness of the alternatives in meeting the objectives of the project and how the potential impacts of the alternatives compare to the potential impacts of the Proposed Project. Based on this evaluation Alternative 3 (Workshop Scenario 3) would be the environmentally superior alternative because it would reduce most impacts as compared to the proposed MTP/SCS. However, the overall level of impact and the conclusions regarding those that remain potentially significant and unavoidable are similar between Alternative 3 and the proposed MTP/SCS. Table 18.3 summarizes the pre-mitigation impacts of Alternatives 1, 2 and 3 compared to the Proposed Project. Alternative 3 ranks highest because it would have the most reduced impacts of all alternatives; the Proposed Project ranks second; Alternative 2 ranks second; Alternative 1 (No Project) ranks fourth because it would have the most impacts of all alternatives analyzed.

Proposed Project (MTP/SCS) Attainment of Project Objectives

Under the proposed project (MTP/SCS), the land use changes, in combination with strategic transportation improvements, meet SACOG's SB 375 target for GHG emissions reduction. As discussed in more detail below, the MTP/SCS meets all Project Objectives.

Land use and Environmental Sustainability Objectives: The MTP/SCS meets all these objectives by providing a land use allocation that delivers strong performance, while also reflecting market and regulatory realities. Direct and indirect impacts on the environment are minimized by the seven percent increase in developed acres during a planning period that will experience a 39 percent increase in population. A key contribution towards meeting this objective is focusing a large share of new growth towards infill and corridor re-urbanization opportunity sites that reduce the expansion of the urban footprint and thereby protect agricultural and natural resource lands. Objectives related to improved jobs-housing balance and increased housing choice and diversity are also met through the MTP/SCS. To the extent that is reasonable to assume, mixed-use and compact activity centers expand with more jobs and a diversity of housing options to accommodate the region's forecasted changes in demographics and economics. Support towards the realization of these policy-related objectives is reflected in the MTP/SCS investment priorities. The MTP/SCS has a high level of investment in programs to fund data, tools and financial incentives that support local land use decision-making and assist in the voluntary implementation of the Blueprint.

Financial Stewardship Objectives: The proposed MTP/SCS meets all these objectives. The high level of investment in system maintenance through the MTP/SCS meets the objective to improve the condition of the transportation system. Also, performance objectives to reduce congestion and increase transit, bike, and walk trips are met through emphasizing cost-effective operational improvements and right-sizing road capacity projects. Finally, the MTP/SCS delivers

productive and cost-effective transit services, as evident by the low cost per transit vehicle service hour and a farebox recovery rate that improves significantly from the baseline.

Existing and Expanded Transportation System Objectives: The proposed MTP/SCS meets all these objectives. A balance of investments matched to the travel demand in each of the community type results in strong performance across all indicators. The historical trend of increasing C-VMT per capita is reversed, while VMT per capita declines significantly over the planning period. Mobility options are broadened, as evident by the increase in transit, bike and walk trips. This increase in mobility alternatives to driving, in combination with improvements to the C-VMT trend line, allows the MTP/SCS to meet the economic vitality objectives related to commute travel and efficient goods movement. Safety and emergency preparedness objectives are also met in the MTP/SCS through compact land uses that minimize conflicts on roadways along the urban/rural edge as well as significant increases in transit investments that may support evacuations. Furthermore, the MTP/SCS proposes substantial investments in operational improvements, new bridges, and ongoing maintenance of roads in disaster-prone areas to improve safety and emergency preparedness.

Table 18.3
Summary of Alternative Impacts Against the Proposed MTP/SCS

S – Impact is Significant **LS – Impact is Less than Significant** **+ Impact is greater than proposed MTP/SCS** **- Impact is less than proposed MTP/SCS** **= Impact is same as proposed MTP/SCS** **ii Insufficient information to determine difference in impacts** **Impact Statement**		**Proposed MTP/SCS**	**Alternative 1 (no project, Workshop Scenario 1)**	**Alternative 2 (Workshop Scenario 2)**	**Alternative 3 (Workshop Scenario 3)**
AES – 1a: Cast glare and light in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	**S**	+	+	-
	Transpo.	**S**	=	+	=
AES – 1b: Cast shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	**LS**	-	-	+
	Transpo.	**LS**	-	-	+
AES – 2: Block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures), as seen from public viewing areas, including state-designated scenic highways.	Land Use	**S**	-	-	+
	Transpo.	**S**	-	-	=
AES – 3: Substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-

S – Impact is Significant LS – Impact is Less than Significant + Impact is greater than proposed MTP/SCS - Impact is less than proposed MTP/SCS = Impact is same as proposed MTP/SCS ii Insufficient information to determine difference in impacts **Impact Statement**		Proposed MTP/SCS	Alternative 1 (no project, Workshop Scenario 1)	Alternative 2 (Workshop Scenario 2)	Alternative 3 (Workshop Scenario 3)
AES – 4a: Result in construction-related impacts that would cast glare, light, or shadow in such a way as to cause a public hazard or substantially degrade the existing visual/aesthetic character or quality of a site or place for a sustained period of time.	Land Use	S	+	+	-
	Transpo.	S	+	+	=
AES – 4b: Result in construction-related impacts that would block panoramic views or views of significant landscape features or landforms (mountains, rivers, bays, or important man-made structures) as seen from public viewing areas, including state-designated scenic highways.	Land Use	S	+	+	-
	Transpo.	S	+	+	=
AES – 4c: Result in construction-related impacts that would substantially degrade the existing visual character or quality of the site and its surroundings, including established neighborhoods.	Land Use	S	+	+	-
	Transpo.	S	+	+	=
AG-1: Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation, to non-agricultural use.	Land Use	S	+	+	-
	Transpo.	S	+	+	-

S – Impact is Significant LS – Impact is Less than Significant + Impact is greater than proposed MTP/SCS - Impact is less than proposed MTP/SCS = Impact is same as proposed MTP/SCS ii Insufficient information to determine difference in impacts **Impact Statement**		Proposed MTP/SCS	Alternative 1 (no project, Workshop Scenario 1)	Alternative 2 (Workshop Scenario 2)	Alternative 3 (Workshop Scenario 3)
AG-2: Conflict with existing zoning or general plan land use designations for agricultural use, or with a Williamson Act Contract.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
AG – 3: Conflict with existing zoning or land use designation for, or cause rezoning of, forest land, timberland, or timberland zoned timberland production.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
AG-4: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
AG-5: Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub.Resources Code § 12220(G)) or conversion of Forest Land to nonforest use.	Land Use	S	+	+	-
	Transpo.	S	+	+	-

S – Impact is Significant LS – Impact is Less than Significant + Impact is greater than proposed MTP/SCS - Impact is less than proposed MTP/SCS = Impact is same as proposed MTP/SCS ii Insufficient information to determine difference in impacts **Impact Statement**		Proposed MTP/SCS	Alternative 1 (no project, Workshop Scenario 1)	Alternative 2 (Workshop Scenario 2)	Alternative 3 (Workshop Scenario 3)
AG-6: Result in construction impacts that would convert prime farmland, unique farmland, or farmland of statewide importance; conflict with existing zoning or land use designation for agricultural use or a Williamson Act contract; conflict with existing zoning or land use designations for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; involve other changes in the existing environment which, due to their location of nature, could result in conversion of farmland to non-agricultural use; or result in the loss of Forest Land or conversion of Forest Land into non-forest use.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
AIR–1: Conflict with or obstruct implementation of the applicable air quality plans	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
AIR-2: Be inconsistent or exceed applicable thresholds of significance established by the local air district for long-term operational criteria air pollutant emissions	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
AIR–3: Expose sensitive receptors to substantial TAC concentrations	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**

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AIR–4: Create objectionable odors affecting a substantial number of people	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**LS**	**ii**	**ii**	**ii**
AIR-5a: Be inconsistent or exceed applicable thresholds of significance established by the local air district for short-term operational criteria air pollutant emissions	Land Use	**S**	**+**	**+**	**-**
	Transpo.	**S**	**+**	**+**	**-**
AIR-5b: Expose sensitive receptors to substantial TAC concentrations from construction	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**
AIR-5c: Create objectionable odors from construction affecting a substantial number of people	Land Use	**LS**	**+**	**+**	**-**
	Transpo.	**LS**	**+**	**+**	**-**

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BIO-1a: Potential Direct and Indirect Impacts on Special-Status Plant Species.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
BIO-1b: Potential Direct and Indirect Impacts on Special-status Wildlife Species.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
BIO-1c: Potential Direct and Indirect Impacts on Special-Status Fish Species.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
BIO-2a: Potential Loss and Disturbance of Riparian Habitat.	Land Use	S	+	+	-
	Transpo.	S	+	+	-

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BIO-2b: Potential Loss or Alteration of Oak Woodlands.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
BIO-3: Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Land Use	S	+	+	-
	Transpo.	S	+	+	-
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Land Use	S	+	+	-
	Transpo.	S	+	+	+

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BIO-6: Conflict with the Provisions of an Adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or Other Approved Local, Regional, or State Habitat Conservation Plan.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
BIO-7: Construction Related Impacts to Biological Resources.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
CR-1: Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 as a result of the construction or ongoing operation.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
CR-2: Cause a substantial adverse change in the significance of an historical or unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 as a result of construction or ongoing operations.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-

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CR-3: Directly or indirectly destroy a unique paleontological resource or site as a result of construction or ongoing operations.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
CR-4: Disturb any human remains, including those interred outside of formal cemeteries.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
CR-5: Eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines Section 15065a1).	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
ENE-1: Conflict with the goal of decreasing overall per capita energy consumption.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-

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ENE-2: Conflict with the goal of decreasing reliance on natural gas and oil.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
ENE-3: Conflict with the goal of increasing reliance on renewable energy sources.	Land Use	**LS**	**ii**	**ii**	**ii**
	Transpo.	**LS**	**ii**	**ii**	**ii**
ENE-4: Increase energy consumption from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
ENE-5: Substantially conflict with achievement of AB 32 Goals.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-

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ENE-6: Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.	Land Use	**LS**	+	=	-
	Transpo.	**LS**	+	=	-
ENE-7: Conflict with applicable local GHG reduction plans.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
ENE-8: Increase GHG emissions from the construction of the proposed MTP/SCS in a manner inconsistent with AB 32.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–1a: Expose people or structures to substantial risk related to fault rupture.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=

S – Impact is Significant **LS – Impact is Less than Significant** **+ Impact is greater than proposed MTP/SCS** **- Impact is less than proposed MTP/SCS** **= Impact is same as proposed MTP/SCS** **ii Insufficient information to determine difference in impacts** **Impact Statement**		**Proposed MTP/SCS**	**Alternative 1 (no project, Workshop Scenario 1)**	**Alternative 2 (Workshop Scenario 2)**	**Alternative 3 (Workshop Scenario 3)**
GEO–1b: Expose people or structures to substantial risk related to ground shaking.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
GEO–1c: Expose people or structures to substantial risk from seismic-related ground failure, including liquefaction.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
GEO–1d: Expose people or structures to substantial risk related to landslides.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
GEO–2: Result in substantial soil erosion or the loss of topsoil.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-

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GEO–3: Located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–4: Result in development on expansive soil creating substantial risks to life or property.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–5: Have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems where sewers are not available for the disposal of waste water.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO–6: Result in a substantial impact to geologic resources during construction.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-

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GEO–7: Result in the loss of availability of a designated mineral resource that would be of value to the region and the residents of the state.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
GEO–8: Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
GEO-9: Result in a substantial impact to mineral resources during construction.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-

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HAZ-2a: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HAZ-2b: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of asbestos into the environment.	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**
HAZ-3: Emit hazardous emissions or cause handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HAZ–4: Result in development on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-

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HAZ-5: For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.	Land Use	**LS**	=	=	-
	Transpo.	**LS**	=	=	-
HAZ–6: For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HAZ–7: Impede achievement of acceptable emergency service, including fire protection, police protection, and response times; or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HAZ-8: Expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-

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HAZ-9: Result in construction impacts that would cause a hazard to the public or the environment.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD- 1: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD- 2: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding, or substantial erosion or siltation.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
HYD- 3: Place housing within a 200-year flood hazard area (urban) or 100-year flood hazard area (rural) as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or place structures that would impede or redirect flood flows	Land Use	**S**	=	=	-
	Transpo.	**S**	=	=	-

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HYD- 4: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
HYD- 5: Exposure of more people and structures to seiche, tsunami or mudflow	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
HYD- 6: Exacerbate land subsidence associated with groundwater use	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**
HYD- 7: Otherwise substantially degrade water quality	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-

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HYD- 8: Violate any water quality standards or waste discharge requirements resulting from construction activities	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
LU-1: Conflict with the land use requirements and objectives of Senate Bill 375.	Cum.	**LS**	+	=	-
NOI-1: Result in noise levels that exceed the community type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions.	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**
NOI–2: Result in excessive vibration and groundborne noise.	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**
NOI-3: Result in construction impacts that would increase noise levels above the community type Ldn thresholds identified in Table 13.3 and increase noise levels by more than 3 dBA over baseline conditions; or result in excessive levels of vibration and groundborne noise.	Land Use	**S**	**ii**	**ii**	**ii**
	Transpo.	**S**	**ii**	**ii**	**ii**

S – Impact is Significant LS – Impact is Less than Significant + Impact is greater than proposed MTP/SCS - Impact is less than proposed MTP/SCS = Impact is same as proposed MTP/SCS ii Insufficient information to determine difference in impacts **Impact Statement**		Proposed MTP/SCS	Alternative 1 (no project, Workshop Scenario 1)	Alternative 2 (Workshop Scenario 2)	Alternative 3 (Workshop Scenario 3)
POP-1 Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.	Land Use	**LS**	=	=	=
	Transpo.	**LS**	=	=	=
PS–1: Impede achievement of acceptable school, library, social service, and parks and recreation facilities including capital capacity, equipment, and personnel.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
PS–2: Result in the construction of new, or the expansion of existing, facilities to maintain adequate police, fire, emergency services, school, library, social services, and park and recreation services including capital capacity, equipment and personnel, and response times.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
TRN-1: Cause an increase in vehicle miles traveled (VMT) per capita that exceeds the applicable baseline average.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-

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TRN-2: Cause an increase in VMT on congested roadways (C-VMT) per capita relative to the applicable baseline for the area, and cause an increase in C-VMT per capita that exceeds the baseline regional average.	Land Use	**LS**	-	=	+
	Transpo.	**LS**	-	=	+
TRN-3: Cause combined bicycle, walk, and transit person trips per capita to be lower than the applicable baseline average, and cause a decline in the bicycle, walk, and transit person trips per capita that exceeds the baseline regional average.	Land Use	**LS**	+	+	+
	Transpo.	**LS**	+	+	+
TRN-4: Cause a decrease in transit passenger boardings per vehicle service hour that results in transit passenger boardings that are lower than the baseline regional or local area average.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
TRN-5: Interfere with existing or planned pedestrian or bicycle facilities.	Land Use	**LS**			
	Transpo.	**LS**	+	+	-

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TRN-6: Disrupt the movement of agricultural products on rural roadways.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
TRN-7: Result in construction activities that interfere with the ongoing operations of the regional or local area transportation system.	Land Use	**LS**	+	+	-
	Transpo.	**LS**	+	+	-
USS–1: Result in an increased demand for surface or groundwater in excess of available supply.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-
USS-2: Exceed the capacity of existing or planned water storage, conveyance, distribution, and treatment facilities.	Land Use	**S**	+	+	-
	Transpo.	**S**	+	+	-

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USS–3: Result in the construction of additional utilities and service system infrastructure to maintain adequate sewer, wastewater treatment, fire flows, solid waste, power, and telecommunications systems.	Land Use	S	+	+	-
	Transpo.	S	+	+	-

CHAPTER 19 – OTHER CEQA CONSIDERATIONS

GROWTH-INDUCING IMPACTS

State CEQA Guidelines section 15126.2(d) requires an EIR to evaluate the potential growth-inducing impacts of a proposed project. Specifically, an EIR must discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or by encouraging and/or facilitating other activities that could induce growth. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that induced growth is necessarily significant or adverse. The analysis below examines these issues relative to the adoption and implementation of the proposed MTP/SCS.

Project Overview

SACOG's mission is to "provide leadership and a dynamic, collaborative public forum for achieving an efficient regional transportation system, innovative and integrated regional planning, and a high quality of life within the greater Sacramento region." SACOG's purpose in proposing the MTP/SCS is to provide a strategy to approach the many challenges faced by the Sacramento region as the population grows and the region expands over the next few decades.

The proposed MTP/SCS seeks to guide the Sacramento region toward a more sustainable future through better integration of smart land use decisions with a well-managed transportation system, as reflected in the Blueprint Vision, which many jurisdictions in the region implement voluntarily. The proposed MTP/SCS identifies a growth pattern that will accommodate forecasted population and employment growth, a transportation system that is appropriate for the growth pattern, and supporting policies and strategies to implement the plan. It reflects a number of smart planning, market, policy, regulatory, and funding considerations and realities; however it was specifically developed to meet all the requirements of SB 375, and importantly to achieve the greenhouse gas (GHG) emissions reduction targets for passenger vehicles and light duty trucks set by the California Air Resources Board (CARB).

The SACOG area consists of 28 jurisdictions and covers 3,863,373 acres. The plan area presently contains approximately 721,872 acres of developed land (2008), which represents less than 20 percent of the total land area. The plan area population is 2,215,044, with 885,082 housing units and 966,285 employees. The proposed MTP/SCS is described in detail in Chapter 2, Project Description, and the potential environmental impacts related to implementation of the plan are fully assessed in the topical sections of Chapters 3 through 18.

As discussed in Chapter 2 – Project Description, the proposed MTP/SCS reflects a more slower regional growth rate as compared to the 2008 MTP due to a decline in domestic in-migration and the recent recession. As Table 19.1 demonstrates how future population, employment and housing under the proposed MTP/SCS is projected to be significantly lower than the projections used for the 2008 MTP.

Table 19.1
Population, Employees, and Housing Unit Forecasts for the 2008 MTP and the Proposed MTP/SCS

Projection	*2008 MTP* (2035)	*Proposed MTP/SCS* (2035)
Population	3,349,000	3,086,000
Employees	1,546,000	1,327,000
Housing Units	1,324,000	1,188,000

To accommodate this growth, the proposed MTP/SCS forecasts the need for an additional 53,266 acres of land, which constitutes less than 1.4 percent of the total acreage in the region, and about a 7.4 percent increase in the development footprint of the region by 2035.

As these numbers demonstrate, the proposed MTP/SCS promotes compact growth, and is a significant departure from the business-as-usual development pattern projected for the region less than ten years ago. The plan also promotes a balance of land uses throughout the entire region. This approach represents an evolution in regional planning that coordinates local land use decisions with regional, state, and federal transportation funding decisions and air quality planning. It also addresses now statutory requirements to examine land use and transportation in the context of global climate change and state-mandated reductions in GHG emissions. As a result, and as demonstrated in this Draft EIR, the proposed MTP/SCS is expected to result in the following beneficial outcomes:

- an absolute reduction in the amount of heavy congestion typical residents will experience in their daily lives;
- significant increases in the productivity of the transit system, evidenced by more riders and a higher percentage of total costs coming from user fares;
- greater levels of investment in a multi-modal transportation system, including complete streets, and bicycle and pedestrian facilities;
- better integration of future land use patterns, transportation investments and air quality impacts, including higher levels of development near current and future transit;
- reductions in per capita passenger vehicle GHG emissions that meet or exceed the minimum targets established for the SACOG region by CARB; and
- lower vehicle miles travelled per capita for the region's residents.

The content of the proposed MTP/SCS is heavily influenced by a variety of realities and requirements. From the local perspective, the power and authority to plan for and approve development throughout the region rests solely with SACOG's member cities and counties. At the regional level, the plan must reflect a realistic forecast of the likely land use pattern for the region, considering the regulatory authority of its members, market conditions, and the market-based regional growth forecasts.

From the state perspective, the plan must: identify areas within the region sufficient to house an eight-year projection of the regional housing need; identify a transportation network to serve the regional transportation needs; and demonstrate how the region can coordinate land use and transportation planning to meet the GHG emissions reduction targets established pursuant to SB 375.

From the federal perspective, the plan must comply with the federal Clean Air Act and with federal laws relating to metropolitan transportation plans which require, among other things, that the plan identify a transportation network that will serve projected land uses in the region. It must also realistically reflect that funding for all modes of transportation is constrained. As a result, the proposed MTP/SCS focuses on maximizing the efficiency of existing infrastructure and looking for investments that yield maximum benefits.

Furthermore, the proposed project reflects SACOG protocols related to transparency in modeling, model sharing and collaboration, and extensive agency and public input and involvement. As such, it reflects a regional collaboration and vision that individual jurisdictions are more likely to actively implement. This practical aspect of the plan is critical since SACOG has no independent authority to implement directly the land use elements of the proposed MTP/SCS.

Finally, while the plan has a required long-term focus due to a mandatory 20-year planning horizon, it also has an integrated short-term adjustment process in the requirement that it be updated every four years.

Analysis of Growth-Inducement

This analysis examines the following potential growth-inducing impacts related to implementation of the proposed MTP/SCS and assesses whether these effects are significant and adverse:

1. Foster population growth and construction of housing;
2. Eliminate obstacles to population growth;
3. Foster economic growth;
4. Affect service levels, facility capacity, or infrastructure demand; and
5. Encourage or facilitate other activities that could significantly affect the environment.

Foster Population Growth and Construction of Housing

Chapter 14 of the DEIR examines Population and Housing growth associated with the proposed MTP/SCS. As described in Chapter 2 (Project Description) and Chapter 14 (Population and Housing) of the Draft EIR, and in Chapter 3 (Summary of Growth and Land Use Forecast) of the proposed MTP/SCS, the process for developing the proposed MTP/SCS began with the development of a growth forecast for the region. To develop the growth forecast, SACOG used a method grounded in an economic forecast that considers a wide range of variables affecting the U.S., state, and regional economies. Detailed demographic information is prepared with this economic forecast that includes household types (e.g., age, income, ethnicity, and size) and numbers of households. The growth forecast of projected regional population, employment numbers, and households is then used to calculate the new building square footage required for different segments of the economy (e.g., retail, office, industrial, etc.) and the new housing units required to house the projected population of the region.

In other words, population growth was projected prior to preparation of the proposed MTP/SCS and was used as a basis for the housing and employment growth projections of the plan. In this regard, the SACOG MTP/SCS planning process significantly differs from the land use planning processes of its member agencies. Local government land use planning may be driven by a vision for a community that is not required to be constrained by specific economic or population forecasts, or by a mandated horizon date. Consequently, the MTP/SCS cannot be an amalgamation of member agencies' general plans because such a construct could not achieve the state-mandated GHG targets.

By law and by design, the proposed MTP/SCS provides a coordinated strategy for managing land use patterns and transportation investments to accommodate projected population growth. The plan is intended to help shape growth patterns in the region, leading to better efficiency, higher sustainability, and more compact and mixed patterns of land use that are better served by transit and other mode choice options. But, for the reasons summarized above, it would be inaccurate to conclude that the plan would induce that growth. First, SACOG wields no land use authority in this regard. All land use decisions remain at the local level with the 28 member cities and counties. Second, as required by law, the plan identifies areas within the region sufficient to house the population of the region; therefore, it is tailored to meet population growth, not to foster the construction of housing that has the potential to induce growth.

While population growth remains a factor generally outside of local control, cities and counties do control the provision of housing and employment opportunities for that population, and this ultimately determines densities, growth patterns, and resulting efficiencies in the use of land and resources. The proposed MTP/SCS reflects a concerted attempt of local governments to influence population growth in a beneficial manner. The proposed MTP/SCS represents the coordination of local land use policies with transportation investments that support promote mixed-use and compact development, transportation options, housing choice and diversity, conservation of agricultural land and natural resources, and use of existing assets. By accommodating efficient, sustainable, compact growth in existing developed areas and limited new areas, and not planning for anything more than nominal or by-right growth in rural areas,

regional development pressures are accommodated in a more sustainable pattern, resulting in overall beneficial effects for the region.

The proposed MTP/SCS is also a less consumptive plan comparatively. By 2035, the MTP/SCS plan area is projected to increase by approximately 871,000 people, 361,000 jobs, and 303,000 housing units. Implementation of the proposed MTP/SCS will convert approximately 53,000 acres of undeveloped land, which represents a seven percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 39 percent and 34 percent increases over existing conditions, respectively, indicating that implementation of the proposed MTP/SCS will result in more compact development than existing conditions.

Development consistent with the proposed MTP/SCS would result in additional commerce, industry, recreation, public services, and infrastructure throughout the region. However, as substantiated by the growth forecasts, this growth is projected to occur under any scenario. By influencing the location and nature of this growth, adverse outcomes are avoided or minimized, and regional opportunities are maximized. Therefore, rather than fostering population growth and the construction of housing, the plan accommodates and manages that growth.

Eliminate Obstacles to Population Growth

Impediments to growth may be physical, regulatory, or fiscal. A physical obstacle to growth typically involves the lack of public infrastructure or insufficient infrastructure capacity. The extension of public service infrastructure (e.g., roadways, water and sewer lines) into areas that are not currently provided with these services may be considered growth inducing. Similarly, the elimination of a regulatory obstacle, such as a service boundary or growth management policy, or a change in land use designation, can also result in new growth in a manner that might be considered growth inducing. In addition, resolution of infrastructure funding constraints or the identification of new sources of funding can facilitate growth by funding the construction of new infrastructure.

The proposed MTP/SCS would result in significant investments and improvements in the regional circulation system in support of planned growth. In theory, transportation improvements can remove impediments to growth by providing access and roadway capacity to new areas for development and, depending on location, creating roadway capacity that induces travel. Additionally, because community-serving infrastructure (e.g., roadways, water, and sewer lines) and services often are located within or adjoining road rights-of-way, the construction of roadways can facilitate the expansion and/or extension of infrastructure.

In this case, however, the transportation network is made to fit to the land use plan. The transportation investments focus on maintaining the current system, right-sizing and/or value-engineering the expansion of roads, targeting cost-effective expansions of transit, and increasing the commitment to walking and bicycling investments. Part of this is due to an overall decrease in funding from the 2008 MTP, but it is also based on the overall policy objectives of SB 375 and thus the plan to, among other things, increase roadway optimization, increase modes of travel other than single occupancy automobile use, increase access to jobs and amenities, reduce

VMT, and reduce GHG emissions. Among the strategies to meet these goals is a mix of land uses balanced to minimize VMT and maximize the ability for residents to conduct everyday activities within their neighborhood without the need to travel by car. In other words, the plan's roadway investments are located and sized to accommodate the forecasted growth.

The proposed MTP/SCS does not forecast growth on Lands Not Identified for Development during the planning period, though there is existing development in these areas (primarily farm homes, agricultural-related uses, and public facilities such as wastewater treatment facilities, etc.).

Since growth is not assumed in the proposed MTP/SCS for this Community Type, there will be limited transportation investments in these areas by 2035. Primarily, these investments will go towards ongoing road maintenance and targeted operational improvements to support safer and more efficient agricultural goods movement. A limited number of new or expanded roads are planned, but they represent less than two percent of the total regional route miles added by the proposed MTP/SCS. Each of these proposed roadway projects is intended to connect growth areas in Established or Developed Communities and not induce growth in Lands Not Identified for Development. Most of these projects are along the rural/urban edge of the proposed MTP/SCS and nearly all are expansions within an existing right-of-way.

One of the plan objectives for the proposed MTP/SCS is to more efficiently utilize the regional transportation system. More efficient utilization of roadways demonstrated in the proposed MTP/SCS indicates that projects are right-sized to match travel demand, without creating excess roadway capacity that increases VMT and induces growth. Moreover, the plan results in increasing transit productivity, increasing bicycling and walking mode share, decreasing auto mode share, and decreasing VMT per capita. This substantiates the conclusion that the strategic roadway expansions in the proposed MTP/SCS, in combination with other modal investments, support more compact development, more sustainable and more efficient development without inducing the type of population growth that would require development of more land for urban purposes.

The total revenues SACOG expects to be available for implementation of the proposed MTP/SCS are $49.8 billion in escalated dollars (escalated), or $35.2 billion in today's dollars (current) allocated by category of project as follows:

Table 19.2
Proposed MTP/SCS Expenditure Breakdown (in billions)

Expenditure Category	Total Expenditures (escalated)	Total Expenditures (current)
Maintenance and Rehabilitation	$16.4	$11.5
Public Transit	$15.9	$11.3
Road and Highway	$10.5	$7.4
Bicycle and Pedestrian	$4.0	$2.8
Programs and Planning	$3.1	$2.2
TOTAL	**$49.8**	**$35.2**

Of the road and highway expenditures in Table 19.2, only $5.9 billion or 17 percent of the total expenditures, goes to investments in new or expanded roads and highways. This investment, when compared to the plan's investments in system maintenance, transit, and bicycle and pedestrian facilities, demonstrates the careful adaptation of the plan to the forecasted population needs, and financial constraint, of the region.

As established above, by law and policy this transportation system investment is integrally linked to, and balanced with, the housing and employment needed to accommodate the projected population of the region. In other words, rather than eliminating obstacles to growth, the plan accommodates growth that is outside the regulatory control of SACOG.

Foster Economic Growth

As discussed above, the proposed MTP/SCS was developed to respond to forecasted population increases, employment opportunities, and housing needs within the region. Therefore, the MTP/SCS is designed to accommodate growth that would occur with or without the proposed MTP/SCS; it is not designed, nor is it anticipated to, drive further population growth beyond the levels forecasted. The plan supports the successful economic growth and prosperity of the region as required by law. Federal regulations governing the preparation of regional transportation plans require that they "support the economic vitality of the metropolitan area" (23 CFR § 450.306). Moreover, economic growth is critical for the economic recovery of the region. But the population growth resulting from that economic recovery and vitality is accommodated by the plan—it is not a growth-inducing byproduct of the plan.

Affect Service Levels, Facility Capacity, or Infrastructure Demand

While growth that may occur consistent with the proposed MTP/SCS could result in increases in demand for public services and infrastructure in excess of the existing conditions, SACOG's member agencies retain the authority to ensure the provision of appropriately timed and sized services and utilities to serve new urban development concurrent with growth. Chapter 15 of the Draft EIR addresses this impact.

Encourage or Facilitate Other Activities That Could Significantly Affect the Environment

This Draft EIR provides a comprehensive assessment of the potential for environmental impact associated with implementation of the proposed MTP/SCS. Please refer to Chapters 3 through 18, which comprehensively address the potential for impacts from land use changes and transportation projects resulting from implementation of the proposed MTP/SCS.

Summary

In summary, the proposed MTP/SCS accommodates growth in a manner substantially consistent with local general plans, regional values and visions, and state and federal laws. The plan accounts for growth likely to occur during the 20-year plus planning horizon and makes assumptions about location and design that promote regional environmental benefits. While

growth inducement can be considered an adverse impact under CEQA, the proposed MTP/SCS is growth accommodating not inducing, and results in environmentally beneficial outcomes. Therefore, any potential for adverse impact is considered less than significant (LS), and additional mitigation measures beyond those identified in Chapters 3 through 18 are not necessary.

SIGNIFICANT IRREVERSIBLE CHANGES

Pursuant to § 15126.2(c) of the CEQA Guidelines, an EIR must identify any significant irreversible environmental outcomes that could result from the implementation of a proposed project. These may include current or future uses of nonrenewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA requires that irretrievable commitments of resources should be evaluated to ensure that such current consumption is justified.

For the purposes of this analysis, the required evaluation of this topic is addressed from three perspectives:

1. Use of nonrenewable resources that would commit future generations;
2. Irreversible damage from environmental accidents; and
3. Irretrievable commitments of nonrenewable resources to justify current consumption.

Each of these is discussed below.

Use of Nonrenewable Resources That Would Commit Future Generations

Though not entirely irreversible, land use growth and growth patterns that would result from implementation of the proposed MTP/SCS would likely commit future generations to those uses. Once established, land use patterns can be difficult to change and/or significantly influence without considerable political, social, and economic cost. The development pattern reflected on the MTP/SCS map represents a commitment of these areas to urban uses for the foreseeable future. Under the proposed MTP/SCS, the majority (approximately 66 percent) of the SACOG region would remain designated for agricultural and open space uses, and the remainder (approximately 34 percent) would be designated for urban and development-supporting uses.

For the purposes of this particular analysis, it is important to evaluate the proposed MTP/SCS in the context of resource commitments that would occur absent the project. The proposed MTP/SCS represents an improved and more efficient land use pattern, with more growth concentrated on less land and closer to existing infrastructure, than under the 2008 MTP (which did not include a formal SCS component because it preceded the adoption of SB 375). The result is better utilization of already developed land and better utilization of new land to be converted at the urban edge or in undeveloped areas of the region. As a secondary result, per-capita use of other nonrenewable resources decreases under this plan. These include: lower per-capita use of energy and fuels; less conversion of agricultural, open space, and habitat lands; lower per-capita emissions of air pollutants, including GHGs; and significantly slower climate change effects over time.

As an example, from 1988 to 2005, a period of 17 years, the region grew by approximately 657,000 people. In that same time, approximately 200,000 acres of farmland were converted to urban and rural development (over five percent of the total farmland in the region, much of which was higher-quality farmland). Consistent with the goals, objectives, and strategies of RUCS and the Blueprint to provide for orderly growth and development while preserving and conserving agricultural and open space land, the MTP/SCS was designed to reduce the rate of agricultural and open space land conversion to urban and rural development. While the MTP/SCS covers a longer planning period of 27 years (2008 through 2035) and forecasts greater population growth (871,000 people), the proposed MTP/SCS if implemented would result in a substantial decrease in farmland and open space conversion as compared the prior 17-year planning period. Specifically, the proposed MTP/SCS forecasts the conversion of only 36,400 acres of farmland by 2035. This acreage amounts to one percent of the total area designated as agriculture and/or open space in the region. As demonstrated in this Draft EIR, less than half of that impact comes from protected farmland (prime, unique, and statewide significant farmlands). This significantly lower rate of conversion is due largely to local and regional efforts to balance urban expansion with the protection of economically viable farmland.

Land use and development consistent with the proposed MTP/SCS would also result in irreversible changes by increasing densities and introducing development onto infill sites that are presently undeveloped. This would be considered a beneficial outcome because it improves the efficiency of land utilization in existing developed areas.

While use of nonrenewable energy and fuel; conversion of agriculture, open space, and habitat; release of pollutants emissions into the atmosphere; and climate change effects are in and of themselves generally irreversible resource commitments, the fact that the proposed MTP/SCS changes (slows) these rates is a beneficial outcome of this plan. It increases opportunities and options for the future. In the context of outcomes under the existing 2008 MTP, the expected results of implementation of this proposed MTP/SCS are better for the regional environment.

Overall, implementation of the proposed MTP/SCS would commit existing and future generations to a more efficient use of nonrenewable resources than under existing or presently planned conditions.

Irreversible Damage from Environmental Accidents

Any growth in the region includes the potential for irreversible damage from environmental accidents. For example, greater densities expose more people in the same area to unexpected environmental events such as fire, flood, and/or earthquake. Also, urban environments generally experience higher levels of noise, higher pollutant emissions, more vehicles, and increased people-to-people interactions. In addition, irreversible changes to the physical environment could occur from the accidental release of hazardous materials associated with transport on roadways and/or from some development activities such as certain industrial processes.

However, this exposure would exist under any growth scenario. Federal and state regulations require the proposed MTP/SCS to accommodate expected growth in the region based on market-

based forecasts. The SCS minimizes the footprint of that growth. Implementation of the proposed MTP/SCS does not, in and of itself, result in greater potential of irreversible damage from an environmental accident.

Irretrievable Commitments of Nonrenewable Resources to Justify Current Consumption

The region has multiple nonrenewable resources including agricultural lands, open space, habitat areas, and mineral resources areas that contain aggregate and natural gas. Increased levels of development outside of already developed areas could result in permanent loss or other adverse impacts to these resource areas. In addition, increased levels of development throughout the region could result in greater use of nonrenewable resources during construction, including nonrenewable aggregates, or increased use of glass, plastic, and other petroleum products.

While approximately 53,000 acres of undeveloped land would be converted to urban land uses as a result of implementation of the proposed MTP/SCS, this area of potential impact is much smaller than would otherwise occur without regional efforts to encourage more compact growth following "smart growth" principles and direct as much growth as possible to existing developed areas. By increasing the density of development, and decreasing the footprint of growth, pressures to convert agricultural and open space lands outside areas planned for growth are decreased.

New growth generally results in additional demand for electricity, natural gas, and propane supplies and distribution. However, the proposed MTP/SCS, and other federal and state efforts, will result in lower per-capita demand by: encouraging higher density infill development; encouraging energy conservation in new construction and existing buildings; and reducing the infrastructure energy demands by encouraging alternative transportation such as bicycling, walking, and public transit. Furthermore, the proposed MTP/SCS will result in lower per-capita VMT through the horizon year. Chapter 8 of the DEIR further addresses this.

Summary

Any growth in the region will result in significant irreversible resource commitments. In evaluating the significance of a project's irreversible resource commitments, CEQA requires a lead agency to consider whether such commitments are "justified" (CEQA Guidelines, § 15126.2(c)). As discussed above, and consistent with the project objectives for the proposed MTP/SCS, the proposed MTP/SCS is designed to minimize irreversible resource commitments, thus maximizing opportunities for future generations. While the proposed MTP/SCS will result in irreversible resource commitments, by encouraging higher density, less-consumptive development, as compared to the environmental baseline and forecasted conditions, the commitments are justified and beneficial. Therefore, these commitments are considered a less than significant (LS) impact under CEQA.

CUMULATIVE IMPACTS

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the proposed project alone, or together with other projects. The CEQA Guidelines state: "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects" (CEQA Guidelines, § 15355). A cumulative impact of concern under CEQA occurs when the net result of combined individual impacts compounds or increases other overall environmental impacts (CEQA Guidelines, § 15355). In other words, cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Methodology

The proposed MTP/SCS is a cumulative plan by definition. It is a transportation and land use plan for an entire region of the state that shares, or is connected by, common economic, social, and environmental characteristics. The SACOG region is comprised of 3,863,373 acres which equates to 6,037 square miles and includes 6 counties and 22 cities, for a total of 28 jurisdictions. Together with the other three largest regional governments in the state (Southern California, San Diego, and San Francisco Bay Area) it is home to 90 percent of the state's population. As such, the environmental analysis of the proposed MTP/SCS is a cumulative analysis compliant with the requirements of CEQA and the CEQA Guidelines. Furthermore, this Draft EIR contains detailed analysis of Regional (cumulative) Impacts, as differentiated from Localized Impacts (by Community Type) for every identified impact area. Nevertheless, the following discussion examines impacts associated with implementation of the proposed MTP/SCS, plus implementation of planned growth for all jurisdictions adjoining the SACOG region, in order to assess the potential for cumulative impacts from growth extending beyond SACOG's jurisdictional boundaries.

When evaluating cumulative impacts, CEQA allows the use of either a list of past, present, and probable future projects, including projects outside the control of the lead agency, or a summary of projections in an adopted planning document, or a thoughtful combination of the two approaches. The cumulative analysis presented below uses a projections-based approach. Land use and growth projections for the SACOG region, which are the subject of analysis throughout this Draft EIR, are combined with the growth projections for all of the counties (and their cities) that adjoin the SACOG region. In other words, the geographic scope for the subject cumulative analysis covers the entire SACOG region plus the projected growth within each county (including both unincorporated and incorporated areas) that adjoins the SACOG regional boundary, as follows:

- Alpine County
- Amador County
- Butte County
- Colusa County
- Contra Costa County
- El Dorado County (Tahoe portion)
- Lake County
- Napa County
- Nevada County
- Placer County (Tahoe portion)
- Plumas County
- San Joaquin County
- Sierra County
- Solano County

The area will be referred to in this analysis as the "cumulative impact analysis area." The general plans for the surrounding jurisdictions were used to compile a table of planned land uses for the cumulative impact analysis area (Table 19.3). As shown in Table 19.4, the population for the cumulative impact analysis area is projected to grow from just over 5.0 million people to 7.4 million by 2035.

Table 19.3
Estimated Cumulative Land Uses for the SACOG Region and Surrounding Counties (2035)

Jurisdiction	Open Space	Agriculture	Parks/ Recreation	Other (undeveloped lands)	Residential	Office and Commercial	Industrial	Public	Mixed Use/ Spec Plan	Total
SACOG Region[1]	843,660	1,699,521	77,995	467,059[11]	637,534	30,111	40,279	65,591	1,623	3,3863,373
Alpine[2]	461,482	0	5,852	963[12]	4,228	169	295	163	2,419	475,572
Amador[3]	96,245	260,773	0	15,013[12]	10,145	1,579	1,717	1,050	1,354	527,876
Butte[4]	39,117	829,762		15,542[12]	108,683	2,812	2,251	31,198	1,547	1,030,912
Colusa[5]	121,757	605,690	0	891[12]	5,046	1,234	5,199	0		739,817
Contra Costa[5]	149,075	105,214	0	108,924[12]	108,179	14,643	17,274	0	11,759	515,067
El Dorado (TRPA Portion)[5]	93,288	1		37,549[12]	8,904	1,648	0	0	0	141,389
Lake[5]	402,712	334,282	0	48,030[12]	61,767	3,383	501	0	855	851,530
Napa[6]	140,446	321,936	57	1,300[12]	25,752	4,740	3,369	3,232	30	500,862
Nevada[7]	361,437	0	1,710	94,909[12]	127,909	1,679	2,167	6,989	24,314	621,113
Placer (TRPA Portion)[5]	40,705	10	0	50,496[12]	5,279	819	0	0	0	97.309
Plumas[8]	1,289	1,525,098	9,196	39,158[12]	92,959	1,895	2,493	0	0	1,672,088
San Joaquin[5]	21,607	7,538,891	0	3,052[12]	79,401	29,040	24,774	13,906	175	7,710,846
Sierra[9]	1,451	575,514	0	4,959[12]	3,785	146	921	40	0	586,816
Solano[10]	111,769	322,048	2,227	82,579[12]	41,740	17,565	10,255	2,541	5,194	595,918
Total	2,886,040	14,118,738	97,037	970,424[12]	1,321,312	111,463	111,494	124,710	49,270	19,790,489
SACOG as Percent of Total	29.2%	12.0%	80.4%	48.1%	48.3%	27.0%	36.1%	52.6%	3.3%	19.5%

[1] SACOG region wide data, 2008. Note El Dorado County does not have a Parks & Recreation designation, Yuba County combines open space and parks and recreation with agriculture designations. SACOG developed footprint includes residential, office and commercial, industrial, and mixed-use categories. In this table, in the SACOG region, mixed use is vertical mixed-use only, specific plans are included in the other developed categories (residential, office & commercial, industrial).

[2] Alpine County GIS data, 2011.

[3] Amador County, 2011. Amador County Preliminary Draft General Plan, 2011.

[4] Butte County, 2010. Butte County General Plan 2030.

[5] Cal-Atlas Geospatial Clearinghouse. 2006. Data is a part of a UC Davis project to combine all county general plan land use designations in one dataset. The dataset combines Parks/Rec and Public acreage with Open Space. For the purposes of this table, Open Space acreages include open space, parks, recreation, ec and public.

[6] County of Napa, 2007. Napa County General Plan Update Draft Environmental Impact Report, 2007; City of Calistoga, 2003. City of Calistoga 2003 General Plan; City of St. Helena, 2010. St. Helena General Plan Update 2030; City of Napa, 2010. Envision Napa 2020 Policy Document, 2010. Cities of American Canyon and Yountville information extracted from Cal-Atlas Geospatial Clearinghouse, 2006.

[7] County of Nevada GIS data 2011.; City of Grass Valley, 1998. Grass Valley General Plan Background Report; Nevada City data extracted from Cal Source GIS data, 2011; Town of Truckee,2006. Town of Truckee 2025 General Plan.

[8] County of Plumas Planner. Personal communication with SACOG. October 26. City of Portola data extracted from Cal-Atlas Geospatial Clearinghouse. 2006 (see footnote 5).

[9] County of Sierra. 1996. Sierra County General Plan 2012.; City of Loyalton data extrapolated from Cal-Atlas Geospatial Clearinghouse. 2006 (see footnote 5).

[10] County of Solano GIS data 2008.; City of Benicia, 1999. City of Benicia General Plan, 1999.; City of Rio Vista, 2002. Rio Vista General Plan 2001, 2002.; City of Suisun, 1992. City of Suisun City General Plan, 1992.; City of Dixon, City of Fairfield, City of Vallejo, and City of Vacaville data are from Cal-Atlas Geospatial Clearinghouse. 2006 (see footnote 5).

[11] For the SACOG region, "Other" land uses includes water, roads, rights of ways, hazardous waste, urban reserve, undesignated and unmapped areas, and urban designations that are expected to remain vacant through 2035.

[12] For counties outside of the SACOG region, "Other" category includes water, roads, right of ways, hazardous waste, urban reserve, and undesignated and unmapped areas.

Table 19.4
Estimated Existing and Projected Growth for Adjacent Planning Areas (2008 to 2035)

	Population			Housing Units			Employees		
Jurisdiction	2008	2035	Annual Percent Change	2008	2035	Annual Percent Change	2008	2035	Annual Percent Change
SACOG region	2,215,044	3,086,213	1.46%	885,082	1,188,210	1.23%	966,285	1,327,423	1.38%
Alpine	1,347[1]	1,437[1]	0.24%	1,748	1,117[5]	-1.34%	773	1,166	1.88%
Amador	39,341[1]	58,169[1]	1.77%	17,234	20,818[5]	0.77%	12,700	16,000	0.96%
Butte	215,755[6]	332,459	2.00%	94,041[7]	143,948	1.97%	68,766[8]	112,279	2.34%
Colusa	22,835[1]	36,310[1]	2.19%	7,765	10,426[5]	1.27%	8,200	11,100	1.31%
Contra Costa	1,052,044[1]	1,516,049[1]	1.63%	391,697[2]	562,943[3]	1.62%	335,256[4]	479,373	1.59%
El Dorado (Tahoe Portion)	32,202[9]	36,201	0.46%	23,207[10]	27,005	0.61%	8,948[11]	9,583	0.26%
Lake	65,769[1]	91,976[1]	1.48%	35,348	39,538[5]	0.44%	13,800	18,700	1.32%
Napa	139,242[1]	205,445[1]	1.76%	54,045[2]	59,537[3]	0.38%	68,640[4]	88,838	1.09%
Nevada	100,626[1]	127,172[1]	0.98%	50,364	60,221[5]	0.72%	29,800	39,800	1.24%
Placer (Tahoe Portion)	9,484[11]	9,749	0.10%	11,235[10]	12,344	0.37%	3,854[11]	3,995	0.14%
Plumas	21,633[1]	25,405[1]	0.65%	15,457	17,681[5]	0.53%	6,900	8,500	0.86%
San Joaquin	677,264[11]	1,238,880[9]	3.07%	229,874[12]	395,089[12]	2.66%	214,959[13]	308,516[13]	1.61%
Sierra	3,643[1]	3,323[1]	-0.32%	2,289	2,093[5]	-0.32%	771	888	0.56%
Solano	432,248[1]	643,686[1]	1.81%	150,573[2]	195,850[3]	1.11%	122,297[4]	176,711	1.65%
Total	5,028,478	7,412,472	1.76%	1,969,960	2,727,432	1.42%	1,861,948	2,602,872	1.47%
SACOG as Percent of Total	44.05%	41.64%		44.93%	43.57%		51.90%	51.00%	

[1] Interpolated population for 2008 and 2035 based on California DOF projections (2007).
[2] Housing units based on MTC's Plan Bay Area household projections (2011) and DOF vacancy rates for 2008.
[3] Housing units based on MTC's Plan Bay Area household projections (2011) and DOF vacancy rates for 2010.
[4] Interpolated employment for 2008 based on MTC's Plan Bay Area (2011).
[5] Housing units calculated based on Caltrans Long-Term Socioeconomic Forecasts by County (2011) household projections and 2010 DOF vacancy rates applied to households.
[6] Interpolated population for 2008 based on BCAG's Long Term Regional Forecast (2011).
[7] Interpolated housing units for 2008 based on BCAG's Long Term Regional Forecast (2011).
[8] Interpolated employment for 2008 based on BCAG's Long Term Regional Forecast (2011).
[9] Interpolated population for 2008 based on TRPA's forecast (2007).
[10] Interpolated housing units based on TRPA's forecast (2007).
[11] Interpolated employment based on TRPA's forecast (2007).
[12] Interpolated population for 2008 and 2035 based on SJCOG's growth projections (2004).
[13] Interpolated housing units for 2008 and 2035 based on SJCOG's growth projections (2004).
[14] Interpolated employment for 2008 and 2035 based on SJCOG's growth projections (2004).

Sources: California Department of Finance. 2007. Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity. Sacramento, CA. California Department of Transportation. 2010. California County-Level Economic Forecast 2010-2035. Sacramento, CA. Association of Bay Area Governments and Metropolitan Transportation Commission. 2011. Plan Bay Area. Oakland, CA. Butte County Association of Governments. 2011. Butte County Long-Term Regional Growth Forecasts 2010-2035. Chico, CA. San Joaquin Council of Governments. 2004. 2005-2030 Population and Employment Projections, Staff Report. Stockton, CA. Tahoe Regional Planning Association. 2007. Population, Housing and Employment Forecast 2005-2035. Stateline, NV. California Department of Finance. 2011. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2010. Sacramento, CA.

As demonstrated in Table 19.4 above, the SACOG region comprises a little over 44 percent of the existing population, almost 45 percent of the existing number of housing units, and almost 52 percent of the existing number of employees in the cumulative impact analysis area. By 2035, this proportion is expected to drop slightly in all three categories. Nevertheless, under both current and forecasted future conditions, the SACOG region represents a substantial portion of the growth in the cumulative analysis impact area, and for employees it represents a slim majority. The implications of this for this analysis are that the contributions of the region are, and will continue over time to be, a large proportion of the activity in many environmental impact categories. This general assumption is reflected in the discussion below.

Cumulative Effects of the Proposed MTP/SCS

The following analysis examines the cumulative effects of the proposed MTP/SCS. The potential cumulative effects of the proposed MTP/SCS are summarized qualitatively below for each of the topics analyzed in Chapters 3 through 18 of this Draft EIR.

Aesthetics

Aesthetic impacts associated with implementation of the proposed MTP/SCS are analyzed in Chapter 3 of this Draft EIR. Many of the aesthetic resources experienced in the cumulative impact analysis area are similar to those experienced regionally in the SACOG plan area: agricultural lands and open space, skylines and mountain views, historic downtowns and landmarks, forests and habitat areas, parks and recreation areas, and rivers and waterways.

Some types of impacts to aesthetic resources are localized and not cumulative in nature. For example, the creation of glare or shadows at one location is not worsened by glare or shadows created at another location. Rather these effects are independent, and the determination as to whether they are adverse is specific to the project and location where they are created. Projects that block a view or affect the visual quality of a site also result in localized impacts. The impact occurs specific to a site or area and remains independent from another project elsewhere that may block a view or degrade the visual environment of a specific site.

There are two types of aesthetic impact that may be additive in nature and thus cumulative, night sky lighting and overall changes in the visual environment as the result of increasing urbanization of large areas. As development in one area, such as a regional urban center like downtown Sacramento, increases and possibly expands over time and meets or connects with development in an adjoining ex-urban area, the effect of night sky lighting experienced outside of the region may increase in the form of larger and/or more intense nighttime glow in the viewshed. Although growth in the proposed MTP/SCS is primarily focused on Centers and Corridors and Established Communities, development outside of those geographies with long-distance views, nighttime lighting may become more visible, cover a larger area, and/or appear in new areas as a result of planned development under the proposed MTP/SCS.

With regard to the visual environment experienced throughout the cumulative impact analysis area, as planned cumulative development occurs over time the overall visual environmental will change. Whether this overall change in land use is experienced as an adverse or beneficial

outcome is highly subjective. However, the combination of forecasted development in the SACOG region and planned development in neighboring counties will result in a different visual environment than currently exists. For the purposes of this analysis, the cumulative impacts associated with night sky lighting and changes in the visual environment are considered potentially significant (PS) and the contribution of the region to these impacts may be cumulative considerable.

Implementation of mitigation measures in Chapter 3 would minimize the contribution of the proposed MTP/SCS to cumulative aesthetic impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to acceptable levels.

Impact CUM-1: The contribution of the proposed MTP/SCS to cumulative aesthetic impacts in the form of night sky lighting and cumulative changes in the visual environment may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-1: Implement Mitigation Measures in Chapter 3. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

Agriculture and Forestry Resources

Loss of agriculture and forest resource associated with implementation of the proposed MTP/SCS is analyzed in Chapter 4 of this Draft EIR. The following discussion addresses cumulative impacts to agriculture and forestry resources.

Implementation of the MTP/SCS would result in conversion of approximately 36,400 acres of agriculture and open space to urban use. While this represents total agricultural land lost in the SACOG region, neighboring counties would also continue to convert agricultural land due to development outside of the SACOG region. Collectively this adds to the overall conversion of agricultural lands in the cumulative impact analysis area. As such, the cumulative loss of agricultural lands may be potentially significant (PS).

The amount of designated forest resources that would be impacted or lost as a result of implementation of the MTP/SCS through 2035 is 5,602 acres. While loss of forest resources would not extend beyond this amount within the SACOG region, neighboring counties could also convert forest resources due to development, which would add to the overall conversion of forest resources in the cumulative impact analysis area. As such, the cumulative loss of forest resources may be potentially significant (PS).

Implementation of mitigation measures in Chapter 4 would minimize the contribution of the proposed MTP/SCS to cumulative agricultural and forest land impacts, but would not reduce

them to less-than-significant levels. Furthermore, as the cumulative impact analysis area develops land use conflicts between agricultural and forest land, and urban uses, could intensify particularly at the edge of existing cities and communities. Consequently, cumulative impacts to agricultural and forest resources, and the regional contribution to them, remain potentially significant (PS).

Impact CUM-2: The contribution of the proposed MTP/SCS to cumulative loss of agricultural and forest land would be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-2: Implement Mitigation Measures in Chapter 4. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).

Air Quality

Chapter 5 includes a detailed analysis of the air quality conditions related to implementation of the proposed MTP/SCS. This analysis includes an analysis of regional and localized air quality impacts such as impacts from air emissions during construction and operation, exposure to TACs, and odor impacts. The discussion below addresses cumulative air quality impacts beyond the region.

California is divided geographically into 15 air basins for the purpose of managing the air resources of the state on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The SACOG region falls primarily within the Sacramento Valley Air Basin with portions of Placer and El Dorado counties within the Mountain Counties Air Basin. The counties outside of the SACOG region, within the cumulative analysis impact area, lie within the following adjoining air basins:

- Alpine County – Great Basin Valleys
- Amador County – Mountain Counties
- Butte County – Sacramento Valley
- Colusa County – Sacramento Valley
- Contra Costa County – San Francisco Bay Area
- El Dorado County (Tahoe portion) – Lake Tahoe
- Lake County – Lake County
- Napa County – San Francisco Bay Area
- Nevada County – Mountain Counties
- Placer County (Tahoe portion) – Lake Tahoe
- Plumas County – Mountain Counties
- San Joaquin County – San Joaquin
- Sierra County – Mountain Counties
- Solano County – Sacramento Valley and San Francisco Bay Area

In each of these basins, the state has identified specific pollutants for which emissions levels have exceeded applicable federal and state pollutant standards. These pollutants are identified as "nonattainment" for the basin. Growth in the cumulative impact analysis area would exacerbate the non-attainment status of these basins by adding criteria pollutants emitted from various planned land uses. Growth within a specific region can exacerbate pollution levels within the basin in which it lies but it can also potentially exacerbate pollution levels within neighboring basins when pollutant "transport" occurs. Pollutant transport is a result of a variety of topographical and atmospheric conditions that cause pollution generated in one location to be moved (transported) to another location outside of the air basin in which it originated.

Projected growth within the cumulative impact analysis area will result in a potentially significant (PS) cumulative impact from air emissions adversely affecting a number of air basins. The regional contribution to these cumulative air quality impacts may also be potentially significant (PS). Implementation of mitigation measures in Chapter 5 would minimize the contribution of the proposed MTP/SCS to cumulative air quality impacts, but would not reduce them to less-than-significant levels. Consequently, cumulative impacts to air quality, and the regional contribution to them, remain potentially significant (PS).

Impact CUM-3: The contribution of the proposed MTP/SCS to cumulative air quality impacts in the region would be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-3: Implement Mitigation Measures in Chapter 5. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).

Biological Resources

The effect of implementation of the proposed MTP/SCS on regional biological resources is analyzed in Chapter 6 of this Draft EIR. The discussion below addresses the project contributions to cumulative impacts to biological resources.

The amount of habitat, both wildland and agricultural, for special-status species and other important natural communities (including riparian habitat, oak woodlands, and wetlands) that would be impacted or lost as a result of development in the SACOG region through 2035 is 53,914 acres. While this represents total acres of special status species and important natural communities habitat lost at the regional level due to implementation of the proposed MTP/SCS, adjoining counties may also convert habitat land for development outside of the SACOG region.

Implementation of the proposed MTP/SCS and cumulative development would also result in disruption of movement corridors and nursery sites. Actions by neighboring counties may further impact these biological resources. Collectively, this adds to the overall impacts to biological resources in the cumulative impact analysis area.

Projected growth within the cumulative impact analysis area will result in a potentially significant (PS) cumulative impact to biological resources. The regional contribution to these cumulative impacts to biological resources may also be potentially significant (PS). Implementation of mitigation measures in Chapter 6 would minimize the contribution of the proposed MTP/SCS to cumulative impacts to biological resources, but would not reduce them to less-than-significant levels. Consequently, cumulative impacts to biological resources, and the regional contribution to them, remain potentially significant (PS).

Impact CUM-4: The contribution of the proposed MTP/SCS to cumulative impacts to biological resources may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-4: Implement Mitigation Measures in Chapter 6. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).

Cultural Resources

The effect of implementation of the proposed MTP/SCS on cultural resources is analyzed in Chapter 7 of this Draft EIR. While some cultural resources may have regional significance, the resources themselves are site-specific, and impacts to them are project-specific. For example, impacts to a subsurface archeological find at one project site are generally not made worse by impacts from another project to a cultural resource at another site. Rather the resources and the effects upon them are generally independent. A possible exception to this would be a cultural resource that represents the last known example of its kind. For such a resource, cumulative impacts, and the contribution of the proposed MTP/SCS to them, may be potentially significant (PS).

Implementation of mitigation measures in Chapter 7 would minimize the contribution of the proposed MTP/SCS to cumulative impacts to cultural resources. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to acceptable levels.

Impact CUM-5: The contribution of the proposed MTP/SCS to cumulative impacts to cultural resources may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-5: Implement Mitigation Measures in Chapter 7. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

Energy and Global Climate Change

Energy consumption related to implementation of the proposed MTP/SCS is analyzed in Chapter 8 of this Draft EIR. Demand for electrical power and natural gas has the potential to affect an area larger than the SACOG region in a cumulative manner, because energy systems are interconnected over large areas that may even crossover into other states and countries. If growth of area-wide supplies does not keep pace with area-wide demand, the effects of growth and development in the cumulative impact analysis area have the potential to create shortages, resulting in a potentially significant (PS) cumulative impact.

To reduce the consumption of energy and maintain consistency with smart growth principals, the proposed MTP/SCS includes a proposed land use plan and transportation system focused on mixed uses, compact development, and transportation choices. As a result, as documented in Chapter 8, implementation of the proposed MTP/SCS is anticipated to result in a per-capita and total reduction in energy use in the SACOG region. As such, despite other growth and development in the cumulative impact analysis area that could result in increases in the demand for energy, the contribution of the proposed MTP/SCS to cumulative energy impacts would be less than significant (LS).

Impact CUM-6: The contribution of the proposed MTP/SCS to cumulative energy consumption is considered to be a less than significant impact (LS).

Mitigation Measure CUM-6: None required.

Chapter 8 also analyzes climate change impacts associated with implementation of the proposed MTP/SCS. Climate change is considered a global cumulative issue due to the nature of associated environmental changes. As demonstrated in Chapter 8, implementation of the proposed MTP/SCS would be consistent with statewide and regional plans and would achieve the statewide target for future year emissions reductions required under SB 375 and AB 32. Therefore, although growth and development in the cumulative impact analysis area is likely to result in increases in cumulative GHG emissions and contributions to global climate change, the MTP/SCS's contribution to this cumulative impact is not cumulatively considerable and would be less than significant (LS).

Impact CUM-7: The contribution of the proposed MTP/SCS to cumulative GHG emissions and global climate change is considered to be a less than significant impact (LS).

Mitigation Measure CUM-7: None required.

Geology, Soils, Seismicity and Mineral Resources

Impacts to geology, soils, seismicity, and mineral resources, related to implementation of the proposed MTP/SCS are analyzed in Chapter 9 of this Draft EIR. While some geologic features may affect regional construction practices, such as seismicity or soil elasticity, impacts and mitigation measures are site-specific and project-specific. For example, impacts resulting from development on expansive soils at one project site are not worsened by impacts from

development on expansive soils at another project site. Rather the soil conditions, and the implications of those conditions for each project, are independent.

Mineral resources are similar in that impacts resulting from development over sub-surface mineral resources at one project site are generally not worsened by impacts from development over mineral resources at another project site. The exception would be where a particular resource deposit is rare and/or unique.

As such, the potential for cumulative impacts related to geology, soils, seismicity and mineral resources, to which implementation of the proposed MTP/SCS might contribute, is less than significant.

Impact CUM-8: The contribution of the proposed MTP/SCS to cumulative impacts to geology, soils, seismicity, or mineral resources is considered to be a less than significant impact (LS).

Mitigation Measure CUM-8: None required.

Hazards and Hazardous Materials

Impacts associated with hazards and hazardous materials related to implementation of the proposed MTP/SCS are analyzed in Chapter 10 of this Draft EIR. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by other development outside of the region. Therefore, the contribution of the proposed MTP/SCS to cumulative impacts related to hazards and hazardous materials would be less than significant (LS).

Impact CUM-9: The contribution of the proposed MTP/SCS to cumulative impacts to hazards and hazardous materials is considered to be a less than significant impact (LS).

Mitigation Measure CUM-9: None required.

Hydrology and Water Quality

Impacts associated with hydrology and water quality related to implementation of the proposed MTP/SCS are analyzed in Chapter 11 of this Draft EIR. Some types of impacts are localized and not cumulative in nature; for example, creating or contributing to runoff, exposure to risk from failure of a levee or dam, mudflow inundation, and violations of water quality and/or discharge standards. These effects occur independently of one another, related to site-specific and project-specific characteristics and conditions.

There are, however, hydrology and water quality impacts that may be additive in nature and thus cumulative, including for example, placing housing or other structures within a flood hazard area, alterations of the drainage pattern of an area that results in off-site flooding, land subsidence from groundwater overdraft, and general degradation of water quality.

Development within a flood hazard area results in incremental modifications over time that can have cumulative adverse effects during a flood event by impeding and displacing flows, and thereby potentially exacerbating flooding overall. With regard to alterations of the drainage pattern of an area, as development in one area contributes incrementally to surface drainage runoff or degrades water quality and development in another area up- or down-stream does the same, the capacity of a drainage-way to carry flood flows and/or the overall all quality of the water may be cumulatively affected. Similarly, depending on the aquifer characteristics, the effects of groundwater withdrawal in one area can be exacerbated by effects elsewhere and have a cumulative effect which manifests itself in the form of land subsidence. Moreover, new development and associated impervious cover, in areas of moderate and high potential for recharge, would have a significant cumulative impact on groundwater recharge. These impacts, and the contribution of the proposed MTP/SCS to them, could be potentially significant on a cumulative basis.

Implementation of mitigation measures identified in Chapter 11 will minimize the contribution of the proposed MTP/SCS to cumulative hydrology and water quality impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to acceptable levels.

Impact CUM-10: The contribution of the proposed MTP/SCS to cumulative impacts to hydrology and water quality in the form of off-site flooding, land subsidence from groundwater overdraft, and general degradation of water quality may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-10: Implement Mitigation Measures in Chapter 11. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

Land Use and Planning

Impacts associated with land use and planning related to implementation of the proposed MTP/SCS are analyzed in Chapter 11 of this Draft EIR. Consistency with SB 375 within the cumulative impact analysis area is potentially significant as the state goes through the next round of updates to Regional Transportation Plans, and the first round of implementation of SB 375. However, the requirements of state and federal law, and CEQA requirements for these plan updates, provide mechanisms for public disclosure and consistency. The proposed MTP/SCS has been analyzed for consistency with SB 375 and found to be fully compliant. Therefore, the contribution of the proposed MTP/SCS to cumulative impacts related to land use and planning would be less than significant (LS).

Impact CUM-11: The contribution of the proposed MTP/SCS to cumulative land use and planning impacts is considered to be a less than significant impact (LS).

Mitigation Measure CUM-11: None required.

Noise

Impacts associated with noise related to implementation of the proposed MTP/SCS are analyzed in Chapter 13 of this Draft EIR. Noise impacts are generally experienced locally and are not cumulative in nature. These effects occur independently of one another, related to site-specific and project-specific characteristics and conditions.

However, increased traffic from implementation of the proposed MTP/SCS could contribute to a significant increase in traffic noise levels on roadway segments throughout the cumulative impact analysis area, beyond accepted thresholds in various communities outside of the region. This impact could be potentially significant on a cumulative basis.

Implementation of mitigation measures identified in Chapter 13 would minimize the contribution of the proposed MTP/SCS to cumulative noise impacts. However, the combination of planned development in the SACOG region along with planned development in neighboring counties may result in cumulative noise impacts that are not fully mitigated. For this reason, the contribution of the proposed MTP/SCS to this cumulative impact is considered to be potentially significant (PS).

Impact CUM-12: The contribution of the proposed MTP/SCS to cumulative noise impacts may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-12: Implement Mitigation Measures in Chapter 13. Implementation of these measures will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).

Population and Housing

Impacts associated with population and housing related to implementation of the proposed MTP/SCS are analyzed in Chapter 14 of this Draft EIR. Through 2035, an additional 871,000 people and 303,000 housing units are forecasted to be added in the region. As noted above, and as shown in Table 19-2, this will represent about 42 percent of the population and 44 percent of the housing expected to be added overall in the cumulative impact analysis area by 2035.

Environmental impacts associated with these increases in population and housing are addressed in the other chapters of this Draft EIR, and throughout this cumulative analysis discussion. Independently, the projected increases in population and housing will have no additional cumulative effects. Therefore this impact is considered to be less than significant (LS).

Impact CUM-13: Implementation of the proposed MTP/SCS in conjunction with other planned development outside of the region would result in increases in population and housing. The potential cumulative environmental impacts of this are captured in other impact statements in this chapter. This change, in and of itself, is less than significant (LS).

Mitigation Measure CUM-13: None required.

Public Services and Recreation

Impacts to public services and recreation related to implementation of the proposed MTP/SCS are analyzed in Chapter 15 of this Draft EIR. This assessment includes an analysis of law enforcement, fire protection, emergency services, schools, libraries, social services, and parks and recreation. These public services are generally provided by local governments for areas within their jurisdictions and are typically not provided on a regional or extra-regional basis. However, there are some exceptions, which are discussed below.

Law enforcement, fire protection, and emergency services are provided by local governments or fire protection districts for areas within their jurisdiction, although mutual aid agreements between agencies do help spread resources. The California Highway Patrol (CHP) has specific jurisdiction over all California state routes (including all freeways and expressways), US Highways, Interstate Highways, and all public roads in unincorporated parts of a county. The US Forest Service and State Department of Forestry and Fire Protection (CAL FIRE) provide fire protection services within many rural areas.

Public schools are provided by school districts to areas within their jurisdictions. While districts may have cross-jurisdictional boundaries, school services are still provided at the local, rather than regional, level.

Libraries are also generally provided by local governments for areas within their jurisdiction, and services are not provided on a regional basis, although there are often regional cooperation programs.

Social services are generally provided by counties, and not provided on a regional basis.

Neighborhood and city/county parks and recreational services are provided by local governments for areas within their jurisdiction. The SACOG area also includes numerous regional, state, and federal parks, open space, and recreational areas.

The potential for cumulative impacts related to most public services and local parks and recreation, to which implementation of the proposed MTP/SCS might contribute, is less than significant (LS). The potential for cumulative impacts to: state routes, freeways, and other roads under the jurisdiction of the CHP; rural wildland fire areas protected by CAL FIRE; and regional, state, and federal parks, open space, and recreational areas is potentially significant (PS). As such, the contribution of the proposed MTP/SCS to those impacts is also potentially significant (PS).

Impact CUM-14: The contribution of the proposed MTP/SCS to cumulative public service impacts in the form of state routes, freeways, and other roads under the jurisdiction of the CHP; rural wildland fire areas protected by CAL FIRE; and regional, state, and federal parks, open space, and recreational areas may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-14: Implement Mitigation Measures in Chapter 15. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

Transportation and Traffic

Impacts to transportation and traffic related to implementation of the proposed MTP/SCS are analyzed in Chapter 16 of this Draft EIR. At the regional level, all transportation and traffic impacts associated with implementation of the proposed MTP/SCS are less than significant, which reflects the success of this MTP in: decreasing per-capita VMT; increasing person trips by bicycle, walking, and transit; improving infrastructure and connectivity for pedestrians, bicycles, and transit; and minimizing impacts to the movement of goods and agriculture.

As described in Chapters 2, 12 and 14, the proposed MTP/SCS is explicitly designed to maintain and foster the balance between jobs and housing within the region. The additional population, housing, and job growth forecasted for the 28-year planning period is not a result of the proposed MTP/SCS; the proposed MTP/SCS is a strategy to allocate growth in such a way as to achieve a more balanced jobs/housing ratio and to optimize transportation investments that support those land uses. By doing this, the proposed MTP/SCS results in lower VMT per capita, a greater mode share for non-motorized modes, and a decrease in the percent of inter-regional trips made. The potential for cumulative impacts related to traffic generated within the MTP/SCS plan area, to which implementation of the proposed MTP/SCS might contribute, is less than significant (LS).

Impact CUM-15: The contribution of the proposed MTP/SCS to cumulative transportation and traffic impacts is considered to be less than significant (LS).

Mitigation Measure CUM-15: None required.

Utilities and Service Systems

Impacts to utilities and services related to implementation of the proposed MTP/SCS are analyzed in Chapter 17 of this Draft EIR. This analysis included an examination of water supply, stormwater, wastewater, solid waste, natural gas, propane, electricity, and telecommunications. The utilities identified below are generally provided or delivered on a local level, but often originate from sources outside of the local jurisdiction and/or as part of a regional distribution system. The project's contribution to cumulative impacts associated with the provision of utilities is discussed below.

Water Supply and Infrastructure

Water supply and associated infrastructure have both local and regional aspects. The rivers that provide virtually all the surface water supplies in the SACOG region originate outside the region,

and travel through the region and beyond, providing water supply to jurisdictions inside and outside of the SACOG region along the way.

An increase in demand and water consumption in one region has the potential to affect supplies throughout California, because the surface water supply systems are substantively interconnected. Whereas, the groundwater upon which many parts of the SACOG region are dependent is generally local, based on aquifer characteristics. However, as shown in Figure 11.5, Groundwater Sub-Basins (Chapter 11 – Hydrology and Water Quality) portions of area groundwater sub-basins fall outside the SACOG region.

Development of future water supply and associated infrastructure regionally and beyond depends on several factors, such as surface water availability, groundwater recharge, land use density and land use type. Future urban growth (population, housing, and employees) will result in an increase in water supply needs and demand. Future growth in the cumulative impact analysis area could lead to potential future water shortages and depletion of existing water supplies. The potential effects of global climate change add further uncertainty. This impact, and the contribution of the proposed MTP/SCS to it, could be potentially significant on a cumulative basis.

Implementation of mitigation measures identified in Chapter 17 would minimize the contribution of the proposed MTP/SCS to cumulative water supply and infrastructure impacts. While impacts within the cumulative impact analysis area may remain potentially significant, impacts associated with the regional contribution to this impact would be mitigated to acceptable levels.

Impact CUM-16: The contribution of the proposed MTP/SCS to cumulative water supply and infrastructure impacts may be cumulatively considerable. This is considered to be a potentially significant impact (PS).

Mitigation Measure CUM-16: Implement Mitigation Measures in Chapter 17. If the implementing agency adopts these mitigation measures, it will reduce the contribution of the proposed MTP/SCS to cumulative impacts to a less than significant level. However SACOG cannot require implementing agencies to adopt these mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, the regional contribution to this cumulative impact remains significant and unavoidable (SU).

Stormwater and Infrastructure

Stormwater drainage systems in the SACOG region are generally provided by local governments for areas within their jurisdictions or for county/city areas combined, and are not typically provided on a regional or extra-regional basis. Stormwater drainage solutions typically depend on site-specific and project-specific characteristics and implementation. As such, stormwater drainage systems within the SACOG region would not be significantly affected by development outside of the region. Therefore, the potential for cumulative impacts related to stormwater and associated infrastructure, and the contribution of the proposed MTP/SCS to them, is considered to be less than significant (LS).

Impact CUM-17: The contribution of the proposed MTP/SCS to cumulative impacts to stormwater and associated infrastructure is considered to be a less than significant impact (LS).

Mitigation Measure CUM-17: None required.

Wastewater and Infrastructure

Wastewater service (sewer treatment) is generally a local or regional concern, as the wastewater treatment facilities and services are usually provided and regulated by local governments or special districts for areas within their jurisdiction. There are examples of service districts that have expanded their service area to include lands outside of the city or county of origin. For example, the Sacramento Regional County Sanitation District serves Sacramento County and its cities, as well as other adjoining areas. However, there are no examples of sewer systems or sewer service providers inside the SACOG region that serve areas outside of the SACOG region. As such, wastewater systems and associated infrastructure within the SACOG region would not be significantly affected by development outside of the region. The potential for cumulative impacts related to wastewater and associated infrastructure, and the contribution of the proposed MTP/SCS to them, would be less than significant (LS).

Impact CUM-18: The contribution of the proposed MTP/SCS to cumulative impacts to wastewater and associated infrastructure is considered to be a less than significant impact (LS).

Mitigation Measure CUM-18: None required.

Solid Waste

Solid waste management is generally provided at the county level by the respective counties and not on a regional basis. However some jurisdictions have contracted with areas outside of the region to export their solid waste. For example, Yolo County accepts waste from other jurisdictions in the region, and Placer County exports waste to the State of Nevada.

Implementation of the proposed MTP/SCS, in conjunction with other development projected to occur in the cumulative impact analysis area, has the potential to exceed available local solid waste capacity. Therefore, the potential for cumulative impact associated with solid waste could be potentially significant (PS) on a cumulative basis.

Impact CUM-19: The contribution of the proposed MTP/SCS to cumulative impacts associated with solid waste management is considered to be potentially significant (PS).

Mitigation Measure CUM-19: Implement Mitigation Measures in Chapter 17 will lessen this impact but not to a less than significant level. After mitigation, the regional contribution to this impact remains significant and unavoidable (SU).

Natural Gas, Propane, Electricity, and Telecommunications

Natural gas, propane, electricity, and telecommunications services are provided by various public and private utility providers serving the region. Market competition ensures the provision of these services, and with the exception of propane service, regulatory oversight is provided by the State Public Utilities Commission. Infrastructure issues are generally site-specific and/or project-specific in nature, and would not be significantly affected by development outside of the region. Therefore, cumulative impacts related to natural gas, propane, electricity, and telecommunications, and the contribution of the proposed MTP/SCS to them, would be less than significant (LS).

Impact CUM-20: The contribution of the proposed MTP/SCS to cumulative impacts related to natural gas, propane, electricity, or telecommunications services is considered to be a less than significant impact (LS).

Mitigation Measure CUM-20: None required.

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CHAPTER 17 – UTILITIES AND SERVICE SYSTEMS

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CHAPTER 18 – ALTERNATIVES ANALYSIS

No references cited.

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NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE MTP FOR 2035 UPDATE

December 14, 2010

To: All Interested Agencies and Persons
From: Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, Ca 95814 (916)321-9000

The Sacramento Area Council of Governments will be the Lead Agency and will prepare a programmatic environmental impact report for the Metropolitan Transportation Plan for 2035 Update (Proposed Project). This Notice of Preparation (NOP) is intended to alert regulatory and trustee agencies, interested agencies, organizations, and individuals of the preparation of the MTP 2035 Update Environmental Impact Report (EIR). The EIR will be prepared pursuant to the California Environmental Quality Act (CEQA).

SACOG is interested in your views about the scope and content of the information and analyses to be included in the EIR for the Proposed Project. If you represent an agency that may use the program EIR for tiering purposes, SACOG is particularly interested in learning what information may be helpful for such tiering in connection with your project-specific environmental review.

This NOP includes:

- A list of potential environmental effects
- A map of the Sacramento metropolitan area, which is the study area for the Proposed Project and the EIR. The metropolitan area includes the counties of Sacramento, Sutter, Yolo, and Yuba, and the portions of El Dorado and Placer Counties outside of the Lake Tahoe Basin.

SACOG seeks your views on the following questions:

- Are there potential environmental issues that SACOG has not identified in the list of potential environmental effects or the attached outline? If so, please identify these potential issues.
- Are there any alternatives you believe SACOG should evaluate?
- What types of mitigation measures do you think would help avoid or minimize potential environmental effects?

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice. Please submit your written responses **no later than January 18, 2010,** through any of the following methods:

By Mail	By Fax	By E-mail
Sacramento Area Council of Governments 1415 L Street, Suite 300 Sacramento, CA 95814	(916) 321-9551	eircomments@sacog.org

Comments regarding the scope of the EIR received during the 30-day NOP review period will be incorporated, as appropriate, in the environmental document.

BACKGROUND

SACOG is the designated metropolitan planning organization (MPO) for the counties of Sacramento, Sutter, Yolo, and Yuba, and for Placer and El Dorado Counties except for the Lake Tahoe Basin. Map 1 depicts the Sacramento Metropolitan Planning Area. To receive federal or state funding, projects nominated by cities, counties, and agencies must be consistent with the Metropolitan Transportation Plan.

The MTP is the long-range transportation plan that identifies region's vision and plans for the metropolitan transportation system. The MTP sets policies to guide transportation decisions and proposes a program of capital, operational, and management improvements needed by 2035. SACOG is required to update the Metropolitan Transportation Plan every four years.

SB 375

Since the adoption of the current MTP2035 in March 2008, a new California law, SB 375 (Sen. Bill No. 375 (2007-2008 Reg. Sess.)), was adopted to focus on aligning transportation, housing, and other land uses to achieve greenhouse gas (GHG) emission reduction targets established under AB 32 (Assem. Bill No. 32 (2005-1006 Reg. Sess.)). While other efforts to reduce GHG emissions focus on alternative fuels and vehicle efficiency, SB 375 is intended to more effectively reduce emissions by integrating land use and transportation planning to reduce overall passenger vehicle miles traveled. Through the development of a Sustainable Communities Strategy (SCS) that accompanies the MTP, policies and strategies will be identified to reduce per capita passenger vehicle-generated GHG emissions. The SCS will identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population of the region; identify areas within the region sufficient to house an 8-year projection of the regional housing need; identify a transportation network to serve the regional transportation needs; gather and consider the best practically available scientific information regarding resources areas and farmland in the region; consider the state housing goals; set forth a forecasted development pattern for the region; and allow the regional transportation plan to comply with the federal Clean Air Act. (Gov. Code, § 65080, subd. (b)(F)(2)(B).) If the SCS for the MTP update does not achieve the GHG emission targets set by the California Air Resources Board, an Alternative Planning Strategy must be developed to demonstrate how the targets could be achieved.

The EIR for the MTP Update will require analysis beyond what has been included in previous MTP EIRs. The MTP/SCS environmental analysis will include GHG emissions baseline measurements and projections, as well as potential mitigation measures to reduce those emissions. The EIR also will include analysis of the environmental effects of the MTP/SCS.

POTENTIAL ENVIRONMENTAL IMPACTS

The following types of potentially significant and adverse environmental impacts could result from the implementation of the MTP for 2035:

Aesthetics and Views

- Potential to create a new source of substantial light or glare
- Potential for substantial damage to scenic resources along or near designated scenic highways and/or vista points
- Potential to create significant contrasts with the overall visual character of the existing landscape setting

Agricultural Resources

- Potential impacts to prime or unique farmland or farmland of statewide importance
- Potential conflicts with existing zoning for agricultural use or Williamson Act contracts
- Potential for action that could result in conversion of farmland to non-agricultural use

Air Quality

- Potential conflict with an applicable air quality plan
- Potential violation of any air quality standard or a substantial contribution to an existing or projected air quality violation

Biological Resources

- Potential degradation of sensitive habitats, and reduction of wildlife habitat and native wildlife species
- Potential impacts to endangered and threatened species - either by direct impact onto the species itself or encroachment into areas of ecological significance by such species. This includes the possible interference with the movement of resident or migratory fish and wildlife species

Cultural and Historic Resources

- Potential for substantial change to historic or archaeological resources
- Potential for disturbance or destruction of a unique paleontological resource or unique geologic feature

Environmental Justice

- The proposed project has the potential to result in disproportionate adverse effects on minority and low-income populations in areas where major transportation improvements are proposed.

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- Potential for exposure to strong seismic ground shaking or seismic-related ground failure
- Potential for landslides, lateral spreading, subsidence, liquefaction or collapse
- Potential for substantial flooding or erosion

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- Potential for increased vehicle miles of travel (VMT) that lead to higher emissions

Hazards and Hazardous Materials

- Potential for increased safety risks due to the transport of hazardous materials.

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- Potential for substantial degradation of water quality
- Potential for substantial interference with ground water recharge
- Potential for substantial alteration of drainage patterns

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- Potential to disrupt or divide a community
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- Potential for the loss of availability of a known mineral resources or mineral resource recovery site that would be of value to the region and residents of the state

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- Noise-sensitive land uses could be exposed to noise in excess of locally adopted standards or substantial increases in noise as a result of the operation of expanded or new transportation facilities

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- Potential for displacement of residents and businesses
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- Potential impacts to:
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    - Police protection
    - Schools
    - Public parks
    - Other public facilities, e.g. Hospitals

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- Potential to increase the use of regional parks and recreation facilities such that substantial physical deterioration would occur or be accelerated

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- Potential to result in inadequate emergency access
- Potential conflicts with adopted policies, plans, or programs supporting alternative transportation modes

Utilities and Service Systems

- Projects may require relocation of utilities and/or disrupt utilities and services during construction and may increase demand for public services during operations.

The MTP EIR will also address cumulative impacts, growth inducing impacts, and other issues required by CEQA.

SCENARIOS TO BE ANALYZED IN THE EIR

SACOG will evaluate several project scenarios in the EIR. These scenarios will be studied and further refined during public scoping meetings and workshops. Each scenario will be compared for its potential to achieve the goals of the 2035 MTP, while reducing the significant regional environmental impacts.

Scenario 1 - No Project Alternative – The No Project Alternative is required by CEQA. For this EIR, the No Project Alternative is defined as a transportation network that includes projects that have already received funding, are scheduled for funding, and/or have received environmental clearance.

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Scenario 3 - Land use patterns focused on supporting high transit ridership and productivity. Transportation network has high investment in transit service and supportive road, pedestrian and bicycling infrastructure.

Although these scenarios have been preliminarily identified, SACOG is seeking input on these, and other, alternatives during the NOP process, which could result in modifications to the alternatives analyzed in the EIR, or modifications to the scenarios identified above.

DATE: December 14, 2010

SIGNATURE: Matt Carpenter

TITLE: Director of Transportation Services
TELEPHONE: (916) 321-9000

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE MTP FOR 2035 UPDATE
CALIFORNIA STATE CLEARINGHOUSE # 2011 01 2081

January 31, 2011

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From: Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, Ca 95814 (916)321-9000

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Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice. Please submit your written responses **no later than March 1, 2011,** through any of the following methods:

By Mail	By Fax	By E-mail
Sacramento Area Council of Governments 1415 L Street, Suite 300 Sacramento, CA 95814	(916) 321-9551	eircomments@sacog.org

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DATE: January 31, 2011

SIGNATURE: Matt Carpenter

TITLE: Director of Transportation Services
TELEPHONE: (916) 321-9000

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

JERRY BROWN
GOVERNOR

Notice of Preparation

January 31, 2011

To: Reviewing Agencies

Re: Metropolitan Transportation Plan for 2035 Update
SCH# 2011012081

Attached for your review and comment is the Notice of Preparation (NOP) for the Metropolitan Transportation Plan for 2035 Update draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Matt Carpenter
Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, CA 95814

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2011012081
Project Title Metropolitan Transportation Plan for 2035 Update
Lead Agency Sacramento Area Council of Governments

Type NOP Notice of Preparation

Description The EIR for the MTP Update will require analysis beyond what has been included in previous MTP EIRs. The MTP/SCS environmental analysis will include GHG emissions baseline measurements and projections, as well as potential mitigation measures to reduce those emissions. The EIR also will include analysis of the environmental effects of the MTP/SCS.

Lead Agency Contact

Name Matt Carpenter
Agency Sacramento Area Council of Governments
Phone 916 321-9000 **Fax** 916 321-9551
email eircomments@sacog.org
Address 1415 L Street, Suite 300
City Sacramento **State** CA **Zip** 95814

Project Location

County Sacramento, Sutter, Yolo, Yuba, El Dorado, Placer
City
Region
Cross Streets
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Biological Resources; Archaeologic-Historic; Other Issues; Geologic/Seismic; Toxic/Hazardous; Water Quality; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Traffic/Circulation

Reviewing Agencies Resources Agency; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 2; Native American Heritage Commission; California Highway Patrol; Caltrans, District 3; Air Resources Board, Transportation Projects; Department of Toxic Substances Control; Regional Water Quality Control Bd., Region 5 (Sacramento)

Date Received 01/31/2011 **Start of Review** 01/31/2011 **End of Review** 03/01/2011

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Placer SCH#

Resources Agency

- [ ] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Mike Sotelo
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [ ] **Dept. of Conservation**
  Rebecca Salazar
- [ ] **California Energy Commission**
  Eric Knight
- [ ] **Cal Fire**
  Allen Robertson
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons
- [ ] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

Fish and Game

- [ ] **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Game Region 1**
  Donald Koch
- [ ] **Fish & Game Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Game Region 2**
  Jeff Drongesen
- [ ] **Fish & Game Region 3**
  Charles Armor
- [ ] **Fish & Game Region 4**
  Julie Vance
- [ ] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Brad Henderson
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Anna Garbeff
  Environmental Services Section
- [ ] **Dept. of Public Health**
  Bridgette Binning
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Linda Flack
- [ ] **Cal EMA (Emergency Management Agency)**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [ ] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Leo Wong
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Marina Brand
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [ ] **California Highway Patrol**
  Scott Loetscher
  Office of Special Projects
- [ ] **Housing & Community Development**
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Bruce de Terra
- [ ] **Caltrans, District 4**
  Lisa Carboni
- [ ] **Caltrans, District 5**
  David Murray
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Elmer Alvarez
- [ ] **Caltrans, District 8**
  Dan Kopulsky
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Chris Herre

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
- [ ] Transportation Projects
  Douglas Ito
- [ ] Industrial Projects
  Mike Tollstrup

- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance

- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality

- [ ] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights

- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center

- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] Other _____

Last Updated on 01/10/11

877 53rd Street
Sacramento, CA 95819
March 1, 2011

Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, CA 95814
eircomments@sacog.org

Re: Metropolitan Transportation Plan (MTP) 2035 Update Draft Environmental Impact Report (DEIR) Notice of Preparation (NOP)

Dear Sirs:

Thanks for the opportunity to comment on the NOP.

Direct impacts on human life and health are the ultimate environmental impacts. In accordance with revised California Environmental Quality Act (CEQA) guidelines (Appendix G, Section XVI) adopted in December 2009, the DEIR should evaluate bicycle and pedestrian performance and safety impacts. The revised guidelines replace the former emphasis on vehicle level of service with a broader view of transportation performance. The revised guidelines also add a new emphasis on bicycle and pedestrian safety.

The guidelines explicitly state that projects should be evaluated to determine whether they conflict with an applicable plan, ordinance or policy establishing measures of effectiveness (not necessarily vehicle levels of service) for all transportation modes for the performance of the circulation system.

The guidelines also ask whether the project would "Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?" To answer this question, crash fatalities, injuries and the perception of danger on the part of trip-makers should be analyzed for all proposed alternatives.

In addition to the direct safety impacts, the DEIR should evaluate impacts on public health from different levels of active transportation (primarily walking and bicycling) that are projected for each project alternative.

Per Appendix F of the CEQA Guidelines, the DEIR should thoroughly discuss energy conservation and evaluate the energy use for each of the proposed alternatives. The energy use discussion should consider impacts from both project construction and operation. The energy discussion should include projections of future fossil-fuel based energy costs and transportation mode share sensitivity to those costs.

It is not clear how the two scenarios (other than the no project scenario) listed in the NOP correlate to the three transportation/land use scenarios presented at the Octobner 2010 MTP workshops. This should be clarified. At the SACOG Sustainable Communities Consortium presentation on Feb. 23, 2011 it was said the SACOG board had directed staff to examine a scenario between workshop Scenarios 2 and 3. Is this

“compromise” between MTP Scenarios 2 and 3 the same as the Scenario 3 briefly described in the NOP?

In the MTP public workshops, there was overwhelming support for a more robust Scenario 3, a “Scenario 3+.” The DEIR should evaluate an additional alternative that is based on Scenario 3+, an alternative that provides substantially more funding for bicycle and pedestrian projects and that will support increased transit use. Not only would this alternative likely have the fewest environmental impacts, it could well be the most cost-effective as well.

In addition to deserving consideration on their own merits, bicycle and pedestrian projects and programs should be considered as mitigation measures for other MTP environmental impacts. The California Attorney General’s office has a list of possible bicycle and pedestrian related mitigations, and I would be happy to suggest others.

Yours truly,

Walt Seifert

WALKSacramento
909 – 12th Street
Sacramento, CA 95814

March 1, 2011

Matt Carpenter
Director of Transportation Services
Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, CA 95814
eircomments@sacog.org

Re: Metropolitan Transportation Plan (MTP) 2035 Update
Draft Environmental Impact Report (DEIR) Notice of Preparation (NOP)

Dear Mr. Carpenter:

We appreciate the opportunity to comment on the NOP and to respond to the questions posed by SACOG in the NOP.

1. Are there potential environmental issues that SACOG has not identified in the list of potential environmental effects or the outline?

Yes. We urge that SACOG fully address the safety issues of the current and proposed transportation system as it impacts pedestrian and bicycle travel.

We agree and wish to underscore recommendations submitted by Walt Seifert that the DEIR fully address the impacts of the proposed plan and its recommendations on the safety of bicycling and walking. While not mentioned specifically, we do understand that SACOG staff is planning to address this issue and we urge that it be given a full analysis. Pedestrian and bicycle safety has not generally been addressed by SACOG or other regional transportation planning agencies. Lack of safe pedestrian and bicycle infrastructure is a major reason why many people choose not to walk or bicycle even for short distances.

As a result of the California Strategic Highway Safety Plan and its work, there is a growing body of research into pedestrian and bicycle safety including extensive statistics on pedestrian and bicycle motor vehicle collisions. We urge that SACOG work with David Raglund and the UC Berkeley's SafeTREC (Safe Transportation Research & Education Center www.safetrec.berkeley.edu) to incorporate the most recent findings related to pedestrian and bicycle safety statistics. SafeTREC has new system of pedestrian and bicycle collisions by GIS location.

2. Are there any alternatives you believe SACOG should evaluate?

Yes. We urge SACOG to fully evaluate a "Safe Routes For All" scenario.

WALKSacramento is on record (see September 4, 2010 letter at www.walksacramento.org) in commenting on SACOG's draft scenarios urging that SACOG evaluate a "4th Scenario" – a scenario that would include a full pedestrian and bicycle network on all major roadways – arterials, collectors such that all residents would be able to safely walk and/or bicycle to nearby destinations. This would involve the accelerated implementation of pedestrian and bicycle master plans that now exist and the preparation of bicycle and pedestrian master plans for those communities that do not have such at this time.

This would establish Complete Streets as of highest priority – to enable people of all ages including children, seniors, bicyclists, pedestrians – to not only access nearby destinations – schools, parks, shops – but to also safely access transit.

Our transportation system offers a complete system for motorists – but a very incomplete and unsafe system for pedestrians, bicyclists and transit riders. By implementing a "Safe Routes for All" scenario, our region would be maximizing opportunity for VMT reduction as well as maximizing access for people of all income levels – those with cars and those who are dependent on transit, walking and bicycling.

3. What types of mitigation measures do you think would help avoid or minimize potential environmental effects?

Implementing measures to assure safe pedestrian and bicycle access is a measure that not only mitigates the negative environmental impacts of motor vehicle travel, but confers health and economic benefits to regional residents by enabling them to walk and bicycle – both health beneficial forms of exercise – and to save transportation costs while doing so.

4. **Other comments on the NOP outline**:

- **SB 375** – The NOP notes that the Sustainable communities Strategy (SCS) will "identify a transportation network to serve the regional transportation needs". We urge that the SCS fully identify the pedestrian and bicycle needs as well as the pedestrian and bicycle access needs for transit riders.

- **Environmental Justice** – The NOP notes that, "the proposed project has the potential to result in disproportionate adverse effects on minority and low-income populations in areas where major transportation improvements are proposed." We urge that the MTP

DEIR address the positive impacts that may result from providing a fully multi-modal "Safe Routes For All" scenario – in both health and economic benefits.

- **Transportation/Traffic** –The NOP states that it will address the "potential to exceed established level of service standards." We note that most established level of service standards are for motor vehicles and not for pedestrians, bicycles and transit. Recent new federal guidelines urge adoption of multi-modal level of service standards. We urge that the DEIR only address level of service standards if it addresses level of service for all modes not just the usual motor vehicle level of service. We further urge that any consideration of level of service consider the full 24-hour impact of level of service and the impact of level of service on quality of life (next item).

- **Quality of Life** – We urge that the DEIR address one of the plan's key objectives -- "Quality of Life". We note that the MTP in the past has given greater priority to "congestion relief" at the expense of quality of life. We urge the DEIR to address the conflict between these two objectives. We note that when roadways are widened to provide congestion relief during peak commute periods there is significant degradation to the quality of life in the vicinity of the roadway at other hours of the day. Increased widths of roadways encourage high speeds and discourage crossings by pedestrians and bicyclists. Additionally, higher speeds create greater noise. We urge that the DEIR address these conflicts.

We look forward to working with SACOG staff and elected officials to develop the most environmentally beneficial, multi-modal transportation plan for our region.

Sincerely,

Anne Geraghty
Policy Consultant
WALKSacramento
ageraghty@walksacramento.org

Attachment A

Walt Seifert's comments related to bicycle and pedestrian safely.

"In response to Direct impacts on human life and health are the ultimate environmental impacts. In accordance with revised California Environmental Quality Act (CEQA) guidelines (Appendix G, Section XVI) adopted in December 2009, the DEIR should evaluate bicycle and pedestrian performance and safety impacts. The revised guidelines replace the former emphasis on vehicle level of service with a broader view of transportation performance. The revised guidelines also add a new emphasis on bicycle and pedestrian safety.

"The guidelines explicitly state that projects should be evaluated to determine whether they conflict with an applicable plan, ordinance or policy establishing measures of effectiveness (not necessarily vehicle levels of service) for all transportation modes for the performance of the circulation system.

"The guidelines ask whether the project would "Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?" To answer this question, crash fatalities, injuries and the perception of danger on the part of trip-makers should be analyzed for all proposed alternatives."

<Original correspondence in email on January 18, 2011>

Sacramento Area Council of Governments
1415 I Street, Suite 300
Sacramento, Ca. 95814
Via E-mail, eircomments@sacog.org
Attn: Matt Carpenter

Subject: Comments on NOP for the DEIR
Report for the MTP 2035 Update

Dear Mr. Carpenter and Staff

Thank you for the opportunity to submit comments on the subject Notice of Preparation. The following comments are my own, however for the purposes of identification, below my signature I have listed my volunteer affiliations with interested organizations.

POTENTIAL ENVIRONMENTAL IMPACTS

Aesthetics and Views
Particular emphasis should be given should be given to the impacts and potential mitigation measures projects crossing or adjacent to important scenic resources such as the American River Parkway.

Agricultural Resources
The potential loss of agricultural resources due to growth inducement should be considered.

Air Quality
The EIR should consider the evolving standards and recent findings that indicate greater health impacts of very fine particulate matter on lung and cardiovascular systems and the cause and effect of emission on autism in children.

Biological, Cultural and Historic Resources
The impacts on these resources should include "secondary impacts' resultant from land use changes induced or facilitated by the MTP projects.

Environmental Justice
Youth, seniors and the disabled should be considered. Impacts should include the MTP effects on the availability of affordable housing, access to transit and services for the disadvantaged.

Geology and Soils
The potential impact on flooding should include both the location and design of the transportation facility as well as changes in land use induced or facilitated by the transportation projects.

Greenhouse Gas Emissions
I believe the EIR should include a general overview and analyses of the potential negative impacts of climate change/global warming.

Hazards and Hazardous Materials
The potential public exposure to hazardous materials resulting from the location of transportation facilities and related land use changes should be considered.

Hydrology and Water Quality
These Impacts should consider related land use changes, and increased drainage runoff due to urbanization

Land Use and Planning
Potential growth inducement should be evaluated.

Mineral Resources
Secondary impacts of induced or facilitated land use changes should be considered

Noise
Special consideration should be given natural habitat and recreational areas such as the American River Parkway and other parks, including analyses of mitigation measures to reduce noise impacts.

Population and Housing
The alternatives effectiveness with respect to the facilitation of affordable housing should be considered.

Public Services
>Access to public services for the public transit dependent should be considered

Recreation
Special consideration should be given the impact on outdoor recreation areas due to such factors as noise and increased emissions.

Transportation/Traffic
Good movement should be including the potential for enhanced rail goods movement.
Emergency access should consider emergency evacuation and access to areas in need of repair and emergency services.

SUGGESTED NEW CATEGORY- PUUBLIC HEALTH AND SAFETY
It is recognized that public health and safety is implicit in many of the impact categories. However, I believe that a comparison of alternative Scenarios based on overall impacts on public health and safety would be quite informative and important to the decision making process.

This comparison could include the health impacts of air quality, the relative benefits of exercise and a comparison of accident safety for the alternatives.

SCENARIOS TO BE ANAYZED IN THE EIR
Given the overwhelming support for Scenario 3 in Sacramento and Yolo Counties MTP Workshops, I believe an enhanced version of this more transit and bike-pedestrian oriented Scenario be developed. Such an option has been recommended by the coalition formed by Walk Sacramento and others, although it focused only on bike-pedestrian facilities.

However I recognize that the MTP is fiscally constrained, and the coalition proposed Scenario 4 is not viable at this time. I also believe that enhanced transit is even more important than bike-pedestrian. I believe that you should evaluate reducing all proposed new six-lane roads and widening to a maximum of four lanes at this time. The savings would be then used to enhance the public transit and bike-pedestrian facilities. I suggest that the savings be allocated in accordance with the relative percentage of expenditures for public transit and bike-pedestrian facilities, as is included in Scenario 3. That is, the savings in new road capacity would be allocated to transit in proportion to the proposed $13.7 billion expenditure for transit of the total $16.7 billion for transit, and bike-pedestrian facilities.

Based on personal experience in the Midtown Sacramento areas where the three lance one-way streets were reduce to two-lane as a safety and community impact measure I believe the impact of constraining road width on the overall movement of people and goods will not be as significant as is implied by the conventional Level of Service assessment. Some additional expenditures for information technology and traffic management may be necessary or justified.

Thank you very much for your consideration.

Sincerely,

Rick Bettis
Policy Committee Co-Chair Breathe California, Sacramento-Emigrant Trails
Natural Resources Director, League of Women Voters of Sacramento County
Conservation Co-Chair, Sierra Club of Sacramento County

1716 P Street
Sacramento, California, 95811
916-447-8683 office or 916-893-9065 cell

January 12, 2011

Maywan Krach
Placer County
Community Development Resource Agency
3091 County Center Drive
Auburn, CA 95603

RE: Metropolitan Transportation Plan for 2035 Update / NOP of a Draft EIR

Maywan:

Regarding the preparation of a Draft EIR for the subject project we have the following comments.

The proposed transportation improvements have the potential to create the following impacts:

a.) Increases in peak flow runoff downstream of the project sites.

b.) Overloading of the actual or designed capacity of existing stormwater and flood-carrying facilities.

c.) The alteration of 100-year floodplain boundaries.

Future EIRs must specifically quantify the incremental effects of each of the above impacts due to the proposed improvements and propose mitigation measures if necessary.

Please call me at (530) 745-7541 if you have any questions regarding these comments.

Andrew Darrow, P.E.
Development Coordinator

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M E M O R A N D U M

DEPARTMENT OF PUBLIC WORKS
County of Placer

TO: Rebecca Taber, ESD - CDRA DATE: January 18, 2011

FROM: Andrew Gaber, DPW - Transportation Division

SUBJECT: **SACOG 2035 MTP NOP**

DPW Transportation has reviewed the NOP for the above referenced project and has the following comments:

Since there was previously a set of draft maps for Scenario's 1 and 3, it would appear that some traffic analysis was prepared, but no information has been provided about the traffic analysis, particularly what assumptions were utilized, and what additional analysis is proposed.

The EIR should include a discussion of the anticipated transit/bicycling/pedestrian utilization rates and how these compare with other areas within the US.

The EIR should include a discussion of how capital and operating costs for the expanded transit operations are proposed to be funded, and how these costs relate to capital and operating costs for roadway improvements. Will incentives need to be provided to residents to get them to utilize the transit systems? Will supplements to existing funding sources be needed to fund the transit systems?

The Transit Scenario 2 show BRT on roadways where it was not anticipated, yet within approved Specific Plans. The EIR should include a discussion of what BRT/transit improvements are necessary, the implications of having to amend these Specific Plans, and applicable Community Plans, to allow for the additional roadway width and improvements, and parking and pedestrian facilities necessary for implementation.

Other scenarios/alternatives that should be explored are:
Would greater adoption/utilization of electric or hybrid vehicles accomplish the same reduction in green house gases as the proposed higher densities? This could include both public or private fleets, or personnel vehicles.
What would be the impact of having the higher densities, but more electric or hybrid vehicles, which could also potentially result in higher vmt and the need for an expanded road network?

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Jepson's onion *Allium jepsonii*	–/–/1B.2	Sierra Nevada foothills in Butte, El Dorado, Placer, and Tuolumne counties	Serpentine or volcanic soils in chaparral, cismontane woodland, lower montane coniferous forest; 300–1,320 meters	Apr–Aug
Congdon's onion *Allium sanbornii* var. *congdonii*	–/–/4.3	El Dorado, Mariposa, Nevada, Placer, and Tuolumne counties	Serpentine or volcanic soils in chaparral and cismontane woodland; 300–990 meters	Apr–Jul
Sanborn's onion *Allium sanbornii* var. *sanbornii*	–/–/4.2	Cascade Range foothills and Sierra Nevada Foothills, from Shasta County to Calaveras County; Oregon	Gravelly or usually serpentine soils in chaparral, cismontane woodland, and lower montane coniferous forest; 260-1,510 meters	May–Sep
Bent-flowered fiddleneck *Amsinckia lunaris*	–/–/1B.2	Inner North Coast Ranges, San Francisco Bay Area, western and central Great Valley	Coastal bluff scrub, valley and foothill grasslands, cismontane woodlands; 3–500 meters	Mar–Jun
Simple androsace *Androsace occidentalis* var. *simplex*	–/–/2.3	Endemic to Emigrant Gap in northern high Sierra Nevada in Placer County; Arizona, New Mexico, Texas, and elsewhere	Seasonally wet sites in upper montane coniferous forest; 1,675–1,700 meters	Aug–Sep
Beautiful pussy-toes *Antennaria pulchella*	–/–/4.3	High Sierra Nevada: Alpine, El Dorado, Fresno, Inyo, Mono, Tulare, and Tuolumne counties; also Nevada	Stream margins in alpine boulder and rock field, meadows and seeps; 2,800–3,700 meters	Jun–Sep
Twig-like snapdragon *Anthirrhinum virga*	–/–/4.3	Southern high North Coast Ranges and southern Inner North Coast Ranges: Lake, Mendocino, Napa, Sonoma, and Yolo counties	Rocky, often serpentine soils in chaparral openings, lower montane coniferous forest; 100–2,015 meters	Jun–Jul
Modest rock cress *Arabis modesta*	–/–/4.3	Klamath Ranges, North Coast Range, Napa, Siskiyou, and Trinity counties	Chaparral, lower montane coniferous forest; 120–800 meters	Mar–Jul
Carson Range rock cress *Arabis rigidissima* var. *demota*	–/–/1B.2	Known in CA from only two occurrences near Martis Peak, Placer County; Nevada	Rocky soils in broadleafed upland forest, upper montane coniferous forest; 2,255–2,560 meters	Aug
True's manzanita *Arctostaphylos mewukka* ssp. *truei*	–/–/4.2	Northern Sierra Nevada Foothills: Butte, Plumas, Nevada, Placer, and Yuba counties	Chaparral, lower montane coniferous forest; 425–1,390 meters	Feb–Jul

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Nissenan manzanita *Arctostaphylos nissenana*	–/–/1B.2	Sierra Nevada foothills, El Dorado and Tuolumne counties	Closed-cone coniferous forest, chaparral on rocky, dry ridges; 450–1,100 meters	Feb–Mar
Serpentine milkweed *Asclepias solanoana*	–/–/4.2	North Coast Ranges: Colusa, Glenn, Lake, Mendocino, Napa, Shasta, Sonoma, Tehama, Trinity, and Yolo counties	Serpentine soils in chaparral, cismontane woodland, lower montane coniferous forest; 230–1,860 meters	May–Jul(Aug)
Brewer's milk-vetch *Astragalus breweri*	–/–/4.2	Central and southern North Coast Ranges, northern San Francisco Bay: Colusa, Lake, Mendocino, Marin, Napa, Sonoma, and Yolo counties	Often serpentine or volcanic soils in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland; 90–730 meters	Apr–Jun
Cleveland's milk-vetch *Astragalus clevelandii*	–/–/4.3	Southern inner North Coast Ranges, eastern inner South Coast Ranges in Colusa, Lake, Napa, San Benito, Sonoma, Tehama, and Yolo counties	Serpentine seeps in chaparral, cismontane woodland, riparian scrub; 200–1,500 meters	Jun–Sep
Depauperate milk-vetch *Astragalus pauperculus*	–/–/4.3	Cascade Range foothills, northern Sacramento Valley in Butte, Placer, Shasta, Tehama, and Yuba counties	In seasonally wet areas on volcanic soils in chaparral, cismontane woodland, valley and foothill grassland in seasonally wet areas or on volcanic soils; 60–1,120 meters	Mar–Jun
Jepson's milk-vetch *Astragalus rattanii* var. *jepsonianus*	–/–/1B.2	Southern Inner North Coast Range: Colusa, Glenn, Lake, Napa, Tehama, and Yolo counties	Often on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 320–700 meters	Mar–Jun
Ferris's milk vetch *Astragalus tener* var. *ferrisiae*	–/–/1B.1	Historical range included the Central Valley from Butte to Alameda County but currently only occurs in Butte, Glenn, Colusa, and Yolo counties	Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland; 2–75 meters	Apr–May
Alkalai milk vetch *Astragalus tener* var. *tener*	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay area	Playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils; below 60 meters	Mar–Jun

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Woolly-leaved milk-vetch *Astragalus whitneyi* var. *lenophyllus*	–/–/4.3	Northern High Sierra Nevada with occurrences in Alpine, Butte, Nevada, Placer, Plumas, and Sierra counties	Alpine boulder and rock field, rocky soils in subalpine coniferous forest; 2,135–3,050 meters	Jul–Aug
Heartscale *Atriplex cordulata*	–/–/1B.2	Western Central Valley and valleys of adjacent foothills	Saline or alkaline soils in chenopod scrub, meadows and seeps, sandy areas in valley and foothill grassland; below 375 meters	Apr–Oct
Brittlescale *Atriplex depressa*	–/–/1B.2	Western and eastern Central Valley and adjacent foothills on west side of Central Valley	Alkaline clay soils in chenopod scrub, playas, valley and foothill grasslands; 1–320 meters	Apr–Oct
San Joaquin saltscale *Atriplex joaquiniana*	–/–/1B.2	Western edge of the Central Valley from Glenn to Tulare counties	Alkaline soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland; below 835 meters	Apr–Oct
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	–/–/1B.2	Scattered occurrences in the Coast Ranges and Sierra Nevada foothills	Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 90–1,555 meters	Mar–Jun
Tulare rockcress *Boechera tularensis*	–/–/1B.3	Occurrences in El Dorado, Fresno, Inyo, Mono, Mariposa, and Tulare counties	On rocky slopes in subalpine coniferous foreest and upper montane coniferous forest; 1,825–3,350 meters	Jun-Jul
Sierra bolandra *Bolandra californica*	–/–/4.3	Northern and central High Sierra Nevada in Alpine, Amador, Calaveras, El Dorado, Mariposa, Stanislaus, and Tuolumne counties	Mesic or rocky soils in lower and upper montane coniferous forest; 975–2,450 meters	Jun–Jul
Upswept moonwort *Botrychium ascendens*	–/–/2.3	Southern High Cascade Ranges, with scattered occurrences in Butte, El Dorado, Mono, Modoc, Plumas, Shasta, Tehama, and Tulare counties; Idaho, Oregon, Nevada, Washington, and elsewhere	Wet areas in lower montane coniferous forest; 1,500–2,285 meters	N/A (fertile Jul–Aug)

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Scalloped moonwort *Botrychium crenulatum*	–/–/2.2	Scattered occurrences in mountains of California; Nevada, Oregon, and elsewhere	Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamp; 1,268–3,280 meters	N/A (fertile Jun–Jul)
Mingan moonwort *Botrychium minganense*	–/–/2.2	High Cascade Range, southern High Sierra Nevada with occurrences in Butte, Fresno, Modoc, Nevada?, Placer, Plumas, San Bernardino, Shasta, Tehama, and Tulare counties; Arizona, Idaho, Nevada, Oregon, Utah, Washington, and elsewhere	Wet areas in lower montane coniferous forest; 1,455–2,105 meters	N/A (fertile Jul–Sep)
Western goblin *Botrychium montanum*	–/–/2.1	Southern High Cascade Range; Oregon, Washington	Wet areas in lower montane coniferous forest; 1,465–2,130 meters	N/A (fertile Jul–Sep)
Watershield *Brasenia schreberi*	–/–/2.3	Scattered occurrences in northern and central California; widespread across US	Freshwater marshes; 30–2,200 meters	Jun–Sep
Bolander's bruchia *Bruchia bolanderi*	–/–/2.2	Fresno, Mariposa, Nevada, Plumas, Sierra,Tehama, Tulare, and Tuolumne counties; Oregon	A summer-growing ephemeral moss of alpine meadows, on damp soil in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest; 1,700–2,800 meters	N/A
Buxbaumia moss *Buxbaumia viridis*	–/–/2.2	Known from three scattered occurrences in northern California; also Colorado, Idaho, and elsewhere	Fallen, decorticated wood or humus in lower and upper montane coniferous forest, subalpine coniferous forest; 975–2,200 meters	N/A
Round-leaved filaree *California macrophylla*	–/–/1B.1	Scattered occurrences in the Central Valley, southern North Coast Ranges, San Francisco Bay area, South Coast Ranges, Channel Islands, Transverse Ranges, and Peninsular Ranges	Clay soils in cismontane woodland, valley and foothill grassland; 15–1,200 meters	Mar–May

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Calochortus clavatus var. *avius*	–/–/1B.2	Northern and central Sierra Nevada foothills; Amador, Calaveras, El Dorado, and Mariposa* counties	Lower montane coniferous forest on Josephine silt loam and volcanic soils; 305–1,800 meters	May–Jul
Stebbins's morning-glory *Calystegia stebbinsii*	E/E/1B.1	Northern Sierra Nevada foothills with reported occurrences in El Dorado and Nevada counties	Serpentine or gabbroic soils in chaparral openings, cismontane woodland; 185–1,090 meters	Apr–Jul
Dissected-leaf toothwort *Cardamine pachystigma* var. *dissectifolia*	–/–/3	Sierra Nevada Foothills and interior North Coast Ranges: Butte, Glenn, Mendocino, Placer, Sonoma, and Tehama counties	Typically rocky serpentine soils in chaparral and lower montane coniferous forest; 255–2,100 meters	Feb–May
Bristly sedge *Carex comosa*	–/–/2.1	Scattered occurrences throughout California; Oregon, Washington, and elsewhere	Coastal prairie, marshes and swamps at lake margins, valley and foothill grassland; below 625 meters	May–Sep
Davy's sedge *Carex davyi*	–/–/1B.3	Northern and central High Sierra Nevada with occurrences in Alpine, Amador, Calaveras, El Dorado, Nevada, Placer, and Tuolumne counties; includes taxon formerly known as *Carex constanceana*	Subalpine coniferous forest and upper montane coniferous forest; 1,500–3,200 meters	May–Aug
Woolly-fruited sedge *Carex lasiocarpa*	–/–/2.3	High Cascade Range, northern high Sierra Nevada in Eldorado, Lassen, Placer, Plumas, and Shasta counties; Idaho, Oregon, Washington, and elsewhere	Bogs and fens, freshwater marshes and swamps at lake margins; 1,800–2,100 meters	Jun–Jul
Lagoon sedge *Carex lenticularis* var. *limnophila*	–/–/2.2	North Coast Ranges in Del Norte, Humboldt, Mendocino counties; Oregon, Washington, and Alaska	On shores and beaches, often gravelly in North Coast coniferous forest, bogs and fens, marshes and swamps; below six meters	Jun–Aug

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Shore sedge *Carex limosa*	–/–/2.2	High Sierra Nevada in Butte, El Dorado, Fresno, Lassen, Nevada, Plumas, Siskiyou, and Tuolumne counties; Nevada and elsewhere	Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest; 1,200–2,700 meters	Jun–Aug
Northern meadow sedge *Carex praticola*	–/–/2.2	North Coast, central and southern High Sierra Nevada in Del Norte, Humboldt, Madera, Mono, Siskiyou, and Tuolumne counties; Idaho, Oregon, Washington, and elsewhere	Wet meadows and seeps below 3,200 meters	May–Jul
Sheldon's sedge *Carex sheldonii*	–/–/2.2	Northern High Sierra Nevada in Lassen, Modoc, Placer, and Plumas counties; Idaho, Oregon, Utah	Lower montane coniferous forest in wet areas, freshwater marshes and swamps, riparian scrub; 1,200–2,012 meters	May–Aug
Tahoe sedge *Carex tahoenis*	–/–/4.3	High Sierra Nevada, east of Sierra Nevada in El Dorado, Fresno, Inyo, Mono, and Tuolumne counties; Idaho and Oregon	Alpine boulder and rock field, rocky areas in subalpine coniferous forest; 2,835–3,810 meters	Jul–Aug
Succulent owl's clover *Castilleja campestris* ssp. *succulenta*	T/E/1B.2	Eastern edge of San Joaquin Valley and adjacent foothills, from Stanislaus to Fresno counties	Vernal pools, often on acidic soils; 50–750 meters	Apr–May
Pink creamsacs *Castilleja rubicundula* ssp. *rubicundula*	–/–/1B.2	Inner North Coast Ranges with occurrences in Butte, Colusa, Glenn, Lake, and Napa counties	Serpentine soils in chaparral openings, cismontane woodland, meadows and seeps, valley and foothill grassland; 20–910 meters	Apr–Jun
Fresno ceanothus *Ceanothus fresnensis*	–/–/4.3		Openings in cismontane woodland, lower montane coniferous forest; 900–2,103 meters	May–Jul
Pine Hill ceanothus *Ceanothus roderickii*	E/R/1B.2	Endemic to El Dorado County	Serpentine or gabbro soils in chaparral or cismontane woodland; 245–630 meters	Apr–Jun

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Parry's rough tarplant *Centromadia parryi* ssp. *rudis*	–/–/4.2	Butte, Colusa, Glenn, Lake, Merced, Sacramento, San Joaquin, Solano, Sutter, Yolo counties	Alkaline, vernally mesic seeps, sometimes roadsides, in valley and foothill grassland, vernal pools; below 100 meters	May–Oct
Alpine dusty maidens *Chaenactis douglasii* var. *alpina*	–/–/2.3	Northern High Sierra Nevada, northern Desert Mountains in Alpine, El Dorado, Inyo, Mono, Siskiyou, and Tuolumne counties	Granitic soils in alpine boulder and rock field; 3,000–3,400 meters	Jul–Sep
Red Hills soaproot *Chlorogalum grandiflorum*	–/–/1B.2	Northern and central Sierra Nevada foothills in Amador, Placer, El Dorado, and Tuolumne counties	Serpentine or gabbro soils in chaparral, lower montane coniferous forest, and cismontane woodland; 245–1,240 meters	May–Jun
Hispid bird's-beak *Chloropyron molle* ssp. *hispidum*	–/–/1B.1	Central Valley in Alameda, Fresno, Kern, Merced, Placer, and Solano counties	Meadow and seeps, valley and foothill grassland, playas, on alkaline soils 1–155 meters	Jun–Sep
Soft bird's-beak *Chloropyron molle* ssp. *molle*	E/R/1B.2	San Francisco Bay Area: Suisun Marsh, Contra Costa, Marin*, Napa, Solano, Sacramento*, and Sonoma* counties	Tidal salt marsh; below three meters	Jul–Nov
Palmate-bracted bird's-beak *Chloropyron palmatum*	E/E/1B.1	Livermore Valley and scattered locations in the Central Valley from Colusa to Fresno counties	Alkaline sites in grassland and chenopod scrub; 5–155 meters	May–Oct
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	–/–/2.1		Marshes and swamps, coastal, fresh or brackish water; 0–200 meters	Jul–Sep
Clarkia biloba ssp. *australis*	–/–/1B.2	Central Sierra Nevada Foothills, Merced River drainage in El Dorado, Mariposa and Tuolumne counties	On serpentinite in chaparral and cismontane woodland; 300–985 meters	May–Jul
Brandegee's clarkia *Clarkia biloba* ssp. *brandegeeae*	–/–/1B.2	Northern Sierra Nevada foothills from Butte to El Dorado counties	Chaparral, cismontane woodland, often on roadcuts; 73–915 meters	May–Jul
Golden-anthered clarkia *Clarkia mildrediae* ssp. *lutescens*	–/–/4.2	Butte, Plumas, Sierra, and Yuba counties	Oak woodland, openings in lower montane coniferous forest, often on roadcuts; 275–1,750 meters	Jun–Aug

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Sierra clarkia *Clarkia virgata*	–/–/4.3	Northern and central Sierra Nevada, including portions of Amador, Calaveras, El Dorado, Mariposa, and Tuolumne counties	Cismontane woodland, lower montane coniferous forest; 400–1,615 meters	May–Aug
Streambank spring beauty *Claytonia parviflora* ssp *grandiflora*	–/–/4.2	Known only from pine/blue oak woodlands in the Sierra Nevada foothills: Amador, Butte, Calaveras, El Dorado, Fresno, Kern, Placer, Tulare, Tuolumne counties	Rocky sites in cismontane woodland; 250–1,200 meters	Feb–Apr(May)
Serpentine collomia *Collomia diversifolia*	–/–/4.3	Inner north Coast Ranges, northeastern San Francisco Bay: Contra Costa, Colusa, Glenn, Lake, Mendocino, Napa, Yolo, Shasta, and Stanislaus counties	On serpentinite, rocky or gravelly substrates in chaparral, cismontane woodland; 300–600 meters	May–Jun
Deep-scarred cryptantha *Cryptantha excavata*	–/–/1B.3	Colusa, Lake, Mendocino, and Yolo counties	Cismontane woodland, sandy or gravelly substrates; 100–500 meters	Apr–May
Clustered lady's-slipper *Cypripedium fasciculatum*	–/–/4.2	Northwestern California, Cascade Range, northern Sierra Nevada Mountains, southwestern San Francisco Bay area; Idaho, Oregon, Utah, Washington, Wyoming	Usually serpentinite seeps and streambanks in lower montane coniferous forest, North Coast coniferous forest; 100–2,435 meters	Mar–Aug
California pitcherplant *Darlingtonia californica*	–/–4.2	Klamath Ranges, Cascade Range, northern high Sierra Nevada	Generally on serpentinite seeps in bogs, fens, wet meadows; up to 2,585 meters	Apr–Jul
Recurved larkspur *Delphinium recurvatum*	–/–/1B.2	Central Valley from Colusa* to Kern counties	Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; 3–750 meters	Mar–Jun
Dwarf downingia *Downingia pusilla*	–/–/2.2	Inner North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley	Wet areas in valley and foothill grassland, vernal pools; below 445 meters	Mar–May

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Draba asterophora var. *asterophora*	–/–/1B.3	Northern and central High Sierra Nevada in Alpine, El Dorado, Mono, and Tuolumne counties; also Nevada	Alpine boulder and rock field, subalpine coniferous forest; 2,500–3,505 meters	Jul–Aug (Sep)
Draba asterophora var. *macrocarpa*	–/–/1B.3	Endemic to El Dorado County	Rocky areas in subalpine coniferous forest; 2,500–2,815 meters	Jul–Aug
Subalpine fireweed *Epilobium howellii*	–/–/4.3		Wet areas in meadows, mossy seeps, and subalpine coniferous forest; 2,000–3,120 meters	Jul–Aug
Oregon fireweed *Epilobium oreganum*	–/–/1B.2	Klamath Ranges, Outer North Coast Ranges in Del Norte, El Dorado, Glenn, Humboldt, Mendocino, Nevada, Placer, Shasta, Siskiyou, Tehama, and Trinity counties; also Oregon	Mesic sites in lower and upper montane coniferous forest, bogs and fens; 500–2,240 meters	Jun–Sep
Marsh willowherb *Epilobium palustre*	–/–/2.3	Central High Sierra Nevada in El Dorado and Plumas counties; Idaho and elsewhere	Bogs and fens, mesic meadows; 2,200 meters	Jul–Aug
Erigeron eatonii var. *nevadincola*	–/–/2.3	Known from occurrences in Lassen, Placer, Plumas, and Sierra counties; also Nevada	On rocky sites in Great Basin scrub, lower montane coniferous forest, pinyon-juniper woodland; 1,400-2,900 meters	May–Jul
Starved daisy *Erigeron miser*	–/–/1B.3	Northern High Sierra Nevada in Mono, Nevada and Placer counties	Rocky places in upper montane coniferous forest; 1,840–2,620 meters	Jun–Oct
Erigeron petrophilis var. *sierrensis*	–/–/4.3	Northern Sierra Nevada Foothills: Butte, El Dorado, Nevada, Plumas, Sierra, and Yuba counties	Cismontane woodland, lower and upper montane coniferous forest, sometimes serpentinite; 300–2,073 meters	Jun–Oct
Ione buckwheat *Eriogonum apricum* var. *apricum*	E/E/1B.1	Amador and Sacramento counties	Openings in chaparral on Ione soil; 60–145 meters	Jul–Oct
Snow Mountain buckwheat *Eriogonum nervulosum*	–/–/1B.2	North Coast Ranges, from Colusa to Yolo counties	Serpentine chaparral; 300–2,105 meters	Jun–Sep

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Brown-margined buckwheat *Eriogonum ovalifolium* var. *eximium*	–/–/4.3	Alpine and El Dorado counties; also Nevada	Granitic, sandy soils in alpine boulder and rock field, subalpine coniferous forest; 1,800–3,400 meters	Jun–Aug
Tripod buckwheat *Eriogonum tripodum*	–/–/4.2		Chaparral, woodland, often on serpentinite; 200–1,600 meters	May–Jul
Ahart's buckwheat *Eriogonum umbellatum* var. *ahartii*	–/–/1B.2	Butte and Yuba counties	On serpentinite substrates on slopes and in opening in chaparral and oak woodland; 400–2,000 meters	Jun–Sep
Donner Pass buckwheat *Eriogonum umbellatum* var. *torreyanum*	–/–/1B.2	Northern High Sierra Nevada, Placer, and Sierra counties	On volcanic substrate in rocky areas in meadows and upper montane coniferous forest; 1,855–2,620 meters	Jul–Sep
Slender cottongrass *Eriophorum gracile*	–/–/4.3	Butte, El Dorado, Lassen, Madera, Mariposa, Nevada, Plumas, San Francisco*, Shasta, Sierra, Siskiyou?, Sonoma, and Tuolumne counties; Idaho, Oregon, Washington, and Wyoming	Acidic soils in bogs and fens, meadows and seeps, opper montane coniferous forest; 1,280–2,900 meters	May–Sep
Tuolumne button-celery *Eryngium pinnatisectum*	–/–/1B.2	Amador, Calaveras, Sacramento, and Tuolumne counties	Vernal pools and moist areas in cismontane woodland and lower montane coniferous forest; 70–915 meters	May–Aug
Pine Hill flannelbush *Fremontodendron decumbens*	E/R/1B.2	Pine Hill area in El Dorado County, Grass Valley vicinity in Nevada County, Yuba County	Rocky gabbro or serpentinite soils in chaparral, cismontane woodland; 425–760 meters	Apr–Jul
Stinkbells *Fritillaria agrestis*	–/–/4.2		Chaparral, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland, on clay, sometimes serpentinite substrate; 10–1,555 meters	Mar–Jun
Butte County fritillary *Fritillaria eastwoodiae*	–/–/3.2	Sierra Nevada foothills from Shasta to El Dorado counties	Chaparral, cismontane woodland, and openings in lower montane coniferous forest, sometimes on serpentine; 50–1,500 meters	Mar–Jun

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Adobe-lily *Fritillaria pluriflora*	–/–/1B.2	Northern Sierra Nevada foothills, Inner North Coast Ranges, edges of Sacramento Valley	Chaparral, cismontane woodland, valley and foothill grassland, often on adobe soils; 60–705 meters	Feb–Apr
Purdy's fritillary *Fritillaria purdyi*	–/–/4.3	Colusa, Glenn, Humboldt, Lake, Mendocino, Napa, Tehama, Trinity, and Yolo counties; also Oregon	Chaparral, cismontane woodland, lower montane coniferous forest, usually on serpentinite; 175–2,255 meters	Mar–Jun
Galium californicum ssp. *sierrae*	E/R/1B.2	Endemic to El Dorado County	On gabbroic soils in chaparral, cismontane woodland, lower montane coniferous forest; 100–585 meters	May–Jun
Serpentine bluecrop *Githopsis pulchella* ssp. *serpenticola*	–/–/4.3		Serpentinite or Ione soils in cismontane woodland; 320–610 meters	May–Jun
American manna grass *Glyceria grandis*	–/–/2.3	Scattered occurrences along the North Coast and in the Sierra Nevada in Fresno, Humboldt, Mendocino, Mono, and Placer counties; elsewhere	Bogs and fens, meadows and seeps, along streambanks and lake margins in marshes and swamps; 15–1,980 meters	Jun–Aug
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–/E/1B.2	Inner North Coast Ranges, Central Sierra Nevada foothills, Sacramento Valley and Modoc Plateau in Fresno, Lake, Lassen, Madera, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, and Tehama counties; also Oregon	Clay soils in areas of shallow water, lake margins of swamps and marshes, vernal pool margins; 10–2,375 meters	Apr–Aug
Amethyst stickseed *Hackelia amethystina*	–/–/4.3	Glenn, Lake, Lassen, Mendocino, Plumas, Tehama, and Trinity counties	Openings and disturbed areas in lower and upper montane coniferous forest and meadows; 1,500–2,130 meters	Jun–Jul
Hall's harmonia *Harmonia hallii*	–/–/1B.2	Inner North Coast Ranges in Colusa, Lake, Napa, and Yolo counties	Chaparral on serpentinite; 500-975 meters	Apr–Jun
Nodding harmonia *Harmonia nutans*	–/–/4.3	Lake, Napa, and Sonoma counties	Rocky or gravelly volcanic soils in chaparral, cismontane woodland; 75–975 meters	Mar–May

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Bisbee Peak rush-rose *Helianthemum suffrutescens*	–/–/3.2		Chaparral openings, often on serpentinite, gabbro, or Ione soils; 45–840 meters	Apr–Jun
Hogwallow starfish *Hesperevax caulescens*	–/–/4.2		Mesic clay in valley and foothill grassland; below 505 meters	Mar–Jun
Drymaria-like western flax *Hesperolinon drymarioides*	–/–/1B.2	Central Inner North Coast Ranges in Colusa, Glenn, Lake, Napa, and Yolo counties	On soils derived from serpentinite in closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland; 100–1,130 meters	May–Aug
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–/–/1B.2	Scattered locations in central California in the Central and southern Sacramento Valley, deltaic Central Valley, from Butte to San Joaquin counties	Freshwater marshes and swamps; below 120 meters	Jun–Sep
Parry's horkelia *Horkelia parryi*	–/–/1B.2	Northern and central Sierra Nevada foothills in Amador, Calaveras, El Dorado, and Mariposa counties	Chaparral, or cismontane woodland openings, especially Ione formations; 80–1,035 meters	Apr–Sep
Short-leaved hulsea *Hulsea brevifolia*	–/–/1B.2	Central and southern High Sierra Nevada in El Dorado, Fresno, Madera, Mariposa, Tulare, and Tuolumne counties	Gravelly or sandy soils derived from granitic or volcanic substrate in lower and upper montane coniferous forest; 1,500–3,200 meters	May–Aug
Carquinez goldbush *Isocoma arguta*	–/–/1B.1	Deltaic Sacramento Valley, Suisun Slough, Contra Costa and Solano counties	Annual grassland on alkaline soils and flats; 1–20 meters	Aug–Dec
Plumas ivesia *Ivesia sericoleuca*	–/–/1B.2	Northern High Sierra Nevada, southern Modoc Plateau in Lassen, Nevada, Placer, Plumas, and Sierra counties	Seasonally wet areas in Great Basin scrub, lower montane coniferous forest, meadows, vernal pools, usually on volcanic derived soils; 1,310–2,200 meters	May–Oct
Foothill jepsonia *Jepsonia heterandra*	–/–/4.3		Cismontane woodland, lower montane coniferous forest on rocky, metamorphic substrate; 50–500 meters	Aug–Dec

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Northern California black walnut *Juglans hindsii*	–/–/1B.1	Last two native stands in Napa and Contra Costa counties; historically more widespread through southern north inner Coast Range, southern Sacramento Valley, northern San Joaquin Valley, and San Francisco Bay Area	Riparian forest, riparian woodland; below 440 meters	Apr–May
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.2	Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties	Wet areas in valley and foothill grassland; 30–229 meters	Mar–May
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	–/–/1B.1	Northern Sacramento Valley and Cascade Range foothills with occurrences in Butte, Placer, Shasta, and Tehama counties	Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools at 35–1,020 meters	Mar–May
Juncus luciensis	–/–/1B.2		Chaparral, Great Basin scrub, Lower montane coniferous forest, Meadows and seeps, vernal pools; 300–2040 meters	Apr–Jul
Ferris' goldfields *Lasthenia ferrisiae*	–/–/4.2	Occurs in Alameda, Butte, Contra Costa, Colusa, Fresno, Kings, Kern, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, Ventura, and Yolo counties	Vernal pools on alkaline, clay-based soils; 20–700 meters	Feb–May

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Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	–/–/1B.1	Scattered locations in southern California from San Luis Obispo County to San Diego County, in the outer South Coast Ranges, south coast, northern Channel Islands, Peninsular Ranges, western Mojave desert, also in Yolo and Tehama counties	Coastal salt marshes and swamps, Grasslands, vernal pools, alkali sinks, playas, in alkaline soils; 1–1,220 meters	Feb–Jun
Delta tule pea *Lathyrus jepsonii* ssp. *jepsonii*	–/–/1B.2	San Francisco Bay Area, also part of Central Valley in Alameda, Contra Costa, Napa, Santa Clara*, San Joaquin, Solano, and Sonoma counties	Coastal and estuarine marshes (freshwater and brackish); 0-4 meters	May–Jul(Sep)
Dubious pea *Lathyrus sulphureus* var. *argillaceus*	–/–/3	Klamath Ranges, North Coast Ranges, Sierra Nevada in Calaveras, El Dorado, Nevada?, Placer, Shasta, and Tehama counties	Cismontane woodlands, lower and upper coniferous forests; 150–305 meters	Apr–May
Colusa layia *Layia septentrionalis*	–/–/1B.2	Inner North Coast Ranges in Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo counties	Sandy or serpentinite soils in grasslands and openings in chaparral and foothills woodlands; 100–1,095 meters	Apr–May
Legenere *Legenere limosa*	–/–/1B.1	Primarily in the lower Sacramento Valley, also from North Coast Ranges, northern San Joaquin Valley and the Santa Cruz mountains	Vernal pools; below 880 meters	Apr–Jun
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	–/–/1B.2	Southern Sacramento Valley in Glenn, Solano, and Yolo counties	On margins of alkali scalds in annual grassland; 2–200 meters	Mar–May
Jepson's leptosiphon *Leptosiphon jepsonii*	–/–/1B.2	Lake, Napa, Sonoma counties	Usually volcanic substrates in chaparral, cismontane woodland; 100–500 meters	Mar–May

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Woolly-headed lessingia *Lessingia hololeuca*	–/–/3	Southern north Coast Ranges, southern Sacramento Valley, northern San Francisco Bay Area, Alameda, Monterey, Marin, Napa, Santa Clara, San Mateo, Solano, Sonoma, and Yolo counties	Clay or serpentinite soils of broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; 15–305 meters	Jun–Oct
Hutchison's lewisia *Lewisia kelloggii* ssp. *hutchisonii*	–/–/3.3	Northern Sierra Nevada: Butte, El Dorado, Plumas, Sierra, and Siskiyou counties	Openings in upper montane coniferous forest; 1,463–2,365 meters	Jun–Aug
Long-petaled lewisia *Lewisia longipetala*	–/–/1B.3	Northern High Sierra Nevada in El Dorado, Nevada, and Placer counties	Wet, rocky areas in alpine boulder and rock field, subalpine coniferous forest, on soils derived from granitic rock; 2,500–2,925 meters	Jul–Aug
Saw-toothed lewisia *Lewisia serrata*	–/–/1B.1	Known from approximately 10 occurrences in El Dorado and Placer counties	Broadleaved upland forest, lower montane coniferous forest, riparian forest; 900–1,435 meters	May–Jun
Mason's lilaeopsis *Lilaeopsis masonii*	–/–/1B.1	Southern Sacramento Valley, Sacramento - San Joaquin River Delta, northeast San Francisco Bay area in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo counties	Freshwater or brackish marsh, riparian scrub, in tidal zone; below 10 meters	Apr–Nov
Humboldt lily *Lilium humboldtii* ssp. *humboldtii*	–/–/4.2		Openings in chaparral, cismontane woodland, lower montane coniferous forest; 90–1,280 meters	May–Jul
Delta mudwort *Limosella subulata*	–/–/2.1	Deltaic Central Valley: Contra Costa, Sacramento, San Joaquin, and Solano counties; Oregon	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub generally at sea level	May–Aug
Hoover's lomatium *Lomatium hooveri*	–/–/4.3	Colusa, Lake, Napa and Yolo counties	Serpentine or rarely volcanic soils in chaparral and cismontane woodland; 300–885 meters	Apr–Jul

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Quincy lupine *Lupinus dalesiae*	–/–/4.2	Northern High Sierra Nevada in Butte*, Plumas, Sierra, and Yuba counties	Openings in chaparral, cismontante woodland, lower and upper montane coniferous forest, often in disturbed areas; 855–2,500 meters	May–Aug
Northern bugleweed *Lycopus uniflorus*	–/–/4.3	Humboldt, Lassen, Nevada, Placer, Plumas, Shasta, Siskiyou, Tuolumne, and possibly Del Norte counties; elsewhere	Bogs and fens, marshes and swamps; 5–2,000 meters	Jul–Sep
Heller's bush-mallow *Malacothamnus helleri*	–/–/4.3	Colusa, Glenn, Lake, Napa, Tehama, and Yolo counties	Chaparral on sandstone; 305–635 meters	Jun–Aug
Three-ranked hump moss *Meesia triquetra*	–/–/4.2	Widespread, with occurrences from Humboldt and Lassen counties south to Riverside counties; Nevada, Oregon, and elsewhere	On soil in bogs and fens, meadows and seeps, moist sites in subalpine and upper montane coniferous forest; 1,300–2,953 meters	N/A
Broad-nerved hump moss *Meesia uliginosa*	–/–/2.2	Known from El Dorado, Fresno, Madera, Mariposa?, Nevada, Plumas, Riverside, Sierra, Siskiyou and Tulare counties; Nevada, Oregon, and elsewhere	On damp soil in bogs and seeps, meadows and seeps, subalpine and upper montane coniferous forest; 1,300–2,804 meters	N/A (spores Oct)
Sylvan microseris *Microseris sylvatica*	–/–/4.2	Throughout central and southern California, with occurrences from Tehama County south to Kern County	Chaparral, Great Basin scrub, pinyon and juniper woodland, oak woodland, and valley and foothill grassland on serpentinite; 45–1,500 meters	Mar–Jun
Mielichhoferia elongata	–/–/2.2	Sierra Nevada from Nevada to Fresno counties. Coast Ranges from Humboldt to Santa Cruz counties; elsewhere	Cismontane woodland, in vernally moist areas, metamorphic rock; 500–1,300 meters	N/A

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Sierra monardella *Monardella candicans*	–/–/4.3	Sireea Nevada Foothills in Amador, Calaveras, El Dorado, Fresno, Kern, Madera, Mariposa, Nevada, Placer, San Joaquin, Stanislaus, Tulare, and Tuolumne counties	Sandy or gravelly soils in chaparral, cismontane woodland, lower coniferous forest; 150–800 meters	Apr–Jul
Monardella douglasii ssp. *venosa*	–/–/1B.1	Occurrences in the northern and central Sierra Nevada foothills; also historically known from the Sacramento Valley	Heavy clay soils in cismontane woodland, valley and foothill grassland; 60–410 meters	May–Jul
Jones' muhly *Muhlenbergia jonesii*	–/–/4.3	Lassen, Mono, Modoc, Nevada, Placer, Plumas, Shasta, Siskiyou, and Trinity counties	Lower and upper montane coniferous forest; 1,130–2,130 meters	Jun–Aug
Little mousetail *Myosurus minimus* ssp. *apus*	–/–/3.1	Central Valley and South Coast from Butte County south to San Diego County; Baja California, Oregon	Valley and foothill grassland, alkaline vernal pools; 20–640 meters	Mar–Jun
Sierra sweet bay *Myrica hartwegii*	–/–/4.3	El Dorado, Madera, Mariposa, Nevada?, Tuolumne, Yuba? counties	Cismontane woodland, Lower montane coniferous forest, Riparian forest; 150–1,700 meters	May–Jun
Cotula navarretia *Navarretia cotulifolia*	–/–/4.2	Occurs in Alameda, Butte, Contra Costa, Colusa, Glenn, Lake, Mendocino, Marin, Napa, San Benito, Santa Clara, Siskiyou?, Solano, Sonoma, Sutter, and Yolo counties	Adobe soils in chaparral, woodland, valley and foothill grassland; below 1,830 meters	May–Jun
Hoary navarretia *Navarretia eriocephala*	–/–/4.3		Vernally mesic grasslands and woodlands; 105–400 meters	May–Jun

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Tehama navarretia *Navarretia heterandra*	–/–/4.3	Interior North Coast Ranges, Cascade Range foothills, western Sacramento Valley, east San Francisco Bay Area, interior South Coast Ranges, Modoc Plateau in Butte, Colusa, Lake, Napa, Shasta, Tehama, Trinity, and Yuba counties; Oregon	Mesic areas in valley and foothill grasslands, vernal pools; 30–1,010 meters	Apr–Jun
Jepson's navarretia *Navarretia jepsonii*	–/–/4.3	Colusa, Glenn, Lake, Napa, Tehama, and Yolo counties	On serpentinite in chaparral, cismontane woodland, valley and foothill grassland; 175–855 meters	Apr–Jun
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	–/–/1B.1	Inner North Coast Range, western Sacramento Valley: Colusa, Glenn, Lake, Mendocino, Marin, Napa, Solano, Sonoma, Tehama, and Yolo counties	Vernal pools and swales in woodland, lower montane coniferous forest, mesic meadows, and grassland; 5–1,740 meters	Apr–Jul
Navarretia myersii ssp. *myersii*	–/–/1B.1	Central Valley in Amador, Calaveras, Merced, Placer, and Sacramento counties	Edges of vernal pools; 20–330 meters	Apr–May
Navarretia nigelliformis ssp. *nigelliformis*	–/–/4.2	Alameda, Butte, Contra Costa, Colusa, Fresno, Kern, Merced, Monterey, Placer, Sutter, and Tulare counties	Clay soils, sometimes serpentinite, in vernally mesic valley and foothill grassland, vernal pools; 100–1,000 meters	Apr–Jun
Navarretia prolifera ssp. *lutea*	–/–/4.3	El Dorado and Placer counties	Chaparral, woodland, dry rocky flats near drainage channels; 853–1,402 meters	May–Jul
Colusa grass *Neostapfia colusana*	T/E/1B.1	Central Valley with scattered occurrences from Colusa to Merced counties	Adobe soils of large vernal pools; 5–200 meters	May–Aug
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii*	E/E/1B.1	Northeast San Francisco Bay Area, known from three native occurrences; Contra Costa and Sacramento counties	Inland dunes; below 30 meters	Mar–Sep

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Northern adder's-tongue *Ophioglossum pusillum*	–/–/2.2	Eastern Klamath Ranges, northern Sierra Nevada in El Dorado, Mendocino, and Siskiyou* counties; Oregon and elsewhere	Marsh and swamp margins, mesic valley and foothill grassland; 1,000–2,000 meters	N/A (fertile Jul)
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento counties	Vernal pools; 35–1,760 meters	May–Sep (Oct)
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B.1	Endemic to Sacramento County	Vernal pools; 30–100 meters	Apr–Jul
Layne's ragwort *Packera layneae*	T/R/1B.2	Northern Sierra Nevada foothills, Butte, El Dorado, Tuolumne, and Yuba counties	Rocky serpentinite or gabbro soils in chaparral and foothill woodland, between 200–1,000 meters	Apr–Aug
Aquatic felt lichen *Peltigera hydrothyria*	None but on CDFG's special plant list[1]		According to CNDDB (2011), along streams between approximately 161–2,377 meters	N/A
Bacigalupi's yampah *Perideridia bacigalupii*	–/–/4.2	Amador, Butte, Calaveras, Kern, Madera*, Mariposa, Nevada, and Tuolumne counties	On serpentinite in chaparral, lower montane coniferous forest; 450–1,000 meters	Jun–Aug
Stebbins's phacelia *Phacelia stebbinsii*	–/–/1B.2	Northern Sierra Nevada in El Dorado, Nevada, and Placer counties	Cismontane woodland, lower montane coniferous forest, meadows and seeps; 610–2,010 meters	Jun–Jul
Piperia colemanii	–/–/4.3	Scattered distribution along eastern Central Valley and foothills from Siskiyou County to Tulare County	Chaparral and lower montane coniferous forest, often on sandy soils; 1,200–2,300 meters	Jun–Aug
Narrow-petaled rein orchid *Piperia leptopetala*	–/–/4.3	Scattered occurrences from Shasta and Plumas counties south to San Bernardino and Riverside counties	Cismontane woodlands, lower and upper coniferous forests; 380–2,225 meters	May–Jul

[1] *Special Vascular Plants,Bbryophytes, and Lichens List* (CDFG 2010).

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Michael's rein orchid *Piperia michaelii*	–/–/4.2	Widespread in the Sierra Nevada Foothills, coastal mountains, and San Francisco Bay Area	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest; 3–915 meters	Apr–Aug
Poa sierrae	–/–/1B.3	Butte, El Dorado, Nevada, Plumas, and Shasta counties	Lower montane conifer forests; 365–1,500 meters	Apr–Jun
Sierra podistera *Podistera nevadensis*	–/–/4.3	Alpine, El Dorado, Mono, Placer, San Bernardino*, and Tuolumne counties	Alpine boulder and rock field; 3,000–4,000 meters	Jul–Sep
Northern holly fern *Polystichum lonchitis*	–/–/3	Alpine, El Dorado, Siskiyou, and possibly Plumas and Trinity counties; Arizona, Idaho, Nevada, Oregon, Utah, Washington	On granitic or carbonate substrates in subalpine and upper montane coniferous forest; 1,800–2,600 meters	N/A (fertile Jun–Sep)
Nuttall's pondweed *Potamogeton epihydrus*	–/–/2.2	Outer North Coast Ranges, High Sierra Nevada, Modoc Plateau in El Dorado, Mendocino, Modoc, Mariposa, and Plumas counties; Oregon and elsewhere	Freshwater marsh; 369–2,172 meters	Jul–Sep
Hartweg's golden sunburst *Pseudobahia bahiifolia*	E/E/1B.1	Central Sierra Nevada foothills, eastern San Joaquin Valley	Clay soils in valley and foothill grassland; 15–150 meters	Mar–Apr
Sierra starwort *Pseudostellaria sierrae*	–/–/4.2	Occurrences in El Dorado, Mariposa, Nevada, Placer, Plumas, and Tuolumne counties	Chaparral, cismontane woodland, lower and upper montane coniferous forest; 1,225–2,194 meters	May–Aug
Delta woolly-marbles *Psilocarphus brevissimus* var. *multiflorus*	–/–/4.2	Deltaic Central Valley and San Francisco Bay Area, Alameda, Napa, Santa Clara, San Joaquin, Solano, Stanislaus, and Yolo counties, also reported from San Diego County	Vernal pools; 10–500 meters	May–Jun
Sticky pyrrocoma *Pyrrocoma lucida*	–/–/1B.2	Northern High Sierra in Lassen, Plumas, Sierra, and Yuba counties	On alkaline clay soils in Great Basin scrub, lower montane coniferous forest, meadows; 700–1,950 meters	Jul–Oct

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Alder buckthorn *Rhamnus alnifolia*	–/–/2.2	Alpine, Nevada, Placer, Plumas, Sierra counties; also Idaho, Oregon, Washington, and elsewhere	Lower montane coniferous forest, meadows and seeps, riparian scrub, upper montane coniferous forest; 1,370–2,130 meters	May–Jul
Brownish beaked rush *Rhynchospora capitellata*	–/–/2.2	Scattered occurrences in Northwestern California and northern Sierra Nevada Foothills	Wet areas in lower and upper montane coniferous forest, meadows and seeps, freshwater marshes and swamps; 455–2,000 meters	Jul–Aug
Tahoe yellow cress *Rorippa subumbellata*	C/E/1B.1	Lake Tahoe Basin: El Dorado, Nevada*, and Placer counties; also adjacent Nevada	Lower montane coniferous forest, meadows and seeps, on decomposed granitic beaches; 1,895–1,900 meters	May–Sep
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving shallow water habitats; below 6150 meters	May–Oct
Water bulrush *Schoenoplectus subterminalis*	–/–/2.3	Klamath Ranges, northern High Sierra Nevada	Bogs and fens, montane lake margins of marshes and swamps; 750–2,250 meters	Jun–Aug
Marsh skullcap *Scutellaria galericulata*	–/–/2.2	Northern High Sierra Nevada, Modoc plateau, El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Shasta, San Joaquin, and Siskiyou counties; Oregon and elsewhere	Marshes, mesic meadows, seeps, lower montane coniferous forest; below 2,100 meters	Jun–Sep
Side-flowering skullcap *Scutellaria lateriflora*	–/–/2.2	Known in CA from only three occurrences in Northern San Joaquin Valley and east of the Sierra Nevada in Inyo, Sacramento, and San Joaquin counties; New Mexico, Oregon, and elsewhere	Mesic meadows, marshes and swamps; below 500 meters	Jul–Sep
Keck's checkerbloom *Sidalcea keckii*	E/–/1B.1	Known from only three occurrences in Fresno, Merced,, and Tularea counties; plants from inner North Coast Ranges in Colusa, Napa, Solano, and Yolo counties may be *Sidalcea diploscypha*.	Serpentine clay soils in cismontane woodland, valley and foothill grassland; 120–425 meters	Apr–May

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Western campion *Silene occidentalis* ssp. *occidentalis*	–/–/4.3	Butte, El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Shasta, and Tehama counties	Dry, open sites in chaparral, lower and upper montane coniferous forest; 1,245–2,090 meters	Jun–Aug
Silene verecunda ssp. *verecunda*	–/–/1B.2	Northern Central Coast, San Francisco Bay in San Francisco, San Mateo, Santa Cruz, and Sutter counties	Sandy soils in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; 30–645 meters	May–Jun (Aug)
Samll bur-reed *Sparganium natans*	–/–/4.3	El Dorado, Lassen, Madera, Mariposa, Nevada, Placer, Plumas, Riverside, Sierra, Shasta, and Tuolumne counties; Idaho, Oregon, Washington, and elsewhere	Bogs and fens, lake margins of marshes and swamps; 1,645–2,500 meters	Jun–Sep
Munroe's desert mallow *Sphaeralcea munroana*	–/–/2.2	Known only in California from Squaw Creek in Placer County; Nevada, Oregon, and elsewhere	Great Basin scrub; 2,000 meters	May–Jun
Morrison's jewel-flower *Streptanthus morrisonii*	–/–/1B.2	Central Inner North Coast Ranges in Lake, Napa, and Sonoma counties	Cismontane woodland on serpentinite soils; 215–1,035 meters	Apr–Jul
Slender-leaved pondweed *Stuckenia filiformis*	–/–/2.2	Scattered locations in Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Placer, Santa Clara*, and Sierra counties; Arizona, Nevada, Oregon, Washington	Freshwater marsh, shallow emergent wetlands and freshwater lakes, drainage channels; 300–2,150 meters	May–Jul
Suisun Marsh aster *Symphyotrichum lentum*	–/–/1B.2		Brackish and freshwater marshes and swamps; below three meters	May–Nov
Tahoe tonestus *Tonestus eximius*	–/–/4.3	Alpine, El Dorado, and Inyo counties; Nevada	Subalpine coniferous forest, on granitic substrates; 2,500–3,300 meters	Jul–Aug
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	–/–/2.1	Scattered locations in the Central Valley and Southern Coast; Texas	On alkaline soils in floodplains, meadows and seeps, marshes and swamps, riparian forest, vernal pools; 5–435 meters	May–Sep

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
Solano grass *Tuctoria mucronata*	E/E/1B.1	Southwestern Sacramento Valley in Solano and Yolo counties	Vernal pools, mesic grassland; 5–10 meters	Apr–Aug
Lesser bladderwort *Utricularia minor*	–/–/4.2	Scattered occurrences in northeast California: Butte, El Dorado, Fresno, Lassen, Modoc, Nevada, Plumas, Shasta, Sierra, Tehama, Tulare, and Tuolumne counties; also Arizona, Idaho, Nevada, Utah, and Washington	Shallow freshwater in bogs, marshes, swamps, and lake margins; 800–2,900 meters	Jul
Cream-flowered bladderwort *Utricularia ochroleuca*	–/–/2.2	El Dorado, Modoc, and Plumas counties; also Oregon, Washington, and elsewhere	Shallow water in meadows, seeps, marshes, swamps, and lake margins; 1,435–1,440 meters	Jun–Jul
Siskiyou Mountains huckleberry *Vaccinium coccineum*	–/–/3.3	Butte, Plumas, Sierra, Siskiyou, and Yuba counties; Oregon	Lower and upper montane coniferous forest, often on serpentinite; 1,095–2,135 meters	Jun–Aug
Cusick's speedwell *Veronica cusickii*	–/–/4.3	Alpine, Amador, Madera, Mariposa, Placer, Sierra, and Tuolumne counties; also Oregon, Washington and elsewhere	Alpine boulder and rock field, meadows and seeps, subalpine coniferous forest, upper montane coniferous forest; 2,135–3,000 meters	Jul–Aug
Oval-leaved viburnum *Viburnum ellipticum*	–/–/2.3	Northwest California, San Francisco Bay Area, northern and central Sierra Nevada foothillsin Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Mendocino, Napa, Placer, Shasta, and Sonoma counties; Oregon, Washington	Chaparral, cismontane woodland, and lower montane coniferous forest; 215–1,400 meters	May–Jun
Felt-leaved violet *Viola tomentosa*	–/–/4.2		On gravelly soils in lower and upper montane coniferous forest and submontane coniferous forest; 1,435–2,000 meters	May–Oct

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Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period
El Dorado County mule ears *Wyethia reticulata*	–/–/1B.2	Endemic to El Dorado County	On clay or gabbro soils in chaparral, cismontate woodland, and lower montane coniferous forest; 185–630 meters	Apr–Aug

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

– = no listing.

California Rare Plant Rank[2]

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

3 = List 3 species: plants about which more information is needed to determine their status.

[2]In March, 2010, CDFG changed the name of "CNPS List" or "CNPS Ranks" to "California Rare Plant Rank" (or CRPR). This was done to reduce confusion over the fact that CNPS and CDFG jointly manage the Rare Plant Status Review groups (300+ botanical experts from government, academia, non-governmental organizations, and the private sector) and that the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

Table BIO-1.1 Special-Status Plants Identified as Having the Potential to Occur in the proposed MTP/SCS plan area

Common and Scientific Names	Legal Status[a] Federal/State/ CRPR	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period

4 = List 4 species: plants of limited distribution.

.1 = seriously endangered in California
.2 = fairly endangered in California
.3 = not very endangered in California

– = no listing.

? = population status within that County uncertain.

* = known populations believed extirpated from that County

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Invertebrates				
Conservancy fairy shrimp *Branchinecta conservatio*	E/–	Disjunct occurrences in Ventura, Solano, Merced, Tehama, Yolo, Stanislaus, Butte, and Glenn counties.	Large, cool-water vernal pools with moderately turbid water.	Yolo, Placer
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools.	
California linderiella *Linderiella occidentalis*	–/–	Central Valley, central and south Coast Ranges from Mendocino County to Santa Barbara County	Vernal pools	
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	
Midvalley fairy shrimp *Branchinecta mesovallensis*	–/–	Known from Fresno, Madera, Merced, Sacramento, San Joaquin, and Solano counties	Vernal pools	Sacramento, Yolo
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Stream side habitats below 3,000 feet throughout the Central Valley.	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	–/–	San Francisco Bay Area including San Mateo, Sonoma, Alameda, and Marin counties; Also in Solano and Sacramento counties	Aquatic in vernal pools, ponds, and seasonal wetlands	Sacramento, Placer
Amphibians				
Ambystoma californiense	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	Sacramento, Yolo, Sutter

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Mount Lyell salamander *Hydromantes platycephalus*	/SSC	High Sierra Nevada, mostly above 8000 ft (4000-12,000 ft, overall), from Sonora Pass, Alpine County, to Franklin Pass area, Tulare County; low elevation records are from the south side of Yosemite Valley. Isolated population at Smith Lake, Desolation Wild	Granite rock exposures, talus, and rock fissures, near seepages from streams or melting snow, also in spray zone of waterfalls. Apparently prefers north-facing slopes.	El Dorado
Western spadefoot *Spea hammondii*	–/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	Sacramento, Yolo, Placer
Yosemite toad *Bufo canorus*	C/SSC	Central high Sierra Nevada from El Dorado County south to near Kaiser Pass in Fresno County. Occurs at elevations of about 6,400 to 11,300 feet above means sea level.	Found in montane wet meadows, but also occurs in seasonal ponds associated with lodgepole pine and subalpine conifer forests.	No CNDDB records in proposed plan area
Northern leopard frog *Lithobates pipiens* (native populations only)	-/SSC	Uncommon and localized in California. In northern California, established in Modoc and possibly eastern Lassen County. Introduced in the Tahoe Basin.	Reproduce in cattail and sedge marshes, weedy ponds, or other aquatic vegetation. Occurs near permanent or semi-permanent water in many habitat types.	
California red-legged frog *Rana draytonii*	T/SSC	Found along the coast and coastal mountain ranges of California from Mendocino County to San Diego County and in the Sierra Nevada from Tehema County to Fresno County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.	Yuba, Placer, El Dorado

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Foothill yellow-legged frog *Rana boylii*	–/SSC	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet.	Creeks or rivers in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby.	
	C/C	Found in the Sierra Nevada above 4,500 feet from Plumas County to southern Tulare County. Isolated populations in Butte County and near Mono Lake, Mono County	Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats.	Placer, El Dorado
Reptiles				
Western pond turtle *Emys marmorata*	–/SSC	Occurs from the Oregon border of Del Norte and Siskiyou counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	
Coast horned lizard *Phrynosoma blainvillii*	–/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California.	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	Placer, El Dorado

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Giant garter snake *Thamnophis gigas*	T/T	Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno.	Sloughs, canals, and other small water-ways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Sacramento, Yolo, Yuba, Sutter
Birds				
Harlequin duck *Histrionicus histrionicus*	–/SSC	May still nest in very small numbers in Calaveras County and eastern Amador and Placer counties; winters on the coast from Del Norte County to central San Luis Obispo County	Turbulent mountain streams in summer and rough coastal waters in winter; forages by diving along rocky shorelines	Placer
Branta canadensis leucopareia	D/–	The entire population winters in Butte Sink, then moves to Los Banos, Modesto, the Delta, and East Bay reservoirs; stages near Crescent City during spring before migrating to breeding grounds	Roosts in large marshes, flooded fields, stock ponds, and reservoirs; forages in pastures, meadows, and harvested grainfields; corn is especially preferred	Sutter

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Double-crested cormorant *Phalacrocorax auritus (rookery site)*	–/-	Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern and King counties, and the islands off San Francisco; breeds in Siskiyou, Modoc,Lassen, Shasta, Plumas, and Mon counties; also breeds in the San Francisco Bay Area and in Yolo and Sacramento counties	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags	Sacramento
White-faced ibis *Plegadis chihi (rookery site)*	–/-	Both resident and winter populations on the Salton Sea and in isolated areas in Imperial, San Diego, Ventura, and Fresno counties; breeds at Honey Lake, Lassen County, at Mendota Wildlife Management Area, Fresno County, and near Woodland, Yolo County	Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields, especially flooded rice fields	Yolo
Osprey *Pandion haliaetus*	–/-	Nests along the north coast from Marin County to Del Norte County, east through the Klamath and Cascade Ranges, and in the upper Sacramento Valley. Important inland breeding populations at Shasta Lake, Eagle Lake, and Lake Almanor and small numbers elsewhere south through the Sierra Nevada. Winters along the coast from San Mateo County to San Diego County.	Nests in snags, trees, or utility poles near the ocean, large lakes, or rivers with abundant fish populations.	Placer, El Dorado
White-tailed kite *Elanus leucurus*	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands.	

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
American peregrine falcon *Falco peregrinus anatum*	D/D, FP	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations	No CNDDB records in proposed plan area
Bald eagle *Haliaeetus leucocephalus*	D/E, FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.	In western North America, nests and roosts in coniferous forests within one mile of a lake, reservoir, stream, or the ocean.	Yuba, El Dorado, Placer
Northern harrier *Circus cyaneus*	–/SSC	Occurs throughout lowland California; has been recorded in fall at high elevations.	Grasslands, meadows, marshes, and seasonal and agricultural wetlands.	Yuba
Sharp-shinned hawk *Accipiter striatus*	–/-	Common migrant and winter resident throughout California, expect alpine, open prairie, and bare desert. Uncommon permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid elevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey counties.	Dense canopy ponderosa pine or mixed-conifer forest and riparian habitats.	El Dorado
Cooper's hawk *Accipiter cooperii*	–/-	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range.	Nests in a wide variety of habitat types, from riparian woodlands and foothill pine-oak woodlands through mixed conifer forests.	Sacramento, Placer

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Northern goshawk *Accipiter gentilis*	–/SSC	Permanent resident in the Klamath and Cascade Ranges, in the north Coast Ranges from Del Norte County to Mendocino County, and in the Sierra Nevada south to Kern County. Winters in Modoc, Lassen, Mono, and northern Inyo counties	Nests and roosts in older stands of red fir, Jeffrey pine, Ponderosa pine, lodgepole pine, Douglas fir, and mixed conifer forests	Placer, El Dorado
Swainson's hawk *Buteo swainsoni*	–/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	
Golden eagle *Aquila chrysaetos*	–/ FP	Foothills and mountains throughout California. Uncommon nonbreeding visitor to lowlands such as the Central Valley.	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals.	El Dorado
Prairie falcon *Falco mexicanus*	–/-	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade Ranges, the southeastern deserts, Inyo-White Mountains, foothills surrounding the Central Valley, and in the Sierra Nevada in Modoc, Lassen, and Plumas counties. Winters in the Central Valley, along the coast from Santa Barbara County to San Diego County, and in Marin, Sonoma, Humboldt, Del Norte, and Inyo counties	Nests on cliffs or escarpments, usually overlooking dry, open terrain or uplands	Yolo

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
California black rail *Laterallus jamaicensis coturniculus*	–/T, FP	Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	Yuba, Placer, Sutter, Sacramento
Greater sandhill crane *Grus canadensis tabida* (nesting and wintering)	–/T, FP	Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra counties. Winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve.	Summers in open terrain near shallow lakes or freshwater marshes. Winters in plains and valleys near bodies of fresh water.	Sutter
Western snowy plover (inland population) *Charadrius alexandrinus nivosus*	T/SSC	Nests at inland lakes throughout northeastern, central, and southern California, including Mono Lake and Salton Sea	Barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds and riverine sand bars; also along sewage, salt-evaporation, and agricultural waste-water ponds	Yolo
Mountain plover *Charadrius montanus*	PT/SSC	Does not breed in California; in winter, found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego counties; parts of Imperial, Riverside, Kern, and Los Angeles counties	Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields	Yolo

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Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Western yellow-billed cuckoo *Coccyzus americanus occidentalis* (nesting)	C/E	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers.	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant.	Yolo, Sutter, Yuba, Sacramento
Burrowing owl *Athene cunicularia*	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	Sacramento, Yolo, Sutter, Yuba, Placer
California spotted owl *Strix occidentalis occidentalis*	-/SSC	Resident of southern Cascade Range south along the west slope of the Sierra Nevada, along the mountains in the central Coast, and in the mountains of southern California.	Breeds and roosts in forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies, multiple canopy layers, and downed woody debris. Nest sites in the Sierra Nevada are typically tree cavities or on broken-topped trees or snags.	El Dorado, Placer
Great gray owl *Strix nebulosa*	–/E	Permanent resident of the Sierra Nevada from Plumas County south to the Yosemite area. Occasionally occurs in northwestern California in the winter and the Warner mountains in the summer.	Late successional coniferous forests bordering meadows	Yuba, El Dorado

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Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Long-eared owl *Asio otus*	–/SSC	Permanent resident east of the Cascade Range from Placer County north to the Oregon border, east of the Sierra Nevada from Alpine County to Inyo County. Scattered breeding populations along the coast and in southeastern California. Winters throughout the Central Valley and southeastern California	Nests in abandoned crow, hawk, or magpie nests, usually in dense riparian stands of willows, cottonwoods, live oaks, or conifers	Yuba
Black swift *Cypseloides niger* (nesting)	–/SSC	Breeds very locally in the Sierra Nevada and Cascade Range, the San Gabriel, San Bernardino, and San Jacinto mountains, and in coastal bluffs from San Mateo county south to near San Luis Obispo county	Nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons	Placer
Willow flycatcher *Empidonax traillii*	–/E	Summers along the western Sierra Nevada from El Dorado to Madera County, in the Cascade and northern Sierra Nevada in Trinity, Shasta, Tahama, Butte, and Plumas counties, and along the eastern Sierra Nevada from Lassen to Inyo County.	Riparian areas and large wet meadows with abundant willows. Usually found in riparian habitats during migration.	Placer, El Dorado
Loggerhead shrike *Lanius ludovicianus*	–/SSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter.	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	No CNDDB records in proposed plan area

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Purple martin *Progne subis*	–/SSC	Coastal mountains south to San Luis Obispo County, west slope of the Sierra Nevada, and northern Sierra and Cascade ranges. Absent from the Central Valley except in Sacramento and Placer counties. Isolated, local populations in southern California	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats. Also nests in vertical drainage holes under elevated freeways and highway bridges	Placer, Sacramento
Bank swallow *Riparia riparia*	–/T	Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou counties. Small populations near the coast from San Francisco County to Monterey County.	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam.	Sacramento, Yolo, Sutter, Yuba, El Dorado
Yellow warbler *Dendroica petechia brewsteri (nesting)*	–/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside counties. Two small permanent populations in San Diego and Santa Barbara counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Placer
Yellow-breasted chat *Icteria virens*	–/SSC	Nests locally in coastal mountains and Sierra Nevada foothills, east of the Cascades in northern California, along the Colorado river, and very locally inland in southern California	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines	No CNDDB records in proposed plan area

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Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	–/SSC	Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda counties	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	Sacramento
Suisun song sparrow *Melospiza melodia maxillaris*	–/SSC	Restricted to the extreme western edge of the Delta, between the cities of Vallejo and Pittsburg near Suisun Bay	Brackish and tidal marshes supporting cattails, tules, various sedges, and pickleweed	Sacramento
Grasshopper sparrow *Ammodramus savannarum*	-/SSC	Summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest and from Mendocino and Trinity counties south to San Diego County. Winters in coastal southern California.	Forages, seeks cover, and nests in dense areas of dense, dry or well drained grass and forbs.	Yuba, Placer, Sacramento,
Least Bell's vireo *Vireo bellii pusillus*	E/E	Historically a common breeder in the Central Valley. Currently most breeding in California occurs in southern California. In 2005, species was documented nesting in San Joaquin County. In 2010 and 2011, two males were documented in the Yolo County at the Yolo Bypass Wildlife Area.	Dense shrubs and small trees along rivers and streams	Yolo

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Tricolored blackbird *Agelaius tricolor*	–/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano counties. Rare nester in Siskiyou, Modoc, and Lassen counties.	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	-/SSC	Breeds east of Cascade Range and Sierra Nevada, in Imperial and Colorado River valley, in the Central Valley, and at selected locations in coast ranges west of the Central Valley. Winters in western Central Valley and Imperial Valley.	Nests in fresh emergent wetland with dense vegetation and deep water, often along borders of lakes or ponds. Forages in emergent wetland and moist, open areas, especially cropland and muddy shores of lacustrine habitat.	El Dorado, Sacramento
Mammals				
Western red bat *Lasiurus blossevillii*	–/SSC	Scattered throughout much of California at lower elevations	Found primarilly in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the central valley	Sacramento, Sutter, Yolo,

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Townsend's big-eared bat *Corynorhinus townsendii*	–/SSC	Throughout California from low desert to mid-elevation montane habitats.	Desert, oak woodland, coastal redwood, and mixed coniferous-deciduous forest. Day roosts in cave-like spaces including mines, caves, tunnels, and dark spaces in buildings, such as attics. May night roost in more open areas such as under bridges.t	Yolo, Placer
Pallid bat *Antrozous pallidus*	–/SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations.	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.	
Lepus americanus tahoensis	–/SSC	Occurs in the Cascade mountains in Siskiyou and Del Norte counties and the Sierra Nevada from Mt. Lassen south to Mono and Tulare counties, generally between 4,800 and 8,000 feet	Found in dense thickets of conifers, riparian vegetation, or chaparral in boreal life zones	Placer, El Dorado

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Western white-tailed jackrabbit *Lepus townsendii townsendii*	–/SSC	Occurs in the Great Basin, as well as high elevations on the crest of the Sierra Nevada mountains and rarely to 6,000 feet on the western slope of this range.	Sagebrush-covered slopes, grasslands and meadows to timberline or above, and open forests of lodgepole pine, yellow pine, western juniper, dwarf juniper, red fir and mixed conifers. Moves to lower regions during the winter in the Sierra Nevada	Placer
Sierra Nevada mountain beaver *Aplodontia rufa californica*	–/SSC	Occurs from Mount Shasta east and south through the Sierra Nevada range. Populations scattered and local	Frequent open and intermediate-canopy coverage with a dense understory near water. Deep, friable soils are required for burrowing, along with a cool, moist microclimate.	Placer, El Dorado
Marysville California kangaroo rat *Dipodomys californicus eximius*	–/SSC	Sutter Buttes, Sutter County; could be extinct	Grassland and sparse chaparral habitats above the valley floor on slopes with well-drained soils	Sutter

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Vulpes vulpes necator	–/T	Occurs in the Cascade Range, in Siskiyou County, and in the Sierra Nevada from Lassen County south to Tulare County	Alpine dwarf-shrub, wet meadow, subalpine conifer, lodgepole pine, red fir, aspen, montane chaparral, montane riparian, mixed conifer, and ponderosa pine. In the Sierra Nevada, most sightings have been above 7,000 feet.	El Dorado, Placer
Pacific fisher *Martes pennant (pacifica)* DPS	C/SSC	Coastal mountains from Del Norte County to Sonoma counties, east through the Cascades to Lassen County, and south in the Sierra Nevada to Kern County	Late successional coniferous forests and montane riparian habitats	Yuba, Placer, El Dorado
American badger *Taxidea taxus*	–/SSC	Throughout California, except for the humid coastal forests of northwestern California in Del Norte and the northwestern Humboldt counties	Requires sufficient food, friable soils, and relatively open uncultivated ground; preferred habitat includes grasslands, savannas, and mountain meadows near timberline	Sacramento, Yolo, El Dorado

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
California wolverine *Gulo gulo*	C/T, FP	Historically found in Klamath and Cascade Ranges south through the Sierra Nevada to Tulare County. Current native population and distribution is unknown.	Found in a variety of mountain habitats. In north coastal areas, most sightings have been between 1,600 and 4,800 feet. The species has been found between 4,300–7,300 feet in the northern Sierra Nevada and between 6,400 and 10,800 in the Southern Sierra Nevada. Most common in open terrain above timberline and subalpine forests. There has been only one recent sighting of a wolverine in an area north of Truckee, which appears to be a migrant for Idaho.	Placer, El Dorado
Ringtail *Bassariscus astutus*	–/FP	Little information on distribution and abundance. Apparently occurs throughout the state except for the southern Central Valley and the Modoc Plateau	Occurs primarily in riparian habitats but also known from most forest and shrub habitats from lower to mid elevations. Usually not found for than 0.6 mile from permanent water.	Not tracked in the CNDDB

[a] Status explained:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PT = proposed threatened
D = delisted
C = candidate for threatened or endangered status.

Table BIO-1.2 Special-Status Wildlife Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	Distribution	Preferred Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]

SC = species of concern.
FP = proposed for delisting.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
C = candidate for threatened or endangered status
D = delisted
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.

[b] Known occurrences from DFG's California Natural Diversity Database. 2011. RareFind, Version 3.1.0 (August 2011 update).

Table BIO 1.3 Special-Status Fish Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	California Distribution	Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
Green sturgeon Acipenser medirostris	T/SSC	Sacramento, lower Feather, and Klamath and Trinity Rivers (Moyle 2002)	Spawns in large river systems with well-oxygenated water, with temperatures from 8.0° to 14°C.	No CNDDB records in proposed plan area
Delta smelt Hypomesus transpacificus	T/E	Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay	Occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand. (Moyle 2002.)	Sacramento, Yolo
Central Valley steelhead Oncorhynchus mykiss	T/–	Sacramento River and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8° to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	No CNDDB records in proposed plan area
Lahontan cutthroat trout Oncorhynchus clarkii henshawi	T/–	Native to streams and lakes on the eastern side of Sierra Nevada mountains. Independence Lake (Placer County), By-Day Creek (Mono County) and Heenan Lake support the only authentic endemic populations of fish (Moyle 2002).	Same as for Central Valley steelhead, but can also occur in cool, oxygenated lakes.	Placer, El Dorado
Sacramento River winter-run Chinook salmon Oncorhynchus tshawytscha	E/E	Mainstem Sacramento River below Keswick Dam (Moyle 2002)	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0° to 12.5°C. Habitat types are	No CNDDB records in proposed plan area

Table BIO 1.3 Special-Status Fish Species Known or Potentially Occurring in the MTP/SCS

Common and Scientific Names	Status[a] Federal/State	California Distribution	Habitats	Counties in the Plan Area where Occurrences Have Been Documented[b]
			riffles, runs, and pools. (Moyle 2002.)	
Central Valley spring-run Chinook salmon Oncorhynchus tshawytscha	T/T	Upper Sacramento River and Feather River	Has the same general habitat requirements as winter-run Chinook salmon. Coldwater pools are needed for holding adults (Moyle 2002).	Yuba, Yolo,
Central Valley fall-/late-fall-run Chinook salmon Oncorhynchus tshawytscha	SC/SSC	Sacramento and San Joaquin Rivers and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0° to 12.5°C. Habitat types are riffles, runs, and pools (Moyle 2002).	No CNDDB records in proposed plan area
Sacramento splittail Pogonichthys macrolepidotus	–/SSC	Occurs throughout the year in low-salinity waters and freshwater areas of the Sacramento–San Joaquin Delta, Yolo Bypass, Suisun Marsh, Napa River, and Petaluma River (Moyle 2002).	Spawning takes place among submerged and flooded vegetation in sloughs and the lower reaches of rivers.	Sacramento, Sutter, Yolo
Sacramento perch Archoplites interruptus	–/SSC (in native range)	Currently, populations in Clear Lake and Alameda Creek including the Calaveras Reservoir, are the only populations within the historic native range. Outside of native range, populations exist in California reservoirs and associated streams (Moyle 2002).	Mostly found in reservoirs and farm ponds. Often associated with emergent vegetation, submerged objects, and submerged aquatic vegetation. Found in moderately alkaline, warm, turbid water of up to 28°C (Moyle 2002).	Sacramento

Sources: Moyle, P. B. 2002. *Inland fishes of California*. 2nd edition. Davis, CA: University of California Press.

Moyle, P. B., R. M. Yoshiyama, J. E. Williams, and E. D. Wikramanayoke. 1995. *Fish species of special concern of California*. California Department of Fish and Game. Rancho Cordova, CA.

[a] Status explained:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
SC = species of concern under the National Marine Fisheries Service

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
SSC = species of special concern in California.

[b] Known occurrences from DFG's California Natural Diversity Database. 2011. RareFind, Version 3.1.0 (August 2011 update).

Cultural-1 - Native American Heritage Commission Letter

STATE OF CALIFORNIA Edmund Brown, Jr, Governor

NATIVE AMERICAN HERITAGE COMMISSION
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September 26, 2011

Christiaan Havelaar
ICF International

Fax #: 916-737-3030
Pages including cover: 10

RE: SACOG MTP 2035

Dear Mr. Havelaar:

I recommend that you contact the Native Americans contacts on the attached list for the above mentioned project. They may be able to provide input concerning the project site and assist in the mitigation measures. It is with the understanding that the list is to be used only to determine possible areas of cultural sensitivity

The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest that all of those indicated be contacted, if they cannot supply information, they may recommend others with specific knowledge. A minimum of two weeks must be allowed for responses after notification.

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

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September 26, 2011

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This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Sacramento Area Council of Governments Metropolitan Transportation Plan: Placer County

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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Sacramento Area Council of Governments Metropolitan Transportation Plan: Sutter County

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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Sacramento Area Council of Govenments Metropolitsn Transportaion Plan: Yolo County

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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Sacramento Area Council of Governments Metropolitan Transportation Plan: Sacramento County

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September 26, 2011

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