Public Review Draft

McClellan Heights and Parker Homes Land Use and Infrastructure Plan EIR

SCH# 2006062009

City of Sacramento and the Sacramento Housing and Redevelopment Agency (SHRA)

May 22, 2007

DESIGN, COMMUNITY & ENVIRONMENT

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TABLE OF CONTENTS

List of Figures

List of Tables

1 Introduction

This Draft Environmental Impact Report (henceforth "EIR" or "Draft EIR" or "DEIR") has been prepared to provide an assessment of the potential environmental consequences of adoption and implementation of the McClellan Heights/Parker Homes Land Use and Infrastructure Plan (henceforth "the Plan"). This assessment is designed to inform City of Sacramento and Sacramento Housing and Redevelopment Agency (SHRA) decision-makers, other responsible agencies and the public-at-large of the nature of the Plan and its effect on the environment. This EIR has been prepared in accordance with, and in fulfillment of, California Environmental Quality Act (CEQA) requirements. The City of Sacramento is the Lead Agency for the project.

A. Proposed Action

The Plan is intended to provide a comprehensive plan for the revitalization of the McClellan Heights and Parker Homes residential neighborhoods that is responsive to the needs of residents and which builds on new opportunities and changes resulting from the recent closure of the adjacent former McClellan AFB, and the subsequent adoption of reuse programs and policies.

The Plan includes recommendations for land use changes, including configurations and intensity, property development regulations for infill development and strategies for improving housing stock. The Plan also includes infrastructure and streetscape improvement recommendations. Future development may occur at different times and be implemented by different developers (public and private). While the Plan has a long-term planning horizon, it will provide overall direction to the day-to-day decisions of the City Council, its commissions and City staff. The Plan is described in more detail in Chapter 3.

B. EIR Scope, Issues and Concerns

This document is a Program EIR that analyzes the proposed adoption and implementation of the Plan. Because it is a Program EIR, it does not evaluate project-specific impacts that may be proposed under the General Plan; such projects will require separate environmental review to secure necessary entitlements. Subsequent environmental review may be tiered off this EIR.

The scope of this EIR was established by the City of Sacramento and SHRA through the Land Use and Infrastructure Plan planning process. Issues addressed in this EIR are:

1. Aesthetics
2. Air Quality
3. Biological Resources
4. Cultural Resources
5. Hazards and Hazardous Materials
6. Hydrology and Water Quality
7. Land Use
8. Noise
9. Population, Employment and Housing
10. Public Services
11. Soils, Seismicity and Geology
12. Transportation and Circulation
13. Utilities and Service Systems

C. Report Organization

This EIR is organized into the following chapters:

- **Chapter 1: Introduction** provides a preface and overview describing both the intended use of the document and the review and certification process for the EIR.
- **Chapter 2: Report Summary** summarizes environmental consequences that would result from the Plan, includes recommended mitigation measures and indicates the level of significance of environmental impacts before and after mitigation.
- **Chapter 3: Project Description** describes the Plan and includes a summary of each Plan chapter and a listing of proposed land use designation changes.
- **Chapter 4: Environmental Evaluation** provides an analysis of the potential environmental impacts of the Plan and presents recommended mitigation measures, if required, to reduce their impacts.
- **Chapter 5: Alternatives to the Plan** considers three alternatives to the Plan, including the CEQA-required "No Project Alternative."
- **Chapter 6: CEQA-Required Assessment Conclusions** discusses growth inducement, unavoidable significant effects and significant irreversible changes as a result of the Plan.
- **Chapter 7: Report Preparers** identifies the preparers of the Draft EIR.
- **Chapter 8: Glossary, Acronyms and References**.

D. Environmental Review Process

The Draft EIR will be available for review by the public and interested parties, agencies and organizations for a period of at least 45 days, as required by State law. Written comments on the Draft EIR are also encouraged for incorporation into the Final EIR and should be submitted to:

City of Sacramento
Environmental Planning Services
ATTN: Scott Johnson
2101 Arena Boulevard, Suite 200, Sacramento, CA 95834
Phone: (916) 808-5842
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Email: SRJohnson@cityofsacramento.org

Following the close of the public comment period, a Final Environmental Impact Report (FEIR) will be prepared to respond to all substantive comments on the Draft EIR. The FEIR will be published prior to consideration of its certification by the City of Sacramento City Council. Once the City Council certifies the FEIR, the Council will also consider adoption of the Plan, which may be approved as drafted or modified.

2 REPORT SUMMARY

This chapter presents an overview of the analysis contained in Chapter 4: Environmental Evaluation. It also summarizes the analysis of alternatives to the project and cumulative significant impacts discussed in Chapters 5 and 6, respectively. CEQA requires that this chapter summarize the following: 1) areas of controversy; 2) significant impacts; 3) unavoidable significant impacts; 4) implementation of mitigation measures; and 5) alternatives to the project.

A. Project Under Review

This Draft EIR provides an assessment of the potential environmental consequences of adoption of the McClellan Heights/Parker Homes Land Use and Infrastructure Plan (henceforth "the Plan"). The Plan is intended to serve as the principal policy document for guiding future development in the Plan Area. It includes goals, policies, improvement recommendations and implementing actions regarding land use, housing and circulation and utility infrastructure, which have been designed to implement the City's and the community's vision for the Plan Area. The policies and actions are intended to be used by the City to guide day-to-day decision-making so there is continuing progress toward the attainment of the Plan's goals. The Plan proposes land use designations that would implement the overall goals of the Plan. More detail is provided in Chapter 3, Project Description.

B. Areas of Controversy

The Plan is largely self-mitigating with regard to environmental impacts. However, there has been controversy in the past regarding several issues:

- ♦ The availability of circulation and utility infrastructure, in particular sewer and drainage facilities, to address existing deficiencies and to support new development.

- ♦ The location and type of growth with regard to noise issues.
- ♦ Traffic impacts of proposed development.
- ♦ The proposed restriction on residential development within the 60 CNEL[1] McClellan Airport noise exposure contour proposed by Sacramento County and under consideration by the Airport Land Use Commission (ALUC).

All of these issues are addressed in the Plan. To the extent that these issues have environmental impacts, they are also addressed in this EIR.

C. *Significant Impacts*

Under CEQA, a significant impact on the environment is defined 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 and aesthetic significance. In this instance, the "project" is the Plan itself. Future, specific development proposals would be subject to separate environmental review under CEQA and the City of Sacramento's environmental guidelines.

Implementation of the Plan has the potential to generate 19 environmental impacts in a number of areas, including both plan level and cumulative impacts. These topic areas are listed below:

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[1] Community Noise Equivalent Level (CNEL). The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m., and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m. L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered equivalent and are treated as such in this section. In general, human sound perception is such that a change in sound level of 3 dB is just noticeable; a change of 5 dB is clearly noticeable; and a change of 10 dB is perceived as doubling or halving the sound level.

- ♦ Air Quality
- ♦ Biological Resources
- ♦ Noise
- ♦ Transportation and Circulation
- ♦ Utilities and Service Systems

Some of the impacts can be reduced to a less-than-significant level with mitigation measures, while others are significant unavoidable impacts. Each are discussed in the following two sections and summarized in Table 2-1.

D. Mitigation Measures

This Draft EIR suggests specific mitigation measures that would reduce 15 of the impacts in the topic areas identified above to a *less-than-significant* level. Topic areas where impacts are mitigated to a less-than-significant level are:

- ♦ Air Quality
- ♦ Biological Resources
- ♦ Noise
- ♦ Transportation and Circulation
- ♦ Utilities and Service Systems

The mitigation measures in this DEIR will form the basis of a Mitigation Monitoring Program to be implemented in accordance with State law.

E. Significant Unavoidable Impacts

The Plan would have four significant and unavoidable impacts, listed below. These impacts are discussed further in Section 4.2, Air Quality and Section 4.8, Noise.

- **Impact AIR-1**: Operational emissions associated with implementation of the Plan would exceed the SMAQMD's threshold levels. As indicated in Table 4.2-6, the predominant sources of operational emissions are from hearths (fireplaces and wood stoves), consumer products, architectural coatings, and mobile sources (i.e. vehicles trips associated with Plan Area land uses).
- **Impact AIR-3**: Implementation of the Plan could result in significant health risks resulting from exposure of new sensitive receptors to aircraft and vehicular emissions.
- **Impact AIR-6**: Because emissions of ozone precursors and PM_{10} associated with buildout of the Plan are greater than emissions associated with the existing General Plan, impacts associated with these emissions would be considered to be *cumulatively significant*. Despite the implementation of Mitigation Measures AIR-1a and AIR-1b that would help to reduce such emissions, there is no mitigation available to reduce these emissions to below the SMAQMD's threshold levels. In addition, because it is accepted that climate change due to greenhouse gas contaminant emissions is occurring, and even small contributions may be cumulatively considerable given the seriousness of the problem, greenhouse gas contaminant emissions associated with future projects in the Plan Area would result in a cumulatively significant contribution to climate change.
- **Impact NOISE-1:** Exposure of new residences to traffic noise exceeding 60 L_{dn} or interior noise exceeding 45 L_{dn}, and instantaneous maximum noise of 50 dBA in bedrooms, and 55 dBA in other habitable rooms.

F. Alternatives to the Project

This Draft EIR analyzes alternatives to the Plan, which are described in Chapter 5:

- **Alternative 1: The No Project Alternative.** The Plan would not be adopted and the existing General Plan land use designations and zoning for the Plan Area would remain in effect.

- **Alternative 2: Remain as Industrial on Selected Areas on Bell Avenue and Winters Street.** Under this alternative, existing General Plan land use designations and zoning would both remain designated as "Industrial" in the areas along Bell Avenue and Winters, as shown in Figure 5-1. Land use designations for the remainder of the Plan Area would be the same as those proposed in the Plan.
- **Alternative 3: Commercial on Selected Areas on Bell Avenue and Winters Street.** Under this alternative, the General Plan land use designation and zoning for areas along Bell Avenue and Winters Street would be changed from industrial to a Limited Commercial zoning designation (this corresponds to the Community/Neighborhood Commercial Offices General Plan land use designation), as shown in Figure 5-2. Land use designations for the remainder of the Plan Area would be the same as those proposed in the Plan.

Alternatives 1 and 2 have the fewest environmental consequences. However, none of alternatives are substantially better than the Plan with regard to any particular environmental factor since none of the alternatives resulted in a reduction of any significant and unavoidable impacts associated with the Plan. The differences in environmental impacts between the Plan and the alternatives were relatively minor. Moreover, the Plan would best satisfy the project objectives, which include strengthening the identity of McClellan Heights and Parker Homes as residential neighborhoods with a range of high-quality and safe housing that has access to neighborhood-serving retail, parks and other amenities to meet community needs.

G. Summary Table

Table 2-1 presents a summary of impacts and mitigation measures identified in this report. It is organized to correspond with the environmental issues discussed in Chapter 4.

The table is arranged in four columns: 1) environmental impacts; 2) significance prior to mitigation; 3) mitigation measures; and 4) significance after mitigation. For a complete description of potential impacts and suggested mitigation measures, please refer to the specific discussions in Chapter 4. This summary does not detail the timing of mitigation measures; timing will be further detailed in the mitigation monitoring program.

TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
AESTHETICS			
No impacts were identified for aesthetics, thus no mitigation measures are required.			
AIR QUALITY			
AIR-1: Operational emissions associated with implementation of the Plan would exceed the SMAQMD's threshold levels. As indicated in Table 4.2-6, the predominant sources of operational emissions are from hearths (fireplaces and wood stoves), consumer products, architectural coatings, and mobile sources (i.e. vehicles trips associated with Plan Area land uses). The SMAQMD recommends the following mitigation measures to further reduce operational impacts.	S	AIR-1a: Install clean technology wood-burning devices. All installed burning devices shall be an EPA/DOE Energy Star labeled gas fireplaces. No wood burning fireplaces or wood stoves shall be allowed.	SU
		AIR-1b Implement additional innovative measures to reduce operational air quality impacts. There are a number of measures the SMAQMD recommends that can be incorporated into the design/operation of land uses in the Plan Area to provide additional reductions in the overall level of emissions. These measures include, but are not limited to, the measures identified in Table 4.2-10. (Note: some of the measures may already exist as City of Sacramento development standards. Any measures selected should be implemented to the fullest extent possible.)	
AIR-2: Construction activities could generate PM_{10} emissions in excess of SMAQMD threshold levels.	S	AIR-2: Implement PM_{10} control measures. All construction documents shall ensure that the following measures are implemented during all phases of construction and demolition activities for development in the Plan Area. ♦ No more than 15 acres of the Plan site shall be graded in any one day.	LTS

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
AIR-2 *continued*		♦ Demolition contractors shall ensure that all exterior surfaces of buildings are wetted during building demolition activities. The material from any building demolition shall be completely wetted during any period when the material is being disturbed, such as during the removal from the construction site. ♦ All piles of demolished material shall be wetted and covered until removed from the site. ♦ Maintain 2 feet of freeboard space on haul trucks. ♦ All operations shall expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry brushes is expressly prohibited. ♦ Wheel washers for exiting trucks shall be installed or the wheels of all trucks and equipment leaving the site shall be washed off. ♦ Water all exposed soil with sufficient frequency as to maintain soil moistness.	
AIR-3: Implementation of the Plan could result in significant health risks resulting from exposure of new sensitive receptors to aircraft and vehicular emissions.	S	AIR-3a: Site future sensitive receptors as far as possible from major roads and McClellan Field. Such receptors should be sited in accordance with the SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways*, and as far as possible from McClellan Field.	SU

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
AIR-4: Construction activities could generate NOx emissions in excess of SMAQMD threshold levels.	S	AIR-4a: Reduce NOx emissions from off-road diesel-powered equipment. Construction plans for future developments in the Plan Area shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent ARB fleet average at time of construction. A comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project, shall be submitted to the lead agency and SMAQMD. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the construction project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the appropriate representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.	LTS
		AIR-4b: Equip construction equipment with a Level 3 California Air Resources Board-verified diesel emission control system. The following measure shall be incorporated into construction documents as recommended by the SMAQMD: All applicable pieces (at least one piece) of diesel equipment used on a construction site during the demolition, earthmoving, and clearing stages of construction shall be fitted with a level 3 California Air Resources Board-	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
AIR-4 *continued*		verified diesel emission control system. Prior to the issuance of a demolition or grading permit, the construction contractor and/or applicant shall submit to SMAQMD and City of Sacramento a certified list of the non-road diesel powered construction equipment that will be retrofitted with emission control devices. For each non-road diesel powered piece of construction equipment that will *not* be retrofitted, the construction representative shall provide an explanation detailing why such measures are not employed. The list shall include: (1) the equipment number, type, make, and contractor/sub-contractor name; and (2) the emission control device make, model and EPA or CARB verification number. If any diesel powered non-road construction equipment is found to be in non-compliance with this specification, the contractor will be issued a Notice of Non-Compliance and given a 24-hour period in which to bring the equipment into compliance or remove it from the project.	
		AIR-4c: Control visible emissions from off-road diesel-powered equipment. Construction documents for future developments in the Plan Area shall ensure that emissions from all off-road diesel-powered equipment used on the construction site do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
AIR-4 *continued*		The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or State rules or regulations.	
		AIR-4d Contribute off-site mitigation fees to the SMAQMD. If control measures contained in Mitigation Measures AIR-4a through AIR-4c are not sufficient to reduce mitigated construction emissions below SMAQMD threshold levels, as shown in Table 4.2-4, future construction representatives shall ensure that off-site mitigation fees are paid to the SMAQMD for construction-related NO_X emissions in excess of the SMAQMD's NO_X threshold.	
AIR-5: Construction activities would generate emissions of diesel particulate matter, which has been identified as a TAC by the ARB. Although this impact is considered *less than significant* due to the temporary nature of construction activities, Mitigation Measures AIR-4a through AIR-4d, which are designed to address other impacts, would further reduce construction emissions and minimize this impact.	LTS	AIR-5a: Reduce NO_X emissions from off-road, diesel-powered equipment (see Mitigation Measure AIR-4a).	LTS
		AIR-5b: Equip construction equipment with a Level 3 California Air Resources Board-verified diesel emission control system (see Mitigation Measure AIR-4b).	
		AIR-5c: Control visible emissions from off-road, diesel-powered equipment (see Mitigation Measure AIR-4c).	
AIR-6: Because emissions of ozone precursors and PM_{10} associated with buildout of the Plan are greater than emissions associated with the existing General Plan, impacts associated with these emissions would be considered to be *cumulatively significant*. Despite the implementation of	SU		SU

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
Mitigation Measures AIR-1a and AIR-1b that would help to reduce such emissions, there is no mitigation available to reduce these emissions to below the SMAQMD's threshold levels. In addition, because it is accepted that climate change due to greenhouse gas contaminant emissions is occurring, and even small contributions may be cumulatively considerable given the seriousness of the problem, greenhouse gas contaminant emissions associated with future projects in the Plan Area would result in a cumulatively significant contribution to climate change.			
BIOLOGICAL RESOURCES			
BIO-1: Potential loss of seasonal wetlands and associated habitat for federally listed invertebrates.	S	BIO-1a: Retain biologists to conduct baseline biological surveys. (Note that this mitigation measure is applicable to all impacts identified in this section. Reference is therefore made to this measure in the discussion of IMPACT BIO-2 through IMPACT BIO-7.) Future development proponents shall retain a qualified biologist to conduct baseline biological surveys on undeveloped lands within the Plan Area. Once the preliminary development plans are available and property access has been obtained, the biologist would conduct baseline surveys to document the presence or absence of the following resources and support future permitting efforts: special-status wildlife species (as identified in Table 4.3-2), waters of the United States (including wetlands), non-special status nesting raptors and migratory birds species, and heritage trees that are subject to the City's tree ordinance.	LTS

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-1 *continued*		As part of this measure, the biologist shall coordinate with the appropriate resource agencies (e.g. DFG, USFWS, and USACE) to determine the appropriate level of survey and the timing for the surveys. Biological resources documented on the undeveloped parcels shall be provided to development proponents in a letter report and shall be used to support proposed development plans and State and federal permit acquisition. If sensitive biological resources are located during the field surveys, the appropriate mitigation measures would be implemented to avoid, minimize, or compensative for *potentially significant* impacts (these specific mitigation measures are described below for each resource-specific impact).	
		BIO-1b: Obtain and implement conditions of federal permits for impacts on jurisdictional wetlands. If the USACE determines that the seasonal wetlands are not isolated and therefore are jurisdictional, future development proponents shall obtain the appropriate state and federal necessary permits to conduct activities in waters of the United States (jurisdictional wetlands) before finalized construction of any of the infill development associated with public and private development within the Plan Area. Discharge of fill into jurisdictional wetlands will require a Section 404 permit from the Corps and Section 401 certification from the Regional Water Quality Control Board (RWQCB). All conditions that are attached to the State and federal permits shall be implemented. The conditions shall be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-1 *continued*		If the USACE determines that the wetlands are not jurisdictional, then the development proponent shall consult directly with the USFWS, prepare an HCP, and obtain authorization for the proposed development under Section 10 of the federal ESA.	
		BIO-1c: If the seasonal wetlands are determined to support habitat for federally listed invertebrates, future development proponents shall compensate for direct and indirect impacts to potential habitat for federally listed vernal pool fairy shrimp and tadpole shrimp. The development proponent shall preserve and create additional habitat for these species using USFWS-approved compensation ratios as described below. ♦ Future development proponents shall preserve suitable habitat at a ratio of 2:1 (2 acres preserved for every 1 acre of habitat directly or indirectly affected). Preservation credits must be acquired from an USFWS-approved mitigation bank or conservation area. ♦ Future development proponents shall create suitable habitat at a 1:1 ratio (1 acre created for every acre of habitat directly affected). Creation credits must be acquired from an USFWS-approved mitigation bank or conservation area. Final compensation requirements and mitigation ratios for the Plan would be determined through consultation with the USFWS. The exact cost to purchase preservation and creation credits for development-related impacts would be determined at the time of purchase. Mitigation credits shall be purchased and/or a conservation area and management plan would be established prior to any ground disturbing activities, including grading, within the Plan Area.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-2: Loss or disturbance of Western spadefoot toad habitat.	S	BIO-2a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure 1a.	LTS
		BIO-2b: Obtain and implement conditions of federal permits for impacts on jurisdictional wetlands.	
BIO-3: Potential loss or disturbance of habitat for Valley elderberry longhorn beetle.	S	BIO-3a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure 1a.	LTS
		BIO-3b: Avoid the elderberry shrub by establishing a minimum 20-foot-wide buffer around the elderberry shrub that occurs adjacent to the work zone. If elderberry shrubs that provide potential habitat for VELB (shrubs with stems 1 inch or greater in diameter) are located within the Plan Area and could be affected by proposed development activities, the project applicant shall determine if the shrub(s) can be avoided. If the shrub can be avoided, the project applicant shall require that the shrub be protected during construction by establishing a 20-foot-wide buffer and fencing around the elderberry shrub. This fencing is intended to prevent encroachment by construction vehicles and personnel. No construction activity, including grading, shall be allowed until this condition is satisfied. No grading, clearing, storage of equipment or machinery, or other disturbance or activity may occur until a representative of the City has inspected and approved all temporary construction fencing. The fencing and a note reflecting this condition shall be shown on the construction specifications.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-3 *continued*		BIO-3c: Transplant elderberry shrubs that occur within the Plan Area and would be directly affected (removed) by a proposed development. If the habitat for VELB cannot be avoided (as described in Mitigation Measure BIO-3b, the development proponent shall evaluate whether or not transplantation of the shrub(s) is feasible. As part of this measure (and either the Section 7 or Section 10 permit from the USFWS), the project applicant shall ensure that any elderberry shrub that shall be directly affected (removed) by construction activities is transplanted to a USFWS-approved conservation area or mitigation bank in accordance with the USFWS Conservation Guidelines. The closest USFWS-approved mitigation site is the Wildlands, Inc. River Ranch Conservation Bank located in Yolo County. The elderberry shrub shall be transplanted when it is dormant (after it loses its leaves) in the period starting approximately in November and ending in the first two weeks of February. A qualified specialist familiar with elderberry shrub transplantation procedures shall supervise the transplanting. The location of the conservation area transplantation site shall be approved by USFWS before removal of the elderberry shrub. The transplanting procedure entails the following steps: ♦ The affected shrub shall be cut back 3 to 6 feet above the ground or up to 50 percent of its height, whichever is greater. ♦ The shrub shall be removed using suitable equipment, taking as much of the root system as possible, wrapping the root ball in burlap and securing it with wire, and dampening the burlap with water to keep the roots wet.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-3 *continued*		♦ The shrub shall be replanted immediately at the mitigation site in holes of adequate size with the root ball planted so that its top is level with the existing ground. The soil will be compacted around the roots. The planting area must be at least 1,800 square feet. ♦ The shrub shall have its own water retention basin measuring 3 feet in diameter with a continuous berm measuring approximately 8 inches wide at the base and 6 inches high. The soil around the shrubs shall be saturated with water. The shrubs should be monitored and watered accordingly.	
		BIO-3d: As part of the Biological Opinion (Section 7) or HCP (Section 10), private developer shall compensate for direct impacts (i.e. transplanting of one elderberry shrub) on all elderberry stems measuring 1 inch or more at ground level (i.e. VELB habitat). Compensation shall include replacement plantings of elderberry seedlings or cuttings and associated native plantings in a USFWS-approved conservation area or mitigation bank, at a ratio between 1:1 and 8:1 (ratio of new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes, and whether the shrub is located in riparian habitat. Compensation for VELB habitat shall include either establishing a USFWS-approved VELB conservation area or purchasing VELB credits at a USFWS-approved mitigation bank. As stated above, the closest USFWS-approved mitigation site is the Wildlands, Inc., River Ranch Conservation Bank located in Yolo County. The exact cost to establish a mitigation site at the approved mitigation site shall be determined at the time of purchase. The final amount and final location of this mitigation shall be determined through consultation with the USFWS and will be outlined in the Biological Opinion or HCP.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-4: Potential loss of Swainson's hawk foraging habitat and disturbance of potentially nesting Swainson's hawk.	S	BIO-4a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure 1a.	LTS
		BIO-4b: If construction is scheduled to occur during the Swainson's hawk breeding season (generally March 1 through August 15), the project applicant shall retain a qualified wildlife biologist to conduct preconstruction surveys for nesting Swainson's hawks. If no Swainson's hawks are found nesting within the areas surveyed, then no further nest-site protection mitigation is required. If Swainson's hawks are found nesting on or adjacent to the construction site, DFG shall be consulted to determine if a no-disturbance buffer would be required until after the young have fledged (as determined by a qualified wildlife biologist). Impact avoidance measures shall be conducted pursuant to DFG's 1994 staff report.	
		BIO-4c: If the biologist determines that there is suitable foraging habitat within the undeveloped lots in the Plan Area (as part of Mitigation Measure BIO-1a), future development proponents shall implement the recommendations described in the report published by DFG in 1994. This report recommends mitigation for the removal of suitable Swainson's hawk foraging habitat, at a ratio determined by the distance to the nearest active nest. The mitigation shall be accomplished either by developing a project-specific mitigation agreement that would be submitted to CDFG for approval or by purchasing Swainson's hawk mitigation credits at a DFG-approved mitigation bank.	
BIO-5: Loss of potential Western burrowing owl foraging and nesting habitat.	S	BIO-5a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure 1a.	LTS

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-5 *continued*		BIO-5b: Implement the California Department of Fish and Game guidelines for burrowing owl mitigation. If active burrowing owls are detected during the biological baseline surveys (described as part of Mitigation Measure BIO-1a), the following measures shall be implemented by the development proponent. ♦ Occupied burrows shall not be disturbed during the nesting season (February 1–August 31). ♦ When destruction of occupied burrows is unavoidable outside the nesting season (September 1-January 31), unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (installing artificial burrows) at a ratio of 2:1 on protected lands approved by DFG. Newly created burrows shall follow guidelines established by DFG. If owls must be moved away from the project construction areas, passive relocation techniques (e.g. installing one-way doors at burrow entrances) shall be used instead of trapping. At least one week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows. If active burrowing owl burrows are found and the owls must be relocated, the development proponent shall offset the loss of foraging and burrow habitat in the project construction area(s) by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified in the project construction area(s). The protected lands should be located adjacent to the occupied burrowing owl habitat in the project construction area or at another occupied site near the project construction area. The location of the protected lands shall be determined in coordination with DFG.	

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-5 *continued*		The development proponent shall also prepare a monitoring plan, and provide long-term management and monitoring of the protected lands. The monitoring plan shall specify success criteria, identify remedial measures, and require an annual report to be submitted to DFG. If avoidance is the preferred method of dealing with potential impacts, no disturbance shall occur within 160 feet of occupied burrows during the nonbreeding season (September 1–January 31) or within 250 feet during the breeding season. Avoidance also requires that at least 6.5 acres of foraging habitat (calculated based on an approximately 300-foot foraging radius around an occupied burrow), contiguous with occupied burrow sites, be permanently preserved for each pair of breeding burrowing owls or single unpaired resident bird. The configuration of the protected site shall be submitted to DFG for approval.	
BIO-6: Potential loss or disturbance of nesting habitat for white-tailed kite, northern harrier, loggerhead shrike, and non-special-status migratory birds and raptors.	S	BIO-6a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure 1a.	LTS
		BIO-6b: Avoid disturbance of tree-, shrub- or ground-nesting white-tailed kite, Northern harrier, loggerhead shrike, and non-special-status migratory birds and raptors. The private developer shall implement one of the following measures, depending on the specific construction timeframes within the undeveloped areas of the Plan Area, to avoid disturbance of tree-, shrub- or ground-nesting white-tailed kites, northern harriers, loggerhead shrikes, and non-special-status migratory birds and raptors.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-6 continued		♦ If construction activities are scheduled to occur during the breeding season for these species (generally between March 1 and August 15), a qualified wildlife biologist shall be retained to conduct the following focused nesting surveys within the appropriate habitat. ♦ Tree- and shrub-nesting surveys shall be conducted in riparian and oak woodland habitats within or adjacent to the construction area to look for white-tailed kite, loggerhead shrike, and other non-special-status migratory birds and raptors. ♦ Ground-nesting surveys shall be conducted in non-native annual grasslands for northern harrier and other non-special-status migratory birds. ♦ The surveys should be conducted within one week before initiation of construction activities and at any time between March 1 and August 15. If no active nests are detected, then no additional mitigation is required. If surveys indicate that migratory bird or raptor nests are found in any areas that would be directly affected by construction activities, a no-disturbance buffer shall be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers shall be determined by a wildlife biologist, and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors should be analyzed to make an appropriate decision on buffer distances.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-6 continued		If construction activities begin before the breeding season (i.e. begin between August 16 and February 28) (pre-existing construction), then construction can proceed until it is determined that an active migratory bird or raptor nest would be subject to abandonment as a result of construction activities. Pre-existing construction activities are assumed to be "full force," including site grading and infrastructure development; activities that technically initiate construction but are minor would not be considered full force. Optimally, all necessary vegetation removal should be conducted before the breeding season (generally between March 1 and August 15) so that nesting birds or raptors would not occur in the construction area during construction activities. If any birds or raptors nest in the project vicinity under pre-existing construction conditions, then it is assumed that they are habituated (or will habituate) to the construction activities. Under this scenario, the preconstruction survey described previously should still be conducted on or after March 1 to identify any active nests in the vicinity and active sites should be monitored by a wildlife biologist periodically until after the breeding season or after the young have fledged (usually late June to mid-July). If active nests are identified on or immediately adjacent to a development site, then all nonessential construction activities (e.g. equipment storage and meetings) should be avoided in the immediate vicinity of the nest site, but the remainder of construction activities may proceed.	
BIO-7: Potential removal of heritage trees subject to the City's heritage tree ordinance.	S	BIO-7a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure 1a.	LTS

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
BIO-7 *continued*		BIO-7b: Comply with the City's tree ordinance. If any heritage trees are located during the biological baseline surveys (described as part of Mitigation Measure BIO-1a) and could be impacted by the Plan, the development proponent shall comply with the City's tree ordinance requirements. The ordinance states that during construction activity on any property on which a heritage tree is located, unless the express written permission of the director is first obtained, no person shall: ♦ Change the amount of irrigation provided to any heritage tree from that which was provided prior to the commencement of construction activity; ♦ Trench, grade, or pave into the dripline area of a heritage tree; ♦ Change, by more than two (2) feet, grade elevations within thirty (30) feet of the dripline area of a heritage tree; ♦ Park or operate any motor vehicle within the dripline area of any heritage tree; ♦ Place or store any equipment or construction materials within the dripline area of any heritage tree; ♦ Attach any signs, ropes, cables or any other items to any heritage tree; ♦ Cut or trim any branch of a heritage tree for temporary construction purposes; or ♦ Place or allow to flow into or over the dripline area of any heritage tree any oil, fuel, concrete mix or other deleterious substance.	
CULTURAL RESOURCES			
No impacts were identified for cultural resources, thus no mitigation measures are required.			

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
HAZARDOUS MATERIALS AND OTHER HAZARDS			
No impacts were identified for hazardous materials and other hazards, thus no mitigation measures are required.			
HYDROLOGY AND WATER QUALITY			
No impacts were identified for hydrology and water quality, thus no mitigation measures are required.			
LAND USE			
No impacts were identified for land use, thus no mitigation measures are required.			
NOISE			
NOISE-1: Exposure of new residences to traffic noise exceeding 60 L_{dn} or interior noise exceeding 45 L_{dn}, and instantaneous maximum noise of 50 dBA in bedrooms, and 55 dBA in other habitable rooms.	SU	NOISE-1: New residences shall be designed such that interior noise from traffic does not exceed 45 L_{dn} in habitable rooms or an instantaneous maximum of 50 dBA in bedrooms or 55 dBA in habitable rooms. Where feasible, new residences shall be designed such that traffic noise at outdoor use areas does not exceed 60 L_{dn}. Treatments that can be implemented to achieve these performance standards include, but are not limited to the following: ♦ Placement of solid walls, earth berms, or building structures between roadways and outdoor use areas. ♦ Use of acoustically rated doors and windows. ♦ Placement of non-sensitive rooms (laundry rooms, garages, etc) adjacent to roadways.	SU

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
NOISE-1 *continued*		Prior to the issuance of building permits, the applicant must provide to the City a report from a certified acoustical design professional that details how dwelling units within the Plan Area will achieve an interior noise level of less than 45 dB L_{dn} in habitable rooms and interior maximum instantaneous levels of 50 dBA or less in bedrooms and 55 dBA or less in other habitable rooms. The report shall also address how exterior noise will be reduced to 60 L_{dn} or less, where feasible. If reduction of noise to less than 60 L_{dn} is not feasible, the report shall provide a detailed explanation as to why.	
NOISE-2: Exposure of new residences to instantaneous maximum aircraft noise levels exceeding 50 dBA in interior rooms (impact related to developments within 60 CNEL).	S	NOISE-2a: New residences shall be designed such that interior noise from aircraft does not exceed 45 L_{dn} in habitable rooms or instantaneous maximum noise levels of 50 dBA in bedrooms or 55 dBA in habitable rooms. Treatments that can be implemented to achieve this performance standard include, but are not limited to: ♦ Use of acoustically rated doors and windows; and ♦ Use of upgraded acoustical insulation for walls and roofs that may include placement of additional gypsum board or other noise-attenuating materials in walls and roofs.	LTS
		NOISE-2b: Prior to the issuance of building permits, the applicant must provide to the City a report from a certified acoustical design professional that details how dwelling units within the Plan Area will achieve an interior noise level of less than 45 dB Ldn in habitable rooms and interior maximum instantaneous levels of 50 dBA or less in bedrooms and 55 dBA or less in other habitable rooms.	

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
NOISE-2 *continued*		NOISE-2c: New residential development within the 60 CNEL McClellan Airport noise exposure contour shall require notification. This may take the form of requiring developments requesting tentative maps or other development approvals to provide formal written disclosures, recorded deed notices, or in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within the 60 CNEL noise contour of the McClellan Airport Planning Policy Area and is subject to periodic excessive noise from aircraft overflights.	
NOISE-3: Exposure of noise sensitive land uses to construction noise that is not in compliance with the City of Sacramento Noise Ordinance.	SU	NOISE-3: Employ the following noise-reducing construction practices and additional time-of-day restrictions: ♦ Construction noise shall be limited as follows: • 55 dBA between the hours from 6:00 p.m. to 10:00 p.m. and 50 dBA between the hours of 10:00 p.m. to 7:00 a.m. Monday through Saturday. • 55 dBA between the hours from 6:00 p.m. to 10:00 p.m. and 7:00 a.m. to 9:00 a.m. and 50 dBA for all other hours on Sunday. ♦ Measures that can be used to limit noise include but are not limited to, the following: • Locating equipment as far as practicable from noise sensitive uses; • Requiring that all construction equipment powered by gasoline or diesel engines have sound-control devices that are at least as effective as those originally provided by the manufacturer and that all equipment be operated and maintained to minimize noise generation; • Prohibiting gasoline or diesel engines from having unmuffled exhaust; • Selecting haul routes that affect the fewest people;	LTS

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
NOISE-3 *continued*		• Using noise-reducing enclosures around noise-generating equipment; and • Constructing barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (terrain, structures) to block sound transmission.	
POPULATION, EMPLOYMENT AND HOUSING			
No impacts were identified for population, employment and housing, thus no mitigation measures are required.			
PUBLIC SERVICES			
No impacts were identified for public services, thus no mitigation measures are required.			
SOILS, SEISMICITY AND GEOLOGY			
No impacts were identified for soils, seismicity and geology, thus no mitigation measures are required.			
TRANSPORTATION AND CIRCULATION			
TRAF-1: Winter Street/Interstate 80 Westbound Ramps: Under cumulative traffic conditions this intersection would have an LOS E in both AM and PM peak hours. The addition of the Plan will result in more than five seconds of delay at this location.	S	TRAF-1: Winter Street/Interstate 80 Westbound Ramps: provide a dedicated, southbound right turn lane which will result in one right turn lane and two through lanes on the southbound approach. This mitigation measure could be accomplished by modifying the north leg of the intersection to widen the existing roadway and re-stripe the travel lanes. Implementation of this mitigation measure would result in LOS D (48.4 seconds of delay) in AM peak hour and LOS C (28.1 seconds of delay) in the PM peak hour. Analysis sheets for the "with mitigation scenario" are included in Appendix C.	LTS

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
TRAF-1 *continued*		After adopting the Plan, the City will implement the Plan by studying the feasibility and then developing an appropriate funding mechanism and/or including the costs as part of the Capital Improvement Program to provide for the recommended infrastructure improvements.	
TRAF-2: Winter Street/Interstate 80 Eastbound Ramps: Under cumulative traffic conditions this intersection would have a LOS C in both AM and PM peak hours. The addition of the Plan would result in a LOS D in the PM peak hour.	S	TRAF-2: Winter Street/Interstate 80 Eastbound Ramps: provide a dedicated, northbound right turn lane which would result in two through lanes and one right turn lane on the northbound approach. Implementation of this mitigation measure would result in LOS C (26.6 seconds of delay) in the AM peak hour and LOS C (32.9 seconds of delay) in the PM peak hour. Analysis sheets for the "with mitigation scenario" are included in Appendix C. After adopting the Plan, the City will implement the Plan by studying the feasibility and then developing an appropriate funding mechanism and/or including the costs as part of the Capital Improvement Program to provide for the recommended infrastructure improvements.	LTS
UTILITIES AND SERVICE SYSTEMS			
UTIL-1: Additional development would exacerbate the existing inadequacy of the water mains and pump station in the Plan Area.	S	UTIL-1: The City should calibrate and run its hydraulic water model for the Plan Are to determine the extent of improvements that would be required for new development anticipated for the Plan. Also, implement the recommendations in the *McClellan Heights and Parker Homes Land Use and Infrastructure Plan* which include (1) replace existing 4-inch and 6-inch mains with 8-inch plastic mains; (2) replace existing 8-inch steel mains with 12-inch plastic mains; (3) upgrade existing services to copper. Additionally, perform a study to determine of the capacity of the Bell Avenue pump station will need to be upgraded, and upgrade the facility if warranted. Cost estimates based on Plan buildout are contained in the *McClellan Heights and Parker Homes Land Use and Infrastructure Plan.*	LTS

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3 PROJECT DESCRIPTION

This Environmental Impact Report (EIR) analyzes the potential impacts of adopting and implementing a Land Use and Infrastructure Plan (henceforth "the Plan") for the McClellan Heights and Parker Homes neighborhoods, covering a 306-acre area in northeast Sacramento. The project includes adoption of a proposed amendment to the City of Sacramento General Plan and changes to zoning designations that would ensure consistency between documents. The project sponsor for the Plan is the Sacramento Housing and Redevelopment Agency (SHRA). The lead agency is the City of Sacramento Planning Department.

This chapter describes each component of the Plan, beginning with the overall location and character of the Plan Area.

A. Project Area Location and Characteristics

1. Regional Location

The Plan Area is located in northeast Sacramento. As shown in Figure 3-1, the City of Sacramento is located in the southern Sacramento Valley, at the confluence of the Sacramento and American Rivers. The City of Sacramento is the largest city in Sacramento County, covering an area of 99 square miles with a population of 441,000 people.[1]

2. Plan Area Boundaries

The approximately 306-acre Plan Area[2] is located west of and adjacent to the former McClellan Air Force Base (AFB)/Watt Avenue Redevelopment Area and is comprised of two residential communities, the Parker Homes and McClellan Heights neighborhoods. Figure 3-2 shows the Plan Area boundaries, as well as those of the two

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[1] http://www.saccounty.net/portal/cities-in-the-county/sacramento.html, accessed on 7/29/05.

[2] Acreage includes public right-of-way.

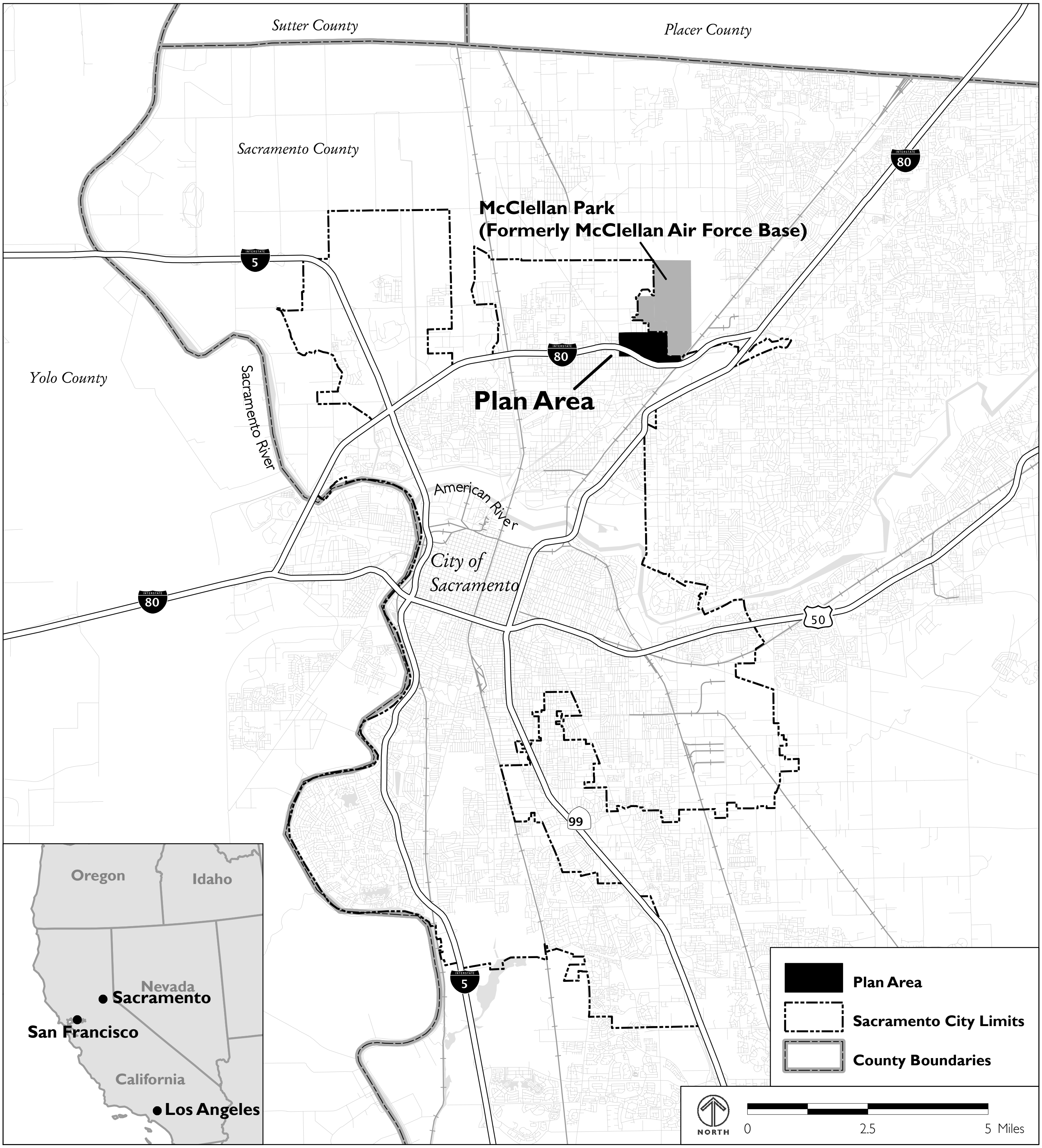
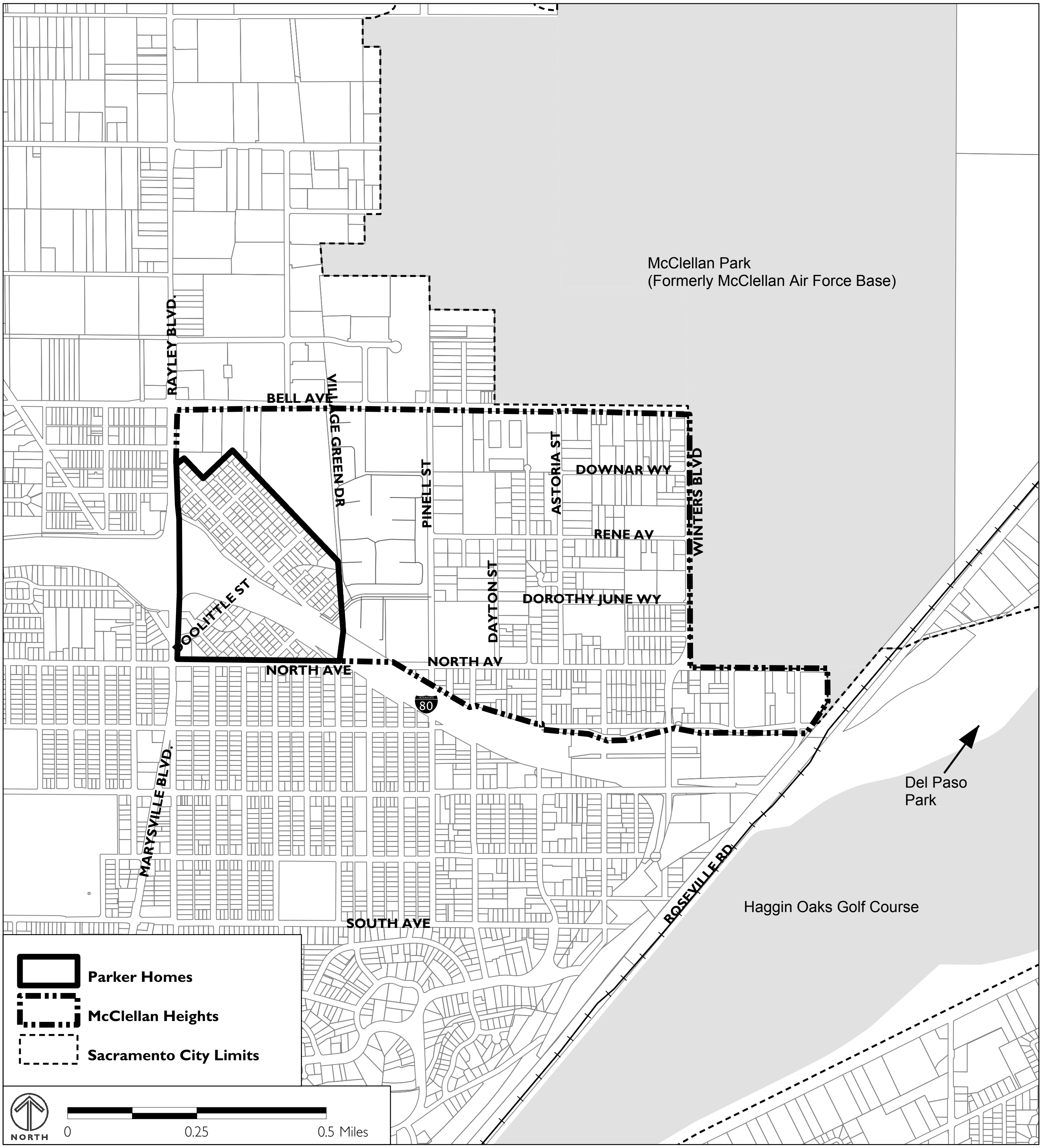


FIGURE 3-1

REGIONAL LOCATION



Data Source: City of Sacramento GIS

FIGURE 3-2

PLAN AREA AND VICINITY

residential neighborhoods. The Plan Area falls entirely within Sacramento's city limits and is generally bounded by Interstate 80 to the south, Bell Avenue to the north, the former McClellan AFB to the east and Raley Boulevard/Marysville Boulevard to the west. A small 13-acre portion of the Parker Homes neighborhood lies south of Interstate 80, between Marysville Boulevard to the west and North Avenue to the south.

3. Plan Area Character

The character of the two neighborhoods that comprise the Plan Area is described below.

a. Parker Homes

Compared to McClellan Heights, the 37-acre area known as the Parker Homes neighborhood is smaller, relatively older and more built out. As noted above, the neighborhood is bisected by Interstate 80 and is almost exclusively residential, consisting of single-family homes with an average lot size of 0.13 acres. Many of the existing homes were built to serve as temporary military housing during World War II. Consequently, many of these homes lack foundations and have other structural problems. The area also suffers from undersized, inconsistent or non-existent infrastructure and amenities and small and/or irregular lot sizes. The only retail commercial uses in the neighborhood are located at the intersection of Marysville Boulevard and North Avenue.

b. McClellan Heights

The McClellan Heights neighborhood, to the north and east of Parker Homes, covers approximately 269 acres of the 306-acre Plan Area. A majority of the neighborhood consists of residential use, primarily post-war subdivisions on larger parcels. Unlike Parker Homes, the McClellan Heights neighborhood contains many underutilized or vacant parcels and includes small concentrations of light industrial and commercial uses, primarily along Bell Avenue, Pinell and Astoria Streets, Raley Boulevard/Marysville Boulevard and the area east of Winters Street between the former McClellan Air Force Base and Interstate 80.

4. Surrounding Area

Existing land uses on the blocks surrounding the Plan Area include a mixture of light industrial, office, commercial retail and residential development:

- ♦ North: light industrial uses and vacant parcels.
- ♦ East: the former McClellan Air Force Base (AFB), the planned reuse of which includes Class A office space immediately to the east of the Plan Area, and industrial and warehouse/manufacturing uses to the northeast of Plan Area.
- ♦ South: primarily single-family residential with some commercial uses along major arterials of the Del Paso Heights neighborhood.
- ♦ West: primarily single-family residential with some commercial uses along major arterials.

B. Project Objectives

The following objectives would be achieved through implementation of the Plan:

- ♦ Enhance and strengthen McClellan Heights' and Parker Homes' identities as residential neighborhoods with high-quality, safe housing that has access to neighborhood-serving retail, parks and other amenities to meet community needs.
- ♦ Promote the availability of a variety of housing types at varying densities and levels of affordability.
- ♦ Provide opportunities to improve existing housing stock to the extent feasible.
- ♦ Promote economic change in the community while minimizing displacement, relocation and gentrification.
- ♦ Build streets that are attractive, safe and pedestrian-friendly.

- ♦ Facilitate access to local amenities and improve connections throughout the Plan Area.
- ♦ Build infrastructure to meet the needs of existing and future development that is funded in a way that allows for the most advantageous implementation and capitalizes on funding opportunities.

C. Land Use and Infrastructure Plan

This section provides an overview of the key components of the Plan. More detail is provided in subsequent sections. The Plan would permit approximately 860 new residential units and 284,000 square feet of new commercial retail, office and industrial space, through development or redevelopment of a series of parcels identified as sites likely to develop in the future. A summary of development that could occur under the Plan is provided in Section C.3.g., below. The build-out totals listed above and in Section C.3.g. are not intended to be precise limits. Rather, they represent a reasonable projection or estimate of the amount of new development that the Plan would allow, serving as a basis for analysis in this Draft EIR.

1. Plan Purpose

The Plan is intended to provide a comprehensive plan for the revitalization of these two residential neighborhoods that is responsive to the needs of residents and which builds on new opportunities and changes from the recent closure and Reuse Plan for the adjacent former McClellan AFB.

The Plan includes recommendations for land use changes, with their configurations and intensity, property development regulations; for infill development and improving housing stock. The Plan also includes infrastructure and streetscape improvement recommendations. The adopted Plan will become the regulatory framework for the review of future public and private development in the area. Future development may occur at different times and be implemented by different developers (public and private).

2. Plan Contents

The Plan was developed with the active participation of community members and in consultation with a Technical Advisory Committee (TAC) that was comprised of representatives from SHRA and the City and County of Sacramento. The Plan is organized as follows:

- ♦ **Chapter 1: Introduction** includes an overview of the project background, the Plan Area and a description of the planning process needed to bring the Plan to fruition.
- ♦ **Chapter 2: Plan Concept** contains an overview of the major components of the Plan such as the land use vision, conceptual street network and recommendations for infrastructure and housing improvements.
- ♦ **Chapter 3: Land Use** includes zoning designations for the Plan Area and a brief description of development allowed in each district. It also includes goals, policies and actions to support and guide development in the Plan Area. The policy guidance contained in this chapter should be considered in conjunction with existing City policies in the General Plan and other relevant City planning documents.
- ♦ **Chapter 4: Circulation and Street Design** contains recommendations for circulation and streetscape improvements. It also includes recommendations for design specifications that can be applied to existing and new roadways in the Plan Area.
- ♦ **Chapter 5: Utility Infrastructure** contains recommendations for utility infrastructure improvements to address existing deficiencies and to support new infill development.
- ♦ **Chapter 6: Housing and Development** includes a summary of housing and development strategies that SHRA and the City can pursue to improve existing housing stock, increase opportunities for new residential development, and pro-

mote mixed-use and neighborhood-serving commercial development in the Plan Area.

- **Chapter 7: Implementation and Financing** contains specific actions and implementation strategies and includes a conceptual financing plan.

3. Plan Concept

The Plan Area is envisioned to transition over time into primarily single-family residential neighborhoods, with some areas of mixed-use and multi-family housing along busier arterial and collector streets. The proposed land use vision depicted in Figure 3-3 calls for high-quality housing at varying levels of affordability that have easy access to supporting commercial and retail development, services and amenities. The land use vision provides a general overview of land uses desired in the Plan Area, while specific changes to zoning designations are discussed in Section E below. The land use vision does not depict actual development projects that will occur as a direct result of the Plan, but is intended to supplement development regulations contained in zoning designations to better guide future development as individual property owners seek to develop or redevelop parcels within the Plan Area.

The land use vision for the Plan Area includes the following components:

a. Residential Uses

Overall, residential land uses proposed in the Plan Area would build upon the existing character of the neighborhood, increase housing affordability and create population densities necessary to attract desired services and amenities.

- **Single-Family Residential Uses.** The majority of the Plan Area would consist of single-family detached or attached homes, townhouses, cluster housing, condominiums or cooperatives. New residential uses or redeveloped housing could be built at a density of up to 15 dwelling units per net acre. As outlined in the City's *Single-Family Residential Design Principles*, homes in the Plan Area will enhance

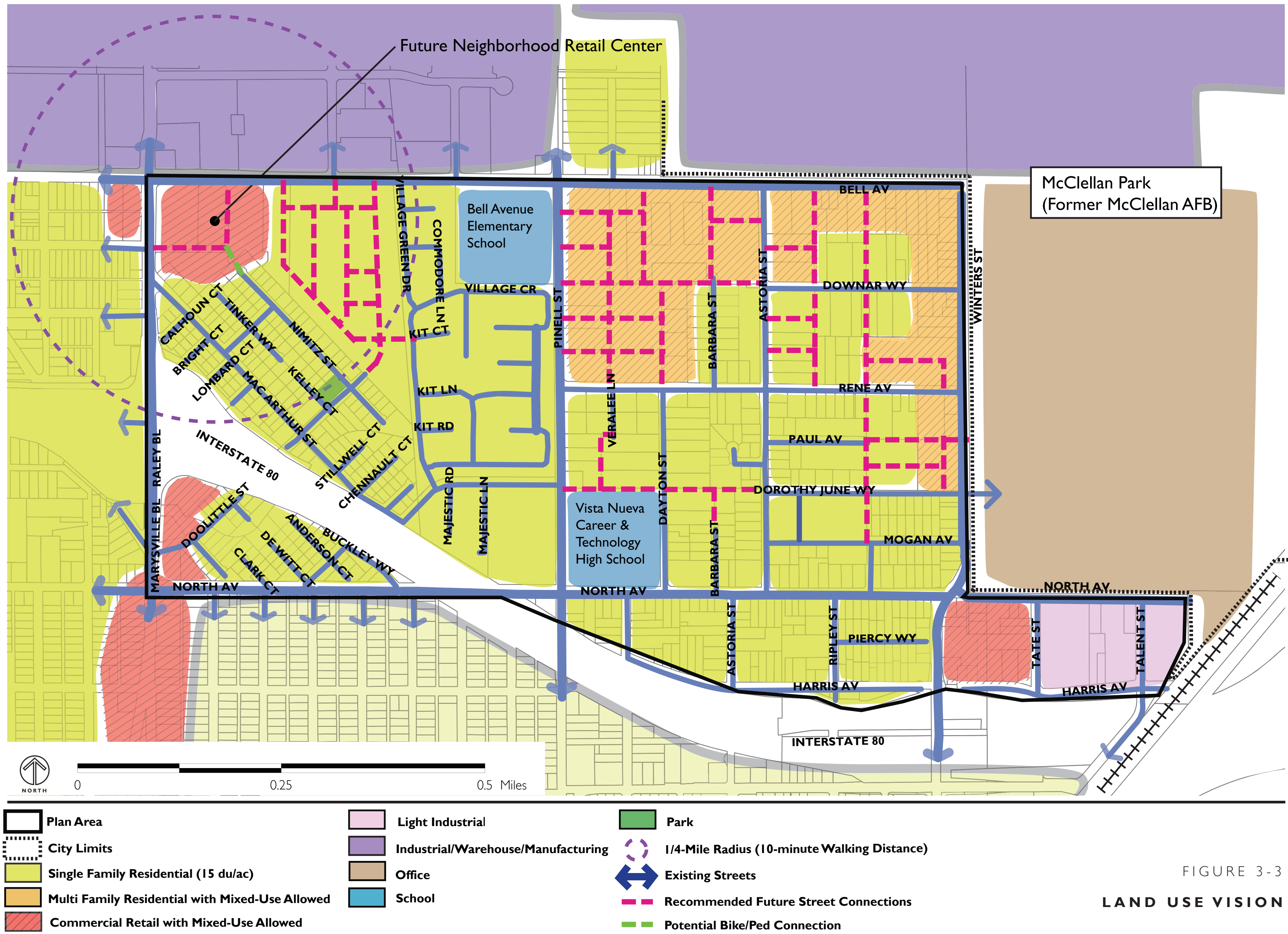


FIGURE 3-3

LAND USE VISION

the pedestrian orientation of streets by including façade details such as porches, steps and windows. Additional strategies for visual enhancement of the streets include minimizing the prominence of garage entries and blank walls, and providing attractive and resource-efficient landscaping and lighting.

- **Residential Mixed Use.** As shown in Figure 3-3, a 53-acre area along Pinell Street, Bell Avenue and Winters Street would become a mix of moderate density residential use up to a density of 36 dwelling units per acre. These new homes would be designed in a manner compatible with adjacent single-family homes. The multi-family housing would provide choices in housing type and affordability and serve as a buffer between busy arterial and collector streets and the office and industrial warehousing uses to the north and east of the Plan Area. The area designated for multi-family residential uses would also allow small ground-floor retail business offices with multi-family residential located on upper floors. Locating multi-family mixed use along the arterials and collectors of the Plan Area will allow residents convenient access to nearby commercial, recreation and employment opportunities. This will be a particularly valuable amenity as McClellan Park develops since it will be within easy walking, biking or driving distance.

  Multi-family residential mixed-use development would generally be two to three stories in height and provide amenities such as active common areas and internal circulation systems that connect to the surrounding neighborhood. Buildings should be built up to the sidewalks, particularly on corner sites, and oriented to public streets by providing entryways or other entry features along the street.

b. Non-Residential Uses

In addition to the non-residential uses described above in the northeast Plan Area, non-residential uses exist in other portions of the Plan Area.

- **Neighborhood-serving Commercial/Mixed-Use Development.** There are three areas in the Plan Area which are intended for retail commercial uses: (1) the intersection of Bell Avenue and Raley Boulevard, (2) North Avenue and Marysville Boulevard, and (3) Winters Street between North and Harris Avenues. All of these areas feature existing retail, office and general commercial uses. Recommendations in the Plan are intended to guide future redevelopment of these areas, should the opportunity arise.

These areas are envisioned to consist of primarily commercial retail uses with some multi-family residential uses. All three areas are designated as areas where mixed-use development would be allowed; however, only the area at the intersection of Bell Avenue and Raley Boulevard is identified as the preferred target for a mixed-use neighborhood-serving retail center. Uses desired by the community, as expressed at public workshops, included a grocery store with good quality produce and fair prices and smaller-scale businesses, such as retail shops, restaurants and personal services. Development of this area with such amenities would serve the daily needs of the community since it is within easy walking, biking or relatively short driving distance from most of the residents.

- **Light Industrial Uses.** One 12-acre area located in the McClellan Heights neighborhood would remain designated for light-industrial uses. This area is bordered by North Avenue, Harris Avenue, Tate Street and the former McClellan AFB. This area is in a relatively isolated location between Interstate 80 and the planned office uses to the north in McClellan Business Park, and the current industrial uses are compatible with existing and planned uses.

c. Parks and Open Space

The City's *Parks and Recreation Master Plan 2005-2010* establishes a goal of providing 5 acres of neighborhood and community parks for every 1,000 city residents, and 8 acres of citywide or regionally-serving parks per 1,000 residents. At present, the McClellan Heights and Parker Homes neighborhoods contain one 0.4-acre park site (Verano Creek Park), located on Doolittle Street in the Parker Homes neighborhood. This site is scheduled for construction to begin in August, 2007. Park amenities will include a tot lot, benches and tables, turf areas and shade trees. Del Paso Regional Park is located south of Interstate 80, to the southeast of the Plan Area and east of Haggin Oaks Golf Course. Additional recreation facilities are provided by Grant

Joint Union School District. A joint use playing field is nearing completion adjacent to Vista Nueva High School on North Avenue.

The Plan does include a goal and policies that would guide development of new park space in the Plan Area as new development and redevelopment occurs.

d. Housing and Development Strategy

Based on an assessment of existing housing and real estate market conditions in the Plan Area, feedback from the community and extensive discussions with SHRA and City staff, a series of recommendations were developed for improving the existing housing stock and promoting development of a variety of new housing at varying price ranges. Additionally, new housing in the area would help facilitate residents' expressed desire of attracting more neighborhood-serving retail uses by bringing more residents into the neighborhood.

Based on an agreement between the City and County of Sacramento, SHRA has committed to dedicating approximately six million dollars in housing set-aside funds from the McClellan Redevelopment Area to the Plan Area over the next 5 to 10 years. The housing set-aside funds must be used for housing-related improvements; by law they may not be used for other purposes such as infrastructure improvements.

SHRA will allocate funding that is earmarked for housing improvements in the Plan Area through existing and proposed programs:

- Target Area Homebuyer Program
- Target Area Create a Loan Program (Financial assistance for rehabilitation, including foundation repairs)
- Target Area Developer Subsidy Program (Proposed)

Multi-family and commercial/residential mixed-use projects might qualify for funding from the following programs:

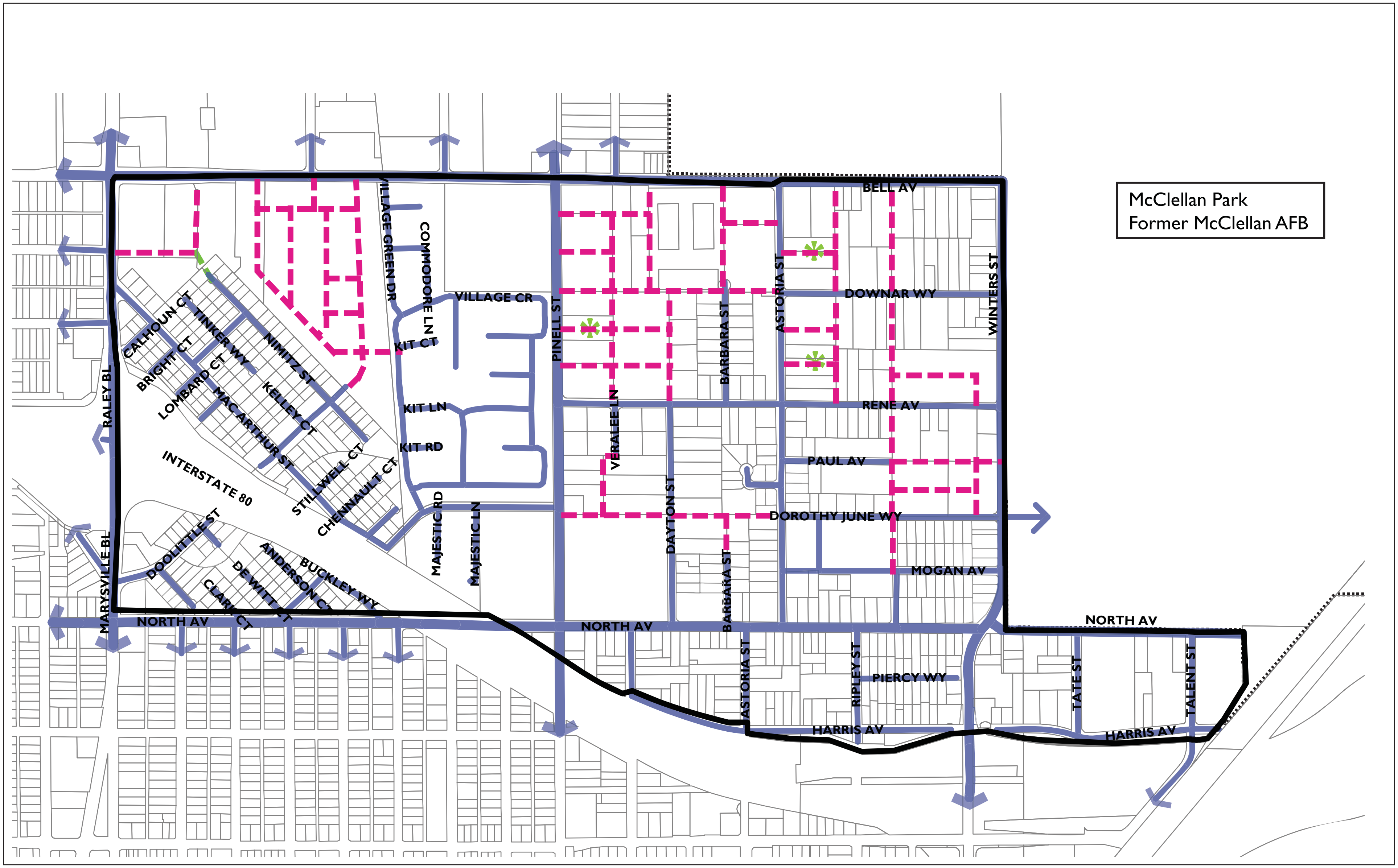
- ♦ Target Area Investment Property Loan Program
- ♦ Multi-Family Housing Lending Program

e. Circulation, Parking and Street Design

Figure 3-4 illustrates a conceptual circulation pattern for the Plan Area that builds upon the existing pattern and would facilitate development of proposed land uses. The intent of the circulation pattern is to enhance connectivity within the residential neighborhoods and promote development at a more pedestrian-oriented scale (e.g. block lengths that provide more connections between blocks and are thus more walkable). The conceptual circulation network should be considered as a guide for the general number of street connections to be added as new development occurs. The actual street network that is built may vary from what is shown in Figure 3-4 based on the pattern and size of development, location of existing intersections, spacing of existing and future traffic signals, and other factors. Moreover, the conceptual circulation pattern could be enhanced with additional street and pedestrian connections as new development actually occurs.

New streets, primarily in the less-developed McClellan Heights area, are shown for areas that seem likely to develop or redevelop over the next 10 or 20 years. New minor streets are proposed for the McClellan Heights area in the vacant 21-acre site located on Bell Avenue. This would connect Bell Avenue to the Parker Homes neighborhood and provide through-connections to Bell Avenue at two locations. In addition, minor streets are proposed to facilitate residential development that is consistent in scale with existing residential development bounded by Pinell Street, Bell Avenue, Winters Street and North Avenue.

Chapter 4 of the Plan includes a more detailed explanation of recommended improvements for new roadways and other streetscape improvements, and includes detailed street cross-sections. A list of all recommended circulation infrastructure improvements, including cost estimates, is provided in a separate technical report accompanying the Plan.



Plan Area

City Limits

Recommended Future Street Connections

Potential Bike/Ped Connection

Could be Bike/Ped Connection only, TBD at time of project review

Existing Streets

FIGURE 3-4

CONCEPTUAL CIRCULATION NETWORK

f. Utility Infrastructure

The McClellan Heights and Parker Homes neighborhoods have different anticipated levels of buildout, and thus, different infrastructure needs. The McClellan Heights neighborhood is sparsely developed with a combination of large-lot, single-family residential units, industrial properties and a few commercial uses. Infrastructure improvements here will need to support buildout of this neighborhood's land use mix while bringing existing facilities up to current City standards. The Parker Homes neighborhood on the other hand, is mostly built out with single-family homes on small lots. Infrastructure needs in this neighborhood are governed primarily by the need to upgrade and/or maintain existing facilities.

The Plan identifies specific stormwater, sewer and water facility improvements that would be needed to address existing deficiencies in the system. It also provides general recommendations for improvements needed to serve buildout of all proposed land uses. The list of improvements is likely to change over the long-term as new development takes place and additional public funding is identified.

g. Land Use and Infrastructure Plan Buildout

The Plan involves rezoning of the Plan Area, which would increase the development potential of the area when compared to the existing plan and zoning designations. As shown in Table 3-1, maximum buildout assumed under the Plan would include 860 new residential units, 232,000 square feet of retail uses, 25,000 square feet of office uses and 27,000 square feet of light industrial uses.

D. General Plan Amendments

Adoption of the Plan would amend the current General Plan and would serve as an area plan for the two neighborhoods. General Plan amendments would be required to adjust the land use designations to match rezoned properties. The most notable land use designation changes would occur in areas currently designated for light industrial

TABLE 3-1 **MAXIMUM BUILDOUT UNDER THE PLAN**

Zoning Designation	New Residential Units	Retail (Square Feet)	Office (Square Feet)	Industrial (Square Feet)
R-1A-SPD	370	0	0	0
RMX-SPD	490	84,000	0	0
C-2-SPD	0	152,000	16,000	0
M-1-SPD	0	0	9,000	27,000
Total	**860**	**232,000**	**25,000**	**27,000**

Notes: Dwelling units have been rounded to the nearest tenth. The suffix "-SPD" is explained in Section E of this chapter. Non-residential square-footage has been rounded to the nearest thousandth.

uses; these would change to a residential mixed-use designation. Other changes include commercial uses to residential mixed use, industrial uses to general commercial and a small area of residential to commercial land use designation. These land use designation changes are discussed in greater detail in Section 4.7, Land Use.

E. Rezones

Existing City of Sacramento zoning designations to be applied within the Plan Area are shown in Figure 3-5 and summarized below. No new zoning districts will be created for the Plan Area. A Special Planning District (SPD) will be implemented via ordinance and will apply to the entire Plan Area in order to enact the zoning designations depicted in Figure 3-5, and may contain provisions for design review. Enactment of the SPD will allow the City to review proposed development plans to ensure, among other things, that they are consistent with the General Plan and any applicable community or specific plans; that the utilities and infrastructure are sufficient to

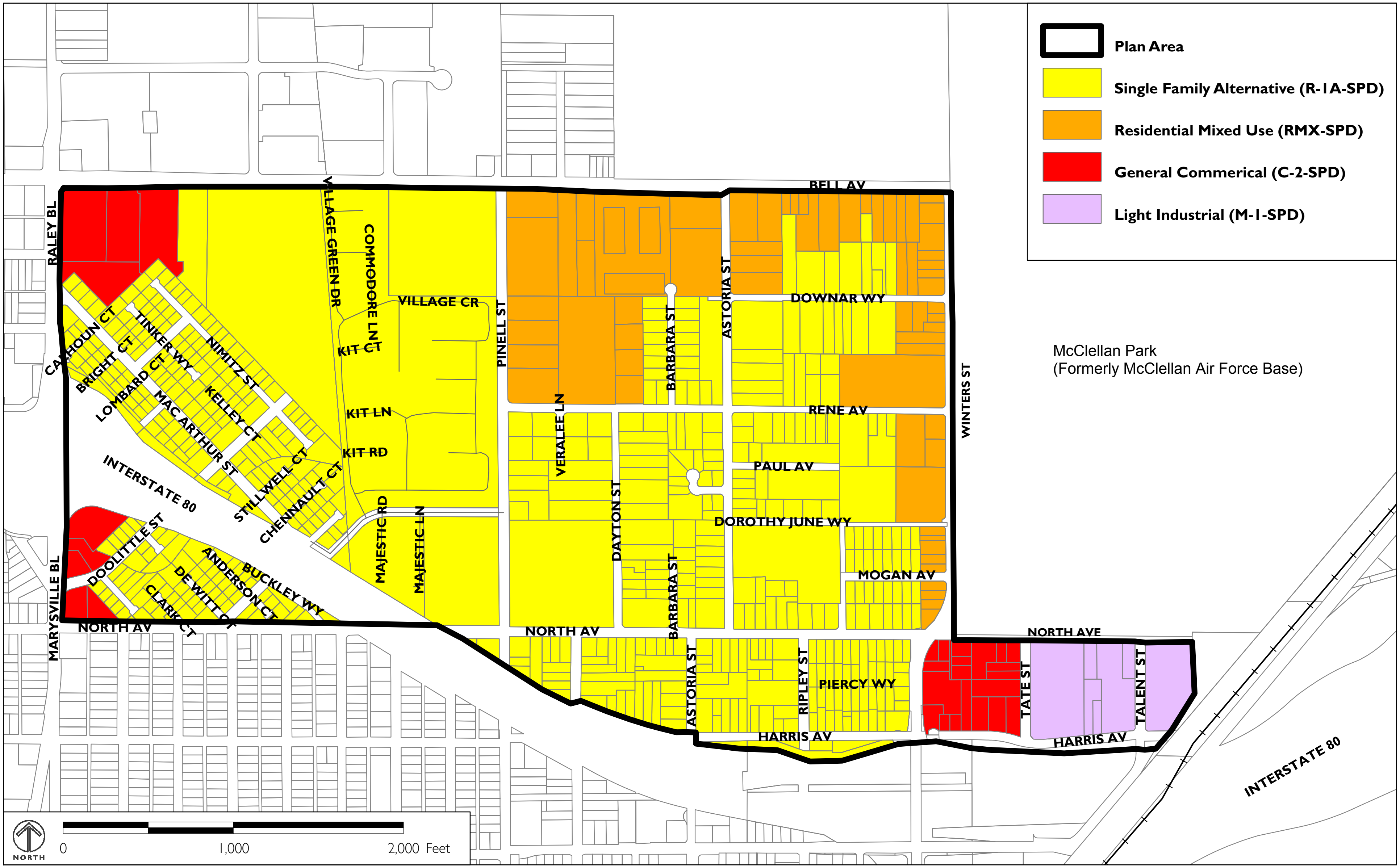


FIGURE 3-5

PROPOSED ZONING DESIGNATIONS

support the proposed development and meet City standards; and that the proposed development is compatible with surrounding development.

Zoning designations that are proposed for the Plan Area are:

- **Single-Family Alternative (R-1-A-SPD) Zone.** This is a low to medium density residential zone intended to permit the establishment of single-family, individually owned, attached or detached residences where lot sizes, height, area and/or setback requirements vary from standard single-family (R-1). This zone is intended to accommodate alternative single-family home designs that are compatible with standard single-family areas. Maximum density in this zone is 15 dwelling units per net acre. Maximum height is 35 feet; maximum lot coverage is 40 percent.
- **Residential Mixed Use (RMX-SPD) Zone.** This is a mixed-use zone that permits multiple-family residential, office and limited commercial uses in an arrangement established for the area through a SPD or other adopted location standards. Minimum land area per unit is 1,200 square feet, 36 units per acre. Maximum height is 35 feet.
- **General Commercial (C-2-SPD) Zone.** This is a general commercial zone which provides for the sale of commodities or performance of services, including repair facilities, small wholesale stores or distributors, and limited processing and packaging. The maximum height within 100 feet of residential uses is 35 feet for structures; for structures more than 100 feet from residential uses, the maximum height is 45 feet. Parking ratios are: retail: 1 space per 250 gross square feet; restaurant: 1 space per 3 seats; general commercial: 1 space per 500 gross square feet. There is no maximum lot coverage. Buildings over 40,000 square feet require special permit approval.
- **Light Industrial (M-1-SPD) Zone.** This zone permits most fabricating activities, with the exception of heavy manufacturing and the processing of raw materials. The maximum building height is 75 feet; there is no maximum lot coverage. The parking ratios for warehousing uses is 1 space per 1,000 square feet of gross floor area, and no more than 1 space per 500 square feet of gross floor area.

F. Required Permits and Approvals

This section outlines the implementation actions to be undertaken by SHRA and the City, in cooperation with the County, partner agencies and residents of McClellan Heights and Parker Homes, in order to realize the recommendations in the Plan. In summary, the following entitlements will be needed:

- **Environmental Determination:** that is, this document.
- **Adopt the McClellan Heights-Parker Homes Land Use and Infrastructure Plan** which includes goals, policies, and implementation actions to support the plan area transitioning over time from a mixed industrial and rural residential area into primarily single-family residential neighborhoods bordered by mixed-use residential areas with high-quality housing at varying levels of affordability that have easy access to supporting commercial and retail uses, services and amenities.
- **General Plan Amendment:** the McClellan Heights-Parker Homes Land Use and Infrastructure Plan recommends a change in land use designations to reflect the change in land use designation of industrial land to residential and commercial use.
- **North Sacramento Community Plan Amendment** providing direction for new residential and mixed use development in an area formerly constrained by incompatible uses and noise from the McClellan Air Force Base and to reflect the change in land use designation of industrial land to residential and commercial use.
- **Special Planning District (SPD):** create the McClellan Heights-Parker Homes SPD to facilitate the development of housing and commercial mixed use in effort to revitalize the McClellan Heights and Parker Homes neighborhoods. The SPD will facilitate streamlined review for alternative single-family development; provide for flexible non-conforming regulations that allow existing development to continue; allow higher density development in the RMX-SPD zone; and incorporate disclosure language regarding airport noise.

- **Rezone** 90 acres from M-1 (Light Industrial) to RMX-SPD (Residential Mixed Use) and 35 acres from M-1 to C-2-SPD (Commercial). The majority of parcels zoned R-1 will be rezoned to R-1A-SPD.
- **City Council Override of the McClellan Air Force Base Comprehensive Land Use Plan (CLUP).** Since the Airport Land Use Commission (ALUC) will not have updated the *McClellan Airport Comprehensive Land Use Plan* to reflect the new aircraft noise contours before this Plan is adopted, the City Council may need to override the decision of the ALUC in regards to allowing residential development within the prior 65 CNEL noise contour. In addition, if the ALUC adopts the County of Sacramento's proposed policy not to allow residential development within the new 60 CNEL noise contour, the City Council would need to override that decision as well if this Plan is approved. More detail regarding noise impacts can be found in the Draft EIR for the Plan.

4 ENVIRONMENTAL EVALUATION

This chapter consists of 13 sections that evaluate the environmental impacts of the McClellan Heights/Parker Homes Land Use and Infrastructure Plan (henceforth "the Plan"). In accordance with Appendix G of the CEQA Guidelines, the potential environmental effects of the Plan are analyzed for the following environmental issue areas:

- ♦ Aesthetics
- ♦ Air Quality
- ♦ Biological Resources
- ♦ Cultural Resources
- ♦ Hazards and Hazardous Materials
- ♦ Hydrology and Water Quality
- ♦ Land Use
- ♦ Noise
- ♦ Population, Employment and Housing
- ♦ Public Services
- ♦ Soils, Seismicity and Geology
- ♦ Transportation and Circulation
- ♦ Utilities and Service Systems

A. Format of the Environmental Evaluation

Each section in Chapter 4.0 generally follows the same format and consists of the following subsections:

- ♦ The *Regulatory Framework* subsection contains an overview of the federal, State and local laws and regulations applicable to each environmental review topic.
- ♦ The *Existing Conditions* subsection describes current conditions with regard to the environmental factor reviewed.
- ♦ The *Standards of Significance* subsection tells how an impact is judged to be significant in this EIR. These standards are based on the City's adopted standards.

- The *Impact Discussion* gives an overview of potential impacts of the Plan and tells why impacts were found to be significant or less than significant. This section includes a discussion of cumulative Plan impacts.
- The *Impacts and Mitigation Measures* subsection lists identified impacts and measures that would mitigate each impact, where such measures are available.

B. Impacts and Mitigation Measures

In Sections 4.1 through 4.13, each numbered impact is considered significant prior to mitigation, unless it is specifically identified as less than significant. Mitigation measures have been suggested that would reduce significant impacts to less-than-significant levels. Impacts would be less than significant after mitigation unless they are noted as significant and unavoidable in the text.

All mitigation measures are stated with conditional language ("should") because they are recommendations, and not conditions of approval for the project, unless they are specifically adopted as conditions by the City. Under CEQA, an EIR is required to identify mitigation measures that could reduce identified impacts to less-than-significant levels. However, the City is not required to adopt these mitigation measures, even after the EIR is certified. The City could also require alternative mitigation measures that are equally effective, or it could find that the identified measures are infeasible and allow the project without mitigation under a finding of overriding consideration. If the City adopts the suggested mitigation measures as conditions of approval, then their language will be changed from the conditional "should" to the mandatory "shall."

C. Cumulative Impact Analysis

Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a project when its incremental effect is cumulatively considerable. A cumulative impact consists of an impact created as a result of the combination of the project evaluated in the EIR together with other reasonably foreseeable projects causing related impacts.

Where the incremental effect of a project is not "cumulatively considerable," a lead agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Where the cumulative impact caused by the project's incremental effect and the effects of other projects is not significant, the EIR must briefly indicate why the cumulative impact is not significant. The results of the cumulative impact analysis are presented in each impact discussion subsection in Sections 4.1 through 4.13.

1. Geographic Area for Cumulative Analysis

Individual cumulative impacts may occur over different geographic areas. The cumulative discussions in Sections 4.1 through 4.13 explain the geographic scope of the area affected by each cumulative effect (e.g. watershed or air basin). The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing aesthetic impacts, only development within the vicinity of the project would contribute to a cumulative visual effect. In assessing air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative effect.

2. Cumulative Projects Considered

The CEQA Guidelines provide two approaches to analyzing cumulative impacts. The first is the "list approach," which requires a listing of past, present, and reasonably anticipated future projects producing related or cumulative impacts. The second is the summary approach wherein the relevant projections contained in an adopted General Plan or related planning document that is designed to evaluate regional or area-wide conditions are summarized. A reasonable combination of the two approaches may also be used.

The cumulative impact analysis in this EIR relies on the second approach and is based on the City's current General Plan. The discussion of cumulative impacts is provided in each technical section in Chapter 4.

4.1 AESTHETICS

This section describes existing visual resources within the Plan Area and analyzes potential visual impacts from adoption of the Plan.

A. *Regulatory Framework*

This section describes the City's policies and regulations that are applicable to aesthetics. There are no federal regulations that pertain to aesthetics in the area. According to the California Department of Transportation, the portion of Interstate 80 which traverses the southwestern portion of the Plan Area is not identified as a State Scenic Highway.[1]

1. City of Sacramento General Plan (1988)

The City of Sacramento General Plan contains a goal and related policies that pertain to visual resources and community character in the Plan Area. Goal A of the Residential Land Use Element states that the City should "improve the quality of residential neighborhoods Citywide by protecting, preserving and enhancing their character." Policies under this goal include:

- ♦ Policy 1: Continue to target code enforcement efforts by identifying and prioritizing neighborhoods experiencing code violations.
- ♦ Policy 4: Promote the reuse of abandoned structures which are sound or can be renovated for residential use to ensure neighborhood vitality.[2]

2. North Sacramento Community Plan (1984)

As discussed in Section 4.7 of this EIR, the Plan Area falls within the North Sacramento Community Plan area. The North Sacramento Community Plan contains

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[1] California Department of Transportation. *Officially Designated State Scenic Highways and Historic Pathways.* http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Accessed on April 23, 2007.

[2] City of Sacramento, 1988, *General Plan*, page 2-11.

goals and objectives which are relevant to visual resources and community character in the Plan Area. The first goal in the Land Use Element states that the City should "accommodate the growth projected for North Sacramento by the City General Plan in an orderly and efficient manner, one which enhances the existing attractive features of the community." A supporting objective states that the City should "encourage development north of Interstate 880 (currently Interstate 80) in a manner which emphasizes neighborhood cohesiveness and variety of housing types."[3] The Neighborhood Environment Element includes a goal that the City should "conserve and build upon the positive qualities of the North Sacramento Community and, at the same time, eliminate those qualities that create negative perceptions.

3. City of Sacramento Municipal Code

The City of Sacramento Municipal Code contains specifications which are relevant to the visual and design features of the Plan. These specifications relate to basic height and area requirements germane to specific zoning designations which would be assigned to the Plan Area. These specifications are outlined in Table 4.1-1.

4. City of Sacramento Single-Family and Multi-family Design Principles

The City developed design principles for single-family and multi-family residential development, which were adopted in September and March of 2000, respectively. While the design principles do not represent mandatory requirements, they do provide guidance to City staff and project applicants regarding positive aspects of sustainable community development that should be incorporated into residential projects to the extent possible.

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[3] City of Sacramento, 1984, *North Sacramento Community Plan*, page 9.

TABLE 4.1-1 **BASIC HEIGHT AND AREA REGULATION CHART FOR PLAN AREA ZONING DESIGNATIONS**

Zone	Location	Maximum Height (ft.)	Front Setback (ft.)	Rear Setback (ft.)	Interior Side Setback (ft.)	Street Side Setback (ft.)
R-1A	General	35	5	5	5	5
RMX	General	24	1	2	3	3
C-2	General	17	16	16	16	5
M-1	General	75	12	10	11	No Requirement

Source: City of Sacramento Municipal Code, Section 17.60.020.

B. Existing Conditions

This section describes the existing setting of the Plan Area as it relates to aesthetics.

1. Form and Appearance of the Plan Area

The character of the two neighborhoods that comprise the Plan Area is described below.

a. Parker Homes

The 37-acre area known as the Parker Homes neighborhood is a smaller, relatively older and more built out neighborhood when compared to McClellan Heights. As previously noted, the neighborhood is bisected by Interstate 80. Parker Homes is almost exclusively residential, consisting primarily of one-story, single-family homes which are generally set back from the street with a one- to two-car parking garage door as part of the front façade of the house. The only retail commercial uses in the neighborhood are located at the intersection of Marysville Boulevard and North Avenue, consisting of auto-related and fast food commercial uses. The appearance of these uses are characterized by large expanses of asphalt for parking and circulation with a small, one-story structure located on the back portion of the parcel.

b. McClellan Heights

The McClellan Heights neighborhood, to the north and east of Parker Homes, covers approximately 269 acres of the 306-acre Plan.[4] A majority of McClellan Heights consists of residential uses, primarily post-war subdivisions on larger parcels. These consist of one and two-story single-family homes with a two-car garage. Unlike Parker Homes, the McClellan Heights neighborhood contains many underutilized or vacant parcels.

The neighborhood includes small concentrations of light industrial and commercial uses, primarily along Bell Avenue, Pinell and Astoria Streets, Raley Boulevard/Marysville Boulevard and the area east of Winters Street between the former McClellan Air Force Base and Interstate 80. These uses are characterized by one-story (though taller than the average residential one-story building), "box-shaped" structures with stucco or corrugated metal facade. There is also a Sacramento Municipal Utility District substation located at the southwest corner of Bell Avenue and Winters Street, which is enclosed by a chain-link fence, topped with barbed wire.

2. Form and Appearance of the Surrounding Area

a. Area North of the Plan Area

This area is primarily characterized by light industrial/office-flex uses and vacant parcels. The light industrial and office flex uses are characterized by one-story, large floor-plate, "box-shaped" buildings with stucco and corrugated metal facades. The structures are typically set back from the street, surrounded by large expanses of asphalt for parking areas and/or circulation. There is a small residential area located between Pinell Street and McClellan Park, north of Bell Avenue. This area consists of

[4] Acreage includes public right-of-way.

a few low-rise apartment complexes and single-family homes on small lots fronting Bell Avenue with more single-family homes on larger, deep lots further north.

b. Area South of the Plan Area

This area is characterized primarily by one- and two-story single family residential homes. There are some commercial uses along major arterials of the Del Paso Heights neighborhood which primarily consist of single-story buildings set back from the street with parking areas located between the buildings and the street.

c. Area East of the Plan Area

East of the Plan Area is McClellan Park, which was formerly McClellan Air Force Base. The reuse plan for McClellan Park includes Class A office immediately to the east of the Plan Area and industrial and warehouse/manufacturing uses to the north-east of the Plan Area. The buildings in McClellan Park generally consist of one- and two-story, peach/beige-colored "box-shaped" structures. There have been recent improvements to the streetscape along the eastern side of Winters Street, adjacent to McClellan Park, including a wide, landscaped berm with green grass and flowers.

d. Area West of the Plan Area

This area is characterized primarily by one- and two-story single family residential homes. There are some commercial uses along major arterials that are characterized by single-story buildings set back from the street with parking areas located between the buildings and the street.

3. View of the Plan Area

Views of the Plan Area are available from arterial and collector roadways which form its perimeter, including Marysville Boulevard, Raley Boulevard, Bell Avenue, Winters Street and North Avenue.

4. Views from the Plan Area

Generally speaking, expansive views from the Plan Area are limited due to the flat topography of the area. The most expansive views are to the east. Views in other directions are non-expansive and are dominated by residential, commercial and light industrial development.

C. Standards of Significance

The Plan would have a *significant* impact with regard to aesthetics if it would:

- ♦ Cause new shadows from development that would shade a recognized public gathering place (e.g. park) or place residences/child care centers in complete shade.
- ♦ Cause glare to be cast in such a way as to cause public hazard or annoyance for a sustained period of time.
- ♦ Cast light onto oncoming traffic or residential uses.

D. Impact Discussion

This section describes the potential impacts that the Plan would have on Plan Area aesthetics.

1. Plan Impacts

No shadows would be cast by new development in the Plan Area which would adversely impact public gathering places or place residences and/or child centers in complete shade. Development allowed under the Plan would respect applicable setback and height requirements as set forth by City of Sacramento zoning regulations in order to reduce the adverse effects of shadows. Therefore, the Plan's impact with respect to shadows would be *less than significant*.

Lighting that would be part of new development allowed under the Plan would meet City standards and cut-off luminaries would be used to avoid potential spillover, sky-glow or glare impacts. Therefore, the Plan's impact with respect to glare and the potential to cast light onto oncoming traffic or residential uses would be *less than significant*.

2. Cumulative Impacts

The Plan would result in changes to the visual character of the Plan Area and its implementation would generally improve the visual appearance of the Plan Area as new residential, commercial and mixed uses are built on parcels that are currently vacant or underutilized. As discussed above, new development would be required to follow height and lighting standards so that no significant impacts related to shadows or glare would occur. Therefore, no combined cumulative impacts as a result of implementing the Plan are anticipated.

E. Impacts and Mitigation Measures

No impacts were identified, thus no mitigation measures are required.

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4.2 AIR QUALITY

This section discusses the overall regulatory framework for air quality management in California and the region, including national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), and describes existing air quality conditions in the Plan Area. Information presented in this section is based in part on guidance provided by the Sacramento Metropolitan Air Quality Management District (SMAQMD, or the District).

A. Regulatory Framework

This section discusses the local, State, and federal policies and regulations that are relevant to the analysis of air quality in the Plan Area.

1. Federal and State Laws and Regulations

This section discusses the federal and State regulatory framework that governs air pollution control, followed by a description of the federal and State ambient air standards that have been established for particular air pollutants.

a. Federal Laws and Regulations

The federal Clean Air Act (CAA), enacted in 1963 and amended several times thereafter (including the 1990 amendments), establishes the framework for modern air pollution control. The CAA directs the U.S. Environmental Protection Agency (EPA) to establish ambient air standards for six pollutants: ozone, CO, lead (Pb), NO_2, particulate matter, and SO_2. The standards are divided into primary and secondary standards. Primary standards are designed to protect human health, including the health of "sensitive" populations such as asthmatics, children and the elderly, within an adequate margin of safety. Secondary standards are designed to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The primary legislation that governs federal air quality regulations is the Clean Air Act Amendments of 1990 (CAAA). The CAAA delegates primary responsibility for clean air to the EPA. The EPA develops rules and regulations to preserve and improve air quality, and delegates specific responsibilities to State and local agencies.

Areas that do not meet the federal ambient air quality standards shown in Table 4.2-1 are called *nonattainment* areas. For these nonattainment areas, the CAA requires states to develop and adopt State Implementation Plans (SIPs), which are air quality plans showing how air quality standards will be attained. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards will be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits for such improvements as highway construction and sewage treatment plants. In California, the EPA has delegated authority to prepare SIPs to the ARB, which, in turn, has delegated that authority to individual air districts. In cases where the SIP is submitted by the State but fails to demonstrate achievement of the standards, the EPA is directed to prepare a federal implementation plan.

b. State Laws and Regulations

Responsibility for achieving California's air quality standards, which are more stringent than federal standards, is placed on the California Air Resources Board (ARB) and local air districts, and is to be achieved through district-level air quality management plans that will be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to the ARB, which in turn has delegated that authority to individual air districts.

The ARB has traditionally established State air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

TABLE 4.2-1 **AMBIENT AIR QUALITY STANDARDS APPLICABLE IN CALIFORNIA**

			Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
Pollutant	**Symbol**	**Average Time**	**California**	**National**	**California**	**National**	**California**	**National**
Ozone*	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.08	137	157	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual average	NA	0.053	NA	100	NA	If exceeded on more than 1 day per year
		1 hour	0.25	NA	470	NA	If exceeded	NA
Sulfur dioxide	SO_2	Annual average	NA	0.03	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable particulate matter	PM_{10}	Annual arithmetic mean	NA	NA	20	50	NA	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	$PM_{2.5}$	Annual arithmetic mean	NA	NA	12	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	65	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

Notes: All standards are based on measurements at 25°C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
NA = not applicable.

* The U.S. Environmental Protection Agency recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 part per million. EPA issued a final rule that revoked the 1-hour standard on June 15, 2005. However, the California 1-hour ozone standard will remain in effect.

Source: California Air Resources Board, 2006a.

Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA.

The California Clean Air Act (CCAA) of 1988 substantially added to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA focuses on attainment of the State ambient air quality standards, which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards.

The CCAA requires designation of *attainment* and *nonattainment* areas with respect to State ambient air quality standards. The CCAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan if the district violates State air quality standards for CO, SO_2, NO_2, or ozone. These Clean Air Plans are specifically designed to attain these standards and must achieve an annual 5 percent reduction in district-wide emissions of each nonattainment pollutant or its precursors. Where an air district is unable to achieve a 5 percent annual reduction in district-wide emissions of each nonattainment pollutant or its precursors, the adoption of "all feasible measures" on an expeditious schedule is acceptable as an alternative strategy (Health and Safety Code Section 40914(b)(2)). No locally prepared attainment plans are required for areas that violate the State PM_{10} standards, but the ARB is currently addressing PM_{10} attainment issues.

The CCAA requires that the State air quality standards be met as expeditiously as practicable but, unlike the federal CAA, does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards.

The CCAA emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures (TCMs). The CCAA does not define indirect and area-wide sources. However, Section 110 of the federal Clean Air Act defines an indirect source as:

> …a facility, building, structure, installation, real property, road, or highway, which attracts, or may attract, mobile sources of pollution. Indirect sources include parking lots, parking garages, and other facilities subject to any measure for management of parking supply.

TCMs are defined in the CCAA as "any strategy to reduce trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions."

The ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) provides ARB recommendations for the siting of new sensitive land uses (including residences) near freeways, distribution centers, ports, refineries, chrome plating facilities, dry cleaners, and gasoline stations. The handbook recommends that new development be placed at distances from such facilities. The recommendations contained in the ARB's *Air Quality and Land Use Handbook* are not required by any regulations but are provided for guidance.

California Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codifies the State's GHG emissions target by requiring the State's global warming emissions be reduced to 1990 levels by 2020 and directs ARB to enforce the statewide cap that would begin phasing in 2012. AB 32 was signed and passed into law by Governor Arnold Schwarzenegger on September 27, 2006.

AB 1493 required ARB to develop and adopt the nation's first greenhouse gas emission standards for automobiles. The legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and the environment of the State. It cited several risks that California faces from climate change, including reduction in the State's water supply, increased air pollution creation by higher temperatures, harm to agriculture, and increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy and insurance prices. Further, the legislature stated that technological solutions to reduce greenhouse gas emissions would stimulate California's economy and provide jobs.

c. Federal and State Criteria Pollutants

Federal and State governments have established ambient air quality standards for the following six criteria pollutants: ozone, CO, NO_2, SO_2, particulate matter (particulate matter smaller than 10 microns or less in diameter [PM_{10}] and particulate matter smaller than 2.5 microns or less in diameter [$PM_{2.5}$]). Lead, ozone, NO_2, and particulate matter are generally considered to be regional pollutants, as these pollutants or their precursors affect air quality on a regional scale. Pollutants such as CO, SO_2, lead, and particulate matter are considered to be local pollutants that tend to accumulate in the air locally. Particulate matter is considered to be a localized pollutant as well as a regional pollutant. Within the Plan Area, CO, PM_{10} and ozone are considered pollutants of concern. Toxic air contaminants (TACs) are also discussed below, although no State or federal ambient air quality standards exist for these pollutants.

For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials or avoidance of nuisance conditions). Pollutants of greatest concern in the Plan Area are CO, ozone and particulate matter (PM_{10} and $PM_{2.5}$). Brief descriptions of these pollutants are provided below, and a complete summary of State and national ambient air quality standards (CAAQS and NAAQS, respectively) is provided in Table 4.2-1.

i. Ozone

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials. Ozone is a severe eye, nose, and throat irritant. Ozone also attacks synthetic rubber, textiles, plants and other materials. Ozone causes extensive damage to plants by leaf discoloration and cell damage.

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors—reactive organic gases (ROG) and NO_X—react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. The ozone precursors, ROG and NO_X, are mainly emitted by mobile sources and by stationary combustion equipment.

State and federal standards for ozone have been set for an 8-hour averaging time. The State 8-hour standard is 0.07 parts per million (ppm), not to be exceeded, while the federal 8-hour standard is 0.08 ppm, not to be exceeded more than three times in any 3-year period. The State has established a 1-hour ozone standard of 0.09 ppm, not to be exceeded, while the federal 1-hour ozone standard of 0.12 ppm has recently been replaced by the 8-hour standard. State and federal standards are summarized in Table 4.2-1.

ii. Inhalable Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials. Particulate emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

The federal and State ambient air quality standard for particulate matter applies to two classes of particulates: particulate matter 10 microns or less in diameter (PM_{10}) and particulate matter 2.5 microns or less in diameter ($PM_{2.5}$). The State PM_{10} standards are 50 micrograms per cubic meter (μ/m3) as a 24-hour average and 20 μ/m3 as an annual arithmetic mean. The federal PM_{10} standards are 150 μ/m3 as a 24-hour average and 50 μ/m3 as an annual arithmetic mean. The federal $PM_{2.5}$ standards are 15 μ/m3 for the annual average and 65 μ/m3 for the 24-hour average. The State $PM_{2.5}$ standard is 12 μ/m3 as an annual arithmetic mean. State and federal standards are summarized in Table 4.2-1.

iii. Carbon Monoxide (CO)

CO is essentially inert to plants and materials but can have *significant* effects on human health. CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. It can cause health problems such as fatigue, headache, confusion, dizziness, and even death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The State 1-hour standard is 20 ppm by volume, and the federal 1-hour standard is 35 ppm. Both State and federal standards are 9 ppm for the 8-hour averaging period. State and federal standards are summarized in Table 4.2-1.

iv. Toxic Air Contaminants (TACs)

TACs are pollutants that may be expected to result in an increase in mortality or serious illness or that may pose a present or potential hazard to human health. Health effects include cancer, birth defects, neurological damage, damage to the body's natural defense system and diseases that lead to death. Although ambient air quality standards exist for criteria pollutants, no standards exist for TACs.

Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the California Air Resources Board (ARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor called a Hazard Index is used to evaluate risk. In the early 1980s, the ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. In October 2000, ARB identified diesel exhaust particulate matter as a TAC.

2. Local Regulations and Policies

The air quality management agencies of direct importance in Sacramento County include the EPA, ARB, and SMAQMD. The EPA has established federal standards for which the ARB and SMAQMD have primary implementation responsibility. The ARB and SMAQMD are responsible for ensuring that State standards are met. The SMAQMD is responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development. At the local level, air quality is managed through land use and development planning practices and measures addressing air quality are implemented in Sacramento County through the general planning process. Sacramento County's General Plan specifies that the evaluation of air quality impacts during the CEQA review process will be based on criteria and mitigation measures developed by the SMAQMD. The SMAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and State air quality laws. The SMAQMD has also adopted emission thresholds to determine the level of significance of a project's emissions. In addition, the Plan may be subject to the following District rules:

- SMAQMD RULE 201: General Permit Requirements
- SMAQMD RULE 202: New Source Review
- SMAQMD RULE 204: Emission Reduction Credits
- SMAQMD RULE 205: Community Bank and Priority Reserve Bank
- SMAQMD RULE 207: Federal Operating Permit Program
- SMAQMD RULE 209: Limiting Potential to Emit
- SMAQMD RULE 301: Stationary Source
- SMAQMD RULE 401: Ringelmann Chart
- SMAQMD RULE 402: Nuisance
- SMAQMD RULE 403: Fugitive Dust
- SMAQMD RULE 404: Particulate Matter
- SMAQMD RULE 405: Dust and Condensed Fumes
- SMAQMD RULE 406: Specific Contaminants
- SMAQMD RULE 412: Stationary Internal Combustion Engines Located at Major Stationary Sources of NO_X
- SMAQMD RULE 413: Stationary Gas Turbines
- SMAQMD RULE 414: Natural Gas-Fired Water Heaters
- SMAQMD RULE 417: Wood Burning Appliances
- SMAQMD RULE 420: Sulfur Content of Fuels
- SMAQMD RULE 442: Architectural Coatings

- SMAQMD RULE 446: Storage of Petroleum Products
- SMAQMD RULE 902: Asbestos

This list of rules may not be all-encompassing, as additional District rules may apply to the project as specific developments are identified. These are rules that have been adopted by the SMAQMD to reduce emissions throughout the Sacramento Valley Air Basin (SVAB), and are required. Failure to comply with any applicable District rule would be a violation of said rule, and is subject to District enforcement action.

The SMAQMD is currently preparing Rule 417, which would establish requirements for wood burning devices. While this rule has not been adopted, Mitigation Measure AIR-1a would meet the requirements of this rule.

3. Applicable Air Quality Plans

The most recent versions of the plans discussed are the 1994 Sacramento Regional Clean Air Plan for the 1-Hour National Ozone Standard (CAP); Sacramento Region Clean Air Plan Update, which also includes the Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan (8-Hour Ozone Plan); and the 1991 Air Quality Attainment Plan (AQAP).

B. Existing Conditions

The following section provides updated descriptions of existing conditions relating to air quality in the Plan Area.

1. Regional Climate and Meteorology

The Plan Area is located in Sacramento County, California. Sacramento County is located in the SVAB, which includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and parts of Solano and Placer counties. The SVAB is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada. The San Joaquin Valley Air Basin lies to the south.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During the winter, the North Pacific storm track intermittently dominates valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Also characteristic of winter weather in the valley are periods of dense and persistent low-level fog, which is most prevalent between storms. The frequency and persistence of heavy fog in the valley diminishes with the approach of spring. The average yearly temperature range for the Sacramento Valley is between 20 and 115° Fahrenheit (F), with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

Prevailing wind in the Sacramento Valley is generally from the southwest due to marine breezes flowing through the Carquinez Strait, which is the major corridor for air moving into the Sacramento Valley from the west. Incoming airflow strength varies daily with a pronounced diurnal cycle. Influx strength is weakest in the morning and increases in the evening hours. Associated with the influx of air through the Carquinez Strait is the Schultz Eddy which is formed when mountains on the valley's western side divert incoming marine air. The eddy contributes to the formation of a low-level southerly jet between 500 and 1,000 feet above the surface that is capable of speeds in excess of 35 miles per hour (mph). This jet is important for air quality in the Sacramento Valley because of its ability to transport air pollutants over large distances.

The SVAB's climate and topography contribute to the formation and transport of photochemical pollutants throughout the region. The region experiences temperature inversions that limit atmospheric mixing and trap pollutants; high pollutant concentrations result near the ground surface. Generally, the lower the inversion base height from the ground and the greater the temperature increase from base to top, the more pronounced the inhibiting effect of the inversion will be on pollutant dispersion. Consequently, the highest concentrations of photochemical pollutants occur from late spring to early fall when photochemical reactions are greatest because of intensifying sunlight and lowering altitude of daytime inversion layers. Surface inversions (those at altitudes of 0 to 500 feet above sea level) are most frequent during winter, and subsidence inversions (those at 1,000 to 2,000 feet above sea level) are most common in the summer.

2. Existing Air Quality Conditions in Sacramento

Existing air quality conditions in the Plan Area can be characterized in terms of the ambient air quality standards that the federal and State governments have established for various pollutants (Table 4.2-1) and by monitoring data collected in the region. Monitoring data concentrations are typically expressed in terms of ppm or μg/m3. The nearest air quality monitoring stations to the Plan Area are the Sacramento Del Paso Manor monitoring station, which monitors for ozone, CO, and PM_{10} and $PM_{2.5}$; the El Camino & Watt monitoring station, which monitors for CO; and the Branch Center monitoring station, which monitors for PM_{10}. The locations of these stations relative to the Plan Area is shown in Figure 4.2-1 and air quality monitoring data from these monitoring stations are summarized in Table 4.2-2. These data represent air quality monitoring data for the last three years (2003–2005) in which complete data is available. As indicated in Table 4.2-2, the monitoring stations in the vicinity of the Plan Area have experienced occasional violations of the following standards during the 3-year monitoring period for which complete monitoring data are available:

- **1-hour ozone:** NAAQS and CAAQS
- **8-hour ozone:** NAAQS
- **PM_{10}:** CAAQS
- **$PM_{2.5}$:** NAAQS

a. Attainment Status

If monitored pollutant concentrations meet State or federal standards over a designated period of time, the area is classified as being in attainment for that pollutant. If

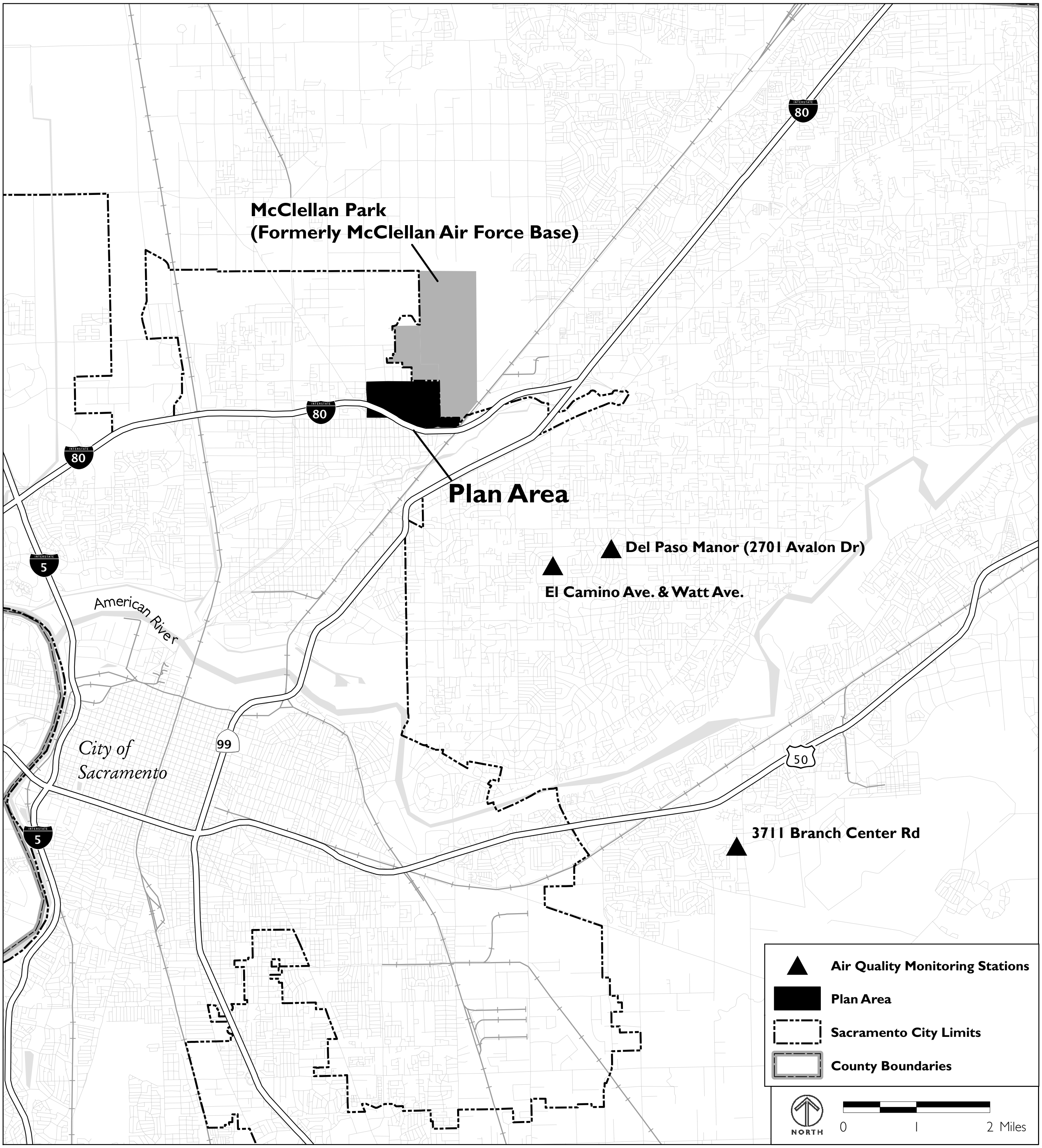

FIGURE 4.2-1

AIR QUALITY MONITORING STATIONS IN THE VICINITY OF THE PLAN AREA

TABLE 4.2-2 **AMBIENT AIR QUALITY MONITORING DATA MEASURED AT THE SACRAMENTO DEL PASO MANOR, EL CAMINO & WATT, AND BRANCH CENTER MONITORING STATIONS**

	Del Paso Manor			El Camino & Watt			Branch Center		
Pollutant Standards	2003	2004	2005	2003	2004	2005	2003	2004	2005
Ozone									
Maximum 1-hour concentration (ppm)	0.134	0.110	0.134	–	–	–	–	–	–
Maximum 8-hour concentration (ppm)	0.113	0.089	0.117	–	–	–	–	–	–
Number of days standard exceeded[a]									
NAAQS 1-hour (>0.12 ppm)	2	0	1	–	–	–	–	–	–
CAAQS 1-hour (>0.09 ppm)	21	6	14	–	–	–	–	–	–
NAAQS 8-hour (>0.08 ppm)	13	3	10	–	–	–	–	–	–
Carbon Monoxide (CO)									
Maximum 8-hour concentration (ppm)	4.27	3.15	3.51	4.50	3.33	4.19	–	–	–
Maximum 1-hour concentration (ppm)	8.5	3.6	4.5	6.7	4.5	4.7	–	–	–
Number of days standard exceeded[a]									
NAAQS 8-hour (≥9.0 ppm)	0	0	0	0	0	0	–	–	–
CAAQS 8-hour (≥9.0 ppm)	0	0	0	0	0	0	–	–	–
NAAQS 1-hour (≥35 ppm)	0	0	0	0	0	0	–	–	–
CAAQS 1-hour (≥20 ppm)	0	0	0	0	0	0	–	–	–
Particulate Matter (PM_{10})[b]									
National[c] maximum 24-hour concentration (μg/m³)	54.0	101.6	72.0	–	–	–	75.0	45.0	61.0
National[c] second-highest 24-hour concentration (μg/m³)	50.0	66.3	67.0	–	–	–	70.0	43.0	60.0
State[d] maximum 24-hour concentration (μg/m³)	55.0	52.0	77.0	–	–	–	77.0	45.0	64.0
State[d] second-highest 24-hour concentration (μg/m³)	54.0	44.0	70.0	–	–	–	71.0	45.0	60.0
National annual average concentration (μg/m³)	6.9	7.3	7.5	–	–	–	28.4	24.6	24.6
State annual average concentration (μg/m³)[e]	21.8	22.7	23.1	–	–	–	28.8	25.4	25.3
Number of days standard exceeded[a]									
NAAQS 24-hour (>150 μg/m³)[f]	0.0	0.0	0.0	–	–	–	–	0.0	0.0

TABLE 4.2-2 **AMBIENT AIR QUALITY MONITORING DATA MEASURED AT THE SACRAMENTO DEL PASO MANOR, EL CAMINO & WATT, AND BRANCH CENTER MONITORING STATIONS** (CONTINUED)

	Del Paso Manor			El Camino & Watt			Branch Center		
Pollutant Standards	2003	2004	2005	2003	2004	2005	2003	2004	2005
CAAQS 24-hour (>50 μg/m³)[f]	12.3	6.1	29.4	–	–	–	24.5	0.0	23.6
Particulate Matter ($PM_{2.5}$)									
National[c] maximum 24-hour concentration (μg/m³)	65.0	51.0	80.0	–	–	–	–	–	–
National[c] second-highest 24-hour concentration (μg/m³)	58.0	50.0	74.0	–	–	–	–	–	–
State[d] maximum 24-hour concentration (μg/m³)	73.2	58.2	81.4	–	–	–	–	–	–
State[d] second-highest 24-hour concentration (μg/m³)	67.4	53.2	74.1	–	–	–	–	–	–
National[b] annual average concentration (μg/m³)	12.2	11.5	11.5	–	–	–	–	–	–
State[c] annual average concentration (μg/m³)[e]	12.2	11.5	11.5	–	–	–	–	–	–
Number of days standard exceeded[a]									
NAAQS 24-hour (>65 μg/m³)	0	0	5	–	–	–	–	–	–

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.
[b] Measurements usually are collected every 6 days.
[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.
[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.
[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2006b; U.S. Environmental Protection Agency 2006.

monitored pollutant concentrations violate the standards, the area is considered a nonattainment area for that pollutant. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified.

EPA has classified Sacramento County as a severe nonattainment area for the 1-hour ozone standard and a serious nonattainment area for the 8-hour ozone standard. For the CO standard, EPA has classified Sacramento County as a moderate ($\leq$ 12.7 ppm) maintenance area. The EPA has classified Sacramento County as a moderate nonattainment area for the PM_{10} standard, while Sacramento County is classified as an unclassified/attainment area for the $PM_{2.5}$ standard. ARB has classified Sacramento County as a serious nonattainment area for the 1-hour ozone standard. For the CO standard, the ARB has classified Sacramento County as an attainment area. The ARB has classified Sacramento County as a nonattainment area for the PM_{10} and $PM_{2.5}$ standards. Sacramento County's attainment status for each of these pollutants relative to the NAAQS and CAAQS is summarized in Table 4.2-3.

b. Sensitive Receptors

The SMAQMD defines sensitive receptors as facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants or may experience adverse effects from unhealthful concentrations of air pollutants. Hospitals and clinics, schools, elderly housing and convalescent facilities, and residential areas are examples of sensitive receptors. Sensitive receptors in the vicinity of the Plan Area include residential land uses to the north, west, and south. Within the Plan Area, sensitive land uses include residential land uses, churches, Bell Avenue Elementary School, and Vista Nueva High School. Figure 4.7-4 in the Land Use Section shows existing land uses in and around the Plan Area, at the parcel level.

TABLE 4.2-3 **STATE AND FEDERAL ATTAINMENT DESIGNATIONS FOR SACRAMENTO COUNTY**

Pollutant	Federal Standards	State Standards
1-hour ozone	Severe nonattainment[a]	Serious nonattainment
8-hour ozone	Serious nonattainment	NA[b]
Carbon monoxide (CO)	Moderate (≤ 12.7 ppm) maintenance	Attainment
Inhalable particulate matter (PM_{10})	Moderate nonattainment	Nonattainment
Inhalable particulate matter ($PM_{2.5}$)	Unclassified/attainment	Nonattainment

[a] Previously in non-attainment area, no longer subject to the 1-hour standard as of June 15, 2005.
[b] The ARB approved the 8-hour ozone standard on April 28, 2005, and it became effective on May 17, 2006. However, the ARB has not yet designated areas for this standard.

C. *Standards of Significance*

This impact discussion utilizes the thresholds identified below to determine the level of impacts associated with the Plan, unless otherwise specified. Criteria for determining the significance of impacts related to air quality were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.). An impact related to air quality is considered *significant* if it would:

- Conflict with or obstruct implementation of the applicable air quality management plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State

ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).

D. Impact Discussion

The following provides an analysis of the effects of the Land Use and Infrastructure Plan on air quality.

1. Plan Impacts

a. Applicable Air Quality Management Plans

The State CEQA Guidelines state that the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make determinations about air quality impacts. Therefore, impacts to air quality are assessed based on information contained in the SMAQMD's *Guide to Air Quality Assessment in Sacramento County (2004).* The SMAQMD's thresholds of significance for construction- and operation-related emissions are presented in Table 4.2-4.

b. Air Quality Standards for Emissions

As indicated in Table 4.2-6, Plan Area-related operational emissions are not anticipated to exceed the SMAQMD's ROG and NO_X thresholds of 65 pounds per day under buildout year (2027) conditions and thus, would result in a *less-than-significant* impact.[1] Table 4.2-6 also indicates that most of these operational emissions are the result of the use of consumer products, architectural coatings, and mobile sources (i.e. vehicle trips associated with land uses envisioned in the Plan).

[1] Estimated emissions of area and mobile source emissions from project operations were evaluated using the URBEMIS2002 computer model. Detailed model output is provided in Appendix B.

TABLE 4.2-4 **SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS OF SIGNIFICANCE**

	Ozone Precursor Emissions			
	ROG (pounds per day)	NO_x (pounds per day)	CO	PM_{10}
Construction (short-term)	None	85	CAAQS[a]	CAAQS[a]
Operational (long-term)	65	65	CAAQS[a]	CAAQS[a]

[a] A project that may cause an exceedance of a State air quality standard, or may make a substantial contribution to an existing exceedance of an air quality standard will have a *significant* adverse air quality impact. "Substantial" is defined as making measurably worse, which is 5 percent or more of an existing exceedance of a State ambient air quality standard.
Source: Sacramento Metropolitan Air Quality Management District 2004.

TABLE 4.2-5 **SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT PARTICULATE MATTER SCREENING LEVELS FOR CONSTRUCTION PROJECTS**

Screening Level	Mitigation
5 acres and below	No mitigation required
5.1 – 8 acres	Level One Mitigation Required: Water exposed soil twice daily. Maintain 2 feet of freeboard space on haul trucks.
8.1 – 12 acres	Level Two Mitigation Required: Water exposed soil three times daily. Water soil piles three times daily. Maintain 2 feet of freeboard space on haul trucks.
12.1 – 15 acres	Level Three Mitigation Required: Keep soil moist at all times. Maintain 2 feet of freeboard space on haul trucks. Use emulsified diesel or diesel catalysts on applicable heavy-duty diesel construction equipment.

Source: Sacramento Metropolitan Air Quality Management District, 2004.

TABLE 4.2-6 **EMISSIONS OF CRITERIA POLLUTANTS FROM PROJECT OPERATIONS FOR BUILDOUT YEAR (2027) CONDITIONS FOR THE BUILDOUT OF VACANT PARCELS WITH PROPOSED LAND USES (POUNDS PER DAY)**

Buildout of Vacant Parcels With Proposed Land Uses	**ROG**	**NOX**	**CO**	**PM_{10}**
Area Source Emissions				
Natural Gas	0.3	3.9	2.0	0.0
Hearth	0.1	2.3	1.0	0.2
Landscaping	0.8	0.1	6.5	0.0
Consumer Products	16.3	–	–	–
Architectural Coatings	9.0	–	–	–
Mobile Source Emissions				
Vehicular Emissions	9.4	8.4	91.4	34.7
Total	36.0	14.6	100.8	34.9
SMAQMD Thresholds for Operations	65	65	CAAQS	CAAQS

Source: Jones and Stokes.

c. Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Carbon Monoxide (CO) pollutant levels is the focus of this subsection. An evaluation to determine whether CO hot spots would occur at roadway intersections in the vicinity of the Plan was conducted through CO dispersion modeling. The ambient air quality effects of operation-related CO emissions were evaluated using the CALINE4 dispersion model developed by the California Department of Transportation.[2]

[2] Benson, P. E., 1989. CALINE4—A dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA.

CALINE4 treats each segment of a roadway as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments. CO modeling was conducted for three conditions: (1) existing (2006) design year, (2) year 2027 with buildout, (3) year 2027 without buildout, and is summarized in Table 4.2-7. Detailed methodology of the CO analysis is provided in Appendix B.

Carbon monoxide modeling following Caltrans' CO Protocol was conducted to evaluate whether buildout under the Plan would cause or contribute to localized CO "hot spot" or violation of the State or federal ambient standard in the Plan Area vicinity.[3] CO concentrations at sensitive receptors near congested roadways and intersections were estimated using CALINE4 dispersion modeling. As indicated in Table 4.2-7, no violations of the State or federal 1- or 8-hour CO standards are anticipated in the Plan Area under future year conditions. Note that the term "project" in this instance refers to buildout of the Plan Area under the Plan.

While roadway volumes increase in future year conditions, intersection congestion and volumes are not sufficient to result in elevated CO levels. In addition, it is anticipated that vehicle emissions in future years will be lower than existing years due to continuing improvements in engine technology and the retirement of older, higher-emitting vehicles. It should be noted that the CO analysis assumed full General Plan buildout conditions, which assumes implementation of the Plan, in addition to background growth. It is anticipated that CO levels associated with the Plan would be slightly less than the values presented in this analysis, as traffic volume and congestion

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[3] Garza, V. J., P. Graney, and D. Sperling, 1997. Transportation Project Level Carbon Monoxide Protocol. December. Davis, CA.

TABLE 4.2-7 **MODELED CARBON MONOXIDE LEVELS MEASURED (IN PARTS PER MILLION) AT RECEPTORS IN THE VICINITY OF THE PLAN AREA**

		Existing[c]		2027 No Project[d]		2027 With Project[d]	
Intersection[a]	Receptor[b]	1-hour CO[d]	8-hour CO[e]	1-hour CO[d]	8-hour CO[e]	1-hour CO[d]	8-hour CO[e]
Raley Boulevard/ Bell Avenue	1	12.3	8.0	4.8	3.1	4.7	3.1
	2	12.2	7.9	4.8	3.1	4.6	3.0
	3	11.9	7.7	4.7	3.1	4.6	3.0
	4	11.9	7.7	4.7	3.1	4.6	3.0
Raley Boulevard/ I-80 WB Ramp	5	12.1	7.9	5.1	3.3	5.0	3.2
	6	12.4	8.0	5.3	3.4	5.2	3.4
	7	12.5	8.1	5.3	3.4	5.2	3.4
	8	12.2	7.9	5.2	3.4	5.0	3.2
Marysville Boulevard/ I-80 EB Ramp	9	12.2	7.9	5.2	3.4	5.2	3.4
	10	11.9	7.7	5.1	3.3	5.0	3.2
	11	11.9	7.7	5.1	3.3	5.0	3.2
	12	12.2	7.9	5.2	3.4	5.1	3.3
Winters Street/ I-80 WB Ramp	13	10.2	6.7	4.6	3.0	4.7	3.1
	14	10.2	6.7	4.6	3.0	4.7	3.1
	15	10.3	6.8	4.7	3.1	4.7	3.1
	16	10.3	6.8	4.7	3.1	4.7	3.1

[a] Receptors 1 through 16 are located 35.4 feet from the center of each intersection diagonal, 25 feet from the roadway centerline, and 3 feet from the boundary of the mixing zone.
[b] Background concentrations of 9.0 ppm and 6.0 ppm were added to the modeling 1-hour and 8-hour results, respectively.
[c] Background concentrations of 4.0 ppm and 2.6 ppm were added to the modeling 1-hour and 8-hour results, respectively.
[d] The federal and State1-hour standards are 35 and 20 ppm, respectively.
[e] The federal and State 8-hour standards are 9 and 9.0 ppm, respectively.
Source: Jones & Stokes Associates, November 2006.

impacts are greater for full General Plan buildout conditions than Plan conditions. Thus, for all the reasons stated above, the impact of Plan traffic conditions on ambient CO levels in the Plan Area is considered *less than significant*, and no mitigation is required.

d. Elevated Health Risks to New Sensitive Receptors from Airport and Vehicular Activities

A quantitative analysis of health risks associated with exposure of new sensitive receptors to airport and vehicular emissions was not conducted for this evaluation, as the exact locations of the new sensitive receptors relative to airport and roadway activities is currently unknown.

Unlike quantifying an upper-bound of emissions in an effort to be more conservative, assuming a more conservative scenario regarding the locations of sensitive receptors could result in a conclusion of health risk that is detrimental if it turns out that development does not occur at the pace or location assumed. As such, such a quantitative assessment would be a best guess that could easily conclude too high or too low of a health risk.

An evaluation of health risks performed for the John Wayne Airport (JWA) in Orange County, California found that excess lifetime cancer risks for residences in the vicinity of JWA were 27 cases of cancer in a million.[4] A threshold of 10 excess cancers in a million is typically used to determine significance for health risks. It was also found that ground support equipment (i.e. fuel delivery trucks) emissions were the primary contributors to cancer risk projections.[5] Because aircraft activity, as well as support equipment, at McClellan Field is substantially lower than for JWA, it is anticipated that health risks associated with McClellan Field activities are lower, as well.

[4] Lindberg, D., J. Castleberry, R.O. Price, n.d. *A Human Health Risk Assessment of the John Wayne and Proposed Orange County International Airports in Orange County, California.*

[5] Lindberg, D., J. Castleberry, R.O. Price, n.d. *A Human Health Risk Assessment of the John Wayne and Proposed Orange County International Airports in Orange County, California.*

However, the level to which excess health risks would occur is unknown, and, consequently, could be considered *significant*, as McClellan Field activities and their locations relative to sensitive receptors could result in elevated health risks.

In January 2007, the SMAQMD issued the *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways*.[6] This document provides a methodology for the assessment and disclosure of potential cancer risk from diesel particulate matter attributable to siting sensitive land uses adjacent to major roadways. This protocol contains screening criteria for potential cancer risks resulting from exposure to diesel exhaust from vehicles traveling on nearby major roadways (a freeway, urban roadway with greater than 100,000 vehicles/day, or rural roadway with 50,000 vehicles/day). Based on roadway volumes and receptor distance from edge of nearest travel lane, the screening criteria establishes the anticipated incremental cancer risk per million. If roadway volumes and receptor distances indicate an unacceptable level of incremental cancer risks, then a site-specific evaluation of health risks must be undertaken. Because it is currently unknown where exact locations of sensitive receptors will be located in relation to the major roadway in the Plan Area (Interstate 80), the evaluation of health risks using the SMAQMD's Protocol has not been conducted for this programmatic evaluation. However, it is anticipated that sensitive receptors could be located within proximity of Interstate 80 to result in an incremental cancer risk, per Protocol methodology. Consequently, this impact is considered *significant*.

e. Objectionable Odors

Diesel exhaust from construction activities may generate temporary odors while construction of Plan Area developments is underway. Once construction activities have been completed, these odors would cease. The Plan is not anticipated to generate any objectionable odors that would affect a substantial number of people, as the land uses proposed are not land uses typically associated with the generation of odors (e.g. com-

[6] Sacramento Metropolitan Air Quality Management District, 2007. *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways: Version 1.0.* Sacramento, CA. January.

posting, food processing, wastewater treatment, rendering, chemical plants, landfills, dairies etc.). Consequently, this impact is considered *less than significant*.

f. Increase in Greenhouse Gas Contaminant Emissions

The relatively long lifetime of primary greenhouse gases in the atmosphere results in their accumulation over time. Their impact on the atmosphere is mostly independent of the point of emission. Consequently, greenhouse gas emissions are more appropriately evaluated on a State, national, or even international scale rather than at an individual project level. The SMAQMD has not developed any significance thresholds for greenhouse gases. This is because greenhouse gases, especially carbon dioxide, do not pose any health risks at ambient concentrations. The impacts associated with greenhouse gases are long-term climatic changes, which are beyond the regulatory purview of the air district. However, automobiles are a major source of greenhouse gas emissions, and the quantity of such emissions from automobiles is directly correlated with the amount of vehicle miles traveled. As previously indicated, the SMAQMD has not established any thresholds or guidance to evaluate impacts associated with greenhouse gas emissions. Because these emissions are more appropriately evaluated on a regional, State, or even national scale rather than at a plan level, project-specific greenhouse gas emissions are considered *less than significant*, as climate change would not occur directly from estimated emissions based on buildout of the Plan.

g. Construction-Related Emissions

It is currently unknown what level of construction activities would occur with implementation of the Plan and where these activities would be located in relation to nearby sensitive receptors. Because this information is not known, quantification of emissions from construction activities is not appropriate at this time. However, Air Quality Management District regulations relevant to construction-related activities are covered below, for reference.

i. Generation of Significant Levels of Fugitive Dust Emissions from Construction Activities

Development allowed under the Plan would generate dust that could affect local and regional air quality. Dust may be generated from a variety of construction activities including grading, import/export of fill material, and vehicle travel on unpaved surfaces. Soil can also be tracked onto paved roads where it is entrained in the air by passing cars and trucks. The rate of dust emissions is related to the type and size of the disturbance, meteorological conditions and soil conditions.

The SMAQMD regulates emissions from construction activities through SMAQMD Rules 401 through 405 and their permitting process. The SMAQMD has established screening-level criteria for the assessment of significant impacts from construction-related emissions of particulate matter (fugitive dust). These screening criteria are based on a project's maximum actively disturbed area, and are summarized in Table 4.2-5. Guidance from the SMAQMD's *Guide for Air Quality Assessment in Sacramento County* indicates that construction activities that exceed the screening levels indicated in Table 4.2-5 should undergo subsequent dispersion modeling to determine if Plan Area construction activities would exceed the CAAQS for PM_{10} emissions. With the screening criteria indicated in Table 4.2-5, the SMAQMD recommends mitigation measures, which are based on the maximum area disturbed, which would reduce particulate matter emissions to a *less-than-significant* level.

It is currently unknown what level of construction activities would occur with implementation of the Plan and where these activities would be located in relation to nearby sensitive receptors. Because this information is not known, quantification of fugitive dust emissions from construction activities is not appropriate at this time. Construction activities of less than 15 acres per day are likely in the Plan Area, given the scattered location of vacant lots and low likelihood that major parcel assemblages will occur in the Plan Area for major new developments. As a result, significant levels of fugitive dust emissions are not anticipated. However, should future construction projects in the Plan Area disturb more than 15 acres per day, significant levels of construction-related fugitive dust emissions could result. Consequently, this impact is considered to be *significant*. This EIR takes the approach of specifying the appropriate control measures, based on the level of construction activity that would be required for construction projects to ensure that emissions are effectively controlled to a *less-than-significant* level.

ii. Generation of Significant Levels of Construction Exhaust Emissions from Construction Activities

Construction allowed in the Plan Area would result in the temporary generation of emissions of ROG, NOX, CO, and PM_{10} that would result in short-term impacts on ambient air quality in the Plan Area. Emissions would originate from mobile and stationary construction equipment exhaust, employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, and ROG from architectural coatings and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

As previously indicated, it is currently unknown what level of construction activities would occur with implementation of the Plan and quantification of emissions from construction activities is not appropriate at this time. However, should construction activities exceed the SMAQMD's thresholds shown in Table 4.2-4 a *significant impact* would occur. Implementation of mitigation measures identified in this section would reduce construction-related NO_X emissions to a *less-than-significant* level.

iii. Elevated Health Risk from Exposure to Construction-Related Diesel Particulate Matter

Construction activities are anticipated to involve the operation of diesel-powered equipment for various activities. In October 2000, the ARB identified diesel exhaust as a toxic air contaminant (TAC). Diesel fuel will be reformulated over the next several years to reduce particulate emissions. In addition, cleaner diesel powered equipment will replace older construction equipment, leading to an overall decrease in emissions of exhaust particulate matter and ozone precursor emissions. However, emission reductions are still needed on individual construction projects to reduce the exposure of sensitive receptors to toxic air contaminants and reduce ozone levels.

The assessment of cancer health risks associated with exposure to diesel exhaust is typically associated with chronic exposure, in which a 70-year exposure period is often assumed. However, while excess cancer can result from exposure periods of less than 70 years, acute exposure periods (i.e. exposure periods of 2 to 3 years) to diesel exhaust are not anticipated to result in an increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposure periods that are chronic in nature.

It is anticipated that construction activities associated with the individual Plan elements will be short-term and will occur over a period of several months to a year in duration, and will not result in long-term emissions of diesel exhaust in the Plan Area. Consequently, this impact is considered *less than significant*. Mitigation measures are included in this EIR to address other impacts would serve to further reduce construction emissions and minimize this impact.

2. Cumulative Impacts

Several of the air quality impacts identified above could contribute to cumulative impacts in the Plan Area, including temporary increases in construction-related emissions during construction activities, operation-related emissions from land uses envisioned in the Plan, and increased traffic volumes. The estimated construction, area source, and vehicle emissions for the Plan would be above the SMAQMD thresholds summarized above, and this condition would result in a *significant* impact. Guidance from the SMAQMD's *Guide for Air Quality Assessment in Sacramento County* (2004) indicates the following criteria for the determination of cumulative air quality impacts:

a. Ozone Precursors

Development projects are considered cumulatively *significant* if the project requires a change in the existing land use designation (i.e. General Plan amendment, rezone), and projected emissions (ROG, NOx,) of the Plan are greater than the emissions anticipated for the site if developed under the existing land use designation. If this is the case, then the emission mitigation must address the difference in the emissions allowed for the 1990 land use designation and anticipated project emissions.

b. Carbon Monoxide

In general, CO is not considered to be a regionally *significant* pollutant that would have a cumulative impact. CO project emissions are not, in most cases, considered cumulatively *significant* if the project-alone emissions are not *significant*.

c. Fine Particulate Matter, Sulfur Dioxide, Nitrogen Dioxide

A project will not be considered cumulatively *significant* for PM_{10}, SO_2, and NO_2 if:

- The project is not *significant* for project-alone emissions; and
- The project is not cumulatively *significant* for ROG, NOx, and CO based on background concentration and project concentration.

As indicated in Section 3, Project Description, the Plan will require a General Plan amendment. Analysis of emissions under full buildout of the Plan Area was conducted with the URBEMIS2002 model and results are presented in Table 4.2-8, while an analysis of emissions under full buildout of the City of Sacramento's existing General Plan designations was conducted with the URBEMIS2002 model and results are presented in Table 4.2-9.

As indicated in Tables 4.2-8 and 4.2-9, emissions under buildout of the existing General Plan are anticipated to be more than emissions under buildout of the Plan for ROG and NOx. CO and PM_{10} emissions for buildout under the existing General Plan are anticipated to be greater than emissions under buildout of the Plan due to the

TABLE 4.2-8 **EMISSIONS OF CRITERIA POLLUTANTS FROM PROJECT OPERATIONS FOR BUILDOUT YEAR (2027) CONDITIONS FOR BUILDOUT OF THE PLAN AREA (POUNDS PER DAY)**

Full Project Buildout	**ROG**	**NO_X**	**CO**	**PM_{10}**
Area Source Emissions				
Natural Gas	3.4	3.7	20.9	0.1
Hearth	1.5	25.9	11.0	2.1
Landscaping	8.7	1.1	69.7	0.2
Consumer Products	175.2	–	–	–
Architectural Coatings	105.9	–	–	–
Mobile Source Emissions				
Vehicular Emissions	77.9	63.5	704.1	265.1
Total	372.6	94.2	805.7	267.5
SMAQMD Thresholds for Operations	65	65	CAAQS	CAAQS

Source: Jones and Stokes.

prohibition of wood burning devices under buildout of the Plan, while buildout of the exiting General Plan assumed wood burning devices in compliance with SMAQMD Rule 417 would be allowed. Because emissions associated with the Plan, as shown in Table 4.2-8, are greater than emissions associated with the existing General Plan, as shown in Table 4 2-9, impacts associated with emissions of ozone precursors would be considered to be cumulatively *significant*. This EIR outlines mitigation measures to reduce the potentially *significant* impact, but not to a *less-than-significant* level, as a majority of the remaining emissions are from consumer products, which are difficult to mitigate on a large scale because they are predominantly made up of many smaller

TABLE 4.2-9 **EMISSIONS OF CRITERIA POLLUTANTS FROM PROJECT OPERATIONS FOR BUILDOUT YEAR (2027) CONDITIONS FOR EXISTING GENERAL PLAN BUILDOUT (POUNDS PER DAY)**

Existing General Plan Buildout	ROG	NO_x	CO	PM_{10}
Area Source Emissions				
Natural Gas	1.4	18.1	8.3	0.0
Hearth	47.0	53.8	431.6	73.9
Landscaping	5.3	0.7	42.3	0.1
Consumer Products	65.8	–	–	–
Architectural Coatings	87.7	–	–	–
Mobile Source Emissions				
Vehicular Emissions	71.8	56.7	635.1	239.1
Total	278.9	129.3	1,117.2	313.2
SMAQMD Thresholds for Operations	65	65	CAAQS	CAAQS

Source: Jones and Stokes.

area sources (i.e. hair sprays, deodorants, etc.). Consequently, this cumulative impact would be considered *significant and unavoidable*.

Because the SMAQMD does not consider emissions of CO to be cumulatively *significant* since they are localized pollutants of concern, CO emissions would be considered to be cumulatively *less than significant*.

The SMAQMD considers PM_{10} emissions to be cumulatively *significant* if the project emissions exceed the SMAQMD's threshold levels (shown in Table 4.2-4) and if the project would result in cumulatively *significant* emissions of CO and ozone precursors. Because the Plan satisfies these two requirements, emissions of PM_{10} emissions would be considered to be cumulatively *significant*. Because there is no mitigation available to reduce these emissions to below the SMAQMD's threshold levels, cumulative impacts associated with implementation of the Plan would be considered to be *significant and unavoidable*.

d. Increase in Greenhouse Gas Contaminant Emissions

The SMAQMD has not established any thresholds or guidance to evaluate impacts associated with greenhouse gas emissions. As previously noted, greenhouse gas contaminant emissions tend to accumulate in the atmosphere because of their relatively long lifespan. As a result, their impact on the atmosphere is mostly independent of the point of emission; greenhouse gas contaminant emissions are more appropriately evaluated on a regional, State, or even national scale than on an individual project level. The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

The IPCC predicts substantial increases in temperatures globally of between 1.1°C and 6.4°C, depending on the scenario.[7] Because it is accepted that climate change due to greenhouse gas contaminant emissions is occurring, and even small contributions may be cumulatively considerable given the seriousness of the problem, the project-related greenhouse gas contaminant emissions would result in a cumulatively significant contribution to climate change.

[7] Intergovernmental Panel on Climate Change, 2007. Climate Change 2007: The Physical Science Basis—Summary for Policymakers. (Working Group 1 Fourth Assessment Report.) February. Available: <http://www.ipcc.ch/SPM2feb07.pdf>.

E. Impacts and Mitigation Measures

While policies and other regulations would reduce impacts to air quality to the extent feasible, *significant and unavoidable* air quality impacts under the Plan are expected.

Impact AIR-1: Operational emissions associated with implementation of the Plan would exceed the SMAQMD's threshold levels. As indicated in Table 4.2-6, the predominant sources of operational emissions are from hearths (fireplaces and wood stoves), consumer products, architectural coatings, and mobile sources (i.e. vehicles trips associated with Plan Area land uses). The SMAQMD recommends the following mitigation measures to further reduce operational impacts.

Mitigation Measure AIR-1a: Install clean technology wood-burning devices. All installed burning devices shall be an EPA/DOE Energy Star labeled gas fireplaces. No wood burning fireplaces or wood stoves shall be allowed.

Mitigation Measure AIR-1b: Implement additional innovative measures to reduce operational air quality impacts. There are a number of measures the SMAQMD recommends that can be incorporated into the design/operation of land uses in the Plan Area to provide additional reductions in the overall level of emissions. These measures include, but are not limited to, the measures identified in Table 4.2-10. (Note: some of the measures may already exist as City of Sacramento development standards. Any measures selected should be implemented to the fullest extent possible.)

Significance After Mitigation. While the above mitigation measures would help to reduce impacts, they would not readily mitigate potential emissions below SMAQMD threshold levels. Consequently, this impact is considered *significant and unavoidable.*

TABLE 4.2-10 **SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT RECOMMENDED OPERATIONAL MITIGATION MEASURES**

#	Description	Emission Reduction Factor[a]
Bicycle/Pedestrian/Transit Measures		
1	Non-residential projects provide plentiful short-term and long-term bicycle parking facilities to meet peak season maximum demand.	0.625
2	Non-residential projects provide "end-of-trip" facilities including showers, lockers, and changing space.	0.625
3	Long-term bicycle parking is provided at apartment complexes or condominiums without garages.	0.625
4	Entire project is located within ½-mile of an existing Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing off-site facility.	0.625
5	The project provides a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the project site.	1.0
6	Site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that impede bicycle or pedestrian circulation are eliminated.	1.0
7	Bus or streetcar service provides headways of one hour or less for stops within ¼-mile; project provides safe and convenient bicycle/pedestrian access to transit stop(s) and provides essential transit stop improvements (i.e. shelters, route information, benches, and lighting).	0.5
8	Project provides transit stops with safe and convenient bicycle/pedestrian access. Project provides essential transit stop improvements (i.e. shelters, route information, benches, and lighting) in anticipation of future transit service.	0.25
9	Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming features.	0.25-1.0
Parking Measures		
10a	Employee and/or customer paid parking system.	1.0-7.2
10b	Employer provides employees with a choice of forgoing subsidized parking for a cash payment equivalent to the cost of the parking space to the employer.	0.6-4.5
11	Provide minimum amount of parking required. Special review of parking required.	0.1-6.0

TABLE 4.2-10 **SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT RECOMMENDED OPERATIONAL MITIGATION MEASURES** (CONTINUED)

#	Description	Emission Reduction Factor[a]
12	Provide parking reduction less than code. Special review of parking required. Recommend a shared parking strategy.	0.1-12
13	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances.	0.5
14	Parking facilities are not adjacent to street frontage.	0.1-1.5
Site Design Measures		
15	Project provides high density office or mixed-use proximate to transit.	0.1-2.0
16	Project is oriented towards existing transit, bicycle, or pedestrian corridor. Setback distance is minimized.	0.5
17	Project is oriented towards planned transit, bicycle, or pedestrian corridor. Setback distance is minimized.	0.25
18	Project provides high-density residential development.	1.0-12
19	Multiple and direct street routing (grid style).	1.0
20	Make physical development consistent with requirements for neighborhood electric vehicles.	0.5-1.5
21	Residential development projects of five or more dwelling units provide a deed-restricted low-income housing component on-site (as defined in Chapter 22.35 of Sacramento County Ordinance Code). [Developers who pay into In-Lieu Fee Programs are not considered eligible to receive credit for this measure.]	0.6-4.0
Mixed Use Measures		
22	Development of projects predominantly characterized by properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with functional interrelationships and a coherent physical design.	3.0-9.0
23	Have at least three of the following on site and/or off-site within ¼ mile: residential development, retail development, park, open space, or office.	3.0
24	All residential units are within ¼ mile of parks, schools or other civic uses.	1.0
Building Component Measures		
25	Project does not feature fireplaces or wood burning stoves.	1.0

TABLE 4.2-10 **SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT RECOMMENDED OPERATIONAL MITIGATION MEASURES** (CONTINUED)

#	Description	Emission Reduction Factor[a]
26	Install ozone destruction catalyst on air conditioning systems.	1.25
27	Install Energy Star labeled roof materials.	0.5-1.0
28	Project provides on-site renewable energy system(s).	1.0-3.0
29	Project exceeds Title 24 requirements by 20%.	1.0
30	Orient 75 or more percent of homes and/or buildings to face either north or south (within 30 degrees of north-south).	0.5
31	Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas have a minimum albedo of .3 or greater.	1.0
32	Install a vegetated roof that covers at least 50% of roof area.	0.5
Transportation Demand Management (TDM) and Miscellaneous Measures		
33	Include permanent Transportation Management Association membership and funding requirement. Funding to be provided by Community Facilities District or County Service Area or other non-revocable funding mechanism.	5.0
34	Provide a complimentary electric lawnmower to each residential buyer.	1.0
99	Other proposed strategies, in consultation with project lead agency and SMAQMD.	To Be Determined

[a] Emission reduction factor is a term used by the Sacramento Metropolitan Air Quality Management District. It refers to the percentage emission reduction. For example, the first operational mitigation measure listed in this table, "Non-residential projects provide plentiful short-term and long-term bicycle parking facilities to meet peak season maximum demand", has an emission reduction factor of 0.625. This mitigation measure will reduce total operational emissions by 0.625 percent.
Source: Sacramento Metropolitan Air Quality Management District, 2004.

Impact AIR-2: Construction activities could generate PM_{10} emissions in excess of SMAQMD threshold levels.

Mitigation Measure AIR-2: Implement PM_{10} control measures. All construction documents shall ensure that the following measures are implemented during all phases of construction and demolition activities for development in the Plan Area.

- No more than 15 acres of the Plan Area shall be graded in any one day.
- Demolition contractors shall ensure that all exterior surfaces of buildings are wetted during building demolition activities. The material from any building demolition shall be completely wetted during any period when the material is being disturbed, such as during the removal from the construction site.
- All piles of demolished material shall be wetted and covered until removed from the site.
- Maintain 2 feet of freeboard space on haul trucks.
- All operations shall expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry brushes is expressly prohibited.
- Wheel washers for exiting trucks shall be installed or the wheels of all trucks and equipment leaving the site shall be washed off.
- Water all exposed soil with sufficient frequency as to maintain soil moistness.

Significance After Mitigation. Implementation of these mitigation measures during construction activities would reduce potentially *significant* impacts to a *less-than-significant* level.

Impact AIR-3: Implementation of the Plan could result in significant health risks resulting from exposure of new sensitive receptors to aircraft and vehicular emissions. The following mitigation measures would help to reduce this impact.

TABLE 4.2-11 **SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT PARTICULATE MATTER SCREENING LEVELS FOR CONSTRUCTION PROJECTS**

Source	Mitigation Measure	Effectiveness
Soil Piles	Enclose, cover or water twice daily all soil piles	16 percent
	Automatic sprinkler system installed on all soil piles	39 percent
Exposed Surface/ Grading	Water all exposed soil twice daily	37 percent
	Water exposed soil with adequate frequency for continued moist soil	75 percent
Truck Hauling Road	Water all haul roads twice daily	3 percent
	Pave all haul roads	7 percent
Truck Hauling Load	Maintain at least 2 feet of freeboard	1 percent
	Cover load of all haul/dump trucks securely	2 percent
Reporting	Designate a dust complaint coordinator who will be responsible for responding to complaints regarding dust. The coordinator will determine the cause of the complaint and will ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the dust complaint coordinator will be conspicuously posted on construction site fences and will be included in the written notification of the construction schedule sent to nearby residents.	NA

Source: Sacramento Metropolitan Air Quality Management District, 2004.

Mitigation Measure AIR-3a: Site future sensitive receptors as far as possible from major roads and McClellan Field. Such receptors should be sited in accordance with the SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways,* and as far as possible from McClellan Field.

Significance After Mitigation. As noted above, the level to which excess health risks would occur is unknown, and, consequently, could be considered significant, as McClellan Field activities and their locations relative to sensitive receptors could result in elevated health risks. In addition, it is currently unknown where exact locations of sensitive receptors will be located in relation to the major roadway in the Plan Area. However, if sensitive receptors are located too close to major roadways and McClellan Field, implementation of the Plan could be considered *significant and unavoidable*.

Impact AIR-4: Construction activities could generate NO_X emissions in excess of SMAQMD threshold levels.

Mitigation Measure AIR-4a: Reduce NO_X emissions from off-road diesel-powered equipment. Construction plans for future developments in the Plan Area shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, 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 time of construction.[8]

A comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project, shall be submitted to the lead agency and SMAQMD. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the construction project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48

[8] Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

hours prior to the use of subject heavy-duty off-road equipment, the appropriate representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

Mitigation Measure AIR-4b: Equip construction equipment with a Level 3 California Air Resources Board-verified diesel emission control system. The following measure shall be incorporated into construction documents as recommended by the SMAQMD: All applicable pieces (at least one piece) of diesel equipment used on a construction site during the demolition, earthmoving, and clearing stages of construction shall be fitted with a level 3 California Air Resources Board-verified diesel emission control system. Prior to the issuance of a demolition or grading permit, the construction contractor and/or applicant shall submit to SMAQMD and City of Sacramento a certified list of the non-road diesel powered construction equipment that will be retrofitted with emission control devices. For each non-road diesel powered piece of construction equipment that will *not* be retrofitted, the construction representative shall provide an explanation detailing why such measures are not employed. The list shall include: (1) the equipment number, type, make, and contractor/sub-contractor name; and (2) the emission control device make, model and EPA or CARB verification number. If any diesel powered non-road construction equipment is found to be in non-compliance with this specification, the contractor will be issued a Notice of Non-Compliance and given a 24-hour period in which to bring the equipment into compliance or remove it from the project.

Mitigation Measure AIR-4c: Control visible emissions from off-road diesel-powered equipment. Construction documents for future developments in the Plan Area shall ensure that emissions from all off-road diesel-powered equipment used on the construction site do not exceed 40 percent opacity for more than

3 minutes in any 1 hour.[9] Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or State rules or regulations.

Mitigation Measure AIR-4d: Contribute off-site mitigation fees to the SMAQMD. If control measures contained in Mitigation Measures AIR-4a through AIR-4c are not sufficient to reduce mitigated construction emissions below SMAQMD threshold levels, as shown in Table 4.2-4, future construction representatives shall ensure that off-site mitigation fees are paid to the SMAQMD for construction-related NOx emissions in excess of the SMAQMD's NOx threshold.

Significance After Mitigation. As previously indicated, it is currently unknown what level of construction activities would occur with implementation of the Plan, and quantification of construction emissions and off-site mitigation fees at this time is not appropriate. However, when an individual project in the Plan Area is to be developed, the environmental impacts associated with the project will be assessed and disclosed in the environmental documentation prepared for that project and emissions will be quantified in the future environmental documentation. If those emissions exceed significance thresholds, then the appropriate off-site mitiga-

[9] Opacity is the measurement of how much an emissions plume blocks the visibility of objects located on the opposite site of the plume from the viewer. For example, a plume with a 50% opacity means that an object is only 50% visible when viewed through the plume.

tion fees will need to be paid to the SMAQMD. Those fees would be necessary to reduce construction-related emissions of NOx to a *less than significant* level.

Impact AIR-5: Construction activities would generate emissions of diesel particulate matter, which has been identified as a TAC by the ARB. Although this impact is considered *less than significant* due to the temporary nature of construction activities, Mitigation Measures AIR-4a through AIR-4d, which are designed to address other impacts, would further reduce construction emissions and minimize this impact.

Mitigation Measure AIR-5a: Reduce NOx emissions from off-road, diesel-powered equipment (see Mitigation Measure AIR-4a).

Mitigation Measure AIR-5b: Equip construction equipment with a Level 3 California Air Resources Board-verified diesel emission control system (see Mitigation Measure AIR-4b).

Mitigation Measure AIR-5c: Control visible emissions from off-road, diesel-powered equipment (see Mitigation Measure AIR-4c).

Significance After Mitigation. As noted above, this impact is already considered *less than significant* and implementation of these mitigation measures during construction activities would further minimize this impact.

Impact AIR-6: Because emissions of ozone precursors and PM_{10} associated with buildout of the Plan are greater than emissions associated with the existing General Plan, impacts associated with these emissions would be considered to be *cumulatively significant*. Despite the implementation of Mitigation Measures AIR-1a and AIR-1b that would help to reduce such emissions, there is no mitigation available to reduce these emissions to below the SMAQMD's threshold levels. In addition, because it is accepted that climate change due to greenhouse gas contaminant emissions is occurring, and even small contributions may be cumulatively considerable given the seriousness of the problem, greenhouse gas contaminant emissions associated with future projects in the Plan Area would result in a cumulatively significant contribution to climate change.

Thus, cumulative impacts associated with implementation of the Plan would be considered *significant and unavoidable*.

4.3 BIOLOGICAL RESOURCES

This section provides information on biological resources that have the potential to occur or are known to occur in the Plan Area. For the purpose of this EIR, biological resources include vegetation, wildlife, and waters of the United States, including adjacent wetlands and isolated wetlands. The Plan Area does not contain any streams or other water bodies that would provide suitable habitat for fish species; therefore, these resources are not described in this section.

This section is primarily based on a review of existing and available information and reconnaissance-level surveys of the Plan Area. Because of limited property access, no pedestrian or protocol-level biological surveys have been conducted to support preparation of this section; however, protocol-level surveys to document the presence or absence of sensitive species are recommended and discussed in the Impact Discussion Analysis portion of the section.

A. Regulatory Framework

This subsection describes the federal, State, and local plans, policies, and laws relevant to biological resources in the Plan Area.

1. Federal Laws and Regulations

Biological resources are regulated at the federal level, in part, by the Endangered Species Act, the Migratory Bird Treaty Act and the Clean Water Act.

a. Endangered Species Act

The federal Endangered Species Act (ESA) protects fish and wildlife species and their habitats that have been identified by U.S. Fish and Wildlife Service (USFWS) 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 those likely to become endangered in the near future.

The ESA is administered by USFWS. Provisions of Sections 7, 9, and 10 of the ESA are relevant to this analysis are summarized below.

i. Section 7: Endangered Species Act Authorization Process for Federal Actions

Section 7 provides a means for authorizing *take* of threatened and endangered species by federal agencies. Take, as defined by ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." It applies to actions that are conducted, permitted, or funded by a federal agency. Under Section 7, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult with USFWS, as appropriate, to ensure the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed action "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, USFWS issues a biological opinion, with a determination that the proposed action either:

- ♦ May jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding), or
- ♦ Will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in no adverse modification of critical habitat (no adverse modification finding).

The biological opinion may stipulate discretionary, "reasonable and prudent" alternatives. If the proposed action would not jeopardize a listed species, USFWS issues an incidental take statement to authorize the Plan.

If future development activities in the Plan Area would result in potential adverse effects on valley elderberry longhorn beetle (VELB), vernal pool fairy shrimp, or any other federally listed species identified during future project-specific surveys, future developers would be required to submit a biological assessment to USFWS, in compliance with Section 7 (16 U.S. Government Code [USC] 1536).

ii. Section 9: Endangered Species Act Prohibitions

Section 9 prohibits the take of any wildlife species federally listed as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations.[1] The term *take* was previously defined. *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

iii. Section 10: Endangered Species Act Authorization Process for Non-Federal Actions (Section 10)

Until 1982, state, local, and private entities had no means to acquire incidental take authorization as federal agencies could under Section 7. Private landowners and local and state agencies risked being in direct violation of the ESA no matter how carefully their projects were implemented. This statutory dilemma led Congress to amend Section 10 of the ESA in 1982 to authorize the issuance of an incidental take permit to non-federal project proponents upon completion of an approved conservation plan. The term *conservation plan* has evolved into *habitat conservation plan (HCP).*

Prior to the approval of an HCP, USFWS and/or NOAA Fisheries are required to undertake an *internal* Section 7 consultation because issuance of an incidental take permit is a federal action. (See the discussion of ESA Section 7, above.) Elements specific to the Section 7 process that are not required under the Section 10 process (e.g. analysis of impacts on designated critical habitat, analysis of impacts on listed plant

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[1] In some cases, exceptions may be made for threatened species under Section 4[d]. In such cases, USFWS or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) issues a "4[d] rule" describing protections for the threatened species and specifying the circumstances under which take is allowed.

species, and analysis of indirect and cumulative impacts on listed species) are required to meet the requirements of Section 7.

If isolated wetlands in the Plan Area are found to support habitat for federally listed species and are not subject to Section 7 of the federal ESA, then future developers in the Plan Area would be required to obtain compliance with the federal ESA through the Section 10 process and would likely be required to prepare an HCP.

b. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union 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 (16 USC 703; 50 CFR 21; 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of MBTA. Examples of permitted actions that do not violate MBTA are the possession of a hunting license to pursue specific gamebirds, legitimate research activities, display in zoological gardens, bird-banding, and other similar activities. USFWS is responsible for overseeing compliance with MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

Executive Order 13186 (January 10, 2001) directs each federal agency taking actions having or likely to have a negative impact on migratory bird populations to work with USFWS to develop a memorandum of understanding (MOU) that will promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities:

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance habitat of migratory birds, as practicable.

- ♦ Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The executive order is designed to assist federal agencies in their efforts to comply with MBTA and does not constitute any legal authorization to take migratory birds.

c. Clean Water Act (CWA)

The Clean Water Act serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

- ♦ **Section 404: Permits for Fill Placement in Waters and Wetlands.** As described previously, a Section 404 permit may not be required because the U.S. Army Corp of Engineers (USACE) may determine that the seasonal wetlands are isolated and therefore not jurisdictional. Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including:
  - areas within the ordinary high-water mark (OHWM) 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; and
  - seasonal and perennial wetlands, including coastal wetlands.
- ♦ **Section 402: Permits for Stormwater Discharge.** Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program administered by EPA.
- ♦ **Section 401: Water Quality Certification.** If a Section 404 permit is not required, then developers in the Plan Area would not be required to comply with Section 401 of the Clean Water Act. Under Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the State in which the discharge would originate, or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the

discharge would originate. Therefore, all projects that have a federal component and may affect State water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with Section 401.

2. State Laws and Regulations

The most relevant State laws regulating biological resources are the California Endangered Species Act and the California Fish and Game Code, each of which is described below.

a. California Endangered Species Act

The California Endangered Species Act (CESA) states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. However, CESA also allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats.

b. California Fish and Game Code

The California Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Fully protected birds are protected under Section 3511 of the California Fish and Game Code which 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.

Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5. Under the provisions of these sections, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, or to take, possess, or destroy any birds of prey or their nest or eggs.

3. Local Regulations and Policies

The following is a discussion of the local regulations and policies that pertain to biological resources in the Plan Area.

a. City of Sacramento General Plan Policies

The City of Sacramento General Plan[2] contains measures to retain the riparian woodlands and grassland vegetation along the waterways and floodways of North Natomas and South Sacramento (Goal B under "Preservation of Natural Resources" in the Conservation and Open Space Element). The following policies relate to these goals:

- **Policy 1.** Protect the wooded areas along the waterways and drainage canals insofar as possible.
- **Policy 2.** Explore ways to conserve a modified floodplain environment along Laguna Creek in South Sacramento to the extent feasible.

The City of Sacramento General Plan recommends implementing the following policy to protect special-status species (Goal C under "Preservation of Natural Resources"):

- **Policy 1.** Retain the habitat areas where endangered wildlife species are known to exist, to the extent feasible.

b. City of Sacramento Heritage Tree Ordinance

The City's Heritage Tree Ordinance is found in the Municipal Code, Title 12, "Streets, Sidewalks, and Public Places," Chapter 12.64, "Heritage Trees." A "heritage tree" is defined in the ordinance as:

[2] City of Sacramento, 1988.

- Any tree or any species with a trunk circumference of one hundred (100) inches or more, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species;
- Any native *Quercus* species, *Aesculus California* or *Platanus racemosa*, having a circumference of thirty six (36) inches or greater when a single trunk, or a cumulative circumference of thirty-six (36) inches or greater when a multi-trunk;
- Any tree thirty-six (36) inches in circumference or greater in a riparian zone (measured from the center line of the watercourse to thirty (30) feet beyond the high water line); or
- Any tree, grove of trees, or woodland trees designated by resolution of the City Council to be of special historical or environmental value or of significant community benefit.

The ordinance states that, during construction activity on any property on which a heritage tree is located, unless the express written permission of the Director of the Parks and Recreation Department is first obtained, no person shall:

- Change the amount of irrigation provided to any heritage tree from that which was provided prior to the commencement of construction activity;
- Trench, grade, or pave into the dripline area of a heritage tree;
- Change, by more than two (2) feet, grade elevations within thirty (30) feet of the dripline area of a heritage tree;
- Park or operate any motor vehicle within the dripline area of any heritage tree;
- Place or store any equipment or construction materials within the dripline area of any heritage tree;
- Attach any signs, ropes, cables or any other items to any heritage tree;
- Cut or trim any branch of a heritage tree for temporary construction purposes; or

♦ Place or allow to flow into or over the dripline area of any heritage tree any oil, fuel, concrete mix or other deleterious substance.

B. Existing Setting

This section provides an overview of the biological communities and special-status species documented or identified as having potential to occur in the Plan Area, as well as the methods used to identify them.

1. Methodology

Existing biological conditions were evaluated by a biological team, consisting of a wildlife biologist and a botanist/wetlands ecologist. The methods used by this team to identify biological resources in the Plan Area included a review of existing information as part of a pre-field investigation, and reconnaissance-level field surveys. Each of these elements is described below.

a. Pre-Field Investigation

Prior to conducting the reconnaissance-level field surveys, the biological team reviewed existing resource information related to the Plan Area to evaluate whether special-status species or their habitats could occur in the Plan Area or surrounding region. Pertinent sources reviewed included the following.

♦ Verona, Pleasant Grove, Roseville, Taylor Monument, Rio Linda, Citrus Heights, Folsom, Sacramento West, Sacramento East, Carmichael, and Buffalo Creek U.S. Geological Survey (USGS) 7.5-minute quadrangles (California Natural Diversity Database 2006).

♦ California Native Plant Society (CNPS) 2006 online *Inventory of Rare and Endangered Plants of California*.

♦ USFWS species list for Sacramento County.

- Final Natomas Basin Habitat Conservation Plan (NBHCP) (City of Sacramento 2003).
- NBHCP monitoring reports prepared for the Natomas Basin Conservancy.
- Initial Study/Mitigated Negative Declaration for the Winters Business Park (City of Sacramento 2004.
- McClellan Air Force Base (AFB) Final Reuse Plan, Draft Supplemental Environmental Impact Report (SEIR) (July 2002).
- City of Sacramento General Plan Update Draft Environmental Impact Report (DEIR) (1987).

This information was used to develop lists of special-status species and other sensitive biological resources that could be present in the Plan Area. Species were included in these lists if they were known to occur within 10 miles of the Plan Area and/or if their habitats could be located in the Plan Area. Special-status plant and wildlife species identified as having potential to occur in the Plan Area region are identified in Tables 4.3-1 and 4.3-2, respectively. Figure 4.3-1 shows the species that have been identified in the California Natural Diversity Database (CNDDB) as occurring within 10 miles of the Plan Area.

b. Reconnaissance Field Surveys

The biological team conducted reconnaissance-level field surveys to support the analysis contained in this section by driving and periodically stopping throughout the Plan Area on December 2, 2004, January 11, 2005, and February 20, 2007. The biological team remained on the roads and sidewalks and viewed each of the undeveloped properties from the perimeters. The general purpose of the field reconnaissance surveys was to:

- Characterize biological communities and their associated wildlife habitat uses;
- Determine whether suitable habitat exists for common and special-status wildlife species;

TABLE 4.3-1 **SPECIAL-STATUS PLANTS DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA**

Common Name	*Scientific Name*	Legal Status[a]			Geographic Distribution	Habitat Requirements	Blooming Period	Potential to Occur in the Plan Area[b]
		Federal	State	CNPS				
Succulent owl's-clover	*Castilleja campestris* ssp. *succulenta*	T	E	1B	Southern Sierra Nevada foothills, eastern San Joaquin Valley—Fresno, Madera, Merced, Mariposa, San Joaquin, and Stanislaus Counties	Vernal pools (often acidic soils)	April–May	Low; no suitable habitat present in the Plan Area
Hispid bird's-beak	*Cordylanthus mollis* ssp. *hispidus*	–	–	1B	Central Valley—Alameda, Kern, Merced, Placer, and Solano Counties	Meadow, grassland, playa, on alkaline soils, below 500 feet asl	June–September	Low; no suitable habitat present in the Plan Area
Dwarf downingia	*Downingia pusilla*	–	–	2	California's Central Valley and South America	Vernal pools and mesic valley and foothill grasslands, 1,500 feet asl	March–May	Low; no suitable habitat present in the Plan Area
Adobe-lily	*Fritillaria pluriflora*	–	–	1B	Northern Sierra Nevada foothills, inner Coast Range foothills, Sacramento Valley—Butte, Colusa, Glenn, Lake, Napa, Plumas, Solano, Tehama, and Yolo Counties	Adobe soil, chaparral, woodland, valley and foothill grassland	February–April	Low; no suitable habitat present in the Plan Area
Bogg's Lake hedge-hyssop	*Gratiola heterosepala*	–	E	1B	Inner north Coast Ranges, Central Sierra Nevada foothills, Sacramento Valley, and Modoc Plateau—Fresno, Lake, Lassen, Madera, Modoc, Placer, Sacramento, Shasta, San Joaquin, Solano, and Tehama Counties	Clay soils in areas of shallow water, lake margins and vernal pool margins	April–June	Low; no suitable habitat present in the Plan Area
Rose-mallow, a.k.a. California hibiscus	*Hibiscus lasiocarpus*	–	–	2	Central and southern Sacramento Valley, deltaic central valley—Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties	Wet banks, freshwater marshes, generally below 135 feet asl	August–September	Low; no suitable habitat present in the Plan Area
Ahartt's dwarf rush	*Juncus leiospermus* var. *ahartii*	–	–	1B	Eastern Sacramento Valley, northeastern San Joaquin Valley—Butte, Calaveras, Placer, Sacramento, and Yuba Counties	Vernal pool margins, 100–330 feet asl	March–May	Low; no suitable habitat present in the Plan Area
Legenere	*Legenere limosa*	–	–	1B	Primarily located in the lower Sacramento Valley, also from north Coast Ranges, northern San Joaquin Valley, and the Santa Cruz	Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and river banks,	May–June	Low; no suitable habitat present in the Plan Area

TABLE 4.3-1 **SPECIAL-STATUS PLANTS DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA** (CONTINUED)

Common Name	*Scientific Name*	Legal Status[a] Fed-eral	Stat e	CNP S	Geographic Distribution	Habitat Requirements	Blooming Period	Potential to Occur in the Plan Area[b]
					Mountains.	below 500 feet asl		
Mason's lilaeopsis	*Lilaeopsis masonii*	–	R	1B	Southern Sacramento Valley, Sacramento–San Joaquin River Delta, northeast San Francisco Bay Area—Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, and Solano Counties	Freshwater and intertidal marshes, streambanks in riparian scrub, generally at sea level	April–October	Low; no suitable habitat present in the Plan Area
Pincushion navarretia	*Navarretia myersii* a.k.a. *N.m.*ssp. *m.*	–	–	1B	Central Valley and Amador, Lake, Merced, and Sacramento Counties	Edges of vernal pools; 60–300 feet asl	May	Low; no suitable habitat present in the Plan Area
Colusa grass	*Neostapfia colusana*	T	E	1B	Central Valley—Merced, Solano, Stanislaus, and Yolo Counties	Adobe soils of vernal pools, generally below 650 feet asl	May–September	Low; no suitable habitat present in the Plan Area
Slender Orcutt grass	*Orcuttia tenuis*	T	E	1B	Lassen, Plumas, Tehama, Siskiyou, Lake, and Sacramento Counties	Vernal pools (on high-terrace Laguna formation in Sacramento County)	May–October	Low; no suitable habitat present in the Plan Area
Sacramento Orcutt grass	*Orcuttia viscida*	E	E	1B	Endemic to Sacramento County	Vernal pools below 330 feet asl	May–July	Low; no suitable habitat present in the Plan Area
Sanford's arrowhead	*Sagittaria sanfordii*	–	–	1B	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving water habitats, below 1,000 feet asl	May–August	Low; no suitable habitat present in the Plan Area
Crampton's tuctoria	*Tuctoria mucronata*	E	E	1B	Southwestern Sacramento Valley—Solano and Yolo Counties	Mesic grassland, vernal pools, below 500 feet asl	April–July	Low; no suitable habitat present in the Plan Area

Notes: asl = above sea level
CNPS = California Native Plant Society

[a] Status Explanations: – = no listing

Federal:

TABLE 4.3-1 **SPECIAL-STATUS PLANTS DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA** (CONTINUED)

Common Name	*Scientific Name*	Legal Status[a] Federal	Legal Status[a] State	Legal Status[a] CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	Potential to Occur in the Plan Area[b]

E = listed as endangered under the federal Endangered Species Act
T = listed as threatened under the federal Endangered Species Act.

State:
E = listed as endangered 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.
California Native Plant Society:
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.
[b] Likelihood to Occur in the Plan Area is based on the following definitions:
High: California Natural Diversity Database, or other documents, records the known occurrence of the plant in the region or Plan Area vicinity. Suitable habitat conditions and suitable microhabitat conditions are present.
Moderate: California Natural Diversity Database, or other documents, records the known occurrence of the plant in the region or Plan Area vicinity. Suitable habitat conditions are present but suitable microhabitat conditions are not.
Low: California Natural Diversity Database, or other documents, does not record occurrence of the plant in the region or Plan Area vicinity. Habitat conditions are of poor quality.

TABLE 4.3-2 **SPECIAL-STATUS WILDLIFE SPECIES DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA**

Common Name	*Scientific Name*	Status[a] Federal	Status[a] State	California Distribution	Habitats	Potential to Occur in the Plan Area
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	–	Streamside habitats below 3,000 feet asl throughout the Central Valley.	Riparian and oak savanna habitats with elderberry shrubs; elderberry shrub is host plant.	Moderate-High; VELB are known to occur in the Plan Area region. No elderberry shrubs were observed during the field visits but could occur in undeveloped portions of the Plan Area.
Vernal pool tadpole shrimp	*Lepidrurus packardi*	E	–	Shasta County south to Merced County.	Vernal pools and seasonal wetlands.	Moderate-High; potential to occur in seasonal wetlands in the Plan Area.
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.	Vernal pools and seasonal wetlands.	Moderate-High; potential to occur in seasonal wetlands in the Plan Area.
California linderiella	*Linderiella occidentalis*	–	SSC	Ranges from near Redding in the north to as far south as Fresno County. Also occurs along the coast from Willits in the north to Ventura and Santa Barbara Counties in the south.	Vernal pools and seasonal wetlands.	Moderate-High; potential to occur in seasonal wetlands in the Plan Area.
Western spadefoot	*Scaphiopus hammondi*	–	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.	Moderate; potential to occur in seasonal wetlands in the Plan Area.

TABLE 4.3-2 **SPECIAL-STATUS WILDLIFE SPECIES DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA** (CONTINUED)

		Status[a]				
Common Name	***Scientific Name***	**Federal**	**State**	**California Distribution**	**Habitats**	**Potential to Occur in the Plan Area**
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 waterways 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.	Low; no suitable habitat in Plan Area.
Western pond turtle	*Clemmys marmorata*	SC	SSC	Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts.	Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food.	Low; no suitable habitat in Plan Area.
Great egret Great blue heron	*Ardea alba* *Ardea herodias*	–	SSC	Found throughout California except at high elevations.	Both species occur near a variety of wetland habitats. Form colonial rookeries in dense stands of tall trees.	Low; no suitable habitat in Plan Area.
Bank Swallow		–	T	Occurs along the Sacramento River from Tahama 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.	Low; no suitable habitat in Plan Area.

TABLE 4.3-2 **SPECIAL-STATUS WILDLIFE SPECIES DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA** (CONTINUED)

		Status[a]				
Common Name	***Scientific Name***	**Federal**	**State**	**California Distribution**	**Habitats**	**Potential to Occur in the Plan Area**
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. Isolated, local populations in southern California.	Nests in cavities in cliffs, under bridges, or similar structures.	Low; although there is a nearby known occurrence for purple martin along I-80 (CNDDB 2004); there is no suitable habitat for this species in the Plan Area.
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, cottonwoods and other native and non-native trees in riparian habitats, tree rows, lone trees. Forages in grasslands, irrigated pastures, and grain, hay, and row crops.	Moderate-High; known nest sites along the Sacramento River and elsewhere throughout much of the Plan Area region. Potential foraging habitat in the non-native annual grasslands in the Plan Area.
Cooper's hawk	*Accipiter cooperii*	–	SSC	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 digger pine-oak woodlands through mixed conifer forests.	Moderate; rare nester in the Plan Aera vicinity. Potential foraging habitat in non-native annual grasslands in the Plan Area.
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.	Moderate-High; potential foraging habitat in non-native annual grasslands in the Plan Area. No suitable nesting habitat.
Western burrowing owl	*Athene cunicularia hypugea*	SC	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.	Moderate-High; records of occupied burrows less than 1 mile south of the Plan Area. Potential nesting and foraging habitat in Plan Area.

TABLE 4.3-2 **SPECIAL-STATUS WILDLIFE SPECIES DOCUMENTED OR IDENTIFIED AS POTENTIALLY OCCURRING IN THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN AREA** (CONTINUED)

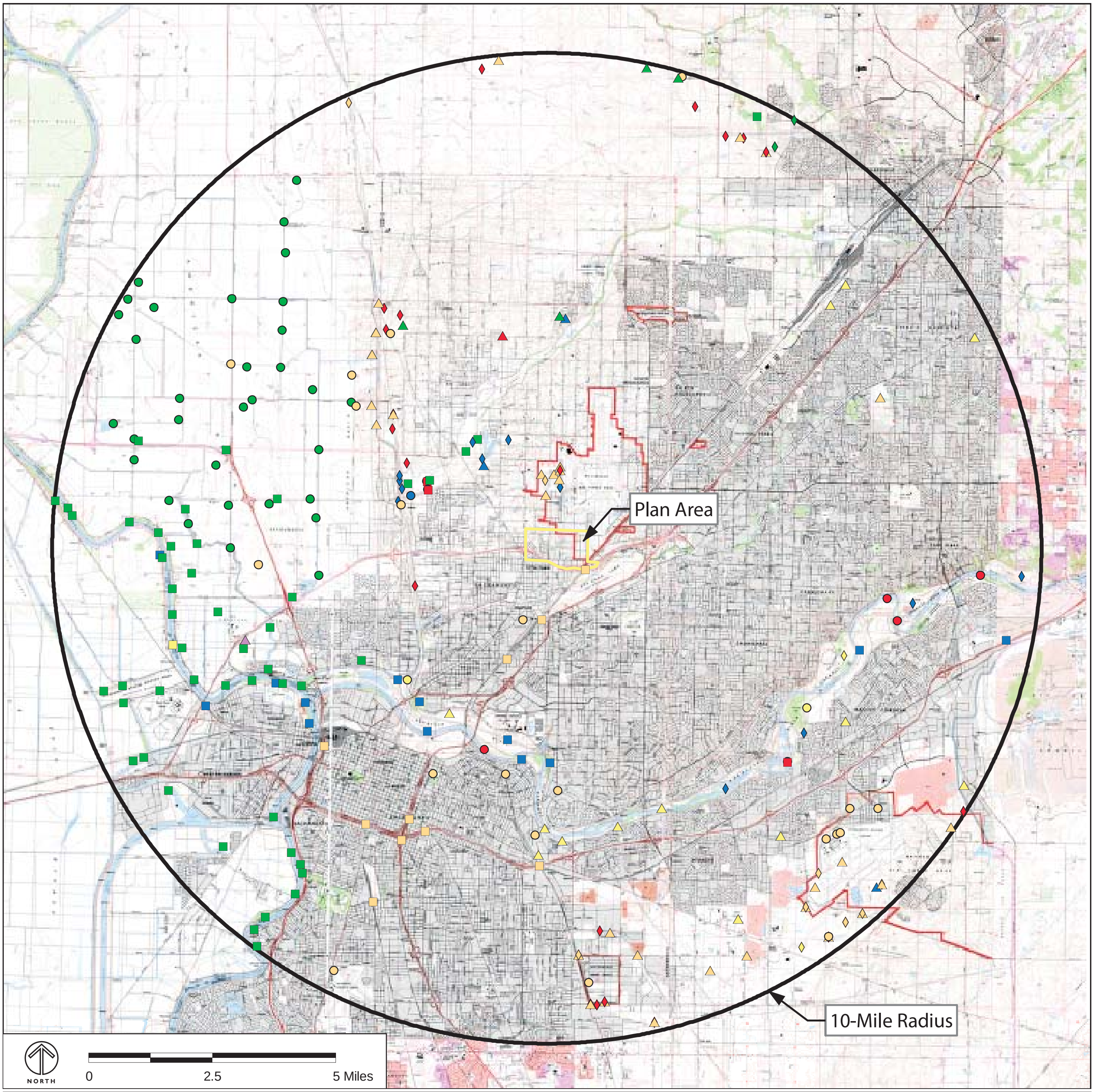
Common Name	Scientific Name	Status[a] Federal	Status[a] State	California Distribution	Habitats	Potential to Occur in the Plan Area
Loggerhead shrike	*Lanius ludovicianus*	–	SSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter.	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Moderate; potential habitat in the Plan Area.
Tricolored blackbird	*Agelaius tricolor*	SC	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 grain fields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	Low; no suitable nesting and only marginally suitable foraging habitat in annual grasslands in the Plan Area.

Note: asl stands for "above sea level".

[a] Status explanations: "–" means "no status".

Federal:
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
T = listed as threatened under the federal Endangered Species Act.
E = listed as endangered under the federal Endangered Species Act.

State:
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
T = listed as threatened under the California Endangered Species Act.



Source: CNDDB, 2004

- bank swallow
- burrowing owl
- Cooper's hawk
- giant garter snake
- great blue heron
- great egret
- purple martin
- Sacramento splittail
- Swainson's hawk
- valley elderberry longhorn beetle
- vernal pool fairy shrimp
- vernal pool tadpole shrimp
- western pond turtle
- western spadefoot
- white-tailed kite
- Boggs lake Hedge-hyssop
- California linderiella
- Sanford's arrowhead
- dwarf downingia
- legenere
- rose-mallow

FIGURE 4.3-1

SPECIAL STATUS SPECIES WITHIN TEN MILES OF THE PLAN AREA

- ♦ Determine whether the Plan Area contains suitable habitat for special-status plants; and
- ♦ Generally identify areas that may qualify as potential waters of the United States or waters of the State.

2. Definitions

Methods and terms used to document special-status species and waters of the United States, including wetlands, are described below.

a. Special-Status Species

Special-status species are plants, animals, and fish species that are legally protected under the ESA, CESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include:

- ♦ Species listed or proposed for listing as threatened or endangered under the ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants]; 50 CFR 17.11 [listed animals]; various notices in the Federal Register [FR] [proposed species]);
- ♦ Species that are candidates for possible future listing as threatened or endangered under the ESA (69 FR 24876, May 4, 2004);
- ♦ Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5);
- ♦ Species that meet the definitions of rare or endangered under CEQA (CEQA Guidelines Section 15380);
- ♦ Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 *et seq.*);
- ♦ Plants considered by CNPS to be "rare, threatened, or endangered in California" (Lists 1B and 2, California Native Plant Society 2001);
- ♦ Plants listed by CNPS about which more information is needed to determine their status, and plants of limited distribution (Lists 3 and 4, California Native Plant So-

ciety 2001), which may be included as special-status species on the basis of local significance or recent biological information;

- Animal species of special concern to the California Department of Fish and Game (DFG) (Remsen, 1978 [birds]; Williams, 1986 [mammals]; Jennings and Hayes, 1994 [amphibians and reptiles]); and
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).

b. Waters of the United States, including Wetlands

The term "waters of the United States" is an encompassing term used by USACE for areas that would qualify for federal regulation under federal Clean Water Act (CWA) Section 404. Waters of the United States are categorized as "wetlands" or "other waters of the United States." Each of these categories is described below.

The USACE defines wetlands as areas that are inundated or saturated by surface water or groundwater at a frequency and duration that is 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[b]; 40 CFR 230.3). For a wetland to qualify as a jurisdictional aquatic site, and therefore be subject to regulation under CWA Section 404, it must support a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology.

On January 9, 2001, a federal court ruling in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (121 S.CT. 675,2001) (SWANCC ruling) resulted in a determination that isolated wetlands (e.g. vernal pools) are no longer regulated by USACE under CWA Section 404. Counsel for EPA and USACE published guidance on "[n]on-navigable, isolated [and] intrastate waters" on January 19, 2001, in response to the ruling. The guidance essentially resulted in a determination that the USACE does not regulate non-navigable, isolated waters. This determination will be considered as part of subsequent environmental analyses for new development.

"Other waters of the United States" are sites that typically lack one or more of the three wetland indicators identified above. Other waters of the United States that occur in Sacramento County include drainages (all streams, creeks, rivers, sloughs, and other surface features with defined beds and banks), reservoirs, ponds, and bays.

DFG and USFWS define *wetland* differently than USACE. DFG and USFWS use a one-parameter definition of wetlands. They define wetlands as having wetland hydrology and hydric soils or hydrophytic plants, or both. This definition differs from the USACE definition, which requires the presence of all three characteristics for an area to be designated as a wetland for regulatory purposes. Project-level environmental analysis required for future developments occurring under the Plan will identify and discuss USACE jurisdictional wetlands and nonjurisdictional DFG and USFWS wetlands (e.g. vernal pools and other types of isolated wetlands that are no longer considered jurisdictional by the USACE).

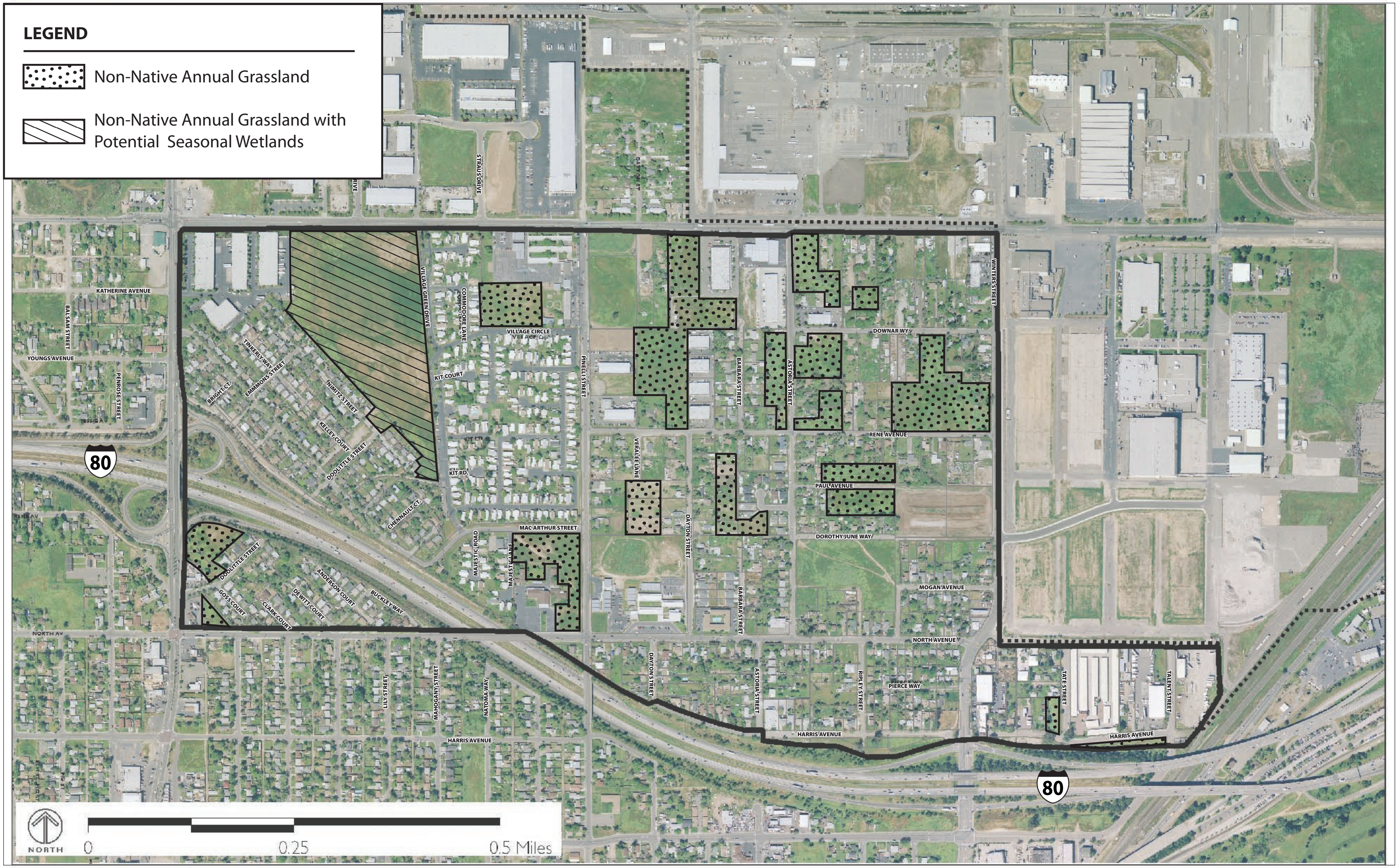
The biological team identified general areas of isolated seasonal wetlands within undeveloped lots in the Plan Area but did not conduct a formal wetland delineation. Areas that could contain waters of the United States or isolated wetlands that may still be considered "waters of the State" are described later in this section.

3. Existing Conditions

a. Biological Communities

The Plan Area is located at an elevation of approximately 200 feet above sea level in the Sacramento Valley region. The area was originally open grassland community, but has been altered by residential and commercial development. The Plan Area now supports rural residential properties, commercial development, and small inclusions of non-native annual grasslands.

Three biological communities were documented in the Plan Area and include non-native annual grassland, seasonal wetland, and landscaped areas. Figure 4.3-2 shows



Source: This figure is based on existing conditions observed on February 20, 2007. Some areas may appear to be annual grassland but have been recently developed. Jones & Stokes, 2007

FIGURE 4.3-2

LOCATION OF NON-NATIVE ANNUAL GRASSLANDS AND POTENTIAL SEASONAL WETLANDS IN THE PLAN AREA

the locations of non-native grasslands and the one grassland area that contained ponded water during the February 20, 2007 reconnaissance-level field visit. During this 2007 field visit, many of the undeveloped grasslands that were observed during previous field visits had been developed. Although Figure 4.3-2 shows areas of undeveloped annual grassland, these areas were developed or being developed as of February 20, 2007.

i. Non-Native Annual Grassland

Non-native annual grassland is a common community that is located throughout the Plan Area and occurs in open fields, residential backyards, and roadside areas. (see Figure 4.3-2). Most of the annual grasslands in the Plan Area have been heavily disturbed by disking, grading and roadside maintenance activities. Non-native annual grasslands consist of dense to sparse covers of annual grasses that often grow with a variety of showy annual forbs (both native and non-native). Germination occurs with the onset of the late fall rains. Growth, flowering, and seed-set occur from winter through spring. Plants are typically senescent through the summer and fall dry season.[3] Common plant species are wild oats, bromes, fescue, barbed goatgrass, Italian ryegrass, mustards, filarees, yellow star-thistle, and other forbs. Horticultural species occur within and along the edges of many of the non-native annual grassland areas.

Non-native annual grassland provides significant value to a variety of native terrestrial vertebrates. Grasslands support insects, amphibians, reptiles, and small birds and mammals, including red-tailed hawks, northern harriers, American kestrels, great-horned owls, California voles, and California ground squirrels. The non-native annual grasslands in the Plan Area are heavily disturbed and fragmented from high and low density urbanization of the area, which reduces the quality of the habitat for wildlife and decreases the number of species expected to occur in this community.

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[3] Holland, R. H. 1986. *Preliminary descriptions of the terrestrial natural communities of California.* The Resources Agency, Department of Fish and Game, Natural Heritage Division, Sacramento, CA.

ii. Seasonal Wetland

In the Plan Area, one large undeveloped lot contains low-lying areas that could be characterized as seasonal wetlands (see Figure 4.3-2). These seasonal wetlands occur in one of the largest undeveloped lots in the northwest corner of the Plan Area. These seasonal wetlands were ponded during the field visits and appear to be isolated and not adjacent to any waters of the United States. A future wetland delineation would be required to determine if there are any additional seasonal wetlands in the Plan Area.

These artificially created seasonal wetlands would probably contain a mix of upland and hydrophytic plant species. Seasonal wetlands also provide suitable habitat for a variety of animal species, including western spadefoot toad, Pacific tree frog, and western terrestrial garter snakes. The invertebrates and amphibian larvae provide food for other wildlife species, such as great blue heron, great egret, mallard, American avocet, killdeer, and greater yellowlegs.

Several special-status invertebrates and amphibians that depend on the temporary nature of this habitat type and the fact that it dries out have been observed in seasonal wetlands within 10 miles of the Plan Area (see Figure 4.3-1). These species include vernal pool fairy shrimp, vernal pool tadpole shrimp, and California linderiella which have been found in seasonal wetlands about 1 mile north of the Plan Area.[4] Western spadefoot toads have also been observed in seasonal wetlands within 5 miles of the Plan Area.[5]

iii. Landscaped Areas

Landscaped areas included areas with lawn and ornamental trees, shrubs, and plants. These landscaped areas occur within residential properties and along fence lines and

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[4] California Natural Diversity Database, 2006.

[5] California Natural Diversity Database, 2006.

roads. Because landscaped areas are common in the Plan Area, they are not shown in Figure 4.3-2.

Landscaped areas have low value for wildlife because of human disturbance and lack of vegetation. However, some birds such as barn owls nest in palm trees and abandoned buildings. Wildlife species that use these areas are typically adapted to human disturbance. Wildlife species associated with the urban residential and suburban areas include western scrub jay, northern mockingbird, house finch, rock dove, raccoon, opossum, striped skunk, western fence lizard, and gopher snake.[6] Species observed during the field survey in this community type include northern mockingbird, western scrub jay, and rock dove.

b. Special-Status Species

Both plant and animal species are discussed in the following subsections.

i. Special-Status Plants

A review of existing information resulted in the identification of 15 special-status plants as having potential to occur in the Plan Area region (as shown in Table 4.3-1). After the field visits, all of these species were identified as having a low potential to occur in the Plan Area either because specific microhabitat requirements (e.g. vernal pool habitat) are not present, or there are no nearby occurrences reported in the CNDDB (2006) (see Figure 4.3-1). Additionally, the Plan Area has been extensively altered by development and other land-conversion activities, and does not support suitable habitat for special-status plants.

ii. Special-Status Wildlife

A review of existing information resulted in the identification of 17 special-status wildlife species with potential to occur in the Plan Area region (see Table 4.3-2). Following the field survey, it was determined that the Plan Area contains suitable habitat for

[6] Mayer and Laudenslayer, 1988.

the following nine species: Loggerhead shrike, Western burrowing owl, White-tailed kite, Cooper's hawk, Swainson's hawk, Western spadefoot, California linderiella, Vernal pool fairy shrimp, Valley elderberry longhorn beetle. The remaining wildlife species were eliminated from further consideration because suitable habitat for these species is not present in the area or the Plan Area is outside their distributional range.

C. *Standards of Significance*

According to the CEQA Guidelines, a "project" would have a *significant* impact on biological resources if it would:

- ♦ 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;
- ♦ Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
- ♦ 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;
- ♦ Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (e.g. the Heritage Tree Ordinance (City Code 12.64.040); or
- ♦ 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.

D. Impact Discussion

Potential impacts associated with the Plan are described at a qualitative level. Specific and detailed mitigation measures to avoid, minimize, or compensate for potential significant impacts on biological resources are described for each potential impact, as necessary.

1. Assumptions

The following assumptions were made regarding Plan Area-related impacts on biological resources.

- ♦ Implementation of the Land Use and Infrastructure Plan would result in the loss and/or disturbance of common biological communities (e.g. non-native grassland and landscaped areas) within the 306-acre Plan Area. The loss or disturbance of these communities is not considered significant from a botanical perspective; therefore, botanical-related impacts on these communities are not discussed in this section.
- ♦ Based on a review of existing information and observations made during the field visits, this analysis assumes that there are no special-status plants in the Plan Area. Therefore, these species are not addressed in the impact analysis.
- ♦ There are no drainages that provide habitat for fisheries resources in the Plan Area; therefore, impacts on fisheries resources are not discussed in this analysis.
- ♦ Construction activities throughout the Plan Area could temporarily disturb habitat for many common wildlife species. Also, a small amount of habitat for common wildlife species would be removed as a result of future construction activities in the Plan Area. The extent of habitat fragmentation and isolation from other suitable habitat areas due to urbanization in the Plan Area results in limited wildlife value for some species. Other species are able to meet one or more of their life requirements in urban or highly fragmented environments. The majority of these species are common to urban areas. The relatively small in-fill patches of grassland habitat that remain in the Plan Area continue to provide some limited value to lo-

cal wildlife; however, most habitat value was lost during initial development and resulting isolation of the area. Continued development on remaining habitat patches would further reduce their value; however, this loss of habitat and the corresponding reduction in wildlife in the Plan Area does not represent a *potentially significant* impact on common wildlife species because it would not lead to a substantial reduction or elimination of species diversity or abundance in the Plan Area region. This impact is not discussed in the analysis below.

- Because of the developed nature of the Plan Area, the Plan would not 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. This impact is not discussed in the analysis below.
- The Plan would not conflict with the City of Sacramento General Plan measures for retaining the riparian woodlands and grassland vegetation along the waterways and floodways of North Natomas and South Sacramento[7]. These resource areas do not occur within the Plan Area.
- The City of Sacramento General Plan also recommends retaining habitat areas where endangered wildlife species are known to exist to the extent feasible (Goal C under "Preservation of Natural Resources"). Potential impacts on special-status wildlife are described in the impact analysis, along with mitigation measures to avoid, minimize, and compensate for *potentially significant* impacts on these resources.
- The Plan would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan. Therefore, this impact is not discussed in the impact analysis.

[7] City of Sacramento, 1988.

2. Plan Impacts

From a regional perspective, the 306-acre Plan Area provides relatively low biological value because it consists largely of developed and open undeveloped areas that have been heavily disturbed by previous and ongoing development activities. The inclusions of non-native annual grassland habitat located in the Plan Area provide relatively low-quality habitat for resident and migratory wildlife because they are small, isolated, and surrounded by development. Based on a review of existing information and data gathered during reconnaissance-level field visits, it was determined that adoption and implementation of the Land Use and Infrastructure Plan would result in *potentially significant* impacts on biological resources which are described in detail below.

a. Wetlands

Implementation of the Plan could result in the loss of an unknown amount or type of seasonal wetlands. As described previously, many of these seasonal wetlands are heavily disturbed and most are artificially created systems. Although the wetlands are relatively low quality and heavily disturbed, the seasonal wetlands provide potential habitat for some of the federally listed invertebrate species listed in Table 4.3-2.

These wetlands may be considered "isolated" and therefore not subject to Section 404 of the Clean Water Act. As part of the wetland verification process, the USACE will determine if the wetlands are considered jurisdictional. Some or all of the wetlands may be considered "isolated" because there is not an obvious surface or subsurface connection to waters of the United States (e.g. Sacramento River). Isolated wetlands would not be considered jurisdictional features by the USACE and would not be subject to Section 404 of the Clean Water Act. In this case, the development proponent may be required to enter into Section 10 consultation rather than Section 7 consultation (see the description of this regulatory requirement under "Regulatory Setting").

Direct and indirect impacts on wetlands and their associated habitat for the federally listed invertebrates are considered *potentially significant*. While it is unknown whether any seasonal wetlands in the Plan Area are actually occupied by federally listed invertebrates, in the absence of protocol surveys it is assumed for purposes of this assessment that seasonal wetlands are occupied by such species. It is also assumed that sufficient wetland habitats are occupied in the Plan Area to potentially result in a substantial loss of federally listed invertebrate populations, thereby requiring a determination of 'significant' pursuant to CEQA guidance. Implementation of one or a combination of Mitigation Measures BIO-1, BIO-2, and BIO-3, which are described later in this chapter, would reduce the potential impact to a *less-than-significant* level.

Implementation of the Plan could result in the loss of unknown amounts of aquatic breeding habitat (e.g. seasonal wetlands) and upland habitat (e.g. nonnative annual grassland) for western spadefoot toads. Future land development activities in the Plan Area could result in the potential loss of adult western spadefoot toads and larvae. Spadefoot larvae could be killed if the destruction of breeding habitat occurs between late winter and late spring. Also, adult spadefoot toads could be crushed by construction equipment during the excavation and grading of upland habitat where adult spadefoot toads are aestivating (passing the summer in a dormant state).

These impacts are considered *potentially significant* because if seasonal wetland habitats are occupied by these species in the Plan Area, destruction of seasonal wetland habitats could have a substantial adverse effect (through loss of adults or larvae) on local spadefoot populations.

b. Valley Elderberry Longhorn Beetle (VELB)

Implementation of the Plan could result in the mortality of individuals or disturbance of habitat for VELB, a species federally listed as threatened. VELB could be directly affected by construction activities (including excavation and equipment staging) that occur within 20 feet of the dripline of occupied elderberry shrubs. These impacts may involve the removal of the shrub or the destruction of stems. VELB could be indirectly affected by increased accumulation of dust on shrubs resulting from ground-disturbing activities, soil compaction around the root system of a shrub, or removal of associated woodland species. These activities could result in the death of the shrub, VELB individuals, and loss of VELB habitat. This impact is considered *potentially significant* because development activities in the Plan Area could remove occupied shrubs, potentially resulting in a substantial adverse effect on local VELB populations.

c. Swainson's Hawk

Implementation of the Plan within undeveloped grassland areas greater than 5 acres could result in the loss of an unknown amount of potential Swainson's hawk foraging habitat (nonnative annual grassland). A report[8] published by DFG identifies habitat that occurs within 10 miles of a known nest site to be within the area occupied by the regional Swainson's hawk population and that permanent loss of foraging habitat within this area constitutes a *potentially significant* impact on the Swainson's hawk population and potentially on individual nest sites.

Suitable Swainson's hawk nesting habitat (grassland areas that are larger than 5 acres as per the DFG guidelines) are located within the Plan Area and could be used by breeding Swainson's hawks. Construction-related noise during the Swainson's hawk breeding season (March through August) could cause adults to abandon nests containing eggs or young.

These impacts are considered *potentially significant* because they could have a substantial adverse effect (through loss of eggs or young) on local populations of a species listed as threatened under CESA.

d. Western Burrowing Owl

Implementation of new developments within undeveloped areas of the Plan Area could result in the loss of potential western burrowing owl foraging and nesting habitat. Construction activities could result in the removal of an occupied breeding or wintering burrow site and loss of adults, young, or eggs. This impact would be

[8] California Department of Fish and Game, 1994. *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California.*

considered *potentially significant* because construction could result in a substantial adverse effect on a special-status species and would violate the MBTA and California Fish and Game Code Section 3503.5.

e. Special-Status Birds and Raptors

Implementation of the Plan could result in the removal or disturbance (e.g. trimming) of trees and shrubs that provide potential nesting habitat for special-status birds and raptors such as, white-tailed kite (State fully protected species) and northern harrier and loggerhead shrike (State species of special concern). Trees and shrubs in the Plan Area can also provide nesting habitat for a number of common migratory birds and raptors, including American goldfinch, violet-green swallow, acorn woodpecker, Nuttall's woodpecker, American kestrel, red-shouldered hawk, red-tailed hawk, and great-horned owl.

Causing the abandonment or removing active nests (with eggs or young) of white-tailed kite, northern harrier, loggerhead shrike, and many other non-special-status migratory birds and raptors violates the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA).

If construction activities associated with the Plan occurs during the breeding season (generally between March 1 and August 15), construction activities (e.g. tree and shrub removal, excavation, and grading) that occur within undeveloped areas could disturb or remove occupied nests of white-tailed kite, northern harrier, loggerhead shrike, and other non-special-status migratory birds and raptors. This disturbance could cause nest abandonment and subsequent loss of eggs or developing young at active nests in or near the Plan Area. This impact is considered *potentially significant* because future development activities in the Plan Area could result in a substantial adverse effect (through loss of eggs or young) on species (migratory birds and raptors) protected by the MBTA and California Fish and Game Code Sections 3503 and 3503.5.

f. Heritage Trees

Implementation of the Plan could result in the removal or disturbance of an unknown quantity and type of trees that are consider a "heritage tree" by the City (the definition of heritage trees is provided under *Regulatory Framework*). Heritage trees could be removed or affected during trenching, staging, trimming for equipment access, and other construction-related activities. Although many of the heritage trees are common in the Plan Area region, the loss of trees could conflict with the City's tree ordinance. This would be considered a *potentially significant* impact because impacts on heritage trees would conflict with a local ordinance protecting biological resources.

3. Cumulative Impacts

Buildout of the Plan would result in cumulative impacts on special-status wildlife species if they are determined to be present in the Plan Area and affected by the Plan. However, as described in this section, the Plan Area contains relative low quality habitat for sensitive biological resources known to occur in the region. Implementation of the mitigation measures described in the following section would reduce these potential cumulative impacts on special-status wildlife species habitat to a *less-than-significant* level.

E. Impacts and Mitigation Measures

Potentially significant impacts were identified in regards to biological resources. This section lists the identified impacts and mitigation measures that can be implemented to reduce the impacts to less-than-significant levels.

Impact BIO-1: Potential loss of seasonal wetlands and associated habitat for federally listed invertebrates.

> <u>Mitigation Measure BIO-1a</u>: Retain biologists to conduct baseline biological surveys. (Note that this mitigation measure is applicable to <u>all</u> impacts identified

in this section. Reference is therefore made to this measure in the discussion of IMPACT BIO-2 through IMPACT BIO-7 below.)

Future development proponents shall retain a qualified biologist to conduct baseline biological surveys on undeveloped lands within the Plan Area. Once the preliminary development plans are available and property access has been obtained, the biologist would conduct baseline surveys to document the presence or absence of the following resources and support future permitting efforts: special-status wildlife species (as identified in Table 4.3-2), waters of the United States (including wetlands), non-special status nesting raptors and migratory birds species, and heritage trees that are subject to the City's tree ordinance.

As part of this measure, the biologist shall coordinate with the appropriate resource agencies (e.g. DFG, USFWS, and USACE) to determine the appropriate level of survey and the timing for the surveys. Biological resources documented on the undeveloped parcels shall be provided to development proponents in a letter report and shall be used to support proposed development plans and State and federal permit acquisition.

If sensitive biological resources are located during the field surveys, the appropriate mitigation measures would be implemented to avoid, minimize, or compensative for *potentially significant* impacts (these specific mitigation measures are described below for each resource-specific impact).

Mitigation Measure BIO-1b: Obtain and implement conditions of federal permits for impacts on jurisdictional wetlands. If the USACE determines that the seasonal wetlands are not isolated and therefore are jurisdictional, future development proponents shall obtain the appropriate state and federal necessary permits to conduct activities in waters of the United States (jurisdictional wetlands) before finalized construction of any of the infill development associated with public and private development within the Plan Area. Discharge of fill into jurisdictional wetlands will require a Section 404 permit from the Corps and Section 401 certification from the Regional Water Quality Control Board (RWQCB). All conditions that are attached to the State and federal permits shall be implemented. The conditions shall be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

If the USACE determines that the wetlands are not jurisdictional, then the development proponent shall consult directly with the USFWS, prepare an HCP, and obtain authorization for the proposed development under Section 10 of the federal ESA.

Mitigation Measure BIO-1c: If the seasonal wetlands are determined to support habitat for federally listed invertebrates, future development proponents shall compensate for direct and indirect impacts to potential habitat for federally listed vernal pool fairy shrimp and tadpole shrimp. The development proponent shall preserve and create additional habitat for these species using USFWS-approved compensation ratios as described below.

- Future development proponents shall preserve suitable habitat at a ratio of 2:1 (2 acres preserved for every 1 acre of habitat directly or indirectly affected). Preservation credits must be acquired from an USFWS-approved mitigation bank or conservation area.
- Future development proponents shall create suitable habitat at a 1:1 ratio (1 acre created for every acre of habitat directly affected). Creation credits must be acquired from an USFWS-approved mitigation bank or conservation area.

Final compensation requirements and mitigation ratios for the Plan would be determined through consultation with the USFWS. The exact cost to purchase preservation and creation credits for development-related impacts would be determined at the time of purchase. Mitigation credits shall be purchased and/or a conservation area and management plan would be established prior to any ground disturbing activities, including grading, within the Plan Area.

Significance After Mitigation. Implementation of one or a combination of Mitigation Measures BIO-1a, BIO-1b and BIO-1c would reduce the potential impacts on seasonal wetlands and associated habitat for federally listed invertebrates to a *less-than-significant* level.

Impact BIO-2: Loss or disturbance of Western spadefoot toad habitat.

Mitigation Measure BIO-2a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure BIO-1a.

Mitigation Measure BIO-2b: Obtain and implement conditions of federal permits for impacts on jurisdictional wetlands, as described in Mitigation Measure BIO-1b.

Significance After Mitigation. Implementation of one or a combination of Mitigation Measures BIO-2a and BIO-2b would reduce the potential impact on wetland habitat and local spadefoot populations to a *less-than-significant* level.

Impact BIO-3: Potential loss or disturbance of habitat for Valley elderberry longhorn beetle.

Mitigation Measure BIO-3a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure BIO-1a.

Mitigation Measure BIO-3b: Avoid the elderberry shrub by establishing a minimum 20-foot-wide buffer around the elderberry shrub that occurs adjacent to the work zone. If elderberry shrubs that provide potential habitat for VELB (shrubs with stems 1 inch or greater in diameter) are located within the Plan

Area and could be affected by proposed development activities, future development proponents shall determine if the shrub(s) can be avoided. If the shrub can be avoided, the development proponent shall require that the shrub be protected during construction by establishing a 20-foot-wide buffer and fencing around the elderberry shrub. This fencing is intended to prevent encroachment by construction vehicles and personnel. No construction activity, including grading, shall be allowed until this condition is satisfied. No grading, clearing, storage of equipment or machinery, or other disturbance or activity may occur until a representative of the City has inspected and approved all temporary construction fencing. The fencing and a note reflecting this condition shall be shown on the construction specifications.

Mitigation Measure BIO-3c: Transplant elderberry shrubs that occur within the Plan Area and would be directly affected (removed) by a proposed development. If the habitat for VELB cannot be avoided (as described in Mitigation Measure BIO-3b, the development proponent shall evaluate whether or not transplantation of the shrub(s) is feasible.

As part of this measure (and either the Section 7 or Section 10 permit from the USFWS), the development proponent shall ensure that any elderberry shrub that shall be directly affected (removed) by construction activities is transplanted to a USFWS-approved conservation area or mitigation bank in accordance with the USFWS Conservation Guidelines.[9] The closest USFWS-approved mitigation site is the Wildlands, Inc. River Ranch Conservation Bank located in Yolo County. The elderberry shrub shall be transplanted when it is dormant (after it loses its leaves) in the period starting approximately in November and ending in the first two weeks of February. A qualified specialist familiar with elderberry shrub transplantation procedures shall supervise the transplanting. The location

[9] U.S. Fish and Wildlife Service, 1999.

of the conservation area transplantation site shall be approved by USFWS before removal of the elderberry shrub.

The transplanting procedure entails the following steps:

- ♦ The affected shrub shall be cut back 3 to 6 feet above the ground or up to 50 percent of its height, whichever is greater.
- ♦ The shrub shall be removed using suitable equipment, taking as much of the root system as possible, wrapping the root ball in burlap and securing it with wire, and dampening the burlap with water to keep the roots wet.
- ♦ The shrub shall be replanted immediately at the mitigation site in holes of adequate size with the root ball planted so that its top is level with the existing ground. The soil will be compacted around the roots. The planting area must be at least 1,800 square feet.
- ♦ The shrub shall have its own water retention basin measuring 3 feet in diameter with a continuous berm measuring approximately 8 inches wide at the base and 6 inches high. The soil around the shrubs shall be saturated with water. The shrubs should be monitored and watered accordingly.

<u>Mitigation Measure BIO-3d:</u> As part of the Biological Opinion (Section 7) or HCP (Section 10), the development proponent shall compensate for direct impacts (i.e. transplanting of one elderberry shrub) on all elderberry stems measuring 1 inch or more at ground level (i.e. VELB habitat). Compensation shall include replacement plantings of elderberry seedlings or cuttings and associated native plantings in a USFWS-approved conservation area or mitigation bank, at a ratio between 1:1 and 8:1 (ratio of new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes, and whether the shrub is located in riparian habitat.[10]

[10] U.S. Fish and Wildlife Service, 1999.

Compensation for VELB habitat shall include either establishing a USFWS-approved VELB conservation area or purchasing VELB credits at a USFWS-approved mitigation bank. The exact cost to establish a mitigation site at the approved mitigation site shall be determined at the time of purchase. The final amount and final location of this mitigation shall be determined through consultation with the USFWS and will be outlined in the Biological Opinion or HCP.

Significance After Mitigation. Implementation of one or a combination of Mitigation Measures BIO-3a, BIO-3b, BIO-3c, and BIO-3d would reduce potential impacts on VELB to a *less-than-significant* level.

Impact BIO-4: Potential loss of Swainson's hawk foraging habitat and disturbance of potentially nesting Swainson's hawk.

Mitigation Measure BIO-4a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure BIO-1a.

Mitigation Measure BIO-4b: If construction is scheduled to occur during the Swainson's hawk breeding season (generally March 1 through August 15), future development proponents shall retain a qualified wildlife biologist to conduct preconstruction surveys for nesting Swainson's hawks. If no Swainson's hawks are found nesting within the areas surveyed, then no further nest-site protection mitigation is required. If Swainson's hawks are found nesting on or adjacent to the construction site, DFG shall be consulted to determine if a no-disturbance buffer would be required until after the young have fledged (as determined by a qualified wildlife biologist). Impact avoidance measures shall be conducted pursuant to DFG's 1994 staff report.[11]

[11] California Department of Fish and Game, 1994. Staff report regarding *Mitigation for Impacts to Swainson's Hawk (Buteo Swainsoni) in the Central Valley of California.*

Mitigation Measure BIO-4c: If the biologist determines that there is suitable foraging habitat within the undeveloped lots in the Plan Area (as part of Mitigation Measure BIO-1a), future development proponents shall implement the recommendations described in the report published by DFG in 1994.[12] This report recommends mitigation for the removal of suitable Swainson's hawk foraging habitat, at a ratio determined by the distance to the nearest active nest. The mitigation shall be accomplished either by developing a project-specific mitigation agreement that would be submitted to CDFG for approval or by purchasing Swainson's hawk mitigation credits at a DFG-approved mitigation bank.

Significance After Mitigation. Implementation of one or a combination of Mitigation Measures BIO-4a, BIO-4b and BIO-4c would reduce potential impacts on Swainson's hawk eggs, young, and the species' habitat to a *less-than-significant* level.

Impact BIO-5: Loss of potential Western burrowing owl foraging and nesting habitat.

Mitigation Measure BIO-5a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure BIO-1a.

Mitigation Measure BIO-5b: Implement the California Department of Fish and Game guidelines for burrowing owl mitigation. If active burrowing owls are detected during the biological baseline surveys (described as part of Mitigation Measure BIO-1a), the following measures shall be implemented by the development proponent:

- ♦ Occupied burrows shall not be disturbed during the nesting season (February 1–August 31).

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[12] California Department of Fish and Game, 1994. Staff report regarding *Mitigation for Impacts to Swainson's Hawk (Buteo Swainsoni) in the Central Valley of California.*

- When destruction of occupied burrows is unavoidable outside the nesting season (September 1-January 31), unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (installing artificial burrows) at a ratio of 2:1 on protected lands approved by DFG. Newly created burrows shall follow guidelines established by DFG.

If owls must be moved away from construction areas, passive relocation techniques (e.g. installing one-way doors at burrow entrances) shall be used instead of trapping. At least one week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows.

If active burrowing owl burrows are found and the owls must be relocated, the development proponent shall offset the loss of foraging and burrow habitat in construction area(s) by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified in construction area(s). The protected lands should be located adjacent to the occupied burrowing owl habitat in the construction area or at another occupied site near the construction area. The location of the protected lands shall be determined in coordination with DFG.

The development proponent shall also prepare a monitoring plan, and provide long-term management and monitoring of the protected lands. The monitoring plan shall specify success criteria, identify remedial measures, and require an annual report to be submitted to DFG.

If avoidance is the preferred method of dealing with potential impacts, no disturbance shall occur within 160 feet of occupied burrows during the nonbreeding season (September 1–January 31) or within 250 feet during the breeding season. Avoidance also requires that at least 6.5 acres of foraging habitat (calculated based on an approximately 300-foot foraging radius around an occupied burrow), contiguous with occupied burrow sites, be permanently preserved for each pair of breeding burrowing owls or single unpaired resident bird. The configuration of the protected site shall be submitted to DFG for approval.

Significance After Mitigation. Implementation of one or both Mitigation Measures BIO-5a and BIO-5b would reduce the potential impact on western burrowing owls and their habitat to a *less-than-significant* level.

Impact BIO-6: Potential loss or disturbance of nesting habitat for white-tailed kite, northern harrier, loggerhead shrike, and non-special-status migratory birds and raptors.

Mitigation Measure BIO-6a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure BIO-1a.

Mitigation Measure BIO-6b: Avoid disturbance of tree-, shrub- or ground-nesting white-tailed kite, Northern harrier, loggerhead shrike, and non-special-status migratory birds and raptors. The development proponent shall implement one of the following measures, depending on the specific construction timeframes within the undeveloped areas of the Plan Area, to avoid disturbance of tree-, shrub- or ground-nesting white-tailed kites, northern harriers, loggerhead shrikes, and non-special-status migratory birds and raptors:

- If construction activities are scheduled to occur during the breeding season for these species (generally between March 1 and August 15), a qualified wildlife biologist shall be retained to conduct the following focused nesting surveys within the appropriate habitat.
- Tree- and shrub-nesting surveys shall be conducted in riparian and oak woodland habitats within or adjacent to the construction area to look for white-tailed kite, loggerhead shrike, and other non-special-status migratory birds and raptors.

- Ground-nesting surveys shall be conducted in non-native annual grasslands for northern harrier and other non-special-status migratory birds.
- The surveys should be conducted within one week before initiation of construction activities and at any time between March 1 and August 15. If no active nests are detected, then no additional mitigation is required.

If surveys indicate that migratory bird or raptor nests are found in any areas that would be directly affected by construction activities, a no-disturbance buffer shall be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers shall be determined by a wildlife biologist, and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors should be analyzed to make an appropriate decision on buffer distances.

If construction activities begin before the breeding season (i.e. begin between August 16 and February 28) (pre-existing construction), then construction can proceed until it is determined that an active migratory bird or raptor nest would be subject to abandonment as a result of construction activities. Pre-existing construction activities are assumed to be "full force," including site grading and infrastructure development; activities that technically initiate construction but are minor would not be considered full force. Optimally, all necessary vegetation removal should be conducted before the breeding season (generally between March 1 and August 15) so that nesting birds or raptors would not occur in the construction area during construction activities. If any birds or raptors nest in the Plan Area vicinity under pre-existing construction conditions, then it is assumed that they are habituated (or will habituate) to the construction activities.

Under this scenario, the preconstruction survey described previously should still be conducted on or after March 1 to identify any active nests in the vicinity and active sites should be monitored by a wildlife biologist periodically until after the breeding season or after the young have fledged (usually late June to mid-July). If active nests are identified on or immediately adjacent to a development site, then all nonessential construction activities (e.g. equipment storage and meetings) should be avoided in the immediate vicinity of the nest site, but the remainder of construction activities may proceed.

Significance After Mitigation. Implementation of one or both Mitigation Measures BIO-6a and BIO-6b would reduce the potential impact on eggs and young of white-tailed kites, northern harriers, loggerhead strikes, and other non-special-status migratory birds and raptors to a *less-than-significant* level.

Impact BIO-7: Potential removal of heritage trees subject to the City's heritage tree ordinance.

Mitigation Measure BIO-7a: Retain biologists to conduct baseline biological surveys, as described in Mitigation Measure BIO-1a.

Mitigation Measure BIO-7b: Comply with the City's tree ordinance. If any heritage trees are located during the biological baseline surveys (described as part of Mitigation Measure BIO-1a) and could be impacted by the Plan, the development proponent shall comply with the City's tree ordinance requirements.

The ordinance states that during construction activity on any property on which a heritage tree is located, unless the express written permission of the director is first obtained, no person shall:

- ♦ Change the amount of irrigation provided to any heritage tree from that which was provided prior to the commencement of construction activity;

- ♦ Trench, grade, or pave into the dripline area of a heritage tree;
- ♦ Change, by more than two (2) feet, grade elevations within thirty (30) feet of the dripline area of a heritage tree;
- ♦ Park or operate any motor vehicle within the dripline area of any heritage tree;
- ♦ Place or store any equipment or construction materials within the dripline area of any heritage tree;
- ♦ Attach any signs, ropes, cables or any other items to any heritage tree;
- ♦ Cut or trim any branch of a heritage tree for temporary construction purposes; or
- ♦ Place or allow to flow into or over the dripline area of any heritage tree any oil, fuel, concrete mix or other deleterious substance.

<u>Significance After Mitigation</u>. Implementation of one or both of Mitigation Measures BIO-7a and BIO-7b would reduce the potential impacts on heritage trees to a *less-than-significant* level.

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4.4 CULTURAL RESOURCES

This section summarizes information on cultural resources in the Plan Area and provides an evaluation of the potential effects of the Plan on these sensitive resources.

A. Regulatory Framework

There are several federal, State and local laws and regulations applicable to historically and architecturally significant resources, as well as paleontological and archaeological resources in Sacramento. The key laws and regulations are discussed below.

1. The National Historic Preservation Act - Section 106

In the event that money from the Department of Housing and Urban Development (HUD) is used as part of the funding of improvements in the Plan Area, the Sacramento Housing and Redevelopment Agency (SHRA) would need to demonstrate to HUD that project planning complies with Section 106 of the National Historic Preservation Act (hereafter Section 106). Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others (as in this case from HUD to SHRA), the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute (36 CFR 800). 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 CFR 800) detail the following five basic steps:

- Initiate the Section 106 process.
- Identify and evaluate significant cultural resources, termed historic properties.
- Assess the effects of the undertaking on historic properties within the Plan Area, or area of potential effects (APE).
- If historic properties are subject to adverse effects, SHRA, 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.

- Proceed in accordance with the terms of the MOA.

Section 106 requires that before beginning any undertaking, a federal agency must take into account the effects of the undertaking on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on these actions.

Historic properties are significant cultural resources. For federal projects, cultural resource significance is evaluated in terms of eligibility for listing in the National Register of Historic Places (NRHP). Specific NRHP significance criteria are applied to evaluate cultural resources and are defined in 36 CFR 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and
>
> - that are associated with events that have made a significant contribution to the broad patterns of our history; or
> - that are associated with the lives of persons significant in our past; or
> - that embody the distinctive 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
> - that have yielded, or may be likely to yield, information important in prehistory or history.

2. State Laws and Regulations

The California Environmental Quality Act (CEQA) requires that public agencies that finance or approve public or private projects must assess the effects of the project on cultural resources, defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. CEQA requires that if a project would result in significant effects on important cultural resources, then alternative plans or mitigation measures must be considered; only significant cultural resources, however, need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify cultural resources.
- Evaluate the significance of resources.
- Evaluate the impacts of a project on *all* resources.
- Develop and implement measures to mitigate the impacts of the project only on *significant* resources, namely historical resources and unique archaeological resources.

The CEQA Guidelines define three ways that a cultural resource may qualify as a historical resource for the purposes of CEQA review:

- If the resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR);
- If the resource is included in a local register of historical resources, as defined in Public Resources Code (PRC) 5020.1(k), or is identified as significant in an historical resource survey meeting the requirements of PRC 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 CCR 15064.5[a]).

A cultural resource may be eligible for inclusion in the 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 example, largest, or last surviving example of its kind (PRC 21083.2).

The State CEQA Guidelines (14 CCR 15064.5[c]) state that the lead agency must treat an archaeological resource that meets the definition of an historical resource according to the provisions of PRC 21084.1, 14 CCR 15064.5, and 14 CCR 15126.4. If an archaeological resource does not meet the definition of an historical resource, but does meet the definition of a *unique* archaeological resource, then the lead agency is obligated to treat the resource according to the provisions of PRC 21083.2 (14 CCR 15064.5[c][3]).

3. Local Regulations and Policies

a. Sacramento City Historic Preservation Regulations

Title 15 of the Sacramento City Code provides for the identification and protection of significant historic resources in the City. Pursuant to Title 15 of the City Code, the City has also established a preservation program to protect and maintain the character of architecturally, historically, and culturally significant structures and sites within the City of Sacramento. New development is directed toward achieving compatible new construction that enhances existing historic values rather than diminishing them.

b. Historic Preservation Ordinance and Sacramento Register

The City of Sacramento's historic preservation program began in 1975 with the enactment of the City's first Historic Preservation Ordinance. The current Preservation Ordinance (No. 2001-027) was enacted in June 2001. The purpose of the Preservation Ordinance is to identify, protect and encourage the preservation of significant resources; maintain an inventory and ensure the preservation of these resources; encourage maintenance and rehabilitation of the resources; encourage retention, preservation, and re-use of the resources; safeguard City resources; provide consistency with state and federal regulations; protect and enhance the City's attraction to tourists; foster civic pride in the City's resources; and encourage new development to be aesthetically compatible.

The Preservation Ordinance amends Chapter 15.124 of Title 15 of the Sacramento City Code. The City Code provided for the compilation of Landmarks, Contributing Resources, and Historic Districts in the Sacramento Register. The Sacramento Register includes all listed or surveyed historic resources in the City of Sacramento and includes a listing of all individually designated City Landmarks and all of the City designated Historic Districts. The Sacramento Register also includes listings or maps of the properties within two of the City's Special Planning Districts that have been afforded preservation protection by ordinance. Also included are the properties within the City that are currently listed in the NRHP and the CRHP.

Specific Sacramento Register significance criteria are applied to evaluate cultural resources and are defined in Historic Preservation code (15.124.170 A.2) as follows:

- A structure removed from its original location is eligible if it is significant primarily for it architectural value or it is the most important surviving structure associated with a historic person or event.
- A birthplace or grave is eligible if it is that of a historical figure of outstanding importance and there is no other appropriate site or structure directly associated with his or her productive life.
- A reconstructed building is eligible if the reconstruction is historically accurate, if the structure is presented in a dignified manner as part of a restoration master plan; and if no other original structure survives that has the same association.
- Properties that are primarily commemorative in intent are eligible if design, age, tradition or symbolic value invests such properties with their own historical significance.
- Properties achieving significance within the past fifty years are eligible if such properties are of exceptional importance.

c. City of Sacramento Preservation Element

The City of Sacramento adopted a Preservation Element into their General Plan in April 2000. The overarching goal of the Preservation Element is: "to retain and celebrate Sacramento's heritage and recognize its importance to the City's unique character, identity, economy, and quality of life." The Element is further divided into six major goal and policy sections, each with a single goal and many policy statements to achieve the stated goal. Applicable goals and policies are as follows:

i. Goal A: To establish and maintain a comprehensive citywide preservation program.

- Policy A.1: The City shall promote the recognition, preservation and enhancement of historic and cultural resources throughout the city.

- Policy A.2: The City shall promote the preservation, restoration, enhancement and recognition of historic and cultural resources. Historic and cultural resources include not only sites and structures, but also features such as infrastructure (e.g. bridges, canals, roads, and trails), signs, landscaping and trees, open space areas, lighting and hardscape (e.g. sidewalks, paving) that are important to the overall context.
- Policy A.5: The City shall coordinate with SHRA, other City departments, and the State Office of Historic Preservation to ensure that Section 106 of the National Historic Preservation Act review and compliance activities are carried out appropriately.

ii. *Goal B: To protect and preserve important historic and cultural resources that serve as significant, visible reminders of the city's social and architectural history.*

- Policy B.2: The City shall review new development, alterations and rehabilitation/remodels in design review areas, preservation areas and other areas of historic resources for compatibility with the surrounding historic context.
- Policy B.4: The City shall work with its partners on the local, state and federal levels to ensure that historic preservation rules and regulations are implemented.
- Policy B.6: The City shall promote the conservation of historic neighborhoods to encourage preservation of structures and other features. In these areas, the City shall encourage the maintenance or re-conversion of parkway strips to landscaping, maintenance and replication of historic sidewalk patterns, use of historic street lamps and street signs, and maintenance or restoration of historic park features.

iii. *Goal D: To foster public awareness and appreciation of the City's heritage and its historic and cultural resources.*

- Policy D.1: The City shall support and recognize private and public preservation work and awareness ceremonies.

- ♦ Policy D.2: The City shall encourage identification of historic resources through plaques and markers.

iv. *Goal E: To identify and protect archaeological resources that enrich our understanding of the early Sacramento area.*

- ♦ Policy E.3: The City shall not knowingly approve any public or private project that may adversely affect an archaeological site.
- ♦ Policy E.5: The City shall encourage the preservation and display of archaeological artifacts in public buildings.

B. Historical Overview

1. Prehistoric Context

Although the Sacramento Valley area 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.[1] The economy of this early period in human use of the area was likely based on the exploitation of large game. Later periods are better understood because of a more abundant representation in the archaeological record.

Windmiller Pattern archaeological sites (4500–3000 B.P. [before present]) show evidence of a mixed economy of game procurement and use of wild plant foods. The

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[1] Johnson, J.J., 1967. *The Archaeology of the Camanche Reservoir Locality, California.* Sacramento Anthropological Society Paper No. 6. Sacramento, CA.

Peak and Associates, 1981. *Archaeological Investigation of Ca-Sac370 and Ca-Sac379, the Rancho Murieta Early Man Sites in Eastern Sacramento County.* Ann S. Peak and Associates, Sacramento, CA.

Treganza, A.E. and R.F. Heizer, 1953. *Additional Data on the Farmington Complex: a Stone Implement Assemblage of Probably Early Post-Glacial Date from Central California.* University of California Archaeological Survey Report 22:28-38.

archaeological record contains numerous projectile points with a wide range of faunal remains. Hunting was not limited to terrestrial animals, as is evidenced by fishing hooks and spears that have been found in association with the remains of sturgeon, salmon, and other fish. Plants were also used, as indicated by ground stone artifacts and clay balls that were used for boiling acorn mush. Settlement strategies reflect seasonal adaptations: habitation sites in the valley were occupied during the winter months, but populations moved into the foothills during the summer.[2]

The Windmiller Pattern ultimately changed to a more specialized adaptation labeled the Berkeley Pattern (3500–2500 B.P.). An increase in mortars and pestles suggests greater dependence on acorns. Although gathered resources gained importance during this period, the continued presence of projectile points and atlatls (spear-throwers) in the archaeological record indicates that hunting was still an important activity.[3]

The Berkeley Pattern was superseded by the Augustine Pattern around 1450 B.P. The Augustine Pattern reflects a change in subsistence and land use patterns to those of the ethnographically known people 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 more intensive emphasis was placed on the use of the acorn, as evidenced by the presence in the archaeological record of shaped mortars and pestles and numerous hopper mortars. Other notable elements of the artifact assemblage associated with the Augustine Pattern include flanged tubular smoking pipes, harpoons, clamshell disc beads, and an especially elaborate baked clay industry, which included figurines and pottery vessels (Cosumnes Brownware). The presence of small projectile point types, referred to as the Gunther Barbed series, suggests the use of the bow and arrow. Other traits associated with the Augustine Pattern include the introduction of pre-interment burning of offerings in a

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[2] Moratto, M.J., 1984. *California Archaeology.* Orlando, FL: Academic Press.

[3] Fredrickson, D.A., 1973. *Early Cultures of the North Coast Ranges, California.* Unpublished Ph.D. dissertation. University of California, Davis, Department of Anthropology. Davis, CA.

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.[4]

2. Ethnographic Context

The Plan Area lies in the ethnographic territory of the Valley Nisenan.[5] Also known as the Southern Maidu, the Nisenan inhabited the general area within the watersheds of the American, Bear, Yuba, and lower Feather rivers. Village sites within the Sacramento Valley are generally found on low rises near streams and rivers and on south facing slopes.[6] Along Dry Creek, villages have been located on either side of the stream. Villages encompassed from three to 40 or 50 houses. Houses were domed structures covered with earth, and tule or grass, and measured 10 to 15 feet in diameter. Brush shelters were used in the summer and at temporary camps during food gathering rounds. Larger villages often had semi-subterranean dance houses, which were covered in earth and tule or brush, and had a central smokehole at the top, and an eastern-oriented entrance. Another common village structure was a granary, used for storing acorns.[7]

During the early part of the historic period, the Nisenan had limited contact with the Spanish. In the late 1820s, fur trappers from the Hudson's Bay and American companies began expeditions into Nisenan territory. In 1832, a malaria epidemic introduced by northern trappers afflicted the Sacramento Valley, decimating whole villages.[8]

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[4] Moratto, M.J., 1984. *California Archaeology.* Orlando, FL: Academic Press.

[5] Kroeber, A.L., 1929. *The Valley Nisenan.* University of California Publications in American Archaeology and Ethnology 24:253–290.

[6] Kroeber, A.L., 1976. *Handbook of the Indians of California.* Reprint. Dover Publications, Inc. New York, NY. Originally published in 1925 as Bulletin 78, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.

[7] Wilson, N.L. and A.H. Towne, 1978. "Nisenan." Pages 387–397 in R.F. Heizer (ed.), *Handbook of North American Indians, Volume 8, California.* Smithsonian Institution. Washington, D.C.

[8] Hurtado, A., 1988. *Indian Survival on the California Frontier.* New Haven, CT: Yale University Press, pages 46-47.

3. Historic Context

The neighborhoods comprising McClellan Heights and the Parker Homes subdivision are located in Del Paso Heights in the northeast edge of the City of Sacramento, directly adjacent to McClellan Park (formerly McClellan Air Force Base). In brief, the area was originally part of the Rancho Del Paso land grant established in 1844. James Ben Ali Haggin gained title to the rancho in 1862 and successfully raised thoroughbred horses there until selling the land in the early 20th century. In 1910, developers subdivided the former rancho lands and established the City of North Sacramento, which incorporated in 1924. The City of Sacramento annexed the area in 1965. The Parker Homes subdivision was constructed in 1942 as housing for defense workers. McClellan Heights was little developed and remained semi-rural until prior to World War II.

a. Early History

European settlers in Alta California virtually ignored the Sacramento Valley for settlement until the mid-19th century. The Spanish confined their settlement of the region to a thin strip along the coastline; Mission Soledad, the farthest inland Spanish settlement, was only 30 miles from the sea. Following the discovery of the Central Valley by Pedro Fages in 1772, periodic forays were launched into the region to search for suitable mission sites or in pursuit of runaway neophytes. No permanent settlements were established.

The most important Spanish explorer of the Central Valley was Gabriel Moraga. In 1806, Moraga explored much of the San Joaquin Valley, following the Kern and Kings Rivers into the foothills of the Sierra Nevada range. In 1808, he led an expedition into the mountains to the sources of the Calaveras, Mokelumne, and Cosumnes Rivers. Heading north along the lower Sierra, Moraga encountered the American River just below the current City of Auburn. He followed the American River down into the

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Sacramento County Department of Environmental Review and Assessment, 1997. *Rio Linda and Elverta Community Plan: Final Environmental Impact Report, Vol. 1,* pp. 335-336. Sacramento, CA.

valley and eventually encountered the Feather and Sacramento Rivers, crossing the latter near Nicolaus. Moraga explored north as far as Oroville.[9]

Beginning in the late 1820s, American and British trappers made inroads into the Central Valley. The most notable incursion was the Hudson's Bay Company expedition of 1832–33, led by John Work. Unbeknownst to Work, members of the expedition carried malaria, which was probably introduced from Hawaii. The disease spread rapidly through the party, at one point infecting 72 of the 100 men comprising the expedition. For the Indians living in the valley, the newly introduced disease had a disastrous effect: death rates reached 75 percent or greater.[10]

With the permission of Mexican authorities, Americans and Europeans began to establish permanent settlements in the Sacramento Valley beginning in the late 1830s. The first and perhaps the most famous of the early settlers was John A. Sutter, who founded his New Helvetia complex near the confluence of the American and Sacramento Rivers in 1839. The success of Sutter's colony led to further white settlement on the rich interior lands, and within a few years isolated ranches were scattered from the junction of the Sacramento and San Joaquin Rivers as far north as Red Bluff. On December 18, 1844, the Mexican Governor of California granted Elias and Hiram Grimes 44,371 acres north of the American River. Known as the Rancho Del Paso, the grant extended north from the American River for 7 miles to the current Grantline Road and east from the present Old Marysville Road for 10 miles to near Manza-

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[9] Bean, W., 1978. *California: An Interpretive History.* San Francisco, CA: McGraw-Hill. Page 43.

Sacramento County Department of Environmental Review and Assessment, 1997. *Rio Linda and Elverta Community Plan: Final Environmental Impact Report, Vol. 1,* page 337. Sacramento, CA.

[10] Hurtado, A., 1988. *Indian Survival on the California Frontier.* New Haven, CT: Yale University Press. Pages 46-47.

Sacramento County Department of Environmental Review and Assessment, 1997. *Rio Linda and Elverta Community Plan: Final Environmental Impact Report, Vol. 1,* p. 338. Sacramento, CA.

nita Road in Carmichael. These boundaries included the area now know as Del Paso Heights.[11]

b. Twentieth Century History

Rancho Del Paso has the distinction of being one of the few Mexican land grants held intact into the 20th century. Although the land was originally granted to the Grimes Brothers, the first settler on the rancho land was lessee John Sinclair, who established a residence near the American River. In August 1849, the Grimes sold the rancho to Samuel Norris, to whom the U.S. government granted a patent to the land in 1858. After using the land for a variety of agricultural and ranching purposes for more than a decade, Norris sold Rancho Del Paso in 1862 to James Ben Ali Haggin and Lloyd Tevis. Haggin and Tevis attempted unsuccessfully to subdivide the land, and consequently it was under almost constant litigation for nearly 20 years. Finally in 1881, Haggin decided to use the rancho lands to raise horses. In time, it became one of the most famous horse breeding establishments in the United States.[12]

In 1905, Haggin decided to sell his stock and dispose of the Rancho Del Paso land; Haggin needed 5 years to accomplish the final disposition, however. In January 1910, the Sacramento Valley Colonization Company, a subsidiary of the United States Land Company of Chicago, purchased the Rancho. The company then announced plans to subdivide the land and establish two towns, one near the Southern Pacific station at Walerga and the other near Dry Creek station of the Sacramento Northern Electric Railway. The Sacramento Northern had laid out the town of Elverta, north of Dry Creek station, two years earlier in 1908. The company first gave the City of Sacra-

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[11] Dillon, R., 1967. *Fool's Gold: the Decline and Fall of Captain John Sutter of California.* Santa Cruz: Western Tanager Press.

Perez, C., 1996. *Land Grants in Alta California.* Rancho Cordova, CA: Landmark Enterprises.

[12] McGowan, J.A., 1961. *A History of the Sacramento Valley.* New York: Lewis Historical Publishing Company.

Perez, C., 1996. *Land Grants in Alta California.* Rancho Cordova, CA: Landmark Enterprises. Pages 182, 263-264.

mento the option to purchase lands for a park. In 1911, Sacramento selected 900 acres near Arcade Creek and developed the land as the Del Paso Park and Haggin Oaks Golf Course.[13]

By 1914, the North Sacramento Land Company had purchased a large tract of the former rancho lands and established the City of North Sacramento. The city incorporated in 1924 and for some time was the most successful settlement in the region. The land company sold town lots until about 1933. The City of North Sacramento was generally laid out on a grid with the northern boundary being North Avenue. McClellan Heights and Parker Homes were outside of the original development.[14]

In 1935, as a result of the efforts of Arthur Dudley, manager of the Sacramento Chamber of Commerce, Congress appropriated 7 million dollars to establish an Army Air Corps supply depot on old Del Paso rancho lands near Sacramento. The Sacramento Air Depot was officially dedicated in April 1938. The following year, the name was changed to McClellan Field in honor of an Air Corps major that died during a test flight in Ohio. During World War II, McClellan Field played a significant role in repairing aircraft and supplying the fighting force. By the end of the war, the base was one of the largest employers in the valley.[15]

The City of North Sacramento grew during the war because of its proximity to McClellan Air Force Base (AFB) (renamed after the establishment of a separate air

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[13] McGowan, J.A., 1961. *A History of the Sacramento Valley.* New York: Lewis Historical Publishing Company. Page 183.

Sacramento County Department of Environmental Review and Assessment, 1997. *Rio Linda and Elverta Community Plan: Final Environmental Impact Report, Vol. 1.* Sacramento, CA. Page 341.

[14] Gudde, E.G., 1969. *California Place Names.* Berkeley, CA: University of California Press. Page 87.

McGowan, J.A., 1961. *A History of the Sacramento Valley.* New York: Lewis Historical Publishing Company. Page 187.

[15] Burns, J.F. (ed.), 2001. *Sacramento: Gold Rush Legacy, Metropolitan Destiny.* Carlsbad [ED: CA? NM?]: Heritage Media Corporation. Page 108.

force in 1947) and the need for defense-related workers. The community eventually became established as the working class community that it now remains. In 1965, Sacramento officially annexed North Sacramento and Del Paso Heights.[16]

Because there were no established building or zoning ordinances prior to annexation in 1965, much of the development and construction in Del Paso Heights area followed an almost haphazard pattern. The one exception was the Parker Homes subdivision, built in 1943.[17] The Parker Homes subdivision was built under the direction of the Sacramento Housing Authority, which operated the project for the Federal Housing Authority. It was one of many federally funded public housing projects built during World War II to support the war effort. As a result of the migration of rural residents into areas where defense-related jobs were located during the late 1930s and 1940s, the federal government suspended traditional low-rent public housing construction and began a series of projects designed to house these workers. The Lanham Act of 1940 permitted the use of federal funds to build public housing for defense industry workers. Under the Act, approximately 625,000 units nationwide were built between 1940 and 1944. To counter what some legislators viewed as too much federal control, designated local authorities oversaw the federally funded projects, as they did for Parker Homes.

As part of their contribution to the war effort, many major architects of the time contracted with the federal government to design necessary wartime buildings. Projects designed by distinguished architects during this period ranged from warehouses to weapons test facilities to housing. Following this tradition, notable San Francisco Bay architect William Wilson Wurster designed the Parker Homes subdivision.

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[16] Burns, J.F. (ed.), 2001. *Sacramento: Gold Rush Legacy, Metropolitan Destiny.* Carlsbad [ED: CA? NM?]: Heritage Media Corporation. Page 117.

Lee, K.W., 1973. *Del Paso History: Thoroughbreds Give Way to Wild Mongrels.* Sacramento *Union*. March 9.

[17] Sacramento Bee, 1967. *Del Paso Heights: City Planners 1965 Report Description Still Fits Area.* July 30.

Wurster was born in Stockton in 1895 and studied architecture under John Galen Howard at the University of California, Berkeley, graduating with honors in 1919. Wurster was clearly influenced both by the classical traditions known to his mentors and by the indigenous buildings in California. He saw the latter as responding to the particular materials, technology, climate, and terrain of California. Wurster was a major designer of town and country dwellings in the roomy and comfortable West Coast aesthetic termed "Bay Region style." In addition to using native materials, Wurster also carefully integrated his buildings with the surrounding environment.

Wurster taught at Harvard and was dean of the School of Architecture and Planning at Massachusetts Institute of Technology (1944–50) and dean of the University of California Architecture School at Berkeley (1950–59). His major works include the Golden Gateway Redevelopment Project and Ghirardelli Square (both in San Francisco), Cowell College of the University of California at Santa Cruz, and a number of office buildings. He is perhaps best known for his Gregory Farmhouse in Santa Cruz that is considered the prototype for the popular ranch-style house.[18]

Wurster planned Parker Homes according to his sensibility that the natural environment should be considered in the design and that houses should be simple and should promote the quality of life lived within them rather than be showcases of the architect's ego. Therefore, the entire Parker Homes subdivision was oriented diagonally north-south. This orientation ensured that the sun would reach each side of the house at some part of the day even during winter months; there was no dank north side. This approach also took full advantage of the prevailing cooling evening breeze that blows from the south west during the summer. Additionally, the kitchen within each unit was placed so that it was shielded from the late afternoon summer sun. The general site plan is a cul-de-sac grouping of the three-bedroom units to provide greater safety for children. The carport on each unit was designed not only to shelter automobiles, but to serve as a porch during the summer and a sheltered play space for the

[18] Kirker, H., 1991. *Old Forms on a New Land: California Architecture in Perspective.* Newit, CO: Roberts Rinehart Publishers. Pages 85-88.

children during the winter months. Wurster designed the homes to be sided with redwood (one of his favored materials). Instead, the homes were built with water-proof fir plywood siding as a cost-saving measure.[19]

The houses in Parker Homes were all prefabricated and represent the first housing development in Sacramento to utilize prefabrication in home construction. Panels for the floors, walls, ceilings, and roofs were cut and assembled at a prefabrication mill located in Vallejo by the Robert McCarthy Company of San Francisco. The panels, with electrical wiring and window openings in place, were then shipped by truck to the construction site where they were erected. Contemporary accounts confirm the construction was permanent with graded sites and poured foundations.

The Parker Homes design included 332 units. The subdivision included two- and three-bedroom single-family residences and several four-unit, one-bedroom apartment buildings. To vary the appearance of the subdivision, Wurster built several of the single-family residences two stories tall, with the open garage and storage room comprising the bottom story. Holdener Construction Company of Sacramento completed the streets, sewers, electrical, and water systems. Each completed unit cost about $2,900, including landscaping; the monthly rent, including utilities, was $31.50 for a single-bedroom apartment, $35 for a two-bedroom single family residence, and $38 for a three-bedroom house.[20]

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[19] Wurster, W.W., 1944. *Planned for Prefabrication.* Parker Homes, Sacramento, Cal., for Federal Works Agency. *Architectural Record.* January. Pages 79-80.

[20] Sacramento Bee, 1943a. *Development is Unique with it Prebuilt Houses.* January 9.

Sacramento Bee, 1943b. *Assembly Line Construction Was Used in Parker Homes.* January 9.

Sacramento Bee, 1943c. *Parker Homes Are Occupied by Tenants.* January 12.

Sacramento Bee, 1943d. *Parker Homes Social Hall Will Be Dedicated.* August 27.

Wurster, W.W., 1944. *Planned for Prefabrication.* Parker Homes, Sacramento, Cal., for Federal Works Agency. *Architectural Record.* January. Page 80.

Parker Homes officially opened on January 11, 1943, when tenants moved into the first 31 units. Although nearly 150 of the houses had been completed by mid-February, only 40 units were occupied at the time. Federal law designated Parker Homes as housing for "vital" defense employees, or those who had at least six months of training in skilled labor. Consequently, most of the applicants from McClellan Field did not qualify because they were considered as "essential" or "necessary" workers, the two lower classifications under "vital." The federal government soon relaxed the rule and by early November 1943, both civilian and military personnel from McClellan Field occupied all 332 Parker Home units. Earlier in the year, the Parker Homes community center and social hall (built at a cost of $24,000) was dedicated as a neighborhood amenity.[21]

In August 1949, the Public Housing Administration (the post-war iteration of the Federal Housing Authority) announced that it would dispose of Parker Homes and the sale would commence as rapidly as arrangements could be made. Although the houses were offered to the tenants for prices ranging from $2,800 to $3,200, many of residents had trouble raising a down payment. As a result, a group of tenants organized the Parker Homes Veterans Buying Association as a means of pooling resources. Working with the American Legion to secure financing, the association originally hoped to incorporate Parker Homes into a separate community. Although the Association was apparently successful in purchasing the subdivision, Parker Homes was never incorporated as a separate entity. In the 1970s, the subdivision was bisected by the construction of Interstate 80.[22]

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[21] Sacramento Bee, 1943d. *Parker Homes Social Hall Will Be Dedicated.* August 27.
Sacramento Bee, 1943e. *Parker Homes Left Empty by Federal Rules.* February 21.
Sacramento Bee, 1943f. *Parker Homes Tract Reports No Vacancies.* November 9.
[22] Sacramento Bee, 1949. *Tenants Plan To Incorporate, Buy Parker Homes Project.* August 9.

C. Existing Setting

Efforts to locate cultural resources within the McClellan Heights/Parker Homes plan area included a records search, archival research, and a reconnaissance-level field survey of the Plan Area. Existing information sources include published sources on regional prehistory, ethnography, and history on file at the Jones & Stokes cultural resource library and a record search at the North Central Information Center (NCIC) of the California Historical Resources Information System. Archival research was conducted at several state and local depositories in the Sacramento region. Relevant information gained from published sources is cited in "Cultural Setting" above.

1. Records Search and Archival Research

Jones & Stokes conducted a record search at the NCIC on January 5, 2005. The NCIC maintains the State of California's official records of previous cultural resource studies and known cultural resources. The NCIC's records cover a six-county area that includes Sacramento County. In addition to previous studies and cultural resource records, the NCIC holds several historic inventories, historic maps, and secondary historical sources.

Jones & Stokes also conducted archival research at various repositories in the Sacramento area including the California Room of the California State Library, the Sacramento Room of the Sacramento County Library, and the Sacramento Archives and Museum Collection Center (SAMCC). In addition, Jones & Stokes contacted the National Archives and Records Administration (NARA) Pacific Sierra Branch at San Bruno, which holds some of the federal records concerning the Sacramento Air Depot/McClellan Field, the Rio Linda/Elverta Historical Society, the Del Paso Heights Historical Society, and the McClellan Aviation Museum for information concerning cultural resources in the Plan Area.

2. Extant Cultural Resources and Sensitivity for Archaeological Resources

The record search indicates that nine cultural resource studies have been conducted in or adjacent to the Plan Area.[23] None of the Plan Area has been surveyed for the pres-

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[23] Chavez, D., 1991. *Cultural Resources Investigation for the Raley Boulevard Reconstruction Project, Sacramento, California.* August. Prepared by David Chavez & Associates, Mill Valley, CA. Submitted to Nichols-Berman, San Francisco, CA. On file at North Central Information Center, California State University, Sacramento (Study 472).

Derr, E.H., 1998. *Letter Report Regarding Pacific Bell Mobile Services: 2600 Harris Avenue, Sacramento Vicinity, Sacramento County: Site # SA-056-C1.* Prepared by Cultural Resources Unlimited, Rancho Cordova, CA. Prepared for QUAD, Roseville, CA. On file at North Central Information Center, California State University, Sacramento (Study 1765).

Dondero, S.B., 1978. *An Archeological Reconnaissance of Sewer Alignments for the Natomas Interceptor System, Sacramento, California.* Prepared by Archeological Study Center, California State University, Sacramento. Prepared for J. B. Gilbert & Associates, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento (Study 176).

Jones & Stokes Associates, 1995. *Cold War-Era Inventory and National Register Evaluation of McClellan Air Force Base, Sacramento County, California.* Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento.

Jones & Stokes Associates, 1997. *Final Cultural Resources Management Plan, McClellan Air Force Base, Sacramento County, California.* Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento.

Jones & Stokes Associates, 1999. *Cultural Resources Inventory Report for Williams' Fiber Optic Cable System: Sacramento to the California/Nevada State Border, Sacramento, Placer, and Nevada Counties, California.* November. Prepared by Jones & Stokes Associates, Inc., Sacramento, CA. Prepared for Williams Communications, Inc., Tulsa, OK. On file at North Central Information Center, California State University, Sacramento (Study 2935).

JRP Historical Consulting Services, 1997. *Historic Preservation Guide for the Sacramento Air Depot Historic District, McClellan Air Force Base, Sacramento, California.* February. Prepared by JRP Historical Consulting Services, Davis, CA. Prepared for McClellan Air Force Base, Sacramento, CA, and U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento.

McCarthy, H., M. Scully, and C. Blount, 1987. *Cultural Resources Survey of the Proposed Sacramento to Roseville Pipeline Project.* February. Prepared by Theodoratus Cultural Research, Inc. Fair ence of cultural resources, however. The majority of the studies cited above were conducted on adjacent portions of McClellan AFB. The sole exception is Derr (1998), which is a study for a small-footprint cellular tower project. No cultural resources have been previously recorded in the Plan Area. The historic Central Pacific/Southern Pacific Railroad (CA-Sac-478H) is located within a 0.5-mile radius of the Plan Area, as are historic buildings on McClellan AFB.

Although no archaeological resources have been identified in the Plan Area, such resources may be present. The apparent dearth of archaeological resources probably results from Euroamerican settlement and development predating environmental review legislation. Few archaeological investigations have been conducted in the Plan Area after the inception of environmental review laws.

The Plan Area exhibits characteristics conducive to the presence of Native American and historic-period archaeological resources. A historic topographic map indicates that five streams and four historic roads traversed the Plan Area circa 1908–1909, as shown in Figure 4.4-1.[24] Historic photographs that pre-date McClellan AFB depict numerous vernal pools in the Plan Area vicinity.[25] According to the prehistoric and ethnographic contexts above, as well as local archaeological research, streams and vernal pools provided foci for Native American settlement and resource procure-

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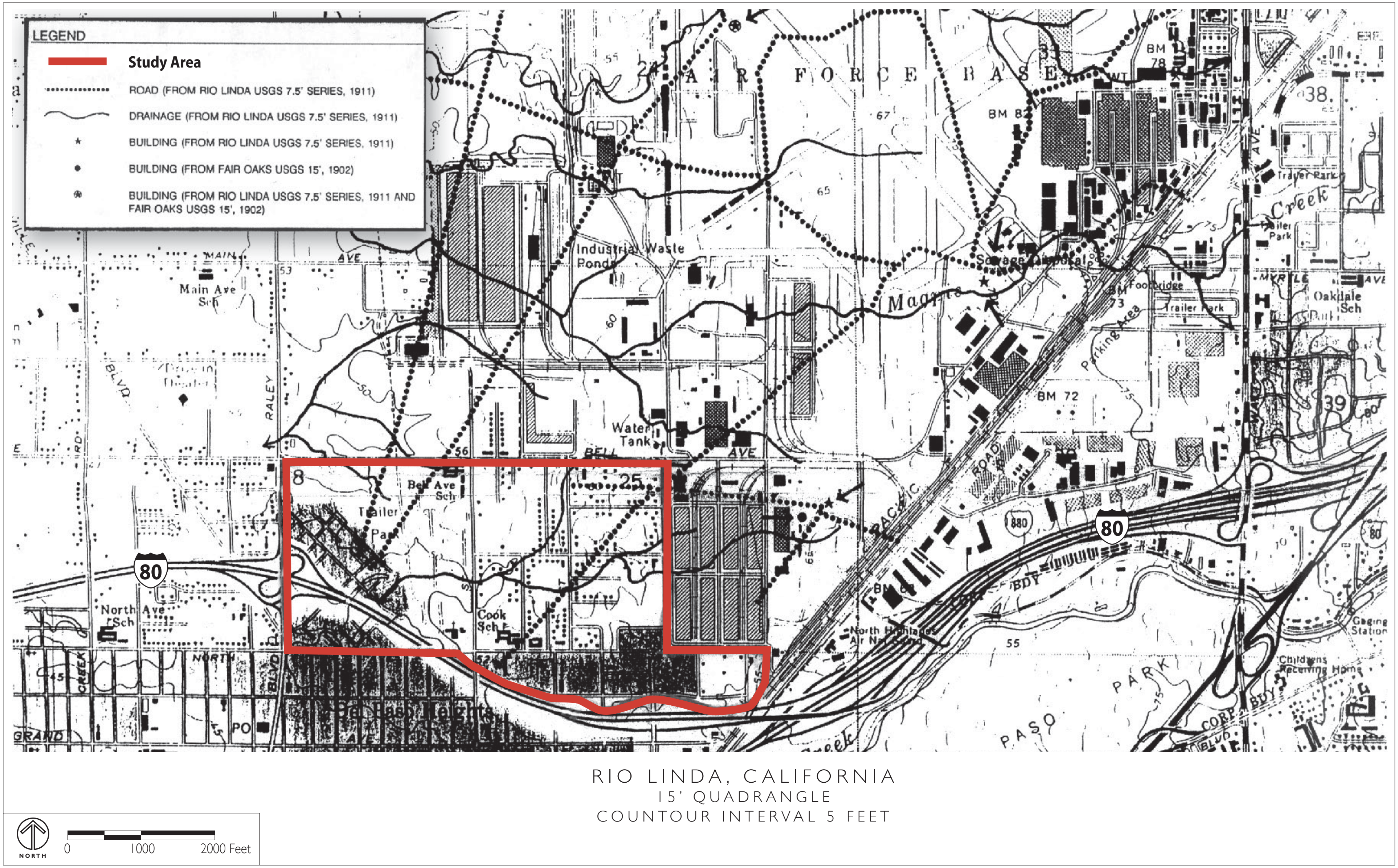
Oaks, CA. Submitted to Southern Pacific Pipe Lines, Inc., Los Angeles, CA. On file at North Central Information Center, California State University, Sacramento.

Peak and Associates, 1993. *Intensive Cultural Resource Survey of Portions of McClellan Air Force Base, Sacramento County, California.* October 18. Prepared by Peak & Associates, Inc., Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento.

[24] U.S. Geological Survey, 1911. *7.5-Minute Arcade, California, Quadrangle.* Surveyed in 1908–1909. On file at North Central Information Center, California State University, Sacramento.

[25] Miller, M.A., 1982. *History of McClellan Air Force Base, 1936–1982:* A Pictorial History. Office of History, Sacramento Air Logistics Center. McClellan Air Force Base, CA. Page 22.



Source: Peak & Associates 2007

FIGURE 4.4-1

LOCATION OF HISTORIC ROADS AND STREAMS

ment.[26] Peak and Associates concluded that, because settlements and archaeological deposits are also frequently found near historic travel corridors, portions of the Plan Area are probably sensitive for the presence of historic-era archaeological resources.[27] The same group suggested that archaeological resources are likely present within a 200-meter-wide corridor of historic stream and road alignments.[28] Support for this hypothesis was provided by a survey conducted along a historic alignment outside of the Plan Area in which historic artifacts were subsequently identified.

The indications and evidence above suggest that reasonable potential exists in approximately 60 percent of the Plan Area for the presence of archaeological resources. Most of the archaeologically sensitive areas, however, are developed and cannot feasibly be surveyed for the presence of archaeological resources. The vacant field east of Village Green Drive is an exception.

3. Built Environment (Architectural) Resources

The records search revealed that none of the built environment resources (buildings and structures) within the Plan Area have been formally inventoried or evaluated for

[26] Jones & Stokes Associates, 2004. *Cultural Resources Treatment Plan for the Lower Northwest Interceptor Project, Sacramento and Yolo Counties, California.* (J&S 04-353.) Sacramento, CA. Submitted to U.S. Army Corps of Engineers, Sacramento, CA, and Sacramento Regional County Sanitation District, Mather, CA. Page 3-16.

Peak and Associates, 1993. *Intensive Cultural Resource Survey of Portions of McClellan Air Force Base, Sacramento County, California.* October 18. Prepared by Peak & Associates, Inc., Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento. Page 22.

[27] Peak and Associates, 1993. *Intensive Cultural Resource Survey of Portions of McClellan Air Force Base, Sacramento County, California.* October 18. Prepared by Peak & Associates, Inc., Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento. Pages 23 and 25.

[28] Peak and Associates, 1993. *Intensive Cultural Resource Survey of Portions of McClellan Air Force Base, Sacramento County, California.* October 18. Prepared by Peak & Associates, Inc., Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento, CA. On file at North Central Information Center, California State University, Sacramento. Pages 22-25.

listing in the National Register of Historic Places or the California Register of Historical Resources. The reconnaissance-level survey did not reveal any buildings that appeared to be of apparent architectural significance, although many appear to have been built 50 or more years ago.

Significant built environmental resources may be present in the Plan Area, however, despite their absence in formal inventories. Further research or field inventory would be required for the necessary evaluation. Parker Homes themselves could be considered an important work of a recognized master architect, considering the information presented above in the historic context. Additional historical research would be needed to properly evaluate the subdivision within the context of Wurster's greater body of work. Intensive field investigation would be needed to determine if the subdivision or any of its individual buildings retain sufficient integrity respective of their period of construction to warrant eligibility for listing in either federal or state historic registers.

D. Standards of Significance

The Plan would have a significant impact with regard to cultural resources if it would:

- ♦ Cause a substantial change in the significance of a historical or a unique archaeological resource as defined in CEQA Guidelines Section 15064.5.
- ♦ Disturb any human remains including those interred outside of formal cemeteries.

CEQA defines a substantial adverse change in the significance of a cultural resource as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. Actions that would materially impair the significance of a historic resource or any actions that would demolish or adversely alter those physical characteristics of a historic resource that convey its historic significance and qualify it for inclusion in the CRHR or in a local register (Sacramento Register) or survey that meet the requirements of PRC 5020.1(k) and 5024.1(g).

The State CEQA Guidelines maintain that a project that results in a substantial adverse change in a cultural resource listed in or eligible for listing in the NRHP is a project that would have a significant environmental impact (Public Resources Code 5024.1[d][1]). Standards of significance under Section 106 are similar to those of CEQA: physical damage or destruction to significant cultural resources, particularly archaeological sites, may affect the physical integrity of those resources and thus reduce their information or research potential (NRHP Criterion D or CRHR Criterion 4). Physical damage or alteration may also have deleterious effects on the characteristics of a cultural resource that convey its significant association with an important historical event, person, or architectural/design quality (NRHP Criteria A–C or CRHR Criteria 1–3).

E. Impact Discussion

The "project" analyzed in this EIR consists of rezoning and preparation and implementation of the Plan. It would not, in and of itself, result in impacts to cultural resources. Future projects proposed under the Plan, however, have the potential to result in impacts on cultural resources in a variety of ways. For example, ground-disturbing activities such as grading, leveling, and sub-grade excavation for structural supports have clear potential to damage or destroy several types of cultural resources, including standing structures and archaeological sites. Other potential impact mechanisms include direct alteration of historic structures and the alteration of the historic setting of cultural resources in or adjacent to the Plan Area. Potential impacts are discussed in greater detail below.

1. Plan Impacts

Impact CULT-1: Ground-disturbing activities of future development projects could result in damage to or the destruction of archaeological resources.

Implementation of the Plan would result in development activity in the Plan Area, resulting in potential impacts to archaeological resources.

The records search conducted for this analysis did not result in the identification of archaeological resources in the Plan Area. The absence of previously recorded archaeological resources in the records search, however, does not indicate the absence of such resources nor little potential for their occurrence because the Plan Area has not been surveyed for the presence of archaeological resources. As discussed above, approximately 60 percent of the Plan Area is considered sensitive for the presence of archaeological resources. Ground-disturbing activities associated with future projects occurring under the Plan (such as building demolition, grading, leveling, filling, structural excavation, and modification of hardscape features) may result in the damage or complete destruction of archaeological resources that meet the CEQA definitions of historical resource and unique archaeological resource.

In accordance with City environmental review procedures, environmental impact analyses of future Plan Area developments would require an archaeological inventory of the subject site(s) to determine whether archaeological resources are in fact present. Identified archaeological resources would be evaluated for significance under the applicable local, State, and federal significance criteria.

Considering the lack of physical changes that would take place under the Plan as described, the Plan would not result in a substantial adverse change to archaeological resources, directly or indirectly.

Impact CULT-2: Ground-disturbing activities could result in damage to or the destruction of human remains.

Similar to Impact CULT-1, future developments in the Plan Area have the potential to damage or destroy as-yet-unidentified human remains through ground-disturbing activities. The potential impact stems from two conditions in the existing conditions of the Plan Area. First, over 12 parcels of open land, where examination of the ground surface by qualified archaeologists is possible, are distributed throughout the Plan Area. To date, the open areas have not been surveyed for the presence of cultural resources, leaving the possibility that as-yet-unidentified cultural resources (including human remains) are present in the Plan Aera. Second, there is the potential for human remains, like archaeological materials, to be buried beneath the ground surface or obscured by vegetation or other forms of land cover. Disturbance of human remains, whether resulting in disarticulation of remains, partial destruction, or complete destruction, would be a significant impact under CEQA. The Plan itself, however, would not result in the disturbance of human remains because no specific ground-disturbing activities are proposed, and future projects occurring under the Plan will be analyzed for potential environmental impacts as such projects are proposed in the Plan Area. The Plan would, therefore, result in no impact on human remains.

Impact CULT-3: Project-level activities could result in damage to or destruction of built environment historical resources such as buildings and structures.

Implementation of the Plan would result in development activity in the Plan Area, resulting in potential impacts to archaeological resources.

The reconnaissance-level survey undertaken for this programmatic document did not reveal any buildings that, visually, appeared to be of apparent historic or architectural significance. However, many appear to have been built 50 or more years ago (Parker Homes). A records search revealed that none of the built environment (buildings and structures) resources within the Plan Area have been formally inventoried or evaluated for listing in the NRHP, the CRHR, or the Sacramento Register. The absence of formally inventoried and evaluated or visually apparent architecturally significant built environment resources, however, does not preclude their presence in the Plan Area. An intensive inventory or evaluation effort to identify built environment historical resources (buildings and structures) has not been conducted as part of this study and therefore would be required should any project-level activities physically or visually impact any built environment historical resources. As part of the evaluation process, formal research of the subject properties will be required to determine whether they meet significance criteria by virtue of association with federal, state, or local historic themes.

Considering the lack of physical changes that would take place under the Plan as described, the Plan itself would not result in a substantial adverse change to built environment historical resources (building and structures), directly or indirectly.

2. Cumulative Impacts

For reasons discussed above, implementation of the Plan would not have any impact on archeological resources and would not result in a substantial adverse change to built environment historical resources (building and structures) directly or indirectly. Accordingly, implementation of the Plan would not contribute to any significant cumulative impacts on cultural resources or built environment historic resources.

F. Impacts and Mitigation Measures

Since no potentially significant impacts were identified, no mitigation measures are needed.

4.5 HAZARDS AND HAZARDOUS MATERIALS

This section provides information on hazards and hazardous materials that have the potential to occur or are known to occur in the Plan Area.

A. Regulatory Framework

The use, production and disposal of hazardous materials and waste are regulated extensively by federal, State, regional and local regulations and guidance, with the major objectives of protecting public health and the environment.

1. Federal Regulations[1]

a. Environmental Protection Agency

The United States Environmental Protection Agency (US EPA) is the lead agency responsible for enforcing federal regulations that affect public health and the environment, although the US EPA designates much of its regulatory authority to individual states. The California Environmental Protection Agency (Cal EPA) enforces hazardous materials laws and regulations in California in conjunction with US EPA. Cal EPA is divided into two main enforcement agencies for the regulation and oversight of environmental contamination by hazardous waste: the Department of Toxic Substance Control (DTSC) and the Regional Water Quality Control Boards (RWQCB). Sacramento County and the City of Sacramento are under the jurisdiction of the Central Valley RWQCB.

b. Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act enables EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

[1] Standard Checklist, City of Sacramento Development Services Department.

c. Comprehensive Environmental Response, Compensation and Liability Act

This Act (also known as Superfund) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the Act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership.

2. State Regulations[2]

California regulations are equal to or more stringent than federal regulations. EPA has granted California primary oversight responsibility for administering and enforcing hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Several key laws pertaining to hazardous wastes are discussed below.

a. Hazardous Materials Release Response Plans and Inventory Act of 1985

This Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused hazardous materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

b. Hazardous Waste Control Act

The Hazardous Waste Control Act created the State hazardous waste management program, which is similar to, but more stringent than, the federal Resource Conservation and Recovery Act program. The Act is implemented by regulations contained in

[2] Standard Checklist, City of Sacramento Development Services Department.

26 CCR, which describes the following required aspects for the proper management of hazardous waste:

- ♦ identification and classification;
- ♦ generation and transportation;
- ♦ design and permitting of recycling, treatment, storage, and disposal facilities;
- ♦ treatment standards;
- ♦ operation of facilities and staff training;
- ♦ closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and 26 CCR, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances Control.

c. Emergency Services Act

Under the Emergency Services Act, the State developed an emergency response plan to coordinate emergency services provided by federal, State, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including EPA, the California Highway Patrol (CHP), RWQCBs, air quality management districts, and county disaster response offices.

3. Local Regulations

a. City of Sacramento General Plan (1988)

The Health and Safety Element of the City of Sacramento's General Plan includes goals and policies that are relevant to hazardous materials usage in Sacramento. Goals and policies from this element that are relevant to the Plan are listed in Table 4.5-1.

B. Existing Conditions

The Plan Area includes residential, commercial and industrial uses. A search of the Department of Toxic Substances Control (DTSC) and the County of Sacramento Environmental Management Department (EMD) databases uncovered no active cleanup sites within the Plan Area. The EMD database includes a list of businesses in the Plan Area which may have hazardous materials onsite including auto repair services, a landscaping business, dry cleaners, a battery retailer, metal plating facility and a reprographics shop.

Asbestos-containing materials were widely used in housing materials prior to the 1970's. The homes in the McClellan Heights and Parker Homes area were built prior to 1970 and the use of asbestos in building materials and insulation is highly probable.

Groundwater used in the Plan Area is not known to be contaminated. The former McClellan Air Force Base is documented as a federal Superfund site and is located adjacent to the Plan Area. The contamination at this base infiltrated and contaminated groundwater in the surrounding area, including municipal wells. This issue has since been resolved by the federal government and there is no documentation that shows that this contamination affected the Plan Area.

TABLE 4.5-1 **RELEVANT SACRAMENTO GENERAL PLAN GOALS AND POLICIES—HAZARDS AND HAZARDOUS MATERIALS**

Policy Number	Policies
Hazards and Hazardous Materials	
Goal A	Provide for the health and safety of the citizens of Sacramento and for the protection of the environment by reducing and, where possible, eliminating exposure to hazardous materials and waste.
1	Work with the County, State, federal agencies and responsible parties to identify, contain and clean up sites that contain hazardous materials.
3	Encourage “clean industry” to operate in the City of Sacramento.
6	Coordinate with Sacramento County, the State, and federal governments to ensure compatibility among plans, programs, regulations, and safeguards.
8	Ensure that areas where hazardous materials have been found are remediated, before development of new areas, to the extent necessary to protect the health and safety of all possible users and adjacent properties, consistent with applicable laws and regulations.
Other Safety and Health Hazards	
Goal A	Eliminate health and safety hazards wherever possible.
1	Continue Code Enforcement programs that reduce the risks associated with dangerous buildings.
3	Target code enforcement programs in areas identified as having a high incidence of health, safety, and other code violations.

C. *Standards of Significance*

The Plan would have a *significant* impact with regard to hazardous materials if it would:

- Expose people (e.g. residents, pedestrians, construction workers) to existing contaminated soil during construction activities.

- Expose people (e.g. residents, pedestrians, construction workers) to asbestos-containing materials.
- Expose people (e.g. residents, pedestrians, construction workers) to existing contaminated groundwater during dewatering activities.

D. Impact Discussion

This section discusses potential impacts that could occur regarding hazards and hazardous materials.

1. Contaminated Soil

According to the EMD and DTSC databases, there are no known sites with contaminated soil in the Plan Area. The Plan could spur redevelopment of buildings which use common hazardous materials, such as cleaning solutions, as part of daily operations. If these businesses had unknowingly contaminated the soil, it could be possible that construction activities would disturb these soils and expose people to the contaminants. Considering the limited amount of hazardous materials that are used, the fact that there is no known soil contamination in the Plan Area and the extent of existing regulations governing these types of materials, this impact is considered *less than significant.*

2. Asbestos-Containing Materials

Homes in the Plan Area are old enough to have been constructed with asbestos-containing material. Demolition and redevelopment could disturb these materials if they do exist in that particular structure. This is fairly common as many homes built before 1970 contain asbestos and these homes are often remodeled or rebuilt. Regulations set forth in Cal/OSHA's (California Occupational Safety and Health Administration) Asbestos Standards in Construction (8 CCR Section 1529) protects construction workers from asbestos exposure. Sacramento Metropolitan Air Quality Management District (SMAQMD) regulates exposure to asbestos by Rule 902 which pertains to commercial projects, five or more housing units and public works projects[3]. Due to regulations set forth by City of Sacramento building permitting, Cal/OSHA, and SMAQMD, this impact is considered *less than significant*.

3. Contaminated Groundwater

There are no known contaminated groundwater sites in the Plan Area. Database checks of the DTSC and EMD websites show no currently contaminated sites. Detwatering activities using water from the Plan Area would not use any existing contaminated water. Therefore, the Plan would have *no impact* resulting from contaminated groundwater.

E. Impacts and Mitigation Measures

There are no impacts regarding hazardous materials, and therefore no mitigation measures are required.

[3] http://www.airquality.org/compliance/asbestos.shtml#agencies, accessed August 30, 2006.

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4.6 HYDROLOGY AND WATER QUALITY

This section addresses the effects of the Plan with regards to hydrology, including drainage, increased runoff, development within a floodplain and surface water quality. Impacts associated with the capacity of the storm drainage system of the Plan Area are discussed in greater detail in Section 4.13, Utilities and Service Systems.

A. Regulatory Framework

This section discusses applicable federal, State and local regulations governing water quality, as well as development activities within a floodplain.

1. Water Quality Regulatory Setting

Because stormwater runoff from the Plan Area that is conveyed via the City's stormwater system discharges into the Sacramento River, development allowed under the Plan would be subject to all applicable federal and State requirements pertaining to Sacramento River water quality.

Water quality objectives for all waters in the State are established under applicable provisions of Section 303 of the federal Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act. The State Water Resources Control Board (SWRCB) and the Central Valley Regional Water Quality Control Board (CVRWQCB) are responsible for ensuring implementation and compliance with the provisions of the federal CWA and the Porter-Cologne Water Quality Act.

a. National Pollutant Discharge Elimination System General Construction Activities Stormwater Permit Requirements

The federal CWA has regulated the discharge of pollutants to waters of the United States from any point source since 1972. In 1987, amendments to the CWA established a framework for regulating nonpoint source (NPS) stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). The SWRCB implements the Clean Water Act by issuing NPDES permits to cities and counties through regional water quality control boards, which would be the CVRWQCB in this case. Federal regulations allow two permitting options for storm water discharges – individual permits and general permits. NPS pollutants include phosphorus, ammonia, lead, zinc, copper and suspended solids that collect on impervious surfaces such as rooftops, landscape areas, streets and parking areas and are then washed by rainwater into the drainage network. Increased levels of NPS pollutants are detrimental to wildlife and human health.

In the Phase I NPDES stormwater program, permits were issued for urban runoff discharges from municipalities of over 100,000 people, from plants in industries recognized by the US EPA as being likely sources of stormwater pollutants, and from construction activities that disturb more than 5 acres. Phase 2 implementation, effective March 10, 2003, extended NPDES urban runoff discharge permitting to cities of 50,000 to 100,000 people, and to construction sites that disturb between 1 and 5 acres.

b. NPDES Municipal Stormwater Permit

The City of Sacramento, along with the Sacramento County Water Agency, City of Folsom, and the City of Galt, share a joint NPDES permit (No. CA S082597) that was granted in December 2002. This permit gives the City of Sacramento the authority to develop, administer, implement and enforce stormwater management programs within the city limits. The NPDES program includes the characterization of receiving water quality, identification of harmful constituents, targeting of potential sources of pollutants, and implementation of a comprehensive stormwater management plan. The City of Sacramento has a Stormwater Quality Improvement Plan (SQIP) and Sacramento Stormwater Management Program (SMWP). The SQIP provides a comprehensive plan to direct the City's SWMP priorities and activities through 2008, including program management, target pollutant reduction strategy, a monitoring program, and program element implementation (e.g. industrial, construction, public education and outreach elements, and program evaluation). As required by the City's joint NPDES permit, the SQIP/SMWP identifies Best Management Practices (BMPs) to reduce pollutants in stormwater that the City must implement.

c. City of Sacramento Construction Site Stormwater Controls

The City's Grading and Erosion Sediment Control Ordinance (Chapter 15.88 of the Sacramento Municipal Code) requires project applicants to prepare plans to control erosion and sediment both during and after construction, prepare preliminary and final grading plans, and prepare plans to control urban runoff from the project site during construction. In addition, proposed BMPs must be approved by the City's Department of Utilities. Acceptable BMPs include: stormwater inlet protection (including the use of straw bales, sandbags, gravel traps and filters); erosion control measures including vegetation and physical stabilization; and sediment control measures including fences, dams, barriers, berms, traps and basins.

2. Flood Hazards Regulatory Setting

a. Federal Regulations

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) and delineates areas subject to flood hazards on Flood Insurance Rate Maps (FIRMs) for each community participating in the NFIP. The FIRMs show the area subject to inundation by a flood that has a 1 percent chance or greater of being equaled or exceeded in any given year. This type of flood is referred to as the "100-year" or "base flood."

b. Local Regulations

The Health and Safety Element of the City of Sacramento General Plan includes a goal of protecting against flood-related hazards, as well as a policy stating that the City will prohibit development in areas with a high risk of flooding unless sufficient preventative measures are implemented.

B. Existing Conditions

1. Flooding

The entire Plan Area is located within Zone X, as indicated by FEMA's Flood Insurance Rate Map (FIRM) for Sacramento, which are areas outside of the 100-year floodplain, and thus, would be at minimal risk for flooding hazards. Within Zone X, there are no requirements to elevate or otherwise provide flood-proofing.

2. Surface Water and Drainage Quality

Surface water drainage in the Plan Area is handled mainly through a network of roadside ditches or through ground percolation. A detailed discussion of drainage is included in Section 4.13, Utilities and Service Systems.

C. Standards of Significance

The Plan would have a significant impact with regard to hydrology and water quality if it would:

- ♦ Substantially degrade water quality and violate any water quality objectives set by the SWRCB due to increased sediments and other contaminants generated by consumption and/or operation activities.
- ♦ Substantially increase exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

D. Impact Discussion

Implementation of the Plan would not substantially degrade water quality or violate any water quality objectives set by the SWRCB due to increased sediments and other contaminants generated by consumption and/or operation activities.

Implementation of the Plan would result in an increase in impervious surface area due to new structures and paved areas; however, new development would be required to show that it is providing adequate on-site surface drainage. Stormwater that flows overland or underground in the piped drainage system will flow directly to creeks and, ultimately, the American and Sacramento Rivers. Capacity of the stormwater drainage system is addressed in Section 4.13. Regarding potential impacts to water quality related to the discharge of stormwater, all discharges are subject to conditions of a NPDES Permit.

Development under the Plan may include construction activities that could result in impacts to water quality. However, future applicants would be required to follow the City's Grading, Erosion and Sediment Control Ordinance; moreover, projects on site greater than 10,000 square feet are required to follow additional requirements, as specified by the State's NPDES General Permit for Stormwater Discharges Associated with Construction Activity, which includes preparing a stormwater management plan prior to construction. Therefore, compliance with State and City regulations would reduce impacts to water quality to a *less-than-significant* level.

1. Flooding

As noted above, the Plan Area is located within Zone X, which indicates that implementation of the Plan would not expose people and/or property to the risk of injury and damage in the event of a 100-year or greater flood event. Therefore, the Plan would have a *less-than-significant* impact with regards to flooding hazards.

E. Impact and Mitigation Measures

Since no impacts from implementation of the Plan are expected to occur, no mitigation measures are required.

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4.7 LAND USE

This section describes potential impacts from the Plan on land use and includes a description of the regulatory framework and existing land use conditions.

A. Regulatory Framework

This section discusses existing plans and policies related to land use in the Plan Area.

1. City of Sacramento General Plan (1988)

The goals and policies of the Residential Land Use and Commerce and Industry Land Use Elements of the 1988 General Plan prescribe the pattern of land use in Sacramento and set standards for future development. As shown in Figure 4.7-1, all of the Parker Homes neighborhood is designated as Low Density Residential, which allows 4 to 15 dwelling units/acre, with the exception of parcels located at the intersection of North Avenue and Marysville Boulevard in the southwestern portion of the Plan Area, which are designated as "Community/Neighborhood and Commercial/Office." Approximately half of the McClellan Heights neighborhood designated for non-residential uses including areas designated as "Industrial/Employee-Intensive" and "Heavy Commercial or Warehouse." These areas are located along Bell Avenue and a 12-acre area that is bordered by North Avenue, Harris Avenue, Tate Street and McClellan Park. The majority of the remainder of McClellan Heights is designated as Low Density Residential; the two school sites in the Plan Area are designated as Public/Quasi-Public and Parks-Recreation-Open Space.

Goals and policies from the General Plan that are relevant to the Plan are listed in Table 4.7-1. As noted in Chapter 3, the City is currently updating its General Plan.

2. North Sacramento Community Plan (1984)

The North Sacramento Community Plan was intended to refine policy direction in the General Plan specifically for the North Sacramento area. Land use designations for the Plan Area are congruent with those in the City's General Plan, as shown in Figure 4.7-2.

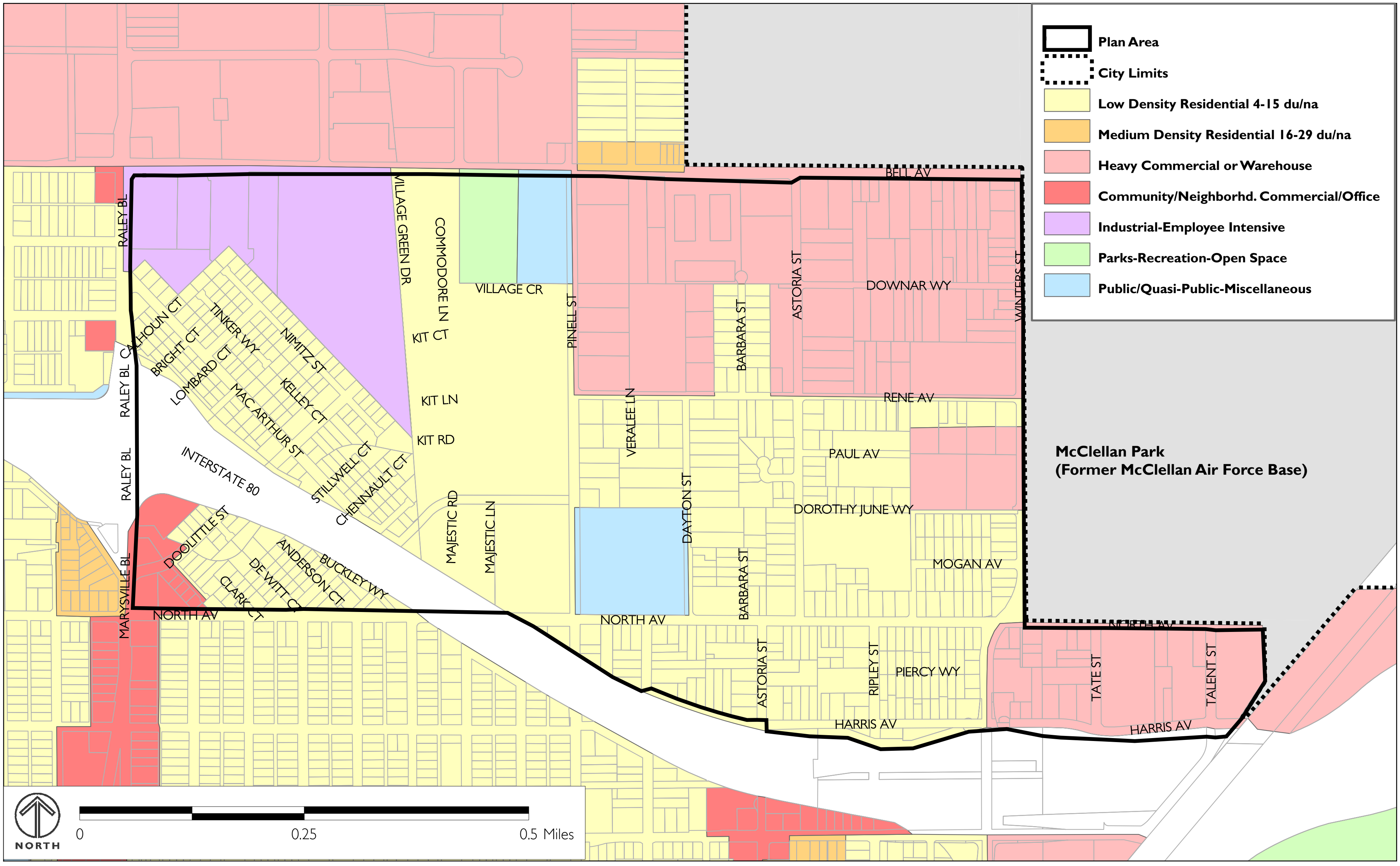


FIGURE 4.7-1

EXISTING GENERAL PLAN LAND USE DESIGNATIONS IN THE PLAN AREA

FIGURE 4.7-2

EXISTING NORTH SACRAMENTO COMMUNITY PLAN AREA LAND USE DESIGNATIONS IN THE PLAN AREA

TABLE 4.7-1 **RELEVANT CITY OF SACRAMENTO GENERAL PLAN POLICIES AND GOALS — LAND USE**

Number	Policies
Residential Land Use	
Goal A	Improve the quality of residential neighborhoods Citywide by protecting, preserving and enhancing their character.
2	Actively promote the following existing City programs that provide assistance and information on maintenance and beautification for residential development: ♦ Code enforcement programs and information. ♦ Rehabilitation programs available through the Sacramento Housing and Redevelopment Agency for single family development. ♦ Rental rehabilitation program.
3	Utilize established Multiple Family Design Guidelines in reviewing multiple family development on a Citywide basis.
4	Promote the reuse of abandoned structures which are sound or can be renovated for residential use to ensure neighborhood vitality. ♦ Adjacent to McClellan Air Force Base the following criteria will be used when reviewing residential infill development projects: • The proposal is consistent with General Plan and Community Plan land use policies; • The proposal is permitted under the zoning designation for the property; • The proposal is located within 1,000 feet of surrounding development of similar uses; • The development project is compatible with surrounding residential development; • The proposed Plan will not expand the perimeter of the developed area; • Projects developed under infill provisions will be eligible for certain incentives other than a density bonus which will not be appropriate in this specific location due to factors affecting this property.
5	Continue redevelopment and rehabilitation efforts in existing target areas and identify other areas experiencing blighting conditions. Explore methods to expand public or private rehabilitation efforts in potential improvement areas and in areas of opportunity or reuse identified in the General Plan (see exhibits located elsewhere in the General Plan).
6	Prohibit the intrusion of incompatible uses into residential neighborhoods through adequate buffers, screening and zoning practices that do not preclude pedestrian access to arterials that may serve as transit corridors.
8	Support efforts to develop established guidelines for residential development fronting on a major street.
Goal B	Provide affordable housing opportunities for all income household categories throughout the City.
1	Establish methods to provide more balanced housing opportunities in communities that lack a full range of housing opportunities.

TABLE 4.7-1 **RELEVANT CITY OF SACRAMENTO GENERAL PLAN POLICIES AND GOALS — LAND USE** (CONTINUED)

Number	Policies
Goal C	Develop residential land uses in a manner that is efficient and utilizes existing and planned urban resources.
1	Identify areas where increased densities, land use changes or mixed uses would help support existing services, transportation facilities, transit, and light rail. Then proceed with necessary General Plan land use changes for property with service capacities adequate to support more intensive residential development.
2	Identify areas of potential change where density development would be appropriate along major thoroughfares, commercial strips and near light rail stations, and modify plans to accommodate this change.
4	Promote infill development as a means to meet future housing needs by expanding the benefits for this type of development and actively promote infill development in identified infill areas through outreach programs designed to inform the development community and property owners of this program.
6	Continue to support redevelopment and rehabilitation efforts that add new and reconditioned units to the housing stock while eliminating neighborhood blight and deterioration.
Goal D	Maintain orderly residential growth in areas where urban services are readily available or can be provided in an efficient cost effective manner.
2	Approve residential development only where City services are provided in a manner which meet the needs of the proposed development.
Goal E, Policy 1	Provide housing opportunities in newly developing communities and in large mixed use developments in an effort to reduce travel time to and from employment centers.
3	Establish guidelines for mixed use projects and allow these uses in urbanized areas of the City where intensive development is planned.
Commerce and Industry Land Use Element	
Neighborhood/Community Commercial and Office Centers	
Goal A	Ensure that all areas of the City are adequately served by neighborhood/community shopping districts.
1	Maintain and strengthen viable shopping districts throughout the City.
1, action (a)	Special planning districts or other flexible interim zoning mechanisms can be applied to blighted or underutilized commercial districts, where unique problems can not be treated with existing regulatory measures.
2	Promote the rehabilitation and revitalization of existing commercial centers.
2, action (a)	Code enforcement and improvement programs shall be focused in those areas where commercial land uses are suffering blight or underutilization.
Goal B	Promote mixed use development of neighborhood/community commercial districts through new construction and revitalization.
1	Allow mixed use development in accordance with the requirements set forth previously in this Section.

TABLE 4.7-1 **RELEVANT CITY OF SACRAMENTO GENERAL PLAN POLICIES AND GOALS — LAND USE** (CONTINUED)

Number	Policies
1, action (a)	Work with public and private interests to study and adopt mixed use development guidelines.
2	Promote the development of mixed use local commercial/office and high density residential projects.
2, action (a)	Study the feasibility of allowing residential uses in conjunction with commercial centers and strip development.
Industrial/Manufacturing Area	
Goal A	Continue to identify and attempt to minimize potential adverse impacts from increased industrial development.
1	Allow industrial development only in those areas where potential impacts can be expected to be minimized.
1, action (a)	Industrial uses will be regulated using the Zoning Ordinance, General Plan and community plan goals, and the environmental review process.
1, action (b)	Industrial uses, proposed near existing residential areas, must have an internal circulation system and other design amenities.
1, action (c)	Work with the City's Toxic Substances Commission and other governmental agencies in developing a Toxic Substance Management Plan that would include restricting the use of a toxic/hazardous materials by industrial users when adjacent to residential areas, schools, or other sensitive areas.

The goals and policies of the Residential Land Use and Commerce and Industry Land Use Elements of the 1984 Community Plan prescribe the pattern of land use in North Sacramento and set out standards for future development. Policies, goals and actions from these Elements that are relevant to the Plan are listed in Table 4.7-2.

3. City of Sacramento Zoning Ordinance

As shown in Figure 4.7-3, zoning designations for the Plan Area are generally consistent with General Plan and North Sacramento Community Plan Area land use designations. The three parcels where the zoning designation is not consistent are (1) the Bell Avenue Elementary School site, which has an industrial zoning designation instead of a public or residential designation; and (2) two parcels fronting Paul Avenue, to the west of Winters Street, which are zoned as industrial land uses instead of residential use, as in the General Plan and North Sacramento Community Plan.

TABLE 4.7-2 **RELEVANT NORTH SACRAMENTO COMMUNITY PLAN POLICES, GOALS AND ACTIONS—LAND USE**

Residential Land Use	
Goals	Accommodate the growth projected for North Sacramento by the City General Plan in an orderly and efficient manner, one which enhances the existing attractive features of the community.
	Revitalize and stabilize residential areas showing signs of decline.
Policies and Actions	Adopt a Residential Development Policy for North Sacramento which includes the used of both density and housing mixture standards in evaluating individual projects to achieve the long term goals of encouraging slightly higher densities, promoting a mixture of housing types, and providing the development sector with flexibility.[a]
	Adopt the land use plan map which delineates the desired distribution of housing densities based on the residential goals of maximizing the use of urban areas and city services, developing cohesive new neighborhoods and stabilizing the identity of existing residential areas.
	Place a high priority in the City's Capital Improvement Program towards improving street conditions and services to vacant areas south of Interstate 880.[b] Upgrading neighborhood conditions is one of several actions that should be taken to encourage infill developments.
Commercial Land Use	
Goals	Provide for a range of commercial uses which meet daily needs and area within convenient access to North Sacramento residents.
	Upgrade commercial areas by eliminating land use conditions that contribute to blight.
	Encourage land uses which will enhance economic vitality of the community.
Policies and Actions	Inventory and remedy zoning and building code violations beginning in the commercial revitalization areas.
	Redesignate to residential or industrial uses various properties north of Interstate 880[b] designated for commercial.
Industrial Land Use	
Goals	Provide the opportunity to develop a large portion of the West-of-McClellan area as a regional warehousing and distribution area.
	Provide area residents, especially the unemployed, with better access to employment opportunities.
Policies and Actions	Work with property owners to develop and implement a comprehensive strategy to install water, sewer and drainage facilities, improve the visual appearance and improve traffic access to the industrial area north of Interstate 880.

[a] These standards can be found in the North Sacramento Community Plan, page 10.
[b] Currently Interstate 80.

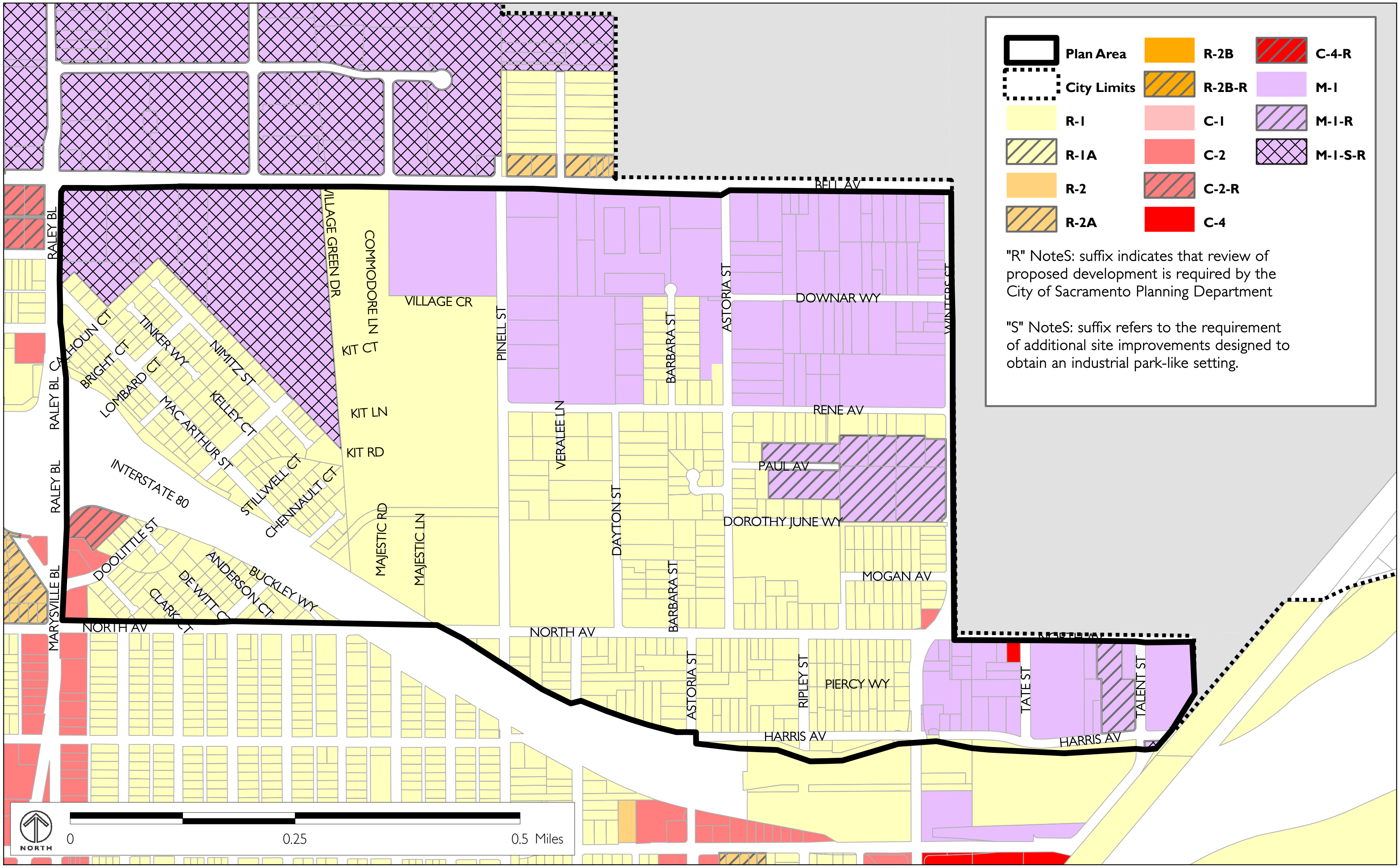


FIGURE 4.7-3

EXISTING ZONING DESIGNATIONS IN THE PLAN AREA

4. McClellan Airport Comprehensive Land Use Plan

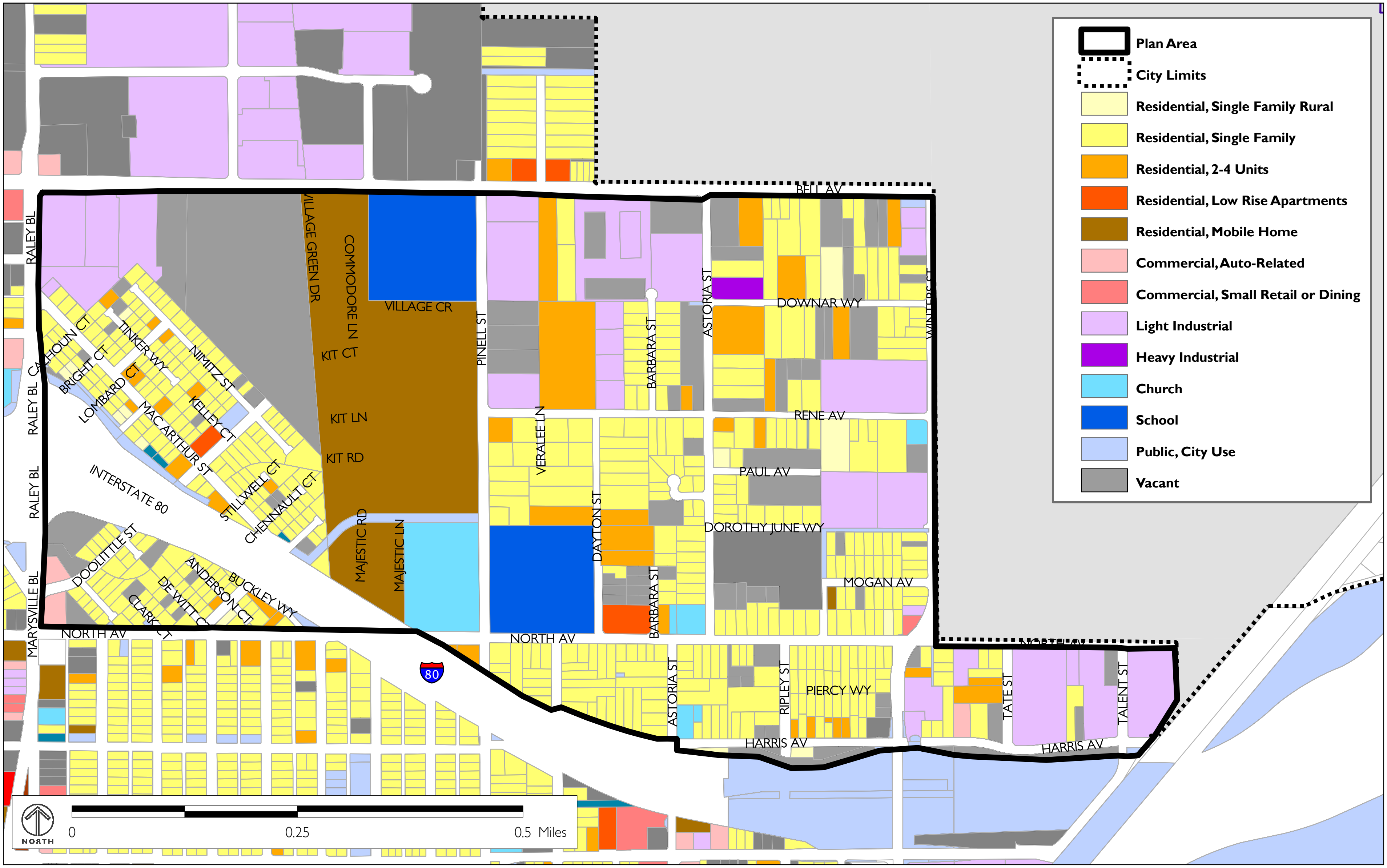
In addition to these City adopted plans and regulations, there is the Sacramento County Airport and Land Use Commission's Comprehensive Land Use Compatibility Plan (formerly known as Comprehensive Land Use Plans or CLUP) for McClellan Airport. The McClellan Heights/Parker Homes Land Use and Infrastructure Plan Area analyzed in this EIR falls within the McClellan Airport CLUP planning area. The CLUP includes land use policies for areas falling within its planning area. The most recent CLUP was updated in 1987 when McClellan still operated as an Air Force Base, which is no longer the case today.

Updated aircraft noise exposure contours for McClellan Airport and new planning policies are currently being considered by the Airport Land Use Commission (ALUC) which is a component of the Sacramento Area Council of Governments (SACOG) and SACOG member Cities and Counties. This is addressed in more detail in Section 4.8, Noise.

B. Existing Land Use

Existing land uses are described below and shown in Figure 4.7-4. The Plan Area is comprised of two residential communities, the Parker Homes and McClellan Heights neighborhoods. The 37-acre Parker Homes neighborhood is almost exclusively residential, consisting of single-family homes with an average lot size of 0.13 acres. Many of the existing homes were built to serve as temporary military housing during World War II. The McClellan Heights neighborhood, to the north and east of Parker Homes, covers approximately 269 acres of the 306-acre Plan Area.[1] A majority of McClellan Heights also consists of residential uses; primarily post-war subdivisions on larger parcels. Unlike Parker Homes, the McClellan Heights neighborhood contains many underutilized or vacant parcels. The neighborhood includes small concentrations of light industrial and commercial uses, primarily along Bell Avenue, Pinell and

[1] Acreage includes public right-of-way.



Source: City of Sacramento GIS, 2004.

FIGURE 4.7-4

EXISTING LAND USES IN THE PLAN AREA

Astoria Streets, Raley Boulevard/Marysville Boulevard and the area east of Winters Street between the former McClellan Air Force Base and Interstate 80.

C. Standards of Significance

The Plan would have a significant impact with regard to land use if it would:

- Substantially alter an approved land use plan that would result in a physical change to the environment.

D. Impact Discussion

As discussed in Chapter 3, the Plan includes proposed changes to existing General Plan and North Sacramento Community Plan land use designations, which, once adopted, will become the land use policy direction for the Plan Area. Amendments to the existing General Plan would be required to adjust the land use designations to match rezoned properties; land use designations in the Plan would supersede land use designations in the North Sacramento Community Plan for the Plan Area only. The most notable land use designation changes would occur in areas currently designated for light industrial uses, which would change to a residential mixed-use designation. Other changes include commercial uses to residential mixed use, industrial uses to general commercial and a small area of residential to a commercial land use designation. In addition, the City's zoning for the Plan Area would need to be updated to ensure consistency with the Plan.

As discussed in further detail in Section 4.8, Noise, the Plan Area is consistent with the current noise policies in SACOG's adopted CLUP. However, the Plan is not fully consistent with existing, approved City General Plan, North Sacramento Community Plan and zoning designations for the Plan Area since it envisions more residential development than shown in existing plans. Despite this detail, the Plan remains consistent with the overall intent of the General Plan and other approved plans. The City's

General Plan process allows for the City to consider amendments to the existing General Plan when the need arises. For example, substantial changes in conditions represented by the closure and reuse of the adjacent McClellan Air Force Base and the goal of strengthening the existing residential neighborhoods in the Plan Area, among other Plan objectives, support the recommended land use changes in the Plan. Therefore, there is no significant impact regarding land use as a result of the Plan.

E. Impacts and Mitigation Measures

Since there are no land use-related environmental impacts, no mitigation measures have been identified.

4.8 Noise

This section discusses the existing noise environment in the Plan Area and analyzes the potential impacts of the Plan on the noise environment. A noise study prepared by Jones & Stokes forms the basis of this section.

A. Regulatory Framework

This section describes the federal, State, and local plans, policies, and laws that relate to noise in the Plan Area. As a preface, the following discussion of noise terminology is provided.

1. Noise Terminology

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called "A-weighting," written "dBA."

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day-night sound level (L_{dn}), and the community noise equivalent level (CNEL). Below are brief definitions of these measurements and other terminology used in this chapter:

- **Sound.** A vibratory disturbance created by a vibrating object that, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unit-less measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro pascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in dB that approximates the frequency response of the human ear.
- **Instantaneous Maximum Sound Level (L_{max}).** The maximum sound level measured during the measurement period.
- **Minimum Sound Level (L_{min}).** The minimum sound level measured during the measurement period.
- **Equivalent Sound Level (L_{eq}).** The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy.
- **Sound Exposure Level (SEL).** The total noise energy produced from a single noise event that is typically used to describe the amount of noise from an event such as an individual aircraft flyover. SEL is the A-weighted sound level integrated over the duration of the event and referenced to a duration of 1 second. SEL is therefore a value which is normalized to a 1-second event.
- **Percentile-Exceeded Sound Level (L_{xx}).** The sound level exceeded "xx" percent of a specific time period. L_{10} is the sound level exceeded 10 percent of the time.
- **Day Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m.,

and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m. L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered equivalent and are treated as such in this section. In general, human sound perception is such that a change in sound level of 3 dB is just noticeable; a change of 5 dB is clearly noticeable; and a change of 10 dB is perceived as doubling or halving the sound level.

2. Federal Laws and Regulations

There are no federal noise regulations that are applicable to the Plan. However, the Federal Interagency Committee on Aviation Noise (FICAN) issued a report[1] that contains information relevant to the exposure of residential uses to single event aircraft noise (as opposed to daily cumulative noise which is commonly used to evaluate compatibility with aircraft noise.) The FICAN report presents a recommended relationship between single event aircraft noise expressed in terms of SEL and the percentage of population awakened, as follows:

60 dBA, SEL = 4 percent awakened
70 dBA, SEL = 7 percent awakened
80 dBA, SEL = 10 percent awakened
90 dBA, SEL = 13 percent awakened
100 dBA, SEL = 18 percent awakened

3. Local Regulations and Policies

The Health and Safety Element of the City of Sacramento General Plan contains planning guidelines related to noise. The Element identifies policies to support achievement of noise compatibility standards, discussed below. The goals and policies contained in the General Plan are applicable throughout the city, but they are not noise enforcement tools. Rather, they serve as a planning guide for land use and development.

[1] Federal Interagency Committee on Aviation Noise (FICAN), June, 1997. *Effects of Aviation Noise on Awakenings from Sleep.*

The Noise Ordinance, part of the City's Municipal Code, is enforceable by law. A brief discussion follows of the General Plan policies and Noise Ordinance regulations implemented by the City to protect its citizens from the adverse impacts of noise. The Noise Ordinance and Municipal Code are used primarily to limit noise from stationary sources. Typically, noise ordinances and municipal codes regulate construction activity noise.

a. City of Sacramento Health and Safety Element

The City's Health and Safety Element establishes policies concerning the generation and control of noise that could adversely affect the City's citizens and noise-sensitive land uses. Specifically, the Health and Safety Element specifies land use compatibility standards for noise based on land use types. These standards apply to the backyard of single family units and outdoor common use areas of multi-family units. The following compatibility standards are specified for noise from traffic and fixed sources:

- Residential, interior uses – 45 L_{dn}, 50 dBA instantaneous maximum in bedrooms, 55 dBA instantaneous maximum in other habitable rooms
- Residential, exterior uses (backyards, common outdoor use areas) – 60 L_{dn}
- Schools, interior uses – 50 dBA-L_{eq} during noisiest school day hour
- Schools, exterior uses – 60 L_{dn}
- Libraries, interior uses – 45 dBA-L_{eq} during noisiest hour

The noise assessment report guidelines specified in the Health and Safety Element state that when a project is a noise generator, mitigation measures should be considered if the project would increase the L_{dn} at a noise-sensitive location by more than 4 dB, or cause the overall level to exceed that considered normally acceptable for the land use category, or be expected to generate significant adverse community response. Land uses surrounding McClellan Airport are regulated by special aircraft noise and safety guidelines derived from Comprehensive Land Use Plans (CLUP) adopted in 1987. Noise/land use compatibility guidelines are summarized in Table 4.8-1. As noted in the table, 65 CNEL is the upper limit of compatibility for residences exposed to aircraft noise from McClellan Airport.

TABLE 4.8-1 **CITY OF SACRAMENTO LAND USE COMPATIBILITY GUIDELINES FOR MCCLELLAN AIR FORCE BASE & MATHER AIR FORCE BASE**

	Compatibility With				
Land Use Category and Standard Industrial Classification Code	**60-65 CNEL**	**65-70 CNEL**	**70-75 CNEL**	**75-80 CNEL**	**80-85 CNEL**
Residential[a]					
Single-family detached[b]	Yes	No	No	No	No
Two-family dwelling	Yes	No	No	No	No
Multi-family dwelling (3+ families)	Yes	No	No	No	No
Group quarters & rooming houses (702, 704)	Yes	No	No	No	No
Mobile home parks or courts (6515)	Yes	No	No	No	No
Manufacturing					
Food & kindred products (20)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Textiles and apparel (22, 23)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Transportation equipment (37)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Lumber & wood products (24)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Furniture & fixtures (25)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Paper & allied products (26)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Printing & publishing (27)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Chemicals & allied products (28)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Asphalt paving & misc. petroleum (295, 299)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Petroleum refining (29)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Rubber & plastics (30)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Stone, clay, glass, & concrete products (32)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Primary & fabricated metals (33, 34)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Electrical & electronic equipment (36)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Leather products (31)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Industrial, commercial & computer equipment (35)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Photo, optical & medical equipment (38)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Miscellaneous manufacturing (39)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Transportation, Communications & Utilities					
Streets, roads & highways	Yes	Yes	Yes	Yes	Yes
Heavy rail lines: freight & passenger (40)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Light rail lines: passenger (41)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Trucking & rail freight terminals (42)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Warehousing & storage (422)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Passenger terminals & stations	Yes	Yes	Yes[c]	Yes[c]	NO
Water transportation: freight and passenger (44)	Yes	Yes	Yes[c]	Yes[c]	NO
Parking lots (752)	Yes	Yes	Yes	Yes	Yes
Transportation services (47)	Yes	Yes	Yes[c]	Yes[c]	NO
Radio, TV & telephone (48)	Yes	Yes	Yes[c]	Yes[c]	NO
Courier service (4215)	Yes	Yes	Yes[c]	Yes[c]	NO

TABLE 4.8-1 **CITY OF SACRAMENTO LAND USE COMPATIBILITY GUIDELINES FOR MCCLELLAN AIR FORCE BASE & MATHER AIR FORCE BASE** (CONTINUED)

	Compatibility With				
Land Use Category and Standard Industrial Classification Code	**60-65 CNEL**	**65-70 CNEL**	**70-75 CNEL**	**75-80 CNEL**	**80-85 CNEL**
Electrical & natural gas generation and switching (491, 492)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Natural gas & petroleum pipelines & storage (46)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Water treatment plants (494)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Sewer treatment plants (4952)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Sanitary landfills (4953)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Recycling & transfer facilities (4953)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Hazardous materials facilities (4953)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Wholesale Trade					
Paints, varnishes & supplies (5198)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Chemicals & allied products (516)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Petroleum terminals & wholesales (517)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Miscellaneous wholesale trade (50, 51)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Retail Trade					
Department & variety stores (single) (53)	Yes	Yes	Yes[c]	Yes[c]	No
Lumber, building materials, & nurseries (521, 526)	Yes	Yes	Yes[c]	No	No
Grocery & drug stores (54)	Yes	Yes	Yes[c]	Yes[c]	No
Paint, glass, wallpaper, & hardware (523, 525)	Yes	Yes	Yes[c]	Yes[c]	No
Auto, truck, boat, & RV dealers (55)	Yes	Yes	Yes[c]	Yes[c]	No
Mobile home dealers (527)	Yes	Yes	Yes[c]	Yes[c]	No
Auto & truck service stations (554)	Yes	Yes	Yes[c]	Yes[c]	No
Fuel dealers (598)	Yes	Yes	Yes[c]	Yes[c]	No
Apparel & shoes (56)	Yes	Yes	Yes[c]	Yes[c]	No
Home furnishings (57)	Yes	Yes	Yes[c]	Yes[c]	No
Eating & drinking (58)	Yes	Yes	Yes[c]	Yes[c]	No
Miscellaneous retail trade (59)	Yes	Yes	Yes[c]	Yes[c]	No
Business & Personal Services					
Auto, truck, boat, RV, & miscellaneous repair (75, 76)	Yes	Yes	Yes[c]	Yes[c]	No
Mobile home repair (1521)	Yes	Yes	Yes[c]	Yes[c]	No
Commercial laundries & cleaning (721)	Yes	Yes	Yes[c]	Yes[c]	No
Coin-operated laundries (7215)	Yes	Yes	Yes[c]	Yes[c]	No
Photographers, beauty & barber, shoe repair (722, 725)	Yes	Yes	Yes[c]	Yes[c]	No
Funeral services (726)	Yes	Yes	Yes[c]	Yes[c]	No
Business services (73)	Yes	Yes	Yes[c]	Yes[c]	No
Computer programming & data processing (737)	Yes	Yes	Yes[c]	Yes[c]	No
Travel agencies (4724)	Yes	Yes	Yes[c]	Yes[c]	No
Legal & engineering (81, 87)	Yes	Yes	Yes[c]	Yes[c]	No

TABLE 4.8-1 **CITY OF SACRAMENTO LAND USE COMPATIBILITY GUIDELINES FOR MCCLELLAN AIR FORCE BASE & MATHER AIR FORCE BASE** (CONTINUED)

	Compatibility With				
Land Use Category and Standard Industrial Classification Code	**60-65 CNEL**	**65-70 CNEL**	**70-75 CNEL**	**75-80 CNEL**	**80-85 CNEL**
Banks, credit unions, & financial (63, 64, 65)	Yes	Yes	Yes[c]	Yes[c]	No
Hotels, motels, inns, bed & breakfast (701)	Yes	Yes	Yes[c]	Yes[c,d]	No
Business parks & industrial clusters	Yes	Yes	Yes[c]	Yes[c]	No
Offices for rent or lease	Yes	Yes	Yes[c]	Yes[c]	No
Business & vocational schools (824, 829)	Yes	Yes	Yes[c]	Yes[c]	No
Construction businesses (15, 16, 17)	Yes	Yes	Yes[c]	Yes[c]	No
Miscellaneous personal services (729)	Yes	Yes	Yes[c]	Yes[c]	No
Shopping Districts					
Neighborhood shopping centers	Yes	Yes	Yes[c]	Yes[c]	No
Community shopping centers	Yes	Yes	Yes[c]	Yes[c]	No
Regional shopping centers	Yes	Yes	Yes[c]	Yes[c]	No
Public and Quasi-Public Services					
Post Offices (53)	Yes	Yes	Yes[c]	Yes[c]	No
Government offices (91-96)	Yes	Yes	Yes[c]	Yes[c]	No
Government and social services (83)	Yes	Yes	Yes[c]	Yes[c]	No
Elementary & secondary schools (821)	Yes	Yes[c,d]	No	No	No
Colleges and universities (822)	Yes	Yes[c,d]	No	No	No
Hospitals (806)	Yes	Yes[c,d]	Yes[c,d]	No	No
Medical and dental laboratories (807)	Yes	Yes	Yes[c]	Yes[c]	No
Doctor & dentist offices (801-804)	Yes	Yes	Yes[c]	Yes[c]	No
Museums & art galleries (84)	Yes	Yes[c,d]	No	No	No
Libraries (823)	Yes	Yes[c,d]	No	No	No
Churches (866)	Yes	Yes[c,d]	No	No	No
Cemeteries (6553)	Yes	Yes	Yes[c]	Yes[c]	No
Jails & detention centers (9223)	Yes	Yes	Yes[c]	No	No
Child care programs (6 or more children) (835)	Yes	Yes[c,d]	No	No	No
Nursing care facilities (805)	Yes	Yes[c,d]	No	No	No
Recreation					
Neighborhood parks	Yes	Yes	Yes[c]	No	No
Community-wide & regional parks	Yes	Yes	Yes[c]	No	No
Riding stables	Yes	Yes	Yes[c]	No	No
Golf courses (7992)	Yes	Yes	Yes[c]	Yes[c]	No
Open space & natural areas	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Natural water areas	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Recreation & amusement centers (793, 799)	Yes	Yes	Yes[c]	Yes[c]	No

TABLE 4.8-1 **CITY OF SACRAMENTO LAND USE COMPATIBILITY GUIDELINES FOR MCCLELLAN AIR FORCE BASE & MATHER AIR FORCE BASE** (CONTINUED)

	Compatibility With				
Land Use Category and Standard Industrial Classification Code	**60-65 CNEL**	**65-70 CNEL**	**70-75 CNEL**	**75-80 CNEL**	**80-85 CNEL**
Physical fitness & gyms (7991)	Yes	Yes	Yes[c]	Yes[c]	No
Camps, campgrounds & RV parks (703)	Yes	Yes	No	No	No
Dance halls, studios, schools (791)	Yes	Yes	Yes[c]	Yes[c]	No
Theaters- live performance (7922)	Yes	Yes[c,d,e]	Yes[c,d,e]	No	No
Motion picture theater- single or double (783)	Yes	Yes[c,d]	Yes[c,d]	No	No
Motion picture theater complex- 3 or more (783)	Yes	Yes[c,d]	Yes[c,d]	No	No
Professional sports (7941)	Yes	Yes	Yes	No	No
Stadiums and arenas	Yes	Yes	Yes	No	No
Auditoriums, concert halls, amphitheaters	Yes	Yes[c,d,e]	Yes[c,d,e]	No	No
Fairgrounds and expositions (7999)	Yes	Yes	Yes	No	No
Racetracks (7948)	Yes	Yes	Yes	No	No
Theme parks	Yes	Yes	Yes	No	No
Agriculture and Mining					
Row & field crops (011, 013, 016)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Tree crops (012)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Intensive livestock (021, 024, 027)	Yes	Yes	Yes[c]	No	No
Nursery products (018)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Poultry (025)	Yes	Yes	Yes[c]	No	No
Pasture & grazing	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Agricultural services (07)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Mining & quarrying (10, 12, 14)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]
Oil & gas extraction (13)	Yes	Yes	Yes[c]	Yes[c]	Yes[c]

[a] Caretaker residences are a compatible use within all CNEL ranges, provided that they are ancillary to the primary use of a property, intended for the purpose of property protection or maintenance, and subject to the condition that all residential units be designed to limit intruding noise such that interior noise levels do not exceed 45 CNEL, with windows closed, in any habitable room.

[b] Second residential units are a compatible use within all CNEL ranges, subject to the condition that the proposed second unit be consistent with the provisions of Sections 65852.1 and 65852.2 of the California Government Code.

[c] Measures to achieve an interior noise level of 50 CNEL must be incorporated into the design and construction of portions of buildings where the public is received, office areas, and other areas where people work or congregate.

[d] Measures to achieve an interior noise level of 45 CNEL must be incorporated into the design and construction of all noise sensitive areas including, but not limited to, rooms designated for the purpose of sleep, libraries, churches, and areas intended for indoor entertainment events.

Source: Sacramento Development Services Department: Planning Division 2000.

Regarding potential aircraft noise impacts to areas around McClellan Airport, the Health and Safety Element states that these guidelines can never completely eliminate the aircraft operational impacts to people on the ground, nor can the guidelines completely address the impacts to areas already urbanized. What these guidelines can do is reduce the impacts imposed upon future new development in areas surrounding the airport.

b. City of Sacramento Noise Ordinance

Chapter 8.68 of the Sacramento City Code is used to limit noise from fixed sources such as swimming pool pumps, air-conditioners, and construction activity. The following noise standards apply to residential properties:

- From 7:00 a.m. to 10:00 p.m. the exterior noise standard shall be 55 dBA.
- From 10:00 p.m. to 7:00 a.m. the exterior noise standard shall be 50 dBA.

These noise standards are modified as indicated in Table 4.8-2 depending on the duration of the noise source.

Section 8.68.080 of the ordinance states that construction activity between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday is exempt from the ordinance. There is one limitation: the operation of an internal combustion engine shall not be exempt if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. Construction activities between the hours above are exempt from the City's noise ordinance. The following is prohibited by the ordinance: "the operation of any power saw, power planer, or other powered tool or appliance, so as to disturb the quiet, comfort, or repose of persons in any dwelling, hotel, motel, apartment, or other type of residence, or of any person in the vicinity of operation of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance that is attended by loud or unusual noise between the hours of 10:00 p.m. and 7:00 a.m."

TABLE 4.8-2 **CITY OF SACRAMENTO NOISE STANDARD MODIFIERS**

Cumulative Duration of the Intrusive Sound	Allowance Decibels
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

Note: Each of the noise limits specified above shall be reduced by 5 dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

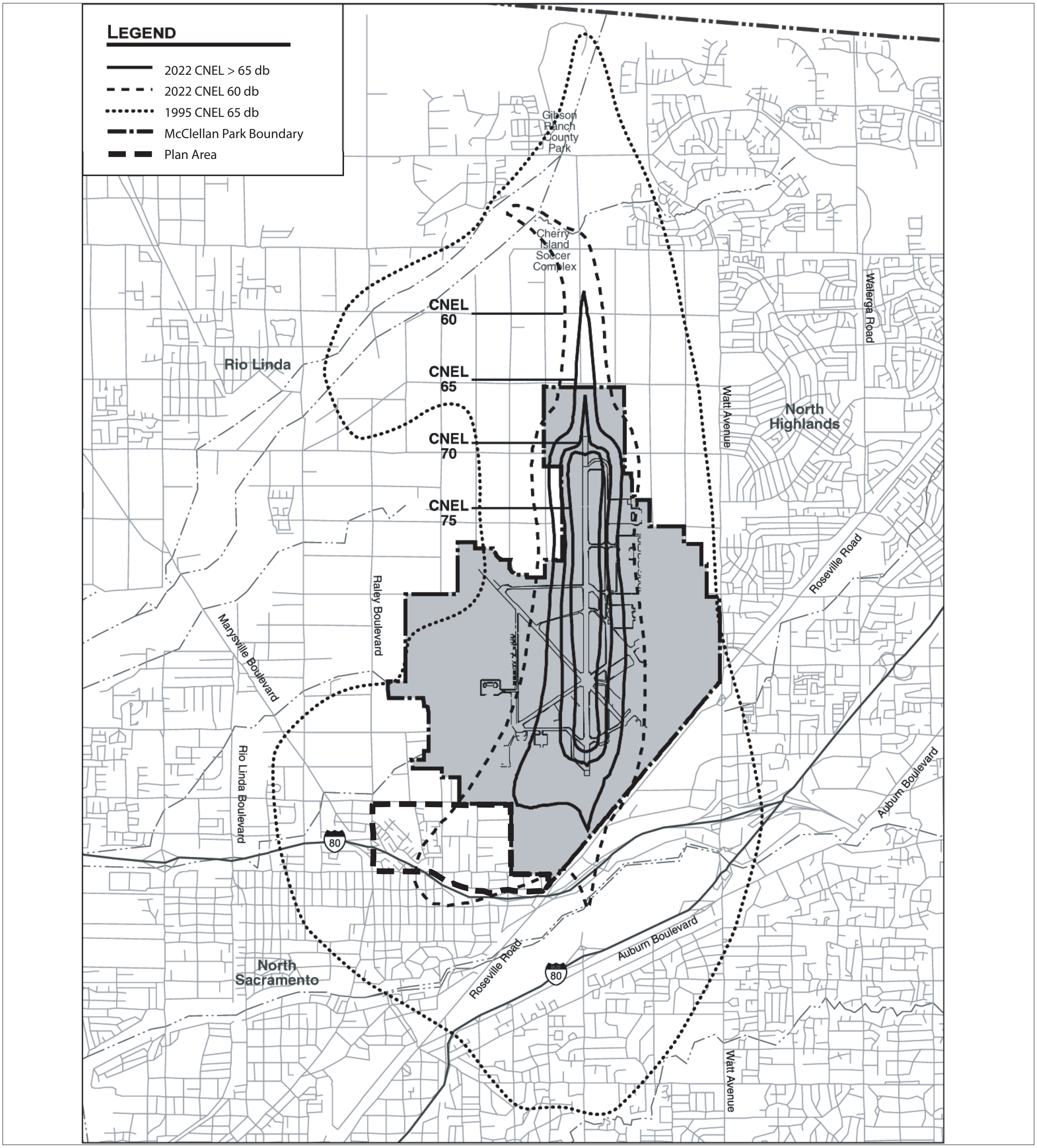
c. Proposed McClellan Airport Planning Area Policy

Updated aircraft noise exposure contours for McClellan Airport and new planning policies have been adopted by the County Board of Supervisors.[2] This information was forwarded for consideration by the Airport Land Use Commission (ALUC)—a component of the Sacramento Area Council of Governments (SACOG)—and SACOG member cities and counties. The contours are shown in Figure 4.8-1. It is important to note that the ALUC has not yet adopted the County's position. Also, the prior Airport Land Use Comprehensive Plan (ALUCP) allowed residential development within the 60 CNEL noise contour.[3] (The ALUCP is formerly known as the Comprehensive Land Use Plan or CLUP.) The City of Sacramento's draft policy states:

> No new residential development shall be permitted within the 65 CNEL McClellan Airport noise exposure contour. New residential development

[2] Sacramento County Board of Supervisors, Resolution 2005-0636, May 17, 2005.

[3] Community Noise Equivalent Level, CNEL, is defined in Section A.1. of this chapter.



Source: Sacramento County 2002 A
Note: The 2022 contours have not yet been adopted by the ALUC. 1995 contours from military operations are shown for reference only.

FIGURE 4.8-1

McCLELLAN AIRPORT 2022 CNEL NOISE CONTOURS BASED ON PROJECTED CIVILIAN OPERATIONS

within the McClellan Airport Planning Policy Area boundaries and within the 60 CNEL, shall be subject to the following conditions:

- ♦ Compliance with the City's General Plan Health and Safety Element which establishes minimum noise insulation to protect persons from excessive noise within the interior of new residential dwellings, including detached single-family dwellings that limits noise to 45 L_{dn} with windows closed in any habitable room.
- ♦ Notification in the form of requiring developments requesting tentative maps to provide formal written disclosures, recorded deed notices, or in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within the 60 CNEL noise contour of the McClellan Airport Planning Policy Area and is subject to periodic excessive noise from aircraft overflights.
- ♦ Include in the McClellan Heights/Parker Homes Special Planning District Zone restrictions on the height of buildings and structures and the densities of land uses consistent with the McClellan Airport Land Use Comprehensive Plan.

This City policy has not been formally approved by the ALUC/SACOG. The City is currently working with SACOG and the County to determine compatibility of this Plan with the pending update of the McClellan Airport Land Use and Comprehensive Plan (ALUCP). This Plan would permit residential development in areas between the 60 and 65 CNEL provided that certain conditions of development are included to ensure the safety and compatibility of development and to also ensure unrestricted operation of the airport.

B. Existing Conditions

This section discusses the existing noise environment in the Plan Area. Within the vicinity of the Plan Area, the major sources of noise include roadway traffic on Interstate 80, major arterials and other roadways; railroad noise from the adjacent Union

Pacific Railroad line; fixed noise sources from industrial and commercial activities; and overhead aircraft.

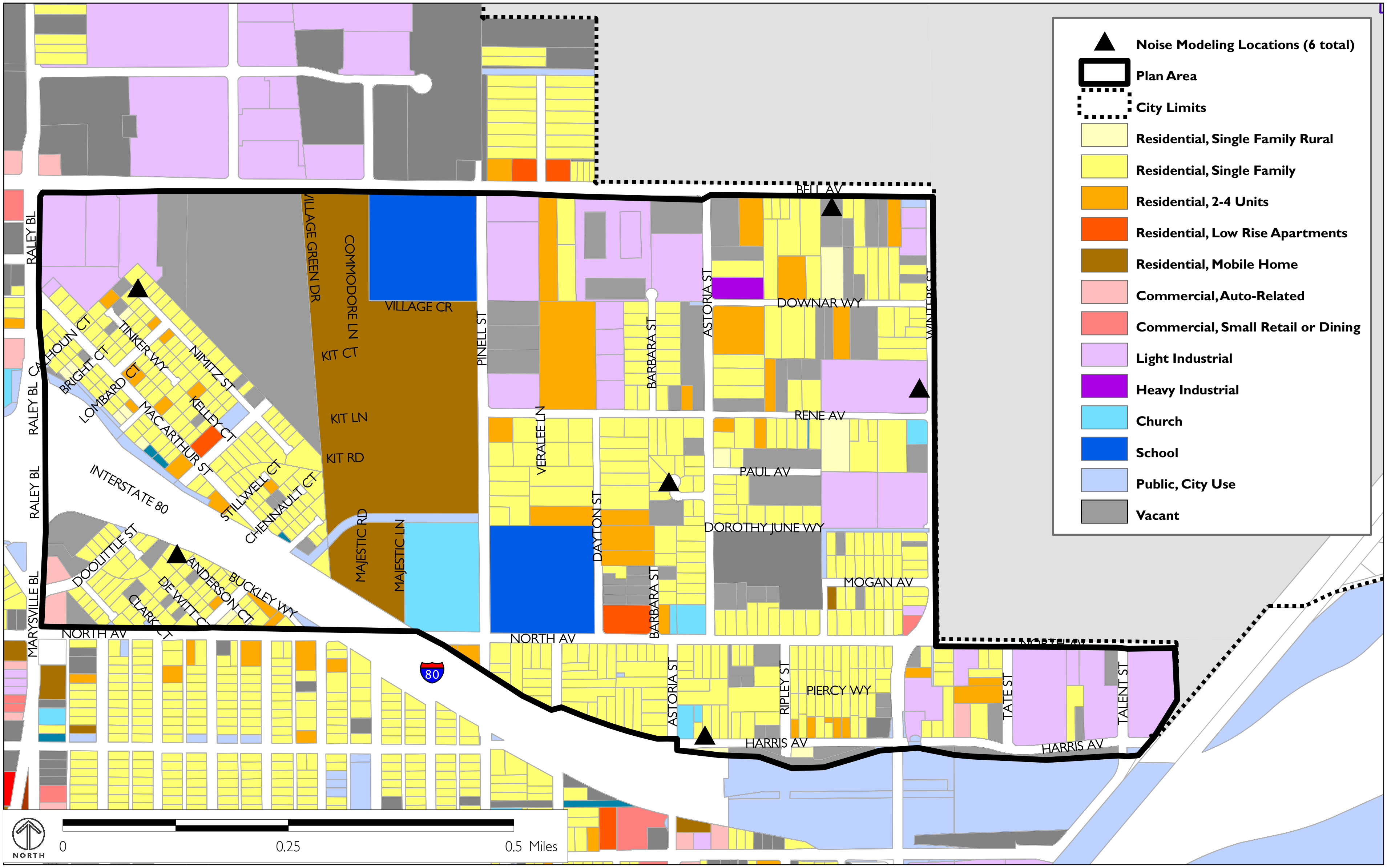
The Plan Area is primarily suburban, with some commercial and industrial land uses scattered throughout the area. Areas that are not urbanized are relatively quiet, while areas that are more urbanized are subjected to higher noise levels due to roadway traffic, industrial activities, and other human activities. Existing ambient noise levels in the Plan Area are characterized using the results of on-site noise monitoring, traffic noise modeling, and data from previous studies, each of which are discussed in more detail below.

1. Noise Monitoring

Short-term monitoring was conducted on Wednesday, January 12, 2005, using a Larson-Davis Model 812 Precision Type 1 sound level meter placed 5 feet above the ground on a tripod. Measurements were taken at various residential areas located in the Plan Area and were typically 15 minutes in duration at each position. The results of the short-term monitoring study are summarized in Table 4.8-3. The calibration of the meter was checked before and after the measurement using a Larson-Davis Model CA250 calibrator.

Sound level data collected during the measurement period was logged manually. The short-term measurement positions are identified in Figure 4.8-2.

Temperature, wind speed, and humidity were recorded manually during the short-term monitoring session using a Kestrel 3000 portable weather station. During the short-term measurement session, skies were clear and sunny. Wind speeds were typically in the range of 0 to 2 miles per hour (mph). Temperatures were in the range of 44° to 55° Fahrenheit (F), with relative humidity typically in the range of 71 to 88 percent.



Source: City of Sacramento GIS, 2004; Jones and Stokes, 2006.

FIGURE 4.8-2

NOISE SENSITIVE RECEPTORS: NOISE MODELING LOCATIONS

TABLE 4.8-3 **SUMMARY OF SHORT-TERM MONITORING RESULTS**

Receiver	Start Time (PM)	Duration (Minutes)	Measured Sound Levels (dBA)				Noise Sources
			L_{eq}	L_{10}	L_{50}	L_{90}	
1	2:30	15:00	68.4	69.7	68.0	66.7	Traffic on I-80 and local roadways, aircraft overhead, birds
2	3:03	15:00	54.4	56.7	53.6	51.1	Traffic on I-80 and local roadways, aircraft overhead, birds
3	3:28	15:00	68.4	72.6	63.9	55.8	Traffic on Bell Ave, dog barking, rooster, aircraft overhead
4	3:55	15:00	68.7	72.6	66.3	58.6	Traffic on I-80 and local roadways, aircraft overhead
5	4:24	15:00	66.0	67.2	65.7	64.4	Traffic on I-80, aircraft overhead
6	4:57	14:45	58.7	56.5	54.1	53.0	Traffic on I-80 and local roadways, aircraft overhead, dogs barking, rooster, stereo in distance

2. Surface Traffic

To further characterize existing noise levels in the Plan Area, noise from traffic traveling on surface streets in the vicinity of the Plan Area was modeled using the Federal Highway Administration Traffic Noise Model (TNM) Version 2.5 and traffic data for surface streets in the Plan Area.[4] Traffic data developed by the California Department of Transportation (Caltrans) was used to evaluate traffic noise from Interstate 80.[5]

The TNM estimates traffic noise levels based on roadway geometrics; traffic volumes for automobiles, medium trucks (vehicles with two axles and six tires), and heavy

[4] Trip generation data was provided by Kimley-Horn and Associates.

[5] Caltrans, 2005. *2004 Annual Average Daily Truck Traffic on the California State Highway System*. Sacramento, CA.

Caltrans, 2005. *2005 Traffic Volumes on the California State Highway System*. Sacramento, CA.

trucks (vehicles with three or more axles); vehicle speeds; and a noise attenuation algorithm. A computer-based implementation of the model was used that directly calculates L_{dn} values based on hourly traffic patterns, hourly truck percentages, and posted speeds. Table 4.8-4 summarizes modeled traffic noise levels under existing conditions for key roadway segments in the Plan Area.

3. Aircraft

The ALUC adopted aircraft noise contours developed for military operations at McClellan Air Force Base before it closed. These contours are part of the adopted McClellan CLUP that is used by the County and City of Sacramento for planning in the vicinity of the McClellan Airport. These contours are based on military aircraft operations that occurred at McClellan Air Force Base before it was closed. Subsequent to closure of the base, aircraft operations and noise contours at the airport have changed substantially. However, as of this writing, new contours have not yet been adopted by the ALUC.

As part of the *Programmatic EIS/EIR for the Disposal and Reuse of McClellan Air Force Base*, Sacramento County prepared updated noise contours based on anticipated civilian operations at the McClellan Airport in 2022. The updated contours are depicted in Figure 4.8-1. These contours have not been adopted by the ALUC as of the writing of this Draft EIR. They do, however, represent the best estimate of aircraft noise levels within the plan area.

4. Rail

A Union Pacific railroad track runs along the southeastern border of the Plan Area adjacent to commercial/industrial uses in the Plan Area. A Sacramento Regional Transit light rail track is located southeast of the Plan Area, south of Interstate 80.

TABLE 4.8-4 **TRAFFIC NOISE MODELING RESULTS FOR KEY ROADWAY SEGMENTS IN THE PLAN AREA**

		L_{dn}[a]						
Roadway	Segment	Existing	Existing Plus Project[b]	Change	Cumulative	Cumulative Plus Project[b]	Change	Distance to 60 Ldn Contour
Beliot Drive	North of Bell Avenue	51	51	0	56	55	-1	<75 feet
Bell Avenue	West of Raley Blvd.	61	61	0	63	63	0	120 feet
Bell Avenue	Raley Blvd. to Beliot Dr.	61	61	0	65	65	0	160 feet
Bell Avenue	Beliot Dr. to Pinell St	60	61	1	65	64	-1	140 feet
Bell Avenue	Pinell St. to Winters Ave.	59	59	0	63	63	0	120 feet
Bell Avenue	East of Winters Avenue	58	58	0	62	62	0	100 feet
Raley Boulevard	North of Bell Avenue	63	63	0	65	65	0	160 feet
Raley Boulevard	Bell Avenue to I-80 NB ramps	66	66	0	68	67	-1	220 feet
Marysville Boulevard	I-80 SB ramps to North Ave.	65	65	0	69	68	-1	260 feet
Marysville Boulevard	South of North Ave.	64	65	1	67	67	0	220 feet
North Avenue	West of Marysville Blvd.	51	51	0	54	54	0	<75 feet
North Avenue	Marysville Blvd. to Pinell St.	51	51	0	54	53	-1	<75 feet
Pinell Street	Bell Avenue to North Ave.	52	52	0	56	56	0	<75 feet
Winters Avenue	Bell Ave. to North Ave.	57	57	0	62	62	0	100 feet
Winters Avenue	I-80 NB ramps to North Ave.	58	59	1	64	64	0	140 feet
Winters Avenue	South of I-80	55	56	1	61	62	1	100 feet
I-80	Main Line	80	80	0	82	82	0	2,200 feet

Note: All values measured as L_{dn}.
[a] 75 feet from roadway centerline. [b] "Project" is short-hand, in this case, referring to buildout of the Plan.
*Based on attenuation of 4.5 dB per doubling of distance

5. Noise-Sensitive Land Uses

Noise-sensitive land uses include residences, schools, libraries, hospitals, and other similar uses where noise can adversely affect building occupants. Noise-sensitive land uses in the vicinity of the Plan Area include residential land uses to the north, west, and south. Within the Plan Area, noise sensitive land uses include residential land uses, churches, Bell Avenue Elementary School, and Vista Nueva High School. Figure 4.8-2 shows land uses in and around the Plan Area.

C. Standards of Significance

The Plan would produce significant noise impacts if it would result in:

- *Construction noise* levels that are not in compliance with the City of Sacramento Noise Ordinance.
- Exposure of new residences to exterior *aircraft noise* exceeding 65 CNEL per the City of Sacramento General Plan, or noise from other sources exceeding 60 Ldn.
- Exposure of new residences to *interior noise* exceeding 45 Ldn, 50 dBA instantaneous maximum in bedrooms, and 55 dBA instantaneous maximum in other habitable rooms.
- Exposure of existing residences under Plan build-out conditions to an increase of 4 dB or more in *traffic noise* relative to no-project conditions when the exterior noise level under no-project conditions is greater than 60 L_{dn}.

D. Impact Discussion

The following discussion provides an overview of changes in the noise environment and community noise exposure that could result from implementation of the Plan.

1. Plan Impacts

a. Construction Noise

With implementation of the Plan, construction and demolition activities may occur. Table 4.8-5 summarizes noise levels produced by heavy equipment commonly used for construction and demolition activities. Assuming that the three noisiest pieces of equipment (scraper, paver, and truck) could operate in the same location at the same time, the combined noise level would be 93 dBA at 50 feet. Construction noise typically attenuates at a rate of 6 dB per doubling of distance. This indicates that noise from construction activity could exceed the City's daytime and nighttime noise standards (55 and 50 dBA, respectively) during non-exempt time periods (mid night to 7:00 a.m. and 6:00 p.m. to midnight Monday through Saturday, midnight to 9:00 a.m. and 6:00 p.m. to midnight on Sundays). Thus, this impact would be considered *significant*.

b. Airport Noise

In general, SEL values for aircraft flyovers are 7 to 12 dB higher than L_{max} values.[6] Accordingly, the city's 50 dBA-Lmax value for single events corresponds to an SEL value in the range of about 57 to 62 dBA. Based on the FICAN sleep disturbance response relationship, this range of values corresponds to 3 to 5 percent of the population being awakened. Awakenings of less than 10 percent of the population are generally not considered to be significant; accordingly, the City single event standard of 50 dBA-Lmax adequately addresses sleep disturbance and SEL is not used in this evaluation.

The aircraft noise exposure contours presented in Figure 4.8-1 represent aircraft noise conditions that are expected to occur in the Plan Area under projected 2022 civilian operations. The updated noise contours depicted in this figure indicate that no portion of the Plan Area would be exposed to aircraft noise exceeding 65 CNEL.

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[6] Federal Interagency Committee on Aviation Noise (FICAN), June, 1997. *Effects of Aviation Noise on Awakenings from Sleep.*

TABLE 4.8-5 **CONSTRUCTION EQUIPMENT NOISE EMISSION LEVELS**

Equipment	Typical Noise Level (dBA) 50 feet from Source
Scraper	89
Backhoe	80
Concrete Truck	85
Paver	89
Roller	74
Rough Terrain Forklift	85

Source: Federal Transit Administration, 2006.

There is no direct relationship between CNEL values and instantaneous maximum sound levels. However, the following are typical maximum instantaneous sound levels during takeoff for several types of representative aircraft at a range of 500 feet:[7]

- Boeing 737 – 111 dBA
- Boeing 747 – 120 dBA
- Boeing 767 – 114 dBA
- Boeing 737-300 – 109 dBA
- DC-10 –104 dBA

Assuming a nominal 20 dB of exterior-to-interior noise reduction, interior locations would not be exposed to noise exceeding 45 L_{dn}. There is, however, potential for aircraft to cause interior instantaneous maximum noise levels that exceed 50 dBA. Because new residences could be exposed to instantaneous maximum interior aircraft noise exceeding 50 dBA, this impact would be considered *significant*.

[7] Nelson, 1987. *Transportation Noise Reference Book*, Butterworths: London.

Treatments are available to reduce maximum instantaneous interior noise to 50 dBA or less. These are discussed in the Impacts and Mitigation Measures section of this section.

c. Noise Exposure in New Development

Table 4.8-4 summarizes traffic noise modeling results for existing and cumulative conditions both with and without buildout of the Plan Area. The results in this table indicate that residential areas adjacent to the following roadways would be exposed to traffic noise exceeding 60 L_{dn}:

- Raley Boulevard between Bell Avenue and North Avenue
- Bell Avenue between Raley Boulevard and Winters Avenue
- Winters Avenue between Bell Avenue and North Avenue
- Interstate 80

Instantaneous maximum noise levels from traffic can vary widely depending on the type of vehicle. The following is a summary of maximum pass-by noise level measured at 100 feet produced by various type of vehicles. These values represent noise levels exceeded by 5 percent of the sample:[8]

- Cars – 77 dBA at 25 feet, 67 dBA at 75 feet
- Buses – 68 dBA at 25 feet, 58 dBA at 75 feet
- Trucks – 91 dB at 25 feet, 81 dBA at 75 feet
- Motorcycles – 87 dBA at 25 feet, 77 dBA at 75 feet

New construction designed to meet current thermal insulation standards will typically provide at least 20 dB of exterior-to-interior noise reduction. Given that exterior noise levels along Raley Boulevard and Interstate 80 are predicted to exceed 65 L_{dn}, interior noise levels at new residences along these roadways could exceed the interior noise standard of 45 L_{dn}. Instantaneous maximum noise levels from trucks and motorcycles could also exceed the interior standard of 50 dBA in bedrooms. Because new resi-

[8] Nelson, 1987. *Transportation Noise Reference Book*, Butterworths: London.

dences could be exposed to exterior noise exceeding 60 L_{dn}, interior noise exceeding 45 L_{dn}, and 50 dBA instantaneous maximum, this impact would be *significant*.

Treatments to new construction, such as the use of acoustically rated windows and doors, are available to reduce interior noise to less than 45 Ldn and 50 dBA instantaneous maximum (i.e. a less-than-significant level). Construction of noise barriers between roadways and residences is the primary means of mitigating exterior noise impacts. In some cases, however, it may not be feasible to place an effective barrier between a roadway and a residence because of driveway access or other physical limitations. In such cases, this impact would remain *significant and unavoidable* with regard to exterior noise.

d. Traffic Noise Increases

The traffic noise modeling results presented in Table 4.8-4 indicate that implementation of the Plan will increase traffic noise by no more than 1 dB. Because the project-related increase in traffic noise will not exceed 4 dB, this impact would be considered *less than significant*.

2. Cumulative Impacts

Table 4.8-4 summarizes the traffic noise modeling results under cumulative traffic conditions with and without the Plan. The results in Table 4.8-4 indicate that the 60 L_{dn} noise contour from traffic on Interstate 80 will extend about 2,200 feet from Interstate 80. Figure 4.8-1 indicates that the 60 CNEL noise exposure contour from aircraft will extend across most of the Plan Area. Accordingly, the cumulative noise level of traffic noise and aircraft within the Plan Area may be higher than indicated by either the traffic or the aircraft contour alone. However, given the geometric relationship between the two contours (they cross in a small area on the far east side of the Plan Area), the cumulative increase would be less than 3 dB and would not likely be noticeable.

Significant cumulative traffic noise impacts are considered to occur along roadways with adjacent residential uses where traffic noise levels are predicted to exceed 60 L_{dn}. The traffic noise modeling results in Table 4.8-4 indicate that implementation of the Plan would not increase traffic noise by more than 1 dB along any evaluated roadway. The Plan's contribution to significant cumulative traffic noise impacts is therefore not cumulatively considerable.

E. Impacts and Mitigation Measures

While policies and other regulations would reduce noise impacts to the extent feasible, significant and unavoidable impacts would occur in regards to temporary, short-term and long-term noise impacts under the Plan.

Impact NOISE-1: Exposure of new residences to traffic noise exceeding 60 L_{dn} or interior noise exceeding 45 L_{dn}, and instantaneous maximum noise of 50 dBA in bedrooms, and 55 dBA in other habitable rooms.

Mitigation Measure NOISE-1: New residences shall be designed such that interior noise from traffic does not exceed 45 L_{dn} in habitable rooms or an instantaneous maximum of 50 dBA in bedrooms or 55 dBA in habitable rooms. Where feasible, new residences shall be designed such that traffic noise at outdoor use areas does not exceed 60 L_{dn}. Treatments that can be implemented to achieve these performance standards include, but are not limited to the following:

- Placement of solid walls, earth berms, or building structures between roadways and outdoor use areas.
- Use of acoustically rated doors and windows.
- Placement of non-sensitive rooms (laundry rooms, garages, etc) adjacent to roadways.

Prior to the issuance of building permits, the applicant must provide to the City a report from a certified acoustical design professional that details how dwelling units within the Plan Area will achieve an interior noise level of less than 45 dB L_{dn} in habitable rooms and interior maximum instantaneous levels of 50 dBA or less in bedrooms and 55 dBA or less in other habitable rooms. The report shall also address how exterior noise will be reduced to 60 L_{dn} or less, where feasible. If reduction of noise to less than 60 L_{dn} is not feasible, the report shall provide a detailed explanation as to why.

Significance After Mitigation. While new residences could be designed such that interior noise from traffic does not exceed 45 L_{dn} and an instantaneous maximum of 50 and 55 dBA, there may be instances where it is not feasible to ensure that exterior noise at outdoor use areas does not exceed 60 L_{dn}. Therefore, this is a *significant and unavoidable* impact.

Impact NOISE-2: Exposure of new residences to instantaneous maximum aircraft noise levels exceeding 50 dBA in interior rooms (impact related to developments within 60 CNEL).

Mitigation Measure NOISE-2a: New residences shall be designed such that interior noise from aircraft does not exceed 45 L_{dn} in habitable rooms or instantaneous maximum noise levels of 50 dBA in bedrooms or 55 dBA in habitable rooms. Treatments that can be implemented to achieve this performance standard include, but are not limited to:

- Use of acoustically rated doors and windows; and
- Use of upgraded acoustical insulation for walls and roofs that may include placement of additional gypsum board or other noise-attenuating materials in walls and roofs.

Mitigation Measure NOISE-2b: Prior to the issuance of building permits, the applicant must provide to the City a report from a certified acoustical design professional that details how dwelling units within the Plan Area will achieve an interior noise level of less than 45 dB Ldn in habitable rooms and interior maximum instantaneous levels of 50 dBA or less in bedrooms and 55 dBA or less in other habitable rooms.

Mitigation Measure NOISE-2c: New residential development within the 60 CNEL McClellan Airport noise exposure contour shall require notification. This may take the form of requiring developments requesting tentative maps or other development approvals to provide formal written disclosures, recorded deed notices, or in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within the 60 CNEL noise contour of the McClellan Airport Planning Policy Area and is subject to periodic excessive noise from aircraft overflights.

Significance After Mitigation. *Less than significant.*

Impact NOISE-3: Exposure of noise sensitive land uses to construction noise that is not in compliance with the City of Sacramento Noise Ordinance.

Mitigation Measure NOISE-3: Employ the following noise-reducing construction practices and additional time-of-day restrictions:

- ♦ Construction noise shall be limited as follows:
  - 55 dBA between the hours from 6:00 p.m. to 10:00 p.m. and 50 dBA between the hours of 10:00 p.m. to 7:00 a.m. Monday through Saturday.
  - 55 dBA between the hours from 6:00 p.m. to 10:00 p.m. and 7:00 a.m. to 9:00 a.m. and 50 dBA for all other hours on Sunday.
- ♦ Measures that can be used to limit noise include, but are not limited to, the following, the following:

- Locating equipment as far as practicable from noise sensitive uses;
- Requiring that all construction equipment powered by gasoline or diesel engines have sound-control devices that are at least as effective as those originally provided by the manufacturer and that all equipment be operated and maintained to minimize noise generation;
- Prohibiting gasoline or diesel engines from having unmuffled exhaust;
- Selecting haul routes that affect the fewest people;
- Using noise-reducing enclosures around noise-generating equipment; and
- Constructing barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (terrain, structures) to block sound transmission.

Significance After Mitigation. Implementation of these mitigation measures during construction would reduce noise impacts to a *less-than-significant* level.

4.9 POPULATION, EMPLOYMENT AND HOUSING

This section discusses the existing population and housing conditions in the Plan Area as well as the population and housing impacts that could result from implementation of the McClellan Heights/Parker Homes Land Use and Infrastructure Plan.

A. Regulatory Setting

The following is a description of the documents and regulations that pertain to the Plan Area.

1. City of Sacramento General Plan (Adopted 1988)

The following policy from the Urban Growth Element pertains to the Plan Area:

- ♦ **Policy 2: Population and Housing Growth:** It is the policy of the City that adequate housing opportunities be provided for all income households and that planned housing needs are accommodated.
  - When housing opportunities are limited, the cost of housing increases. Increased housing costs create hardships for many, but especially lower income households unable to compete for available housing. In an effort to keep housing affordable to these groups, land use decisions in each community should reflect the citywide objective of providing housing opportunities for all income groups.
  - The location of residential land use in relationship to employment centers may be a significant factor in reducing traffic and meeting local housing needs. Providing a variety of residential uses near major employment centers or along transit or major transportation routes can help ensure housing opportunities for all income households employed in those centers.
  - Each new community plan should provide a variety of housing types to promote the availability of housing opportunities for a broader range of households.

- Residential development consumes a significant portion of land in the city. It is therefore important that the quality and character of residential development complement the total urban environment. Although the quality of housing in Sacramento is generally good, continued efforts to maintain and improve the quality of housing will be necessary in some areas of the city.
- There are locations where a mixture of residential, neighborhood-related commercial/office and employment opportunities should be provided. The percentage of each type of use should be determined in a manner where each type of use adequately supports the other land use components.

2. North Sacramento Community Plan (Adopted 1984)

The following objective from the Land Use Element pertains to the Plan Area:

- ♦ **Objective C:** Accommodate the growth planned for North Sacramento by the City General Plan in an orderly and efficient manner, one which enhances the existing attractive features of the community.

B. Existing Conditions

This section provides a general description of the current population, employment and housing situation in Sacramento.[1]

1. Population Trends

According to the U.S. 2000 Census, there were approximately 910 Parker Home residents and 1,520 residents of McClellan Heights. The latter has likely experienced the majority of population growth in the Plan Area since 2000, as Parker Homes is relatively built out.

[1] Information in the Existing Setting section of this chapter comes from Bay Area Economics, 2006. *McClellan Heights-Parker Homes Housing Conditions Assessment and Market Analysis.*

The Plan Area has experienced a greater population increase between 2000 and 2004 than the city or the county overall. The Plan Area has grown at approximately 4 percent annually, while the City of Sacramento has grown at 2.5 percent annually, and the County has grown at 2.4 percent annually. The Plan Area is capturing a disproportionate share of the city and county population growth, which may be a result of increasing home prices throughout the region that derives households to seek the type of affordable housing found in the Plan Area.

a. Household Types

In the Plan Area, 71 percent of households are family households,[2] compared with 58.6 percent in the city and 65.2 percent in the county. In all areas, these percentages were down only slightly from 2000, indicating that housing suitable for traditional families remains in strong demand, particularly within the Plan Area. Given the rapidly escalating cost of for-sale housing in these areas, this suggests rental housing will remain the more affordable alternative for families.

b. Household Size

Average household sizes were relatively stable or slightly increased between 2000 and 2004. The Plan Area's average household size increased from 3.06 persons per household in 2000, to 3.12 persons in 2004. The Plan Area's average household size is likely a function of the higher proportion of families in the Plan Area compared to the city and county. It also indicates a higher likelihood of overcrowding, with smaller units occupied by larger households. In the city, the average household size grew from 2.57 to 2.60 persons between 2000 and 2004, while the County's average household size grew from 2.64 persons to 2.65 persons. In 2000, Parker Homes households tended to be larger with an average household size of 3.57 persons per household compared to

[2] A "family household" is a household with two or more individuals related by birth, marriage, or adoption, living together. In contrast, a "non-family" household is either a single person living alone, or a group of unrelated people sharing a home.

McClellan Heights, which had an average household size of 2.86 persons per household.

c. Age Composition

The Plan Area has a large percentage of youths 17 years and younger (35 percent) compared to approximately 27 percent for both the city and the county overall. The Plan Area's median age is 29.5 years compared to 32.8 years in the city and 33.7 years in the county.

Parker Homes has a larger percentage of persons younger than 18 years, accounting for 40 percent of all persons. In addition, Parker Homes has a large segment of persons between 22 and 29 years, representing 12 percent of its population, compared to eight percent in McClellan Heights.

d. Household Income

Plan Area households are relatively less affluent than their city and county counterparts. According to Claritas estimates,[3] the median household income in the Plan Area was approximately $29,300 in 2004, a 1.9 percent increase from the 1999 median household income. In the city, the median household income for 2004 was approximately $40,800, which was a 2 percent increase from 1999 median household income levels. In addition, the county was also relatively affluent in 2004 with a median household income of approximately $48,700, a 1.8 percent increase from its 1999 figure.

The Plan Area has significantly higher proportions of lower income households compared to the city and county overall. According to Claritas Inc. 2004 estimates, approximately 40 percent of the Plan Area households earned less than $25,000 per year,

[3] Claritas is a service used by Bay Area Economics for this analysis. Calritas provides demographic data and target marketing information about the population, consumer behavior, consumer spending, households and businesses within any specific geographic market area in the United States.

which is lower than the very-low-income limits set by the Department of Housing and Community Development (HCD).[4] This is compared to 31 percent of Sacramento City and 23 percent of County households earning less than $25,000 per year. It should be noted that Census data does not provide information on non-reported income. Often, households in lower income communities earn unreported income through the informal economy. Thus, actual incomes may be slightly higher than stated.

Claritas estimates that the number of Plan Area households with higher incomes has increased since 1999, when less than 3 percent of Plan Area households had incomes of $75,000 or more. By 2004, approximately 7 percent of the households in the area had incomes of $75,000 or more. Households with higher incomes increase the overall neighborhood purchasing power. Further, Claritas estimates that more Plan Area household incomes will continue to increase, further increasing demand for neighborhood consumer goods.

Although the median *household* income in the Plan Area increased between 1999 and 2004, the median *family* household income decreased during this period, from $28,000 in 2000 to $24,000 in 2004. This trend is in contrast to the increase in median family household income that both the city and county experienced. In addition, more affluent non-family households, who are likely first-time homeowners, entered the homeowner market within the Plan Area, as it is relatively affordable compared to the other areas within the city and county.

e. Tenure

As of 2004, approximately 61 percent of Plan Area households own their homes, compared to half of the Sacramento city households and approximately 58.4 percent of county households. The Plan Area's higher home ownership indicates that while

[4] The 2004 HCD household income limits for a very-low-income household is $32,050 for a four-person household and $25,650 for a two-person household.

reported household incomes are relatively low, many households own their homes and would benefit from local neighborhood improvements that increase home values. Notwithstanding, 2000 Census block information shows that more households in Parker Homes rent (57 percent) than own. This is in stark contrast to McClellan Heights where a higher proportion of households own their homes than rent.

f. Population Estimates

Although the Plan Area grew more rapidly than the city or county between 2000 and 2004, this trend is not expected to continue into the future. The Sacramento Area Council of Governments (SACOG) estimates that between 2005 and 2020, the Plan Area will grow at an average of 0.5 percent annually, while the city and county will both grow at an average of 1.4 percent annually. This is likely due to the limited availability of developable sites within the Plan Area. Nonetheless, SACOG anticipates approximately 40 new households within the next five years and 100 new households by 2015. This translates directly into new housing demand in the Plan Area and surrounding area. SACOG's estimates of housing growth may be conservative. Recent price spikes for new homes in the Sacramento region have forced prospective homebuyers into more affordable areas, such as Northeast Sacramento. Housing demand has outpaced supply with appreciation rates over 15 percent per year (2004 data). Thus, actual new housing demand in the Plan Area is likely higher as households search for more affordable areas.

2. Housing

In 2000, there were approximately 840 units in the Plan Area. McClellan Heights contains approximately 570 housing units and Parker Homes contains 270 housing units. Approximately 6 percent of the housing units are vacant, with a higher proportion of units vacant in Parker Homes. In the city, 66 percent of homes are single-family residential, 9 percent are multi-family units with between 2 and 4 units in the structure, and 23 percent are multi-family units with five or more units within the structure. The housing types within the County resemble those of the city, but the county has a higher proportion of single-family residential units.

3. Employment Conditions

Claritas provides 2004 employment estimates by Census block group. The Plan Area has a sizeable employment base of construction and special trade contractors, accounting for 18 percent of the Plan Area's total employment and 25 percent of total sales. A significant portion of these establishments are likely in the industrial flex space found in McClellan Heights.

The second largest employment sector in the Plan Area is *Wholesale Trade*, which offers durable goods employment. This sector accounts for 19 percent of total sales in the area and 12 percent of total employment.

Between 2005 and 2020, Plan Area employment is expected to grow at an average of 3.5 percent annually. This is higher than the planned growth rates for both the city and county. The manufacturing sector will grow the fastest in all areas, and is expected to grow an average of 10.7 percent annually in the Plan Area. In addition, there will be no increase in the retail trade, office, or medical sectors within the Plan Area, but these sectors will expand in surrounding areas. SACOG's planned expansion of the local manufacturing sector is a result of the available supply of manufacturing land in the area. Based on SACOG estimates, the area will experience a net increase of 60,000 industrial square feet over the next five years and 180,000 industrial square feet over the next ten years.[5]

The former McClellan Air Force Base (McClellan) is successfully converting from a sole military use to a large employment center for the Sacramento region, with over eight million square feet of commercial and industrial space. Sacramento County estimates that approximately 10,000 people work in McClellan now. At buildout, McClellan will employ over 30,000 persons. Average annual absorption is approxi-

[5] Assumes an employment density of 600 industrial square feet per new employee.

mately 800,000 to 1,000,000 million square feet per year. In addition, McClellan recently leased more than 900,000 square feet in January and February of 2005 alone.

The majority of the occupied space is located on the east side of the airport, which splits the McClellan site and acts as barrier between the east and west portions of the base since only one road provides circulation between the two areas. McClellan developers are in the process of improving road circulation between the two areas through an Economic Development Administration grant.

McClellan developers are also planning to construct office and office-flex space on the southwest portion of the base, adjacent to Winters Street and plan to add over 200,000 square feet of commercial and industrial space to the area. The result will be a large daytime population in close proximity to the Plan Area that will act both as a local employer and a generator for morning and lunchtime retail demand. The injection of 200,000 square feet of retail development will add approximately $1.2 million in annual local retail demand to the area.[6] The retail injection alone is not a significant boost to local retail demand, but combined with local neighborhood retail demand and future absorption of other warehouse, industrial, and flex space, the Plan Area will see a significant expansion in retail demand. In total, McClellan will add more than $12,000,000 a year in daytime retail demand.

C. Standards of Significance

The Plan would result in a significant impact if it would:

- ♦ Induce substantial growth that is inconsistent with the approved land use plan for the area.

[6] Assumes an employment density of 500 square feet per employee. Uses International Council of Shopping Centers' (ICSC) estimated daytime retail expenditures per employee near place of work for suburban markets (2004).

♦ Displace existing affordable housing.

D. Impact Discussion

This section evaluates impacts of the Plan as it relates to growth inducement and displacement of existing affordable housing.

According to the City of Sacramento's General Plan, the city has sufficient available land to support 218,100 housing units in total. According to the 2000 U.S. Census, the City of Sacramento had 2.57 persons per household in 2000, meaning that the City of Sacramento could support up to approximately 560,517 people based on available land and the number of housing units that could be built on this land. Also, according to the 2000 U.S. Census, the city has a population of 407,018 persons and could accommodate further growth of up to approximately 153,499 persons before it would become inconsistent with the City's General Plan.

According to population estimates by SACOG, minor zones 564000 and 564010 (zones which encompass the Plan Area) will experience a net increase in demand for 100 additional housing units over the next ten years,[7] well within the projections for 860 new housing units envisioned by the Plan. Ultimately, as a result of land use zoning changes within the Plan Area, the Plan would generate no more than 2,683 residents over time due to the addition of 860 residences.[8] Even if 100 percent of the buildout under the Plan (2,683 residents) occurred between today and 2010, the

[7] Bay Area Economics, 2006. *McClellan Heights-Parker Homes Housing Conditions Assessment and Market Analysis*, page 16. It is unclear as to whether SACOG projections took into account the *North Sacramento Community Plan* predictions, though it is unlikely since the Plan was adopted over two decades ago, in 1984.

[8] As noted in the Chapter 3.0 Project Description, 860 new residential units are projected to result from buildout of the Plan. 860 units multiplied by the average household size for the Plan Area of 3.12 persons/household results in an added projected population of 2,683 persons in the Plan Area.

growth would be well within SACOG population estimates for the City of Sacramento.[9] Thus, no impacts would occur related to substantial population growth which is inconsistent with the City's General Plan.

Furthermore, implementation of the Plan would necessitate a General Plan Amendment which would effectively change portions of the Plan Area from industrial to mixed-use residential. This would further ensure that any population growth associated with the Plan would be consistent with the approved land use plan for the area.

One of the objectives of the Plan identified by SHRA and through community meetings was for the Plan to "promote the availability of a variety of housing types at varying densities and levels of affordability." Because the Plan would include housing for all levels of income, it would ultimately add affordable housing to the existing housing stock in the Plan Area. Thus, no impacts related to the displacement of existing affordable housing would occur.

E. Impacts and Mitigation Measures

No impacts were identified, thus no mitigation measures are required.

[9] Bay Area Economics, 2006. *McClellan Heights-Parker Homes Housing Conditions Assessment and Market Analysis*, October 17. Table 8, Population and Employment Projections.

4.10 PUBLIC SERVICES

This section describes the potential impacts from the Plan on public services, including police, fire, schools and recreation services. This section is organized according to service type, with a description of the regulatory framework, existing conditions and potential impacts for each public service.

A. Police Services

1. Regulatory Framework

Goals and policies relevant to police services can be found in the Public Services Element of the City of Sacramento General Plan. The relevant goals and policies are listed in Table 4.10-1.

2. Existing Conditions

The Sacramento Police Department consists of 790 sworn police officers and 382 civilian staff. The Patrol Division, in the Office of Operations, is directly responsible for managing and responding to emergency and non-emergency calls for service. The main headquarters for the Sacramento Police Department is located at the Public Safety Center, Chief Deise/Kearns Administration Facility, 5770 Freeport Boulevard. The Police Department has two substations from which the patrol divisions operate. The facility that services the Plan Area is the William J. Kinney Police Facility located at 3550 Marysville Boulevard, which is approximately 1 mile from the Plan Area. There is no secondary station in this area. The other substation is the Joseph E. Rooney Police Facility located at 5303 Franklin Boulevard.

The William J. Kinney Police Facility services three main districts, each having three beats. These districts cover the northern half of the City of Sacramento, which is bounded by US Highway 50 on the south, Elkhorn Boulevard on the north, Watt Avenue on the east and the Sacramento River on the west.

TABLE 4.10-1 **RELEVANT CITY OF SACRAMENTO GENERAL PLAN GOALS AND POLICIES—POLICE SERVICES**

Number	Policy
Policy 1	Continue Police Department participation in the review of subdivision proposals and in assisting the Public Works department with traffic matters.
Policy 2	Maintain communication with residents and businesses in order to learn more about developing crime problems and to educate people on crime prevention measures and programs.

The approximate current staffing for the Kinney Facility includes:

- 1 Police Captain
- 5 Police Lieutenants
- 14 Police Sergeants
- 119 Police Officers
- 6 Community Service Officers

The Plan Area is located within District 2, Beat A; approximate current staffing for District 2A includes:

- 2 Police Sergeants
- 13 Police Officers
- 1 Community Service Officer

The Sacramento Police Department's goal is to achieve an officer-to-resident ratio of 2 to 2.5 sworn police officers for every 1,000 residents and to maintain the current ratio of civilian support staff to sworn police officers. However, as of 2005, the Police Department was funded for 1.7 officers per 1,000 residents.[1]

[1] Personal communication with Sergeant Eric Poerio, Sacramento Police Department, August 14, 2006.

3. Standards of Significance

The Plan would have a significant impact if it would:

- Result in a need for altered services related to police protection.

4. Impact Discussion

a. Plan Impacts

Under buildout conditions, the Plan would allow for 860 new residential units to be built in the Plan Area. The Plan Area has an average of 3.12 people per household,[2] therefore, up to 2,683 residents could be added to the Plan Area.

To maintain the current level of service of 1.7 officers per 1,000 residents, five additional officers would need to be hired. Two to three additional civilian personnel would also be needed. This is considered a significant impact to police services since there would be a need for altered services from implementation of the Plan. New development in the Plan Area would consist of small subdivisions and mixed-use projects, so the need for additional police officers would grow incrementally over the 20-year buildout horizon. In addition, tax revenues generated by new development would be directed towards the City's General Fund which supports police services. Therefore, the impact is considered *less than significant.*

5. Impacts and Mitigation Measures

There are no impacts regarding police services, and therefore no mitigation measures are required.

[2] Bay Area Economics, 2006. *McClellan Heights-Parker Homes Housing Conditions Assessment and Market Analysis*.

B. Fire Services

1. Regulatory Framework

The Public Facilities and Services Element of the City of Sacramento's General Plan includes goals and policies that are relevant to fire protection in Sacramento; these are listed in Table 4.10-2.

2. Existing Conditions

The Plan Area is served by Sacramento Fire Department's (SFD) Station 17, located approximately 1.15 miles from the center of the Plan Area. The station maintains a medic unit, a fire truck and one engine company. Ten firefighters serve at Station 17 per 24-hour shift.[3]

3. Standards of Significance

The Plan would have a significant impact if it would:

- Result in a need for altered services related to fire protection.

4. Impact Discussion

a. Plan Impacts

Maximum buildout of the Plan could result in an additional 860 residential units, 232,000 square feet of retail uses, 25,000 square feet of office uses and 27,000 square feet of industrial uses under the 20-year Plan horizon. According to the SFD, the Plan would not cause the need for new or altered fire services.[4] Therefore, there would be *no impact* to fire services.

[3] Angie Shook, Sacramento Fire Department. Email communication with DC&E, July 27, 2006.

[4] Angie Shook, Sacramento Fire Department. Email communication with DC&E, July 27, 2006.

TABLE 4.10-2 **RELEVANT SACRAMENTO GENERAL PLAN GOALS AND POLICIES—FIRE SERVICES**

Number	Policy
Goal A	Provide adequate fire service for all areas of the City.
Policy 2	Ensure that adequate water supplies are available for fire-fighting equipment in newly developing areas.
Policy 4	Promote greater coordination of land use development proposals with the Fire Department in order to ensure adequate on-site fire protection provisions.
Policy 5	Promote greater use of fire sprinkler systems for both commercial and residential use.

b. Cumulative Impacts

Projected growth under the Plan, combined with "background" growth under the General Plan, could result in the need to provide additional facilities, equipment and personnel. As new growth occurs in the City, increased tax revenues are used to support (increased) fire services. Funds for these services would be collected from the City's General Fund. Also, development service fees are collected to cover the cost of plan reviews and inspections by Fire Plan Inspectors.

5. Impacts and Mitigation Measures

There are no impacts regarding fire services, and therefore no mitigation measures are required.

C. Schools

1. Regulatory Framework

a. State Regulations

Senate Bill (SB 50), along with bond procedures under Proposition 1A of 1998, regulate school financing and mitigation by setting development fee caps, removing authority for denial of a development application based solely on current school capacity levels, and ensuring that impacts to schools are mitigated under CEQA. However, to offset the impact of new development on the school system, SB 50 permits all of the school districts within the Plan Area to charge fees on new commercial and residential development. For residential construction, the minimum fee (as allowed under State law) is $1.93 per square foot; for commercial development the minimum fee is $0.31 per square foot.

b. Local Regulations

The City of Sacramento's General Plan includes goals and policies that are relevant to school services in Sacramento; these are listed in Table 4.10-3.

2. Existing Conditions

Students in the Plan Area attend either the Robla Elementary District or North Sacramento School District for grades K-6, and the Grant Union High School District for grades 7-12.

a. Robla Elementary District

The Robla Elementary District provides education for K-6th grade students for the portion of the Plan Area north of North Avenue. Students in this area would attend Bell Elementary School, located at 1900 Bell Avenue. Enrollment for Bell Elementary School for the 2005-2006 school year was 405 students, with capacity for 445 students. Enrollment in the District for the 2005-2006 school year was 2,134 students.[5] The Robla Elementary District collects $1.23 per square foot of new residential development and $0.19 per square foot for new commercial development.[6]

[5] City of Sacramento, 2005. General Plan Technical Background Report, Schools Section, page 5.6-7.

[6] Personal telephone communication with the Robla Elementary District on November 13, 2006.

TABLE 4.10-3 **RELEVANT CITY OF SACRAMENTO GENERAL PLAN GOALS AND POLICIES—SCHOOLS**

Number	Policy
Goal A	Continue to assist school districts in providing quality education facilities that will accommodate planned student enrollment growth.
Policy 2	Involve school districts in the early stages of the land use planning process for the future growth of the City.

b. North Sacramento School District

Elementary school students who live south of North Avenue attend Michael J. Castori Elementary School, located at 1801 South Avenue, part of the North Sacramento School District (NSSD). Enrollment for the 2005-2006 school year was 653 students, which is at, or above, capacity.[7] Enrollment for the entire school district for the 2005-2006 school years was 5,312 students.[8] The North Sacramento School District does not collect development impact fees because the Grant Joint Union High School District (GJUHSD) collects the fees for them since most of the students who attend NSSD schools go on to attend schools within the GJUHSD.[9]

c. Grant Joint Union High School District

GJUHSD provides 7-12th grade education in the Plan Area. Students who live north of North Avenue attend Rio Linda Junior High School for 7th and 8th grades. The school is located at 1101 G Street in Rio Linda. These students go on to Rio Linda High School, located at 6309 Dry Creek Road. Enrollment for the 2005-2006 school

[7] City of Sacramento, 2005. General Plan Technical Background Report, Schools Section, page 5.6-7.

[8] City of Sacramento, 2005. General Plan Technical Background Report, Schools Section, page 5.6-7.

[9] Personal telephone communication with Diane Harris, Support Services, North Sacramento School District on November 13, 2006.

year for the school district was 4,683 students.[10] Students living south of North Avenue attend Martin Luther King Jr. Junior High School located at 3051 Fairfield Street and Grant Union High School located at 1400 Grand Avenue in Sacramento.

The Grant Joint Union High School District schools are currently over capacity. The latest available district numbers indicate that grades 7-8 are 72 students over capacity and grades 9-12 are currently 1,163 over capacity. GJUHSD collects developer fees of $2.63 per square foot of new residential construction and $0.42 per square foot of new commercial or industrial construction, which is the maximum amount under State law.[11]

3. Standards of Significance

The Plan would have a significant impact if it would:

- ♦ Result in a need for altered services related to school facilities.

4. Impact Discussion

a. Plan Impacts

i. Elementary School Districts

Analysis of impacts to elementary schools must acknowledge that the Plan Area is bisected by North Avenue, which serves as the dividing line between the Robla School District (north of the road) and North Sacramento School District (south of the road), as noted in the previous section. The portion of the Plan Area in the North Sacramento School District is much smaller than it's northern counterpart, and is fairly built out. For purposes of schools-related analysis, it is assumed that 80% of new students generated from Plan buildout will reside in the Robla District and 20% in the North Sacramento District.

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[10] City of Sacramento, 2005. General Plan Technical Background Report, Schools Section, page 5.6-7.

[11] Developer Fee Justification Study, Grant Joint Union High School District, January 2006.

The Robla Elementary School District uses the following student generation rates for new development: 0.33 students per one-bedroom unit; 1.4 students for each two-bedroom unit; and 1.53 students per three-bedroom unit.

The Plan would create up to 860 new residential units. Currently, the mix of residential unit types is unknown but, to be conservative, the student generation rate for three-bedroom units (1.53) is assumed. As such, the Plan would generate no more than 1,316 students who would attend the Robla Elementary School District. Applying the District allocations noted in the first paragraph, the buildout of the Plan would generate approximately 1,048 students in the Robla Elementary District. Since the District schools are currently under capacity by approximately 216 students, new students generated by buildout of the Plan would exceed capacity, using conservative estimates. However, pursuant to State law, collection of school impact fees would adequately mitigate the impacts of new development on the public school system. Thus, *no significant* impact is anticipated.

ii. North Sacramento School District

Using the North Sacramento School District student generation rate of 0.34 students per household, buildout of the Plan would generate approximately 292 students based on the addition of 860 households. Applying the District allocations noted earlier, buildout of the Plan would generate approximately 58 new students in the North Sacramento District. Since the entire district is at or above capacity, the addition of even 58 new students would exacerbate the problem. However, pursuant to State law, collection of school impact fees would adequately mitigate the impacts of new development on the public school system. As previously mentioned, the North Sacramento School District does not collect their own fees; the GJUHSD collects fees for them. Thus, *no significant* impact is anticipated.

iii. Grant Joint Union High School District

The Grant Joint Union High School District uses a student generation rate per household of 0.1 students in grades 7-8, and 0.2 students in grades 9-12. With the addition of

860 new residential units, the Plan would generate 86 new junior high students and 172 new high school students. GJUHSD also considers student generation from non-residential uses.[12] The District's Development Fee study determined that one student is generated per 7,647 square feet of commercial development, with 25 percent of these students living in the area and accounted for in the residential generation rates. This means that an additional 37 students would be generated based on the 284,000 square feet of commercial uses envisioned in the Plan. Nine of them would already be accounted for, resulting in an additional 28 students generated from development of the anticiapted commercial square footage.

In total, 286 students would be generated through implementation of the Plan. State classroom loading standards specify a maximum of 27 students per classroom for grades 7-12. Using this standard, the Plan would cause the need for over ten new classrooms in this District.

Grant Joint Union High School District is currently under capacity by approximately 64 students. The number of students generated from Plan buildout would exceed the District's capacity. However, pursuant to State law, collection of school impact fees would adequately mitigate the impacts of new development on the public school system. Thus, *no significant* impact is anticipated.

iv. Significance of School-Related Impacts

According to California Government Code Section 65995, "the financing of school facilities and the mitigation of the impacts of land use approvals . . . on the need for school facilities are matters of statewide concern. For this reason, the Legislature hereby occupies the subject matter of requirements related to school facilities levied or imposed in connection with, or made a condition of, any land use approval . . . and the mitigation of the impacts of land use approvals."

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[12] Developer Fee Justification Study, Grant Joint Union High School District, January 2006.

Further, Government Code Section 65996(a) states that no additional mitigation beyond the payment of the aforementioned fees is permitted. This is because with regard to the construction of permanent school facilities, such fees "shall be the exclusive methods of considering and mitigating impacts on school facilities that occur or might occur as a result of any legislative or adjucative act [by a town or city] . . . involving, but not limited to, the planning, use, or development of real property. . ." Consequently, the Plan's impacts on school facilities would be *less than significant*.

b. Cumulative Impacts

New residential development taking place under the Plan would generate a large number of new students which, when combined with other growth within the school district's boundaries, could result in *cumulative* impacts. However, since impacts to schools are regulated by SB 50, cumulative impacts are mitigated by school impact fees.

5. Impacts and Mitigation Measures

No impacts were identified regarding schools, and therefore no mitigation measures are required.

D. Recreation Services

1. Regulatory Framework

This section includes the relevant State and local polices as they apply to the provision of parks and recreation services in the City of Sacramento.

a. State Regulations

i. Quimby Act

The Quimby Act (California Government Code Section 66477) was established by the California legislature in 1965 to preserve open space and parkland in the rapidly urbanizing areas of the state. This legislation was a response to California's increased rate of urbanization and the need to preserve open space and provide parks and recreation facilities for California's growing communities. The Quimby Act authorizes local governments to establish ordinances requiring developers of new subdivisions to dedicate land for parks, pay an in-lieu fee, or perform a combination of the two.

The Quimby Act provides two standards for the dedication of land for use as parkland. If the existing area of parkland in a community is *greater* than 3 acres per 1,000 persons, then the community may require dedication based on a standard of up to 5 acres per 1,000 persons residing in the subdivision. If the existing amount of parkland in a community is *less than* 3 acres per 1,000 persons, then the community may require dedication based on a standard of only 3 acres per 1,000 persons residing in the subdivision. The Quimby Act requires a county or city to adopt standards for recreational facilities in its General Plan Recreation Element if it is to adopt a parkland dedication/fee ordinance.

Both the County and the City of Sacramento collect Quimby Act in-lieu fees, which contribute to a fund that is used to acquire properties for parkland. The City's standards for parkland dedication under the Quimby Act are provided in the discussion of local regulations below.

b. Local

i. City Requirements for Parkland Dedication

Chapter 16.64 of the City Code lists the City of Sacramento's requirements for the dedication of parkland and/or payment of in-lieu fees under the Quimby Act. To determine the required parkland dedication, the City multiplies the number of dwelling units by specified factors to produce 5 acres per 1,000 residents. The same calculation factor (0.0149) is used by the City for both single-family (low-density) and medium-density housing, while the calculation factor for high-density housing is lower (0.0088).

ii. City of Sacramento General Plan

The Public Facilities and Services Element of the City General Plan (City of Sacramento 1988, as amended December 7, 2004 with adoption of the *Parks and Recreation Master Plan 2005-2010,* Resolution 2004-906) include several policies and standards related to recreation, which are listed in Table 4.10-4.

The current City General Plan and the City Parks and Recreation Master Plan include the following park acreage service level goals:

- Neighborhood-serving acres: 2.5 acres per 1,000 residents
- Community-serving acres: 2.5 acres per 1,000 residents
- Citywide/regionally-serving acres: 8 acres per 1,000 residents

As described in the public facilities policies, the General Plan identifies urban plaza/pocket parks, neighborhood parks, community parks, regional parks, parkways, dedicated open space, and joint use school sites as types of parkland that fulfill the active and passive recreation needs of the community. These facilities are described below:

- **Urban Plaza/Pocket Park.** A specialized neighborhood park or facility to be used primarily by persons living, working or visiting nearby. This type is more appropriate for areas of denser urban and mixed-use development. Amenities may include smaller scale features such as community gardens, children's play areas, sitting areas, tables, fountains, public art, walkways and landscaping. The size is generally less than 5 acres.

- **Neighborhood Park.** Intended to be used primarily by the people who live nearby, or within reasonable walking or bicycling distance of the park. Some neighborhood parks are situated adjacent to an elementary school and improvements are usually oriented toward the recreation needs of children. Park amenities may include a tot lot, an adventure area, unlighted sport fields or sport courts, and/or a group picnic area, and parking limited to on-street. The site is generally between 5 to 10 acres.

TABLE 4.10-4 **RELEVANT CITY OF SACRAMENTO GENERAL PLAN GOALS AND POLICIES—PARKS AND RECREATION**

Number	Policy
Goal A	Provide adequate parks and recreational services in all parts of the City, adapted to the needs and desires of each neighborhood and community. Attempt to achieve the acreage service level goals established in the Parks and Recreation Master Plan.
Policy 1	Encourage private development of recreational facilities that complement and supplement the public recreational system.
Policy 3	Encourage joint development of parks with compatible uses such as new schools, libraries and detention basins.
Policy 5	Design parks to enhance and preserve the natural site characteristics and environmental values.
Policy 6	Review all necessary infrastructure improvements for their potential park and open space usage.
Policy 7	Locate community and regional parks and linear recreational areas on or adjacent to major thoroughfares.
Policy 9	Continue the practice of partnering with school districts and the community to provide neighborhood or community-serving outdoor recreation facilities on and adjacent to public schools.
Policy 10	Develop and implement programs to help ensure the safety of residents utilizing the parks and recreational facilities.

- **Community Park.** A park or facility developed primarily to meet the requirements of a large portion of the city. In addition to neighborhood park amenities, a community park may include a large group picnic area with shade structure, a community garden, a neighborhood/community skate park, restrooms, on-site parking, bicycle trail, a nature area, a dog park, lighted sport fields or sports courts. Specialized facilities may include a community center, a water play area and/or a swimming pool. Some smaller community parks may be dedicated to one use, and some elements of the park may be leased to community groups. The size is generally between 10 to 60 acres.

- **Regional Park.** Contains a wide range of improvements usually not found in local community or neighborhood facilities. These parks serve the entire city and beyond, and the size varies. In addition to neighborhood and community park type improvements, a regional facility may include regional destination attractions such as a golf course, a marina, amusement areas, a zoo or nature areas. Some elements in the park may be under lease to community groups.
- **Parkway.** A linear park or interconnected system of parks used primarily as corridors for pedestrians and bicyclists, linking residential areas to schools, parks and trails systems. They are typically linear and narrow and may be situated along a waterway, abandoned railway or other common corridor.
- **Open Space.** Open space areas in the Parks and Recreation System are natural areas set aside primarily to enhance environmental amenities. They are developed and managed to enhance or protect their scenic, historic, environmental, cultural and passive recreation value. Many such areas are intended to be part of an interconnected regional system of open space within and between urban growth areas.
- **School Sites.** The City relies on formal partnerships with school districts for public access to public school sites after school hours to meet general public and school recreation needs. These sites are usually classified as either neighborhood or community-serving acres, depending on their size. The partnerships can include development of parks on land owned by a school district and designated by formal agreement for joint development, operation and/or maintenance. These joint use agreements make it possible to maximize use of community facilities and more efficiently provide parks and recreation facilities.

The City formally recognizes the contribution of county and State park lands in meeting citywide/regionally-serving acreage requirements, including the American River Parkway, Capitol Park, Governor's Mansion, Stanford Mansion, Sutter's Fort and Witter Ranch.

When determining whether the City is meeting its service level goals, the City considers neighborhood parks and community parks together as "neighborhood/community-serving" acreage, with a total goal of 5 acres per 1,000 residents. Included in the service level goal for "citywide/regionally-serving" parks are regional parks, linear parks/parkways, and open space. These three types of facilities are considered cumulatively toward meeting the goal of 8 acres per 1,000 residents.

2. Existing Conditions

The City of Sacramento currently owns and operates 204 park and recreation facility sites (including golf courses and Camp Sacramento, which is located in El Dorado County) comprising 3,657 acres, plus 81 miles of on- and off-road bikeways and trails, 17 lakes/ponds or beaches, and extensive recreation facilities in the City parks. Of the 204 sites, 33 were added between 1989 and the adoption of the City Parks and Recreation Master Plan in December 2004. Approximately 703 of the 3,657 acres of City parks are neighborhood-serving and 860 acres are community-serving. The City operates other types of recreational facilities including a senior center, 11 community centers and four clubhouses, which are activity buildings available for rental by the public for small parties, gatherings or meetings.

The Plan Area is included in the Department of Parks and Recreation's North Sacramento Community Planning Area. The closest existing parks to the Plan Area are Robla Park, located along Bell Avenue just west of Rio Linda Boulevard and Hagginwood Park, located southwest of the Plan Area along Marysville Boulevard. The closest regional park is Del Paso Regional Park, which is located in the Arden-Arcade Planning Area.

Robla Park is 18.5 acres in size and consists of one picnic area, one ball field, one soccer field, one volleyball court, adventure and tot play areas, a 40-car parking lot, and wetland and nature areas. Hagginwood Park is 17 acres in size and consists of four picnic areas, one lighted baseball field, one soccer field, one basketball court, adventure and tot play areas, a wading pool, Hagginwood community center, and a horseshoe pit.[13]

Future park sites within the McClellan Heights and Parker Homes neighborhoods were identified for the Plan Area as part of previous planning efforts by the City and the Grant Joint Union School District. Verano Creek Park, a 0.4-acre pocket park in the Parker Homes neighborhood on Doolittle Street is scheduled for construction in August 2007, and the school district has plans to construct a joint-use playing field adjacent to Vista Nueva High School on North Avenue. The Plan also includes a goal and related policies that would guide new park space in the Plan Area as new development and redevelopment occurs.

3. Standards of Significance

The Plan would have a significant impact on recreational resources if it would: :

- Cause or accelerate substantial physical deterioration of existing area parks or recreational facilities; or
- Create a need for construction or expansion of recreational facilities beyond what was anticipated in the General or Community Plan.

4. Impact Discussion

a. Plan Impacts

The Plan would generate up to 2,683 residents, which, in addition to the existing 1,520 residents, would result in a total population of approximately 4,203 residents. Thus, to remain in conformance with the City standards of 2.5 acres of neighborhood-serving parks, 2.5 acres of community-serving parks and 8 acres of city-wide or region-

[13] City of Sacramento, Department of Parks and Recreation. Parks in North Sacramento Area. Website: http://www.cityofsacramento.org/parksandrecreation/parks/ nsac.htm. Accessed November 13, 2006.

ally-serving parks per 1,000 residents, Plan Area residents would need access to 10.5 acres of neighborhood parkland and 10.5 acres of community parkland.

The two closest existing parks to the Plan Area, Robla Community Park and Hagginwood Park (also a community park), combine to provide 35.5 acres of community parkland available to Plan Area residents. Community parks serve an area of 2 to 3 miles, typically serving several neighborhoods. Both Robla Community Park and Hagginwood Park are located approximately one mile from the Plan Area boundary, so community parkland requirements are met with these existing parks.

At present, the Plan Area contains only one neighborhood park. The undeveloped 0.4-acre Verano Creek Park is scheduled for completion in fall, 2007. Service area guidelines for neighborhood-serving parks is one-half mile, enabling park visitors to walk or bike to the park. With no existing developed neighborhood parks and only one 0.4-acre park site, the area is deficient in neighborhood parks. New development generated by the Plan will create the need for additional neighborhood parks in the Plan Area. Therefore, there is a *potentially significant* impact to parkland and recreational facilities.

Additional parkland could be implemented via land dedication (if any larger subdivision with 50 or more units is proposed) or the pooling of in-lieu fees that may be used for parkland acquisition. Given the lack of a significant number of contiguous, vacant parcels in the Plan Area, the prospect of a new, large subdivision is unlikely and the pooling of in-lieu fees is more likely to occur. The implementation of either option, however, would reduce impacts on park and recreation facilities to a *less than significant* level.

The Plan Area is also served by Del Paso Regional Park which is located east of the Plan Area, south of Interstate 80.

b. Cumulative Impacts

The Plan, and the new residents it would generate, would create a demand for new neighborhood parks and would therefore contribute to a cumulative impact on park and recreation facilities. The City should require land dedication for additional neighborhood parks in the event a residential subdivision of 50 or more residential units is proposed within the Plan Area. In addition, the collection of in-lieu fees and park development impact fees may be used to augment the City's ability to purchase additional neighborhood parks to serve the Plan Area residents. The implementation of either of these options would reduce impacts on park and recreation facilities to a *less than significant* level.

5. Impacts and Mitigation Measures

There are no impacts regarding parks and recreation facilities, and therefore no mitigation measures are required.

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4.11 Soils, Seismicity and Geology

This section summarizes information on the geology, soils, and seismicity within the Plan Area.

A. Regulatory Framework

1. State of California Regulations

The State of California has established a variety of regulations and requirements related to seismic safety and structural integrity, including the California Building Code, the Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act. These are described below.

a. California Building Code (CBC)

The California Building Code is included in Title 24 of the California Code of Regulations and is a portion of the California Building Standards Code. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The CBC incorporates the Uniform Building Code, a widely adopted model building code in the United States. Through the CBC, the State provides a minimum standard for building design and construction. The CBC contains specific requirements for seismic safety, excavation, foundations, retaining walls and site demolition. It also regulates grading activities, including drainage and erosion control.[1]

b. Alquist-Priolo Earthquake Fault Zoning Act[2]

This Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The main purpose of the Act is to prevent the construction of buildings used for human occupancy on top of active faults. The Act only addresses

[1] California Code of Regulations, Title 24 (California Building Standards Code) summary page. Website: http://www.bsc.ca.gov/title_24/t24_2001tried.html accessed on November 4, 2003.

[2] Called the *Alquist-Priolo Special Studies Zones Act* until renamed in 1993.

the hazard of surface fault rupture and is not directed toward other earthquake hazards.[3]

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones)[4] around the surface traces of active faults, and to issue appropriate maps. The maps are distributed to all affected cities, counties, and State agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones and there can generally be no construction within 50 feet of an active fault zone.[5] As of May 1, 1999, the California Geologic Survey no longer lists the City of Sacramento on its list of cities affected by Alquist-Priolo Earthquake Fault Zones.[6]

c. Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically-induced landslides.[7] Under the Act, seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The Act states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their General Plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and

[3] California Geological Survey, Alquist-Priolo Earthquake Fault Zones. Website: http://www.consrv.ca.gov/CGS/rghm/ap/ accessed on February 18, 2004.

[4] Earthquake Fault Zones are regulatory zones around active faults. The zones vary in width, but average about ¼-mile wide. Website: http://www.consrv.ca.gov/cgs/rghm/ap/index.htm accessed on November 18, 2003.

[5] California Geological Survey, Alquist-Priolo Earthquake Fault Zones. Website: http://www.consrv.ca.gov/CGS/rghm/ap/ accessed on February 18, 2004.

[6] http://www.consrv.ca.gov/CGS/rghm/ap/affected.htm accessed on October 12, 2005.

[7] California Geological Survey, Alquist-Priolo Earthquake Fault Zones. Website: http://www.consrv.ca.gov/CGS/rghm/ap/ accessed on February 18, 2004.

safety."[8] Section 2697(a) of the Act requires that "cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard." Sacramento County has not been mapped under the Seismic Hazards Mapping Act yet since the State has prioritized higher risk areas, such as the lower San Francisco Bay Area and the Los Angeles/Riverside areas.

2. City of Sacramento General Plan (1988)

The City of Sacramento General Plan contains goals and policies which are relevant to the Plan. Goal A is to "protect lives and property from unacceptable risk of hazards due to seismic and geologic activity, to the maximum extent feasible." Other related policies are found within the Health and Safety Element under "Goals and Policies for Seismic Safety." These policies are listed in Table 4.11-1.

3. City of Sacramento Municipal Code (2006)

According to the City of Sacramento Municipal Code, Ordinance 15.88.250, Erosion and Sediment Control Plans (ESC plan), "an ESC plan shall be prepared for all projects to control surface runoff and erosion and to retain sediment on a particular site and prevent pollution of site runoff during the period beginning when any preconstruction- or construction-related grading or soil storage first occurs, until all final improvements and permanent structures are complete. The ESC plan shall be prepared and submitted concurrently with the final grading plan. The ESC plan may be incorporated on the same plan sheet as the final grading plan unless it makes the sheet cluttered, or it may be submitted on a clean separate sheet. The separate sheet shall be drawn clearly and legibly and entitled "erosion and sediment control plan," shall contain a statement of the purpose of the proposed best management practices to be used, and shall include all of the information required and contained in the Manual of Standards, Chapter 2, Section 3." (Ord. 2003-058 § 3; prior code § 9.33.1704.)

[8] California Public Resources Code, Division 2, Chapter 7.8, Article 7.8, Section 2691(c), http://www.consrv.ca.gov/cgs/codes/prc/chap-7-8.htm, accessed on February 19, 2004.

TABLE 4.11-1 **RELEVANT SACRAMENTO GENERAL PLAN POLICIES—SEISMIC SAFETY**

Policy Number	Policies
1	Prohibit construction of structures for permanent occupancy across faults, should any be designated.
2	Continue to require soils reports and geological investigations for determining liquefaction, expansive soils, and subsidence problems on sites for new subdivision and/or multiple-story buildings in the City of Sacramento.
3	Continue to implement the Uniform Building Code requirements that recognize State and federal earthquake protection standards in the construction or repair of buildings.
4	Support a jointly sponsored city/county/State soils investigation in the downtown area to determine if there is a liquefaction problem in this area.
5	Initiate a comprehensive survey of all older buildings and places of public assembly and recommend realistic measures to rehabilitate or remove those structures determined to be structurally unsafe. Special consideration should be given to historic or particularly aesthetic buildings.
6	Initiate and adopt a parapet ordinance that would require the removal or strengthening of poorly anchored parapets or architectural detailing, and yet be in balance with the expressed community objectives for historical structures preservation.
7	Cooperate with and encourage the federal, State, and other jurisdictions to investigate seismic and other hazards and to develop mitigation measures.

B. Existing Conditions

This section describes the existing geologic and seismic setting of the Plan Area and is based on the City of Sacramento, General Plan Technical Background Report, Chapter 7, Public Health and Safety, prepared in June 2005.

1. Regional Geology and Seismicity

The Plan Area is located in the central portion of the Great Valley geomorphic province of California. The Great Valley lies between the mountains and the foothills of the Sierra Nevada Range to the east and the California Ranges to the west. The geological formations of the Great Valley are typified by thick sequences of alluvial sediments (up to 2-mile depth) deposited during the filling of a large ancient basin. No geologic features such as faults or Alquist-Priolo special studies zones are known to occur in or near the Plan Area.

2. Local Geology and Seismicity

There are no known faults within the City of Sacramento; the closest faults are the Midland Fault to the west and the Bear Mountain and New Malones Faults to the east. The City of Sacramento is classified as Zone I in a three-point scale (III is the most susceptible to seismic hazards).

The City of Sacramento's Multi-Hazard Emergency Plan (2002) notes that the largest seismic threat would be from earthquakes which occur along the San Andreas, Calaveras and Hayward Faults. Shaking in Sacramento from an earthquake on these faults would be of an intensity of V to VI on the Modified Mercalli Intensity Scale. This is consistent with the fact that the Central Valley region does not usually experience strong shaking from earthquakes. Table 4.11-2 below illustrates the different levels of the Modified Mercalli Intensity Scale.

3. Regional and Local Soils

The Sacramento area is located on an alluvial plain made up of deposits from the Sacramento and American Rivers. The Natural Resource Conservation Service (NRCS) has mapped the Plan Area, and determined that it contains San Joaquin Silt Loam and San Joaquin Urban Land Complex. The San Joaquin series consists of soils that formed in alluvium derived from mixed, but dominantly granitic, rock sources. Generally, these soils are found on undulating low terraces at slopes of 0 to 9 percent. These soils are typically well and moderately-well drained, with medium to very high runoff, and very slow permeability.[9] These soils have a high shrink-swell potential,

[9] City of Sacramento, General Plan Technical Background Report, page 7.1-7. June 2005.

TABLE 4.11-2 **MODIFIED MERCALLI INTENSITY SCALE**

I.	People do not feel any earth movement.
II.	A few people might notice movement if they are at rest and/or on the upper floors of tall buildings.
III.	Many people indoors feel movement. Hanging objects swing back and forth. People outdoors might not realize that an earthquake is occurring.
IV.	Most people indoors feel movement. Hanging objects swing. Dishes, windows, and doors rattle. The earthquake feels like a heavy truck hitting the walls. A few people outdoors may feel movement. Parked cars rock.
V.	Almost everyone feels movement. Sleeping people are awakened. Doors swing open or close. Dishes are broken. Pictures on the wall move. Small objects move or are turned over. Trees might shake. Liquids might spill out of open containers.
VI.	Everyone feels movement. People have trouble walking. Objects fall from shelves. Pictures fall off walls. Furniture moves. Plaster in walls might crack. Trees and bushes shake. Damage is slight in poorly built buildings. No structural damage.
VII.	People have difficulty standing. Drivers feel their cars shaking. Some furniture breaks. Loose bricks fall from buildings. Damage is slight to moderate in well-built buildings; considerable in poorly built buildings.
VIII.	Drivers have trouble steering. Houses that are not bolted down might shift on their foundations. Tall structures such as towers and chimneys might twist and fall. Well-built buildings suffer slight damage. Poorly built structures suffer severe damage. Tree branches break. Hillsides might crack if the ground is wet. Water levels in wells might change.
IX.	Well-built buildings suffer considerable damage. Houses that are not bolted down move off their foundations. Some underground pipes are broken. The ground cracks. Reservoirs suffer serious damage.
X.	Most buildings and their foundations are destroyed. Some bridges are destroyed. Dams are seriously damaged. Large landslides occur. Water is thrown on the banks of canals, rivers, lakes. The ground cracks in large areas. Railroad tracks are bent slightly.
XI.	Most buildings collapse. Some bridges are destroyed. Large cracks appear in the ground. Underground pipelines are destroyed. Railroad tracks are badly bent.
XII.	Almost everything is destroyed. Objects are thrown into the air. The ground moves in waves or ripples. Large amounts of rock may move.

Source: Summarized from Richter, C.F., 1958, *Elementary Seismology.* W.H. Freeman and Company, San Francisco, pp. 135-149; 650-653 and Association of Bay Area Governments website: http://www.abag.ca.gov/bayarea/eqmaps/doc/mmi_plain.html.

meaning that they are highly expansive. Review of USGS maps indicates that the Plan Area is an area of low potential for subsidence.[10]

C. Standards of Significance

The Plan would have a *significant* impact with regard to soils, seismicity and geology if it would:

- Allow a project to be built that will either introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against those hazards.

D. Impact Discussion

This section discusses the potential impacts that buildout of the Plan would have relative to geology, seismicity and soils.

1. Seismic Hazards

Seismic hazards can occur in the form of ground shaking, fault rupture, liquefaction, landslides, tsunamis and seiches, and dam inundation.

As discussed previously, the Sacramento area is not at risk from devastating damage due to seismic ground shaking and has no known faults which could rupture. All structures in the Plan Area would be built to California Building Code regulations and would not be adversely affected by ground shaking or fault rupture.

Alluvial soils can carry a higher risk or liquefaction in the event of ground shaking. According to the City's General Plan, the areas which are susceptible to increased liq-

[10] C3 Solutions, Inc., 2005. *Bell Avenue Joint Use Educational Facility DEIR*, page 4-26.

uefaction hazards are the Central City, Pocket, and North and South Natomas Community Plan Areas. Since the Plan Area is not in these areas, no impact due to liquefaction is anticipated.

Landslides are not a factor in the Plan Area due to its flat topography. As a whole, the City of Sacramento has been rated "nil" for landslides due to the low chance of landslides in the surrounding area.

Since the Plan Area is not located near water sources, there is not a risk of hazards from tsunamis or seiches. Also, the Plan Area is not denoted in the FEMA FIRM map as being at risk from floods due to rain or dam inundation.

Thus, there are *no impacts* anticipated in the Plan Area as a result of seismic hazards.

2. Geologic Hazards

Geologic hazards can occur in the form of soil erosion, expansive soils and subsidence.

Soil erosion can be accelerated with increasing slope. Since the topography of the Plan Area is flat, it would not contribute to excess erosion. Erosion can occur during construction and ground disturbance. Accordingly, the City of Sacramento will require that individual projects built under the Plan submit grading and drainage plans for construction and operation as part of the permitting process. These activities would result in *less than significant* impacts with regard to soil erosion.

The soils found in the Plan Area can be highly expansive; this can cause structural damage when water causes the soil to expand. There are adequate controls in State and local codes for preventing such damage, and the City of Sacramento requires compliance with the California Building Code and a complete investigation of soils prior to construction of subdivisions and building three-stories in height or greater. With these provisions in place, this impact would be *less than significant.*

The Plan Area is in an area of low potential for subsidence, thus *no impact* is anticipated.

In conclusion, the impacts from geologic hazards resulting from implementation of the Plan are considered *less than significant*.

E. Impacts and Mitigation Measures

There are no impacts from seismic or geologic hazards, and therefore no mitigation measures are required.

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4.12 TRANSPORTATION AND CIRCULATION

This section describes the environmental setting and potential transportation system impacts of the McClellan Heights and Parker Homes Land Use and Infrastructure Plan (hereafter "the Plan"). The analysis examines automobile traffic impacts on roadway capacity, as well as transit, bicycle, pedestrian and on-street parking impacts.

Quantitative analyses of AM and PM peak hour conditions are included for the following scenarios:

- Existing (2006) Conditions
- Existing plus Plan Conditions
- Cumulative (2027) Conditions
- Cumulative plus Plan Conditions

Significant impacts, as defined by CEQA, are identified for each component and mitigation measures are identified to offset those impacts, as necessary.

A. *Regulatory Framework*

The following discussion provides an overview of some of the existing regional and local plans that address transportation and circulation concerns in the Plan Area.

1. The City of Sacramento General Plan (January 1988)

The City of Sacramento General Plan outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The General Plan includes three primary transportation goals:

- Create a safe, efficient surface transportation network for the movement of people and goods.
- Provide all citizens in all communities of the City with access to a transportation network that serves both the City and region, either by personal vehicle or transit. Make a special effort to maximize alternatives to single-occupant vehicle use, such as public transit.

- Maintain a desirable quality of life, including good air quality, while supporting planned land use and population growth.

In addition, the General Plan includes the following goals and policies that are relevant to the Plan. These goals and policies are shown in Table 4.12-1.

2. North Sacramento Community Plan (March 1984)

McClellan Heights and Parker Homes are located in the North Sacramento Community Plan area. The Transportation Element of the North Sacramento Community Plan includes the following goals related to transportation and circulation:

- Strive towards development of a comprehensive transportation system that allows safe and efficient movement of people and goods within and through the community.
- Reduce impact of through traffic within residential areas and adjacent to elementary schools.
- Support the preservation of existing levels of bus service and work towards the realization of bus and light rail transit service improvements in the future.
- Continue efforts towards completion of a comprehensive bikeway system which emphasizes commuter routes.
- Provide adequate street improvements to ensure pedestrian safety.

3. City of Sacramento Street Standards

The City's *Pedestrian Friendly Street Standards* were approved in 2004. The standards include street cross-sections for application in areas that are residential, commercial (e.g. office park), or industrial. In 2004, the City Council approved an amendment to the City Code that allows modifications of the standards for infill areas. This exemption is intended to allow flexibility in the City standards so that the street improvements will not become an undue burden on infill projects.

TABLE 4.12-1 **RELEVANT SACRAMENTO GENERAL PLAN GOALS AND POLICIES—TRANSPORTATION AND CIRCULATION**

Number	Policies
Streets and Roads	
Goal D	Work towards achieving an overall Level of Service C on the City's local and major street systems.
Transit	
Goal B, Policy 1	Work with transit providers to improve the frequency and location of bus service connecting residential areas with activity centers for the highest potential use by the citizens of the City.
Goal B, Policy 3	Work with Regional Transit in reviewing public and private construction projects and supporting Regional Transit recommendations and improvements.
Parking	
Goal A	Provide adequate off-street parking for new development and reduce the impact of on-street parking in established areas.
Pedestrian	
Goal A, Policy 1	Require new subdivisions in planned unit developments to have safe pedestrian walkways that provide direct links between streets and major destinations such as bus stops, schools, parks, and shopping centers.
Goal A, Policy 3	Encourage existing and new commercial and office establishments to develop and enhance pedestrian pathways using planting, trees and creating pedestrian crosswalks through parking areas or over major barriers such as freeways or canals.
Goal A, Policy 4	Encourage mixed use developments to generate higher pedestrian activity.
Goal A, Policy 5	Require developments to provide street-separated pedestrian access to shopping centers, business activity centers and transit stations and facilities.
Bikeways	
Goal B, Policy 11	Require future developments to conform to the Bikeways Master Plan.

4. The 2010 Sacramento City and County Bikeway Master Plan

The *2010 Bikeway Master Plan* (BMP) was approved by the Sacramento County Board of Supervisors and the Sacramento City Council in 1993 and 1995, respectively. The BMP provides a framework for ensuring bikeways are connected and serve various areas of the City and County.

B. Existing Conditions

The existing roadway and traffic conditions, transit, bicycle, pedestrian, and on-street parking components of the Plan Area's transportation and circulation system are described below.

1. Roadway System

The existing circulation network serving the Plan Area is comprised of freeways, arterials, collectors and local streets and is described below:

- **Freeways.** Freeways provide for long-distance, regional and inter-city travel needs, and serve as primary freight routes. Interstate 80 is the only freeway in the Plan Area. There are two interchanges that provide direct access to the McClellan Heights and Parker Homes neighborhoods located at Winters Street and Raley Boulevard.
- **Arterials.** Arterials are designed to accommodate high volumes of traffic and provide intra-city circulation. Arterials link major activity centers, facilitate freeway access and connect to other arterials. The only arterial street in the Plan Area is Raley Boulevard.
    - Raley Boulevard is a north-south arterial within the Plan Area and is a four-lane roadway on the west boundary of the Plan Area. It connects the community of Rio Linda to the north, and other portions of North Sacramento, via Marysville Boulevard, to the south. The majority of the roadway between Interstate 80 and Bell Avenue are improved with curbs, gutters and sidewalks and a center two-way left-turn lane.

♦ **Collector Streets.** Collector streets are used for travel within and between neighborhoods, and channel traffic from local streets to arterial streets. There are four collector streets within the Plan Area: Bell Avenue, Winters Street, North Avenue and Pinell Street.

- Bell Avenue is a paved, undivided major collector that runs east-west at the north edge of the Plan Area. The majority of the roadway has four lanes; however, there are segments with two lanes. A portion of the roadway has been improved with curbs, gutters, and sidewalks. These improvements are primarily adjacent to the industrial parcels west of Pinell Street and other locations where development has occurred. A short segment on the south side of the street, just east of Pinell Street, has also been improved. Bell Avenue becomes Dudley Street within McClellan Park east of Winters Street and terminates west of the Plan Area at Norwood Avenue.

- Winters Street is a north-south collector that is currently improved with four travel lanes and no median. The roadway terminates at Bell Avenue on the north and Grand Avenue south of Interstate 80. There is curb, gutter and sidewalk for the majority of its length. The east side, adjacent to McClellan Park, has recently been improved with curb, gutter, sidewalk and street lights. The west side of the roadway has a number of commercial and single family residential uses and multiple driveways.

- North Avenue is an east-west, two-lane collector. The roadway begins at the west boundary of McClellan Park, and runs west to Rio Linda Boulevard. Significant portions of North Avenue have curb, gutter, and sidewalks, specifically in the area near and to the west of the over-crossing at Interstate 80. Undulations are located at various locations between Winters Street and Raley Boulevard.

- Pinell Street is a two-lane, north south collector. The roadway begins at Bell Avenue to the north and provides a connection to the area south of Interstate 80. Frontage improvements exist only at locations of recent development, and there are undulations in various locations.

- **Local Streets.** Local streets primarily serve lower traffic volumes at lower speeds and have frequent driveway access to abutting residential and commercial land uses. The majority of the streets in the McClellan Heights area are not fully developed with curbs, gutters and sidewalks. Historically, frontage improvements have been required as development of adjacent parcels occurs which has resulted in full improvements being built sporadically and sudden stops in street improvements. There are several private streets in the Plan Area: Piercy Way (which intersects Winters Street south of North Avenue), Majestic Road and Majestic Lane. These streets are located south of MacArthur Street and west of Pinnell Street.

  Most of the streets in Parker Homes have varying levels of improvements. Curb, gutter, and sidewalk improvements currently exist on MacArthur Street, Emmons Street, Doolittle Street, and the south side of Buckley Street. A number of these streets have been constructed of Portland Cement and are in need of significant maintenance. Tinker Way was reconstructed by the City in the 1990's with new paving and rolled curb and gutters. The remainder of the streets are generally constructed with a concrete, "vee gutter" section. There are also undulations on MacArthur Street within the Parker Homes community. The streets within the Village Homes Mobile Home Park, south of Bell Avenue, are private.

2. Existing Traffic Conditions

a. Methodology

Twenty-four-hour traffic counts were collected along various key Plan Area roadway segments on November 18, 2004 (see Table 4.12-2). These 24-hour counts are representative of typical traffic conditions.

Preliminary evaluation of the Plan resulted in identifying nine intersections that may be significantly impacted by the Plan. These intersections were selected with concurrence from City staff. The following nine intersections, with their existing traffic controls noted, are included in this analysis:

- Marysville Boulevard and North Avenue (Signal)
- Marysville Boulevard and Interstate 80 Eastbound Ramps (Signal)
- Raley Boulevard and Interstate 80 Westbound Ramps (Signal)

TABLE 4.12-2 **EXISTING ROADWAY SEGMENT AVERAGE DAILY TRAFFIC (ADT)**

Roadway Segment	Existing (2004) ADT
Raley Boulevard south of Bell Avenue	26,745
Bell Avenue east of Raley Boulevard	11,328
Bell Avenue east of Winters Street	5,859
Winters Street south of Bell Avenue	5,564
MacArthur Street east of Raley Boulevard	1,729
Pinell Street north of Rene Avenue	1,989
North Street east of Marysville Road	2,407
Pinell Street south of North Street	1,993
MacArthur Street south of Pinell Street	527
North Street west of Winters Street	1,322

- Raley Boulevard and Bell Avenue (Signal)
- Bell Avenue and Beloit Drive (Two-Way Stop Controlled)
- Bell Avenue and Pinell Street (All-Way Stop Controlled)
- Bell Avenue and Winters Street (Two-Way Stop Controlled)
- Winters Street and Interstate 80 Westbound Ramps (Signal)
- Winters Street and Interstate 80 Eastbound Ramps (Signal)

AM and PM peak hour turning movement traffic counts (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) were collected at the study intersections in January, 2006. Existing traffic signal timings were obtained from the City of Sacramento and the California Department of Transportation (Caltrans). The study intersections and existing traffic volumes (peak hour and daily), lane configurations, and traffic controls are presented in Figure 4.12-1.

The level of service of an intersection is a qualitative measure used to describe how well the roadway network operates. Level of service ranges from Level of Service (LOS) A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Intersection level of service for this study was determined using methods defined in the *Highway Capacity Manual, 2000* (HCM).

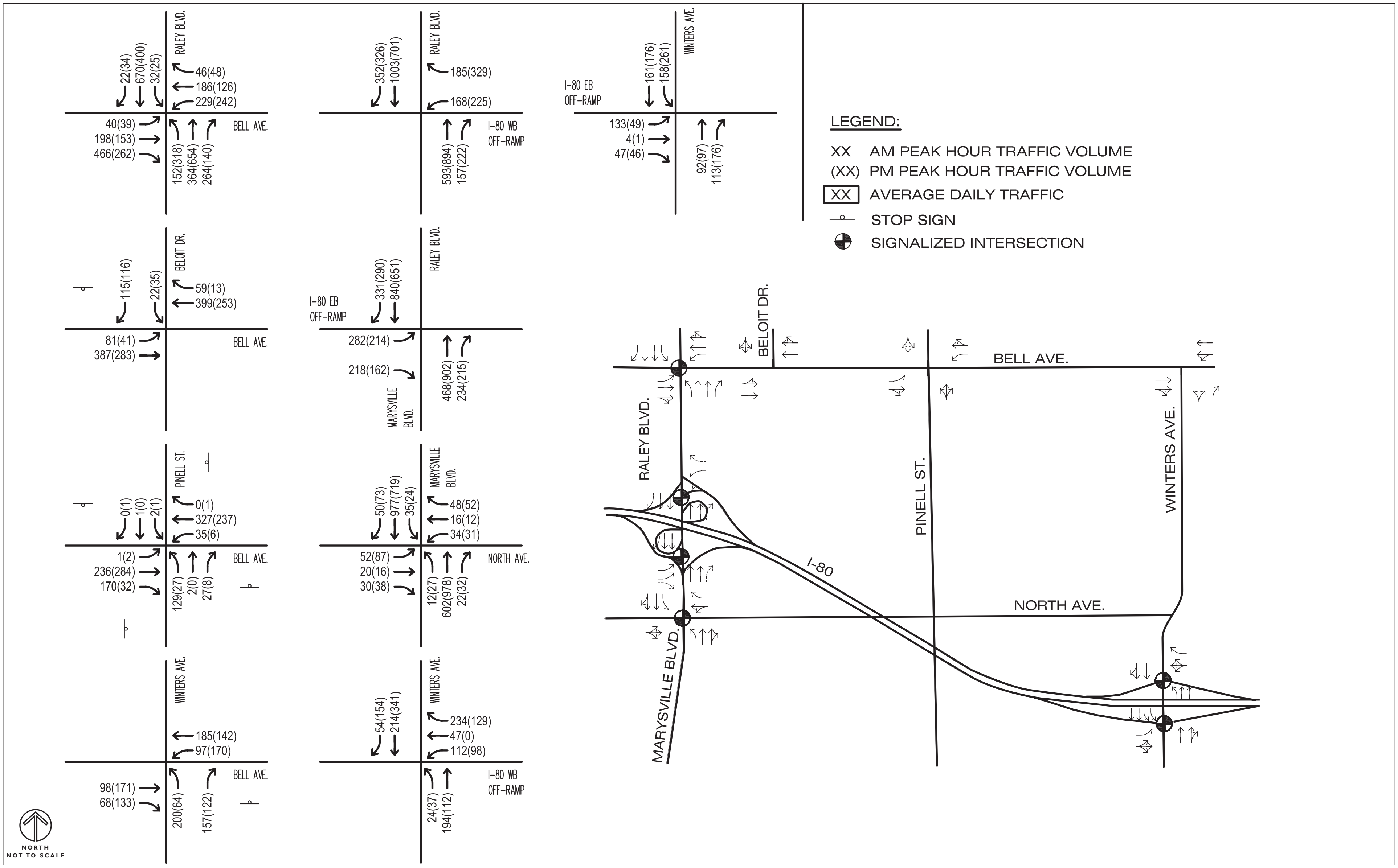
The HCM defines signal level of service as a function of average control delay for the intersection as a whole. Further, the HCM includes procedures for analyzing unsignalized intersections. HCM all-way stop controlled (AWSC) procedures defines level of service as a function of average control delay with each intersection approach analyzed independently. Two-way stop controlled (TWSC) procedures defines level of service as a function of average control delay on each minor street lane or lane group. Table 4.12-3 presents intersection level of service definitions as defined in the HCM.

b. Existing Traffic Volumes

Analysis of existing traffic conditions at the study intersections was based on the peak hour traffic counts conducted in January 2006. The traffic count data sheets are provided in Appendix C. Table 4.12-4 presents the existing peak hour intersection operating conditions for the study intersections. As indicated in Table 4.12-4, the study intersections operate from LOS A to LOS C during the AM and PM peak hours. Analysis worksheets for this scenario are provided in Appendix C.

3. Bicycle and Pedestrian Facilities

The Plan Area is generally lacking bicycle and pedestrian facilities. For sidewalks, this is due to frontage improvements being constructed only adjacent to parcels that have been developed in recent years. This piecemeal construction has resulted in a lack of continuous sidewalks with sudden starts and stops.



Source: Kimley-Horn and Associates, Inc. 2007

FIGURE 4.12-1

EXISTING TRAFFIC VOLUMES

TABLE 4.12-3 **INTERSECTION LEVEL OF SERVICE CRITERIA**

LOS	Signalized Control Delay (seconds/vehicle)	Unsignalized Control Delay (seconds/vehicle)*
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

*Applied to the worst lane/lane group(s) for TWSC.
Source: Highway Capacity Manual, 2000.

Excepting the locations of existing improved sidewalks, curbs and gutters, pedestrian accessibility throughout the Plan Area is generally below the standards defined by the Americans with Disabilities Act (ADA). In addition, in some areas, sidewalks have been constructed around existing obstacles. Finally, existing curb ramps may not be compliant with ADA.

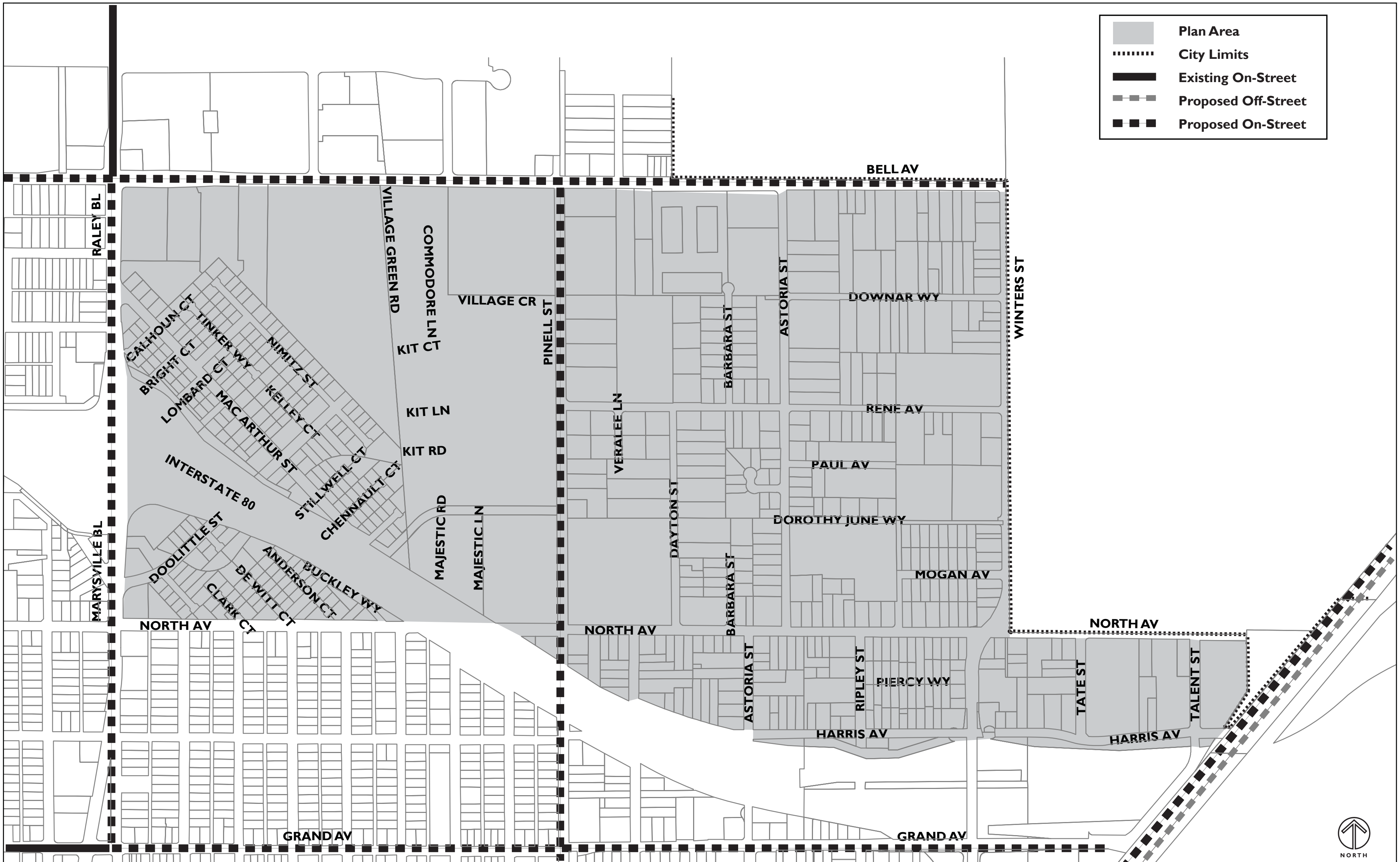
The City of Sacramento has taken a proactive position with regard to providing accessible improvements and upgrading existing improvements to standards consistent with the ADA. As a result, all new improvements must be compliant and the City's Capital Improvement Program (CIP) allocates funds for upgrading existing facilities. In addition, the City typically requires development projects to upgrade existing frontage improvements that are not ADA compliant. For example, curb ramps at the intersections of Winters Street with Downar Way, Rene Avenue, and Dorothy June Way have recently been reconstructed.

TABLE 4.12-4 **EXISTING INTERSECTION LEVELS OF SERVICE**

Intersection (Traffic Control)	AM Peak Hour Delay (Seconds)	AM Peak Hour LOS	PM Peak Hour Delay (Seconds)	PM Peak Hour LOS
Marysville Boulevard @ North Avenue (Signal)	9.8	A	11.5	B
Marysville Boulevard @ Interstate 80 Eastbound Ramps (Signal)	8.7	A	6.4	A
Raley Boulevard @ Interstate 80 Westbound Ramps (Signal)	6.8	A	9.6	A
Raley Boulevard @ Bell Avenue (Signal)	29.7	C	28.1	C
Bell Avenue @ Beloit Drive (TWSC)	12.3* (SB)	B	10.9* (SB)	B
Bell Avenue @ Pinell Street (AWSC)	12.9	B	10.1	B
Bell Avenue @ Winters Street (TWSC)	14.2* (NB)	B	12.8* (NB)	B
Winters Street @ Interstate 80 Westbound Ramps (Signal)	17.8	B	15.1	B
Winters Street @ Interstate 80 Eastbound Ramps (Signal)	19.7	B	17.5	B

*Applied to the worst lane/lane group(s), the value shown is delay-in-seconds, for worst lane/lane group(s).

Placement of bikeways is guided by the City's *Pedestrian Friendly Street Standards* (adopted in 2004) and the *2010 Sacramento City and County Bikeway Master Plan*. The bike facilities envisioned by the Master Plan for the Plan Area are shown in Figure 4.12-2. In addition to the bikeways shown in the Master Plan, the City street standards require all collector and arterial streets to have on-street bike lanes. This bike lane requirement would apply to Raley Boulevard, Bell Avenue, Winters Street, Pinell Street, and North Avenue.



Source: 2010 Sacramento City and County Bikeway Master Plan

FIGURE 4.12-2

PLANNED BIKE FACILITIES FOR THE PLAN AREA

The Plan proposes adding several off-street bicycle and pedestrian facilities. These facilities would be located east of Astoria Street, north and south of Downar Way, and east of Pinell Street, between Bell Avenue and Rene Avenue.

4. On-Street Parking Facilities

On-street parking is generally allowed in the Plan Area with the exception of the east side of Winters Street adjacent to McClellan Park and the north side of North Avenue, west of Interstate 80. It should be noted that on many internal streets in McClellan Heights, on-street parking is difficult due to narrow shoulders between the paved area and the roadside ditches.

5. Transit Service

The Sacramento Regional Transit District (RT) provides public transit service within the Plan Area. There is one RT bus route within the Plan Area, Route 18, which traverses the site along Pinell Street and Bell Avenue, and provides connectivity to the western portion of North Sacramento and the Marconi/Arcade Light Rail Station.

6. Airports

The Plan Area is located immediately west of McClellan Park, which is the site of the decommissioned McClellan Air Force Base and includes a variety of aviation services as well as hotels, restaurants, child care, offices, and other commercial services.

C. Standards of Significance

The City of Sacramento has defined specific thresholds for establishing significant environmental impacts. The Plan would have a significant impact with regard to traffic and circulation if it would:

- ♦ Signalized and Un-Signalized Intersections
  - Cause the level of service of the intersections to degrade from LOS C or better to LOS D or worse.

- For intersections that are already operating at LOS D, E, or F without the Plan, increase the average delay by 5 seconds or more at an intersection.

♦ Transit Facilities

- Cause the project-generated ridership, when added to the existing or future ridership, to exceed existing and/or planned system capacity. Capacity is defined as the total number of passengers the system of buses and light rail vehicles can carry during the peak hours of operation.
- Adversely affect the transit system operations or facilities in a way that discourages ridership (e.g. removes shelter, reduces park and ride).

♦ Bicycle Facilities

- Eliminate or adversely affect an existing bikeway facility in a way that discourages the bikeway use.
- Interfere with the implementation of a proposed bikeway.
- Result in unsafe conditions for bicyclists, including unsafe bicycle/pedestrian or bicycle/motor vehicle conflicts.

♦ Pedestrian Facilities

- Adversely affect the existing pedestrian facility or will result in unsafe conditions for pedestrians, including unsafe pedestrian/bicycle or pedestrian/motor vehicle conflicts.

♦ On- Street Parking Facilities

- Include an anticipated parking demand which exceeds the available or planned parking supply for typical day conditions. However, the impact would not be significant if the project is consistent with the parking requirements stipulated in the City Code.

D. Impact Discussion

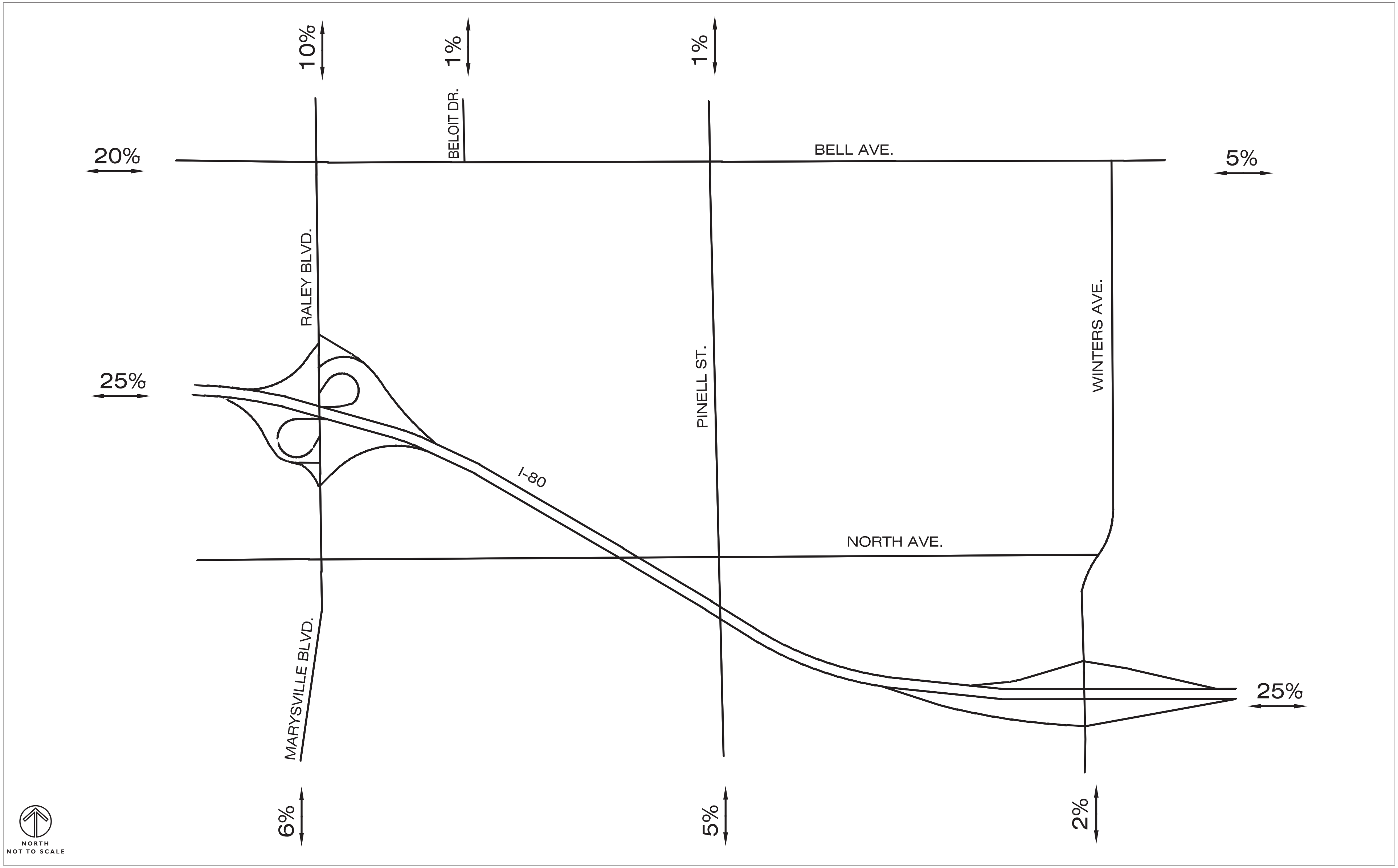
This section analyzes potential impacts to future traffic conditions associated with development that could occur under the Plan. Automobile, public transit, bicycle and pedestrian traffic are analyzed in regards to operation and safety issues.

1. Plan Trip Generation and Distribution

The Plan will be served by a number of existing roadways. To evaluate the effect of the Plan on those roadways, the number of vehicle trips anticipated to be generated by buildout of the Plan was estimated. The trips were then compared to the trips expected from General Plan buildout of the Plan Area. The number of trips generated by the General Plan land uses and the Plan were derived using data included in the *Trip Generation Manual*, *7th Edition*, published by the Institute of Transportation Engineers (ITE). The number of trips generated was then adjusted to account for the Plan's densities and mix of land uses.[1] As shown in Table 4.12-5, buildout of the Plan is anticipated to generate 5,176 more daily trips while decreasing the AM peak hour and PM peak hour trips by 1,037 and 834, respectively. The decrease in AM and PM peak hour volumes is due to the Plan's vision of replacing employment areas with a larger residential component; unlike employment areas, residential areas have fewer morning and afternoon peak hour trips. Detailed assumptions related to trip generation are provided in Appendix C.

Plan Area trips were distributed to the Plan Area roadways based on existing traffic patterns, output from the long range transportation planning model, and the professional judgment of the EIR traffic consultant. The distribution of Plan Area trips is presented in Figure 4.12-3.

[1] An internal reduction factor was applied to all uses, including light industrial. This factor references trips made within the Plan Area and takes into account "internal; trip capture" that would be encouraged by the mix of land uses envisioned by the Plan. Removing the internal reduction from the General Plan buildout volumes would result in a minor decrease in trips for that scenario but would not alter the results of this analysis.



Source: Kimley-Horn and Associates, Inc. 2007

FIGURE 4.12-3

PROPOSED PROJECT TRIP DISTRIBUTION

TABLE 4.12-5 **TRIP GENERATION COMPARISON**

Land Use Plan	Total Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
General Plan (GP)	27,236	2,154	1,320	3,475	1,799	2,107	3,906
Plan	32,412	731	1,708	2,438	1,778	1,294	3,072
Change from GP to Plan	5,176	-1,423	388	-1,037	-21	-813	-834

2. Existing Conditions Plus Plan Conditions

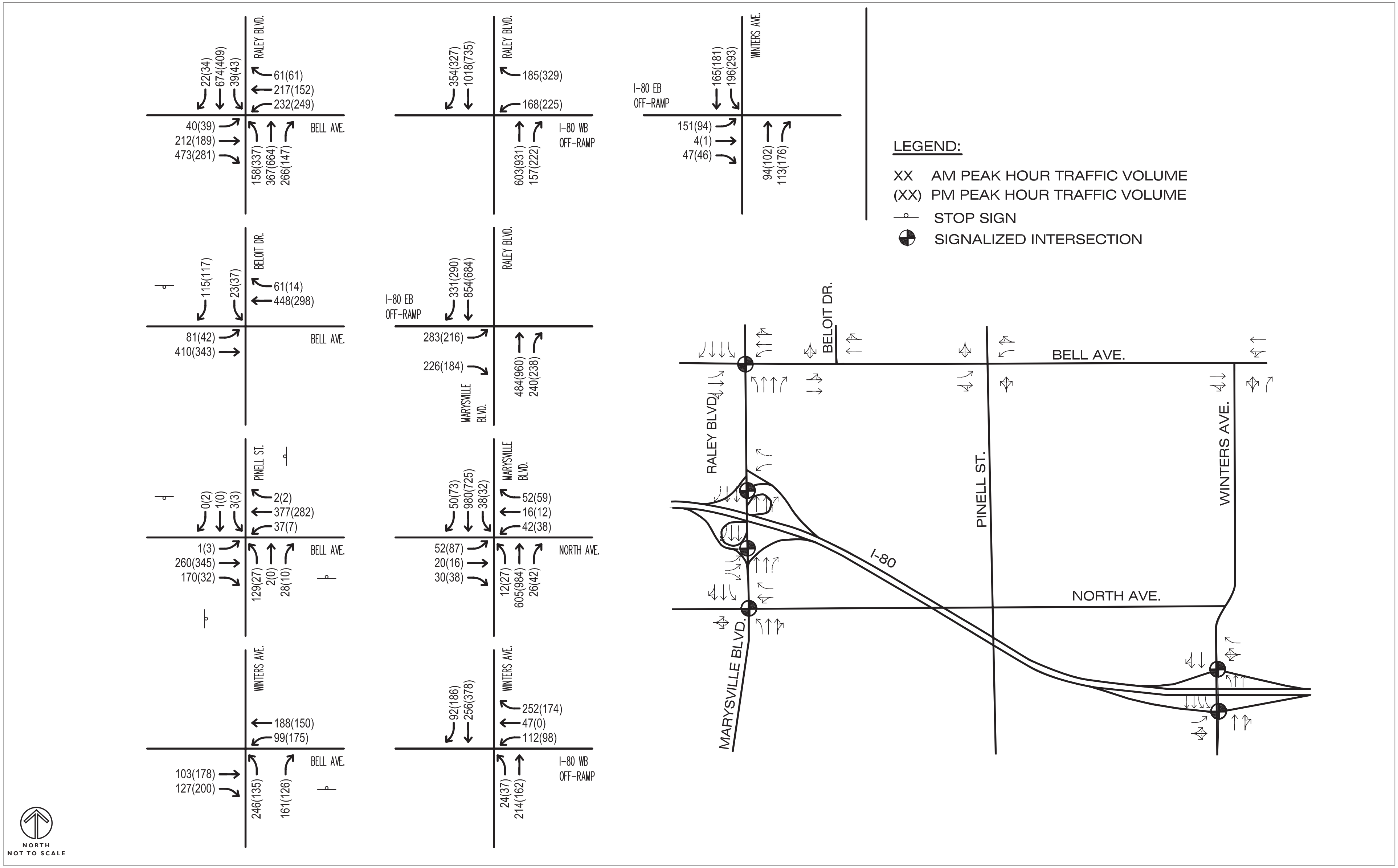
Peak hour traffic associated with the Plan in this scenario was calculated by tabulating the traffic generated by the buildout of vacant parcels under the Plan. This traffic was then added to the existing traffic volumes, and levels of service were determined at the study intersections. Table 4.12-6 provides a summary of the intersection analysis and Figure 4.12-4 provides the AM and PM peak hour traffic volumes at the study intersections for this analysis scenario.

As indicated in Table 4.12-6, the study intersections would operate at LOS B or LOS C with the addition of Plan-generated traffic during the AM and PM peak hours. The analysis worksheets for this analysis scenario are provided in Appendix C.

3. Traffic Forecasting Methodology – Cumulative Conditions

The *McClellan Air Force Base Final Supplemental Environmental Impact Report*[2] (FEIR) was referenced to obtain future year roadway volumes for external Plan Area roadways. The decision to use this document was based on two factors. First, the future traffic volumes in the McClellan Air Force Base FEIR assumed buildout of Plan Area

[2] County of Sacramento, Department of Environmental Review and Assessment, November 2002.



Source: Kimley-Horn and Associates, Inc. 2007

FIGURE 4.12-4

EXISTING PLUS PROPOSED PROJECT TRAFFIC VOLUMES

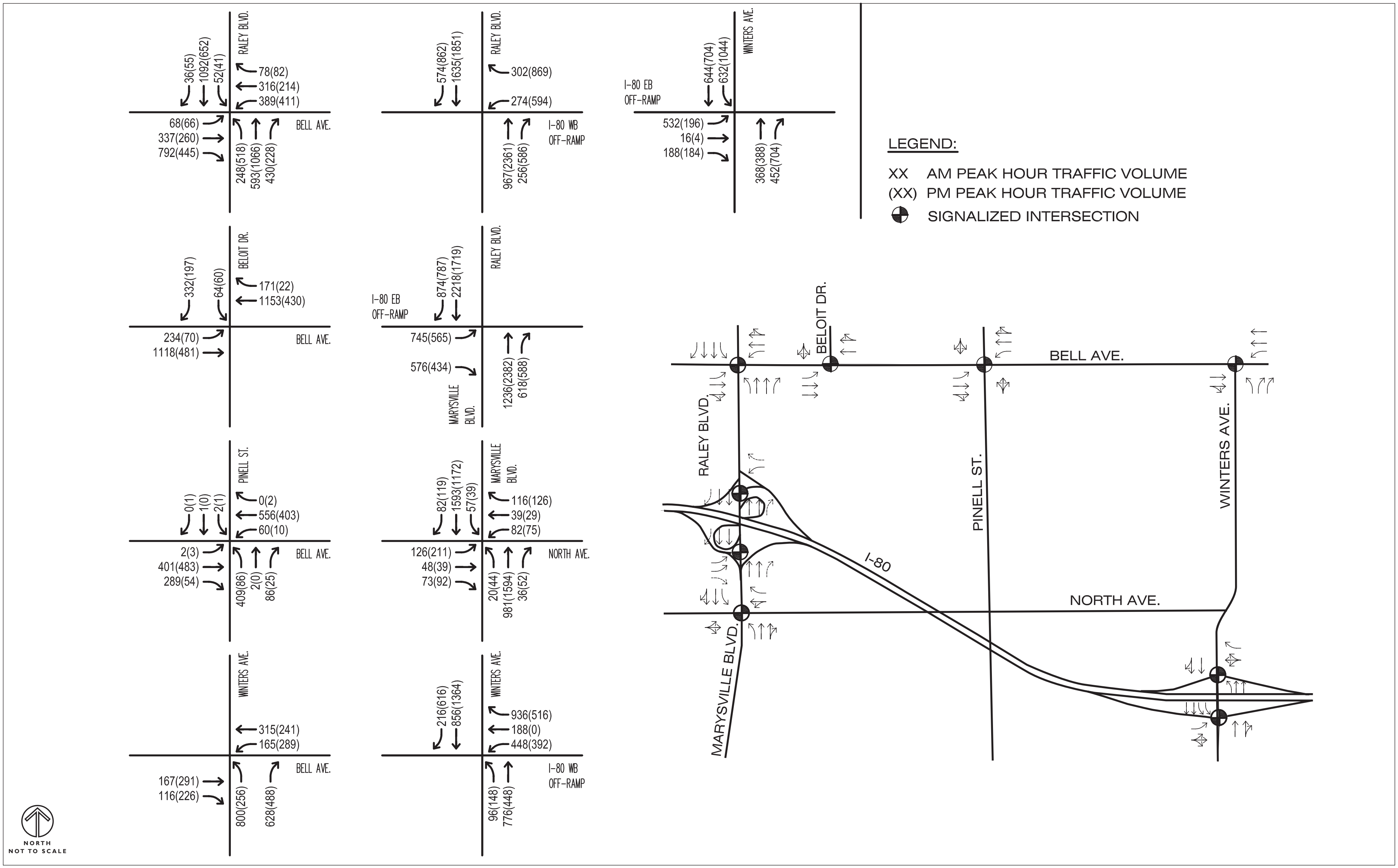
TABLE 4.12-6 **EXISTING PLUS PLAN LEVELS OF SERVICE**

Intersection (Traffic Control)	AM Peak Hour Delay (seconds)	AM Peak Hour LOS	PM Peak Hour Delay (Seconds)	PM Peak Hour LOS
Marysville Boulevard @ North Avenue (Signal)	10.3	B	12.1	B
Marysville Boulevard @ Interstate 80 Eastbound Ramps (Signal)	16.2	B	13.6	B
Raley Boulevard @ Interstate 80 Westbound Ramps (Signal)	13.8	B	16.9	B
Raley Boulevard @ Bell Avenue (Signal)	29.8	C	29.0	C
Bell Avenue @ Beloit Drive (TWSC)	12.9* (SB)	B	11.5* (SB)	B
Bell Avenue @ Pinell Street (AWSC)	14.4	B	11.3	B
Bell Avenue @ Winters Street (TWSC)	17.5* (NB)	C	19.0* (NB)	C
Winters Street @ Interstate 80 Westbound Ramps (Signal)	17.6	B	14.9	B
Winters Street @ Interstate 80 Eastbound Ramps (Signal)	20.1	C	18.8	B

* Applied to the worst lane/lane group(s), the value shown is delay-in-seconds, for worst lane/lane group(s).

under current General Plan land use designations. Second, year 2027 traffic volume projections obtained from SACOG do not appear to include buildout of McClellan Park. Data from the FEIR (year 2022) was adjusted to represent year 2027 conditions. Finally, SACOG data was used to derive future traffic volumes on roadways not included in the FEIR. Cumulative year traffic volumes for roadway segments are shown in Table 4.12-7.

The cumulative year traffic volumes were converted to intersection turn movement volumes and levels of service at the study intersections were determined. Table 4.12-8 provides a summary of the intersection analysis and Figure 4.12-5 provides



Source: Kimley-Horn and Associates, Inc. 2007

FIGURE 4.12-5

CUMULATIVE TRAFFIC CONDITIONS

TABLE 4.12-7 **CUMULATIVE ROADWAY SEGMENT AVERAGE DAILY TRAFFIC (ADT)**

Roadway Segment	General Plan Buildout Volumes ADT[a]	Plan Buildout Volumes ADT
Bell Avenue east of Raley Boulevard	18,360[a]	19,700
Marysville Road south of Interstate 80	25,200[b]	26,300
Raley Boulevard north of Interstate 80	41,390[a]	42,900
Winters Street north of North Avenue	21,150[a]	22,000
Winters Street south of North Avenue	28,200[a]	29,400
North Avenue west of Pinell Street	3,700[c]	4,800
North Avenue east of Pinell Street	3,900[c]	4,700
Pinell Street south of Bell Avenue	6,300[b]	6,800

[a] Assumes 34,000 employees at buildout of McClellan Park.
[b] Per SACOG.
[c] Width constrained by existing development or structure.

the AM and PM traffic volumes for this analysis scenario. It is important to note that existing traffic controls (i.e. traffic signals at existing un-signalized locations) were revised based on anticipated cumulative year traffic volumes and Plan Area circulation.

As indicated in Table 4.12-8, the study intersections operate from LOS A to LOS E during the AM and PM peak hours under the cumulative scenario. Analysis worksheets for this scenario are provided in Appendix C.

a. Cumulative Plus Plan Conditions

To determine cumulative impacts, 2027 traffic volumes were adjusted to reflect complete buildout of the Plan, including buildout of vacant parcels and redevelopment of the under-developed parcels. Trips for the existing General Plan land uses were

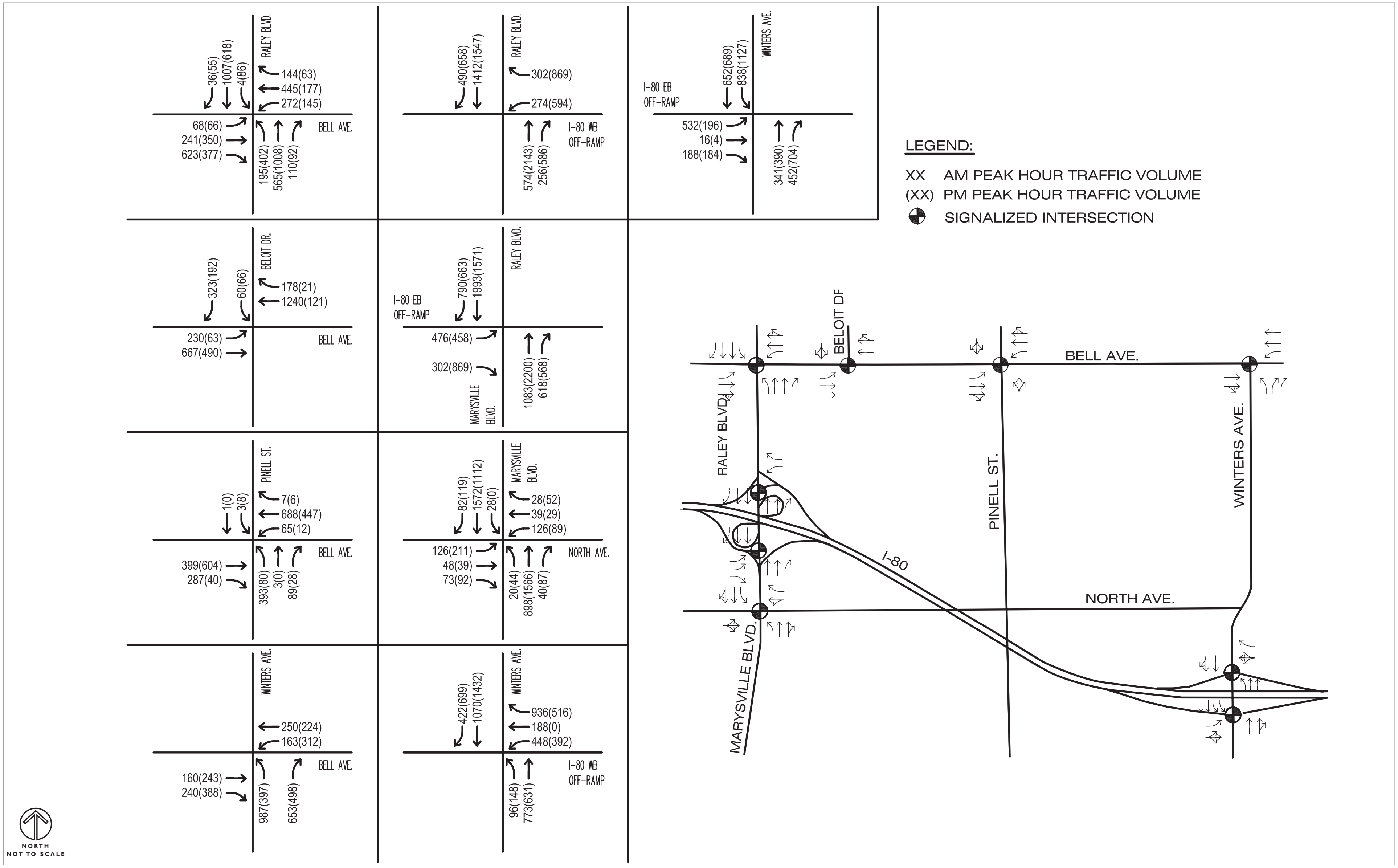
TABLE 4.12-8 **CUMULATIVE* INTERSECTION LEVELS OF SERVICE**

Intersection (Traffic Control)	AM Peak Hour Delay (Seconds)	AM Peak Hour LOS	PM Peak Hour Delay (Seconds)	PM Peak Hour LOS
Marysville Boulevard @ North Avenue (Signal)	17.1	B	21.0	C
Marysville Boulevard @ Interstate 80 East-bound Ramps (Signal)	14.6	B	11.0	B
Raley Boulevard @ Interstate 80 Westbound Ramps (Signal)	8.3	A	28.2	C
Raley Boulevard @ Bell Avenue (Signal)	79.4	E	45.9	D
Bell Avenue @ Beloit Drive (Signal)	20.2	C	18.2	B
Bell Avenue @ Pinell Street (Signal)	20.5	C	8.4	A
Bell Avenue @ Winters Street (Signal)	17.5	B	23.9	C
Winters Street @ Interstate 80 Westbound Ramps (Signal)	48.6	D	49.4	D
Winters Street @ Interstate 80 Eastbound Ramps (Signal)	24.9	C	29.6	C

*General Plan buildout.

removed from the network and Plan-generated volumes were then added. As indicated previously in Table 4.12-5, the Plan is anticipated to generate significantly fewer peak hour trips than the current General Plan land uses.

Peak hour traffic associated with the Plan was added to the cumulative traffic volumes and levels of service were determined at the study intersections. Table 4.12-9 provides a summary of the intersection analysis and Figure 4.12-6 provides the AM and PM traffic volumes for this analysis scenario. As indicated in Table 4.12-9, the study intersections would operate from LOS A to LOS E during the AM and PM peak hours. Analysis worksheets for this scenario are provided in Appendix C.



Source: Kimley-Horn and Associates, Inc. 2007

FIGURE 4.12-6

CUMULATIVE PLUS PROPOSED PROJECT TRAFFIC CONDITIONS

TABLE 4.12-9 **CUMULATIVE PLUS PLAN LEVELS OF SERVICE**

	AM Peak Hour		PM Peak Hour	
Intersection (Traffic Control)	**Delay (Seconds)**	**LOS**	**Delay (Seconds)**	**LOS**
Marysville Boulevard @ North Avenue (Signal)	16.7	B	17.6	B
Marysville Boulevard @ Interstate 80 Eastbound Ramps (Signal)	9.1	A	8.4	A
Raley Boulevard @ Interstate 80 Westbound Ramps (Signal)	9.2	A	22.4	C
Raley Boulevard @ Bell Avenue (Signal)	39.0	D	25.1	C
Bell Avenue @ Beloit Drive (Signal)	27.0	C	16.4	B
Bell Avenue @ Pinell Street (Signal)	20.4	C	7.3	A
Bell Avenue @ Winters Street (Signal)	20.6	C	25.6	C
Winters Street @ Interstate 80 Westbound Ramps (Signal)	**68.5**	E	**61.9**	E
Winters Street @ Interstate 80 Eastbound Ramps (Signal)	27.2	C	**38.5**	D

Notes: **Underline and bolded** text indicate significant impact.
Source: Kimley-Horn and Associates, December 2006.

4. Plan Impacts

This section discusses traffic, transit, bicycle and pedestrian circulation and parking impacts that could result from development allowed under the Plan.

a. Intersections

As shown in Table 4.12-4, the study intersections currently operate from LOS A to LOS C. As shown in Table 4.12-6, the addition of the Plan-generated traffic does not cause a significant deterioration in level of service at any study intersection. Further, because no study intersections are currently operating at LOS D, E, or F, the average delay increase threshold does not apply. As a result, the impact of Plan-generated traffic at buildout at the study intersections is *less than significant*.

b. Transit Facilities

Buildout of the Plan will likely generate additional "alternate mode" ridership (including transit). The estimated additional transit trips are shown in Table 4.12-10.

TABLE 4.12-10 **ESTIMATED NEW TRANSIT TRIPS**

Land Use	Daily	AM	PM
Existing Plus Plan	114	4	11

There is currently one RT bus route within the Plan Area, Route 18, which traverses the site along the low-density, middle portion of the Plan Area (Pinell Street). Data from Regional Transit[3] indicates that Route 18 has an average maximum load of five riders and has a capacity of 26 riders. As a result, the line has adequate excess capacity to accommodate riders resulting from buildout of the Plan Area. In addition, the Plan does not eliminate transit facilities.

Since RT has adequate capacity to accommodate the estimated increase in ridership resulting from buildout of the Plan, impacts to transit facilities are *less than significant*.

c. Bicycle Facilities

The Plan includes application of the City of Sacramento's *Pedestrian Friendly Street Standards*. The *Standards* include bike lanes on all collector and arterial roadways in addition to the facilities required by the Bikeway Master Plan. For this reason, the Plan is anticipated to improve bicycle facilities over existing conditions. The Plan does not propose to eliminate bicycle facilities and is anticipated to increase the number of bike lanes and improve connectivity across the Plan Area. It is assumed that all

[3] Email from Greta Vohlers, Senior Planner, Regional Transit, February 12, 2007.

bicycle facilities will be designed in accordance with City standards. Thus, the Plan's impact on bicycle facilities is *less than significant*.

d. Pedestrian Facilities

The Plan includes application of the City of Sacramento's *Pedestrian Friendly Street Standards*. The *Standards* include sidewalks on all roadways. For this reason, the Plan is anticipated to improve pedestrian facilities over existing conditions. The Plan does not eliminate pedestrian facilities and is anticipated to increase the amount of sidewalks and improve connectivity across the Plan Area. It is assumed that all pedestrian facilities will be designed in accordance with City standards. Thus, the Plan's impact on pedestrian facilities is *less than significant*.

e. On-Street Parking Facilities

The Plan includes application of the City of Sacramento's *Pedestrian Friendly Street Standards*. The *Standards* include on-street parking on a majority of the roadway classifications. For this reason, the Plan is anticipated to improve on-street parking facilities over existing conditions.

The Plan does not eliminate on-street parking facilities and is anticipated to increase the quantity of on-street parking across the Plan Area. Thus, the Plan's impact to on-street parking facilities *is less than significant*.

5. Cumulative Impacts

This section discusses traffic, transit, bicycle and pedestrian circulation and parking impacts that could result from development allowed under the Plan, in combination with impacts from projected growth in the region.

a. Intersections

As shown in Table 4.12-8, the Winters Street/Interstate 80 Westbound Ramps intersection would operate at LOS D under cumulative traffic conditions. With the addition of the Plan, this intersection would operate at LOS E in both AM and PM peak hours, as shown in Table 4.12-9. The addition of the Plan would result in more than five seconds of delay at this location. This is a *significant* impact.

As shown in Table 4.12-8, the Winters Street/Interstate 80 Eastbound Ramps intersection would operate at LOS C in both AM and PM peak hours under cumulative traffic conditions. The addition of the Plan will result in a LOS D in the PM peak hour. This is a *significant* impact.

b. Transit Facilities

The Plan does not eliminate transit facilities and is anticipated to increase transit ridership. The total number of cumulative transit trips shown in Table 4.12-11. Furthermore, the Plan is consistent with the Regional Transit Master Plan (RTMP) which notes: "higher population densities associated with development infill within central areas of the urban region will substantially enhance transit system usage."[4] The Plan includes a recommended policy to "provide incentives to support development infill and intensification in central locations of the existing urbanized region."[5] Since the Plan is an infill-based Plan within the urbanized region and is located along a transit corridor, the Plan is consistent with the RTMP and impacts are *less than significant.*

c. Bicycle Facilities

No cumulative impacts to bike facilities are anticipated.

d. Pedestrian Facilities

No cumulative impacts to pedestrian facilities are anticipated.

e. On-Street Parking Facilities

Since the provision of on-street parking is a local issue specific to the Plan Area, and since there were no significant parking impacts associated with Plan buildout, no cumulative parking impacts would occur.

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[4] Regional Transit Master Plan, page 7-10.

[5] Regional Transit Master Plan, page 7-10.

TABLE 4.12-11 **ESTIMATED TRANSIT TRIPS FOR CUMULATIVE CONDITIONS**

Land Use	Daily	AM	PM
General Plan (GP)	52	3	5
Plan	612	33	58
Change from GP to Plan	560	30	52

Source: Kimley-Horn and Associates, December 2006.

E. Impacts and Mitigation Measures

The following potentially significant impacts were identified in regard to transportation and circulation.

Impact TRAF-1: Winter Street/Interstate 80 Westbound Ramps: Under cumulative traffic conditions this intersection would have an LOS E in both AM and PM peak hours. The addition of the Plan will result in more than five seconds of delay at this location. This is a *significant* impact.

Mitigation Measure TRAF-1: Winter Street/Interstate 80 Westbound Ramps: provide a dedicated, southbound right turn lane which will result in one right turn lane and two through lanes on the southbound approach. This mitigation measure could be accomplished by modifying the north leg of the intersection to widen the existing roadway and re-stripe the travel lanes. Implementation of this mitigation measure would result in LOS D (48.4 seconds of delay) in AM peak hour and LOS C (28.1 seconds of delay) in the PM peak hour. Analysis sheets for the "with mitigation scenario" are included in Appendix C.

The Plan identifies an implementing action that directs the City to study the feasibility and then develop an appropriate funding mechanism to provide for recommended infrastructure improvements. However, an additional policy should be added to the Plan that specifies that the City should establish a funding mechanism for these particular improvements to be constructed within the Plan Area and/or allocate funds to implement the mitigation measure through the Capital Improvement Program.

Significance After Mitigation: With the adoption of the Plan and related documents, the City will adopt the requirement to implement this mitigation measure with the other roadway improvements identified in the Plan. With this mitigation measure, the impact would be *less than significant.*

Impact TRAF-2: Winter Street/Interstate 80 Eastbound Ramps: Under cumulative traffic conditions this intersection would have a LOS C in both AM and PM peak hours. The addition of the Plan would result in a LOS D in the PM peak hour. This would be considered to be a *significant* impact.

Mitigation Measure TRAF-2: Winter Street/Interstate 80 Eastbound Ramps: provide a dedicated, northbound right turn lane which would result in two through lanes and one right turn lane on the northbound approach. Implementation of this mitigation measure would result in LOS C (26.6 seconds of delay) in the AM peak hour and LOS C (32.9 seconds of delay) in the PM peak hour. Analysis sheets for the "with mitigation scenario" are included in Appendix C.

The Plan identifies an implementing action that directs the City to study the feasibility and then develop an appropriate funding mechanism to provide for recommended infrastructure improvements. However, an additional policy should be added to the Plan that specifies that the City should establish a funding mechanism for this particular improvement to be constructed within the Plan Area and/or allocate funds to implement the mitigation measure through the Capital Improvement Program.

Significance After Mitigation: With the adoption of the Plan and related documents, the City will adopt the requirement to implement this mitigation measure with the other roadway improvements identified in the Plan. With this mitigation measure, the impact would be *less than significant*.

4.13 UTILITIES AND SERVICE SYSTEMS

This section describes the existing water, wastewater, and stormwater infrastructure in the City of Sacramento as well as energy and telecommunications. This section also discusses potential environmental impacts from the McClellan Heights and Parker Homes Land Use and Infrastructure Plan (hereafter "the Plan") and measures to mitigate those impacts are recommended as appropriate. The discussion is organized according to type of infrastructure, with each type analyzed individually according to CEQA guidelines.

Impacts associated with water quality as it relates to water, wastewater and stormwater drainage, as well as development in a floodplain is discussed in greater detail in Section 4.6, Hydrology and Water Quality.

A. Water

This section includes a description of the regulatory framework that directs water service in the City of Sacramento, as well as the existing water services, supply and demand conditions, treatment and distribution infrastructure and storage facilities for the Plan Area.

1. Regulatory Framework

a. Federal and State Regulations

Following is a description of the federal and State regulations that affect water services in the City of Sacramento.

- **Safe Drinking Water Act.** The Safe Drinking Water Act (SDWA) authorizes the United States Environmental Protection Agency (EPA) to set national health-based standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally-occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water or required methods of treating water to remove contaminants for all water providers in the United States, except private wells serving fewer than 25 people.

In California, the State Department of Health Service conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

- **SB 610 and SB 221.** California State Senate Bills 610 and 221, enacted in 2001, require local agencies to demonstrate sufficient water supply for jurisdictions and new developments. Specifically, SB 610 requires additional information to be included as part of an urban water management plan if groundwater is to be identified as a source of water available to the supplier; it requires a description of all water supply projects and programs that may be undertaken to meet total projected water use. SB 221 requires local agencies to provide written verification that sufficient water supply is available before approving new plans for development.
- **Urban Water Management Planning Act.** The California Urban Water Management Planning Act of 1983 requires that each urban water supplier providing water for municipal purposes (either directly or indirectly to more than 3,000 customers) or supplying more than 3,000 acre-feet of water annually, shall prepare, update and adopt its urban water management plan at least once every five years.
- **Groundwater Management Act.** Assembly Bill 3030 (AB 3030), signed into law in 1992, established provisions by which local water agencies could develop and implement groundwater management plans (GMPs).
- **AB 2572**. This law requires the installation and use of water meters by 2025 across the state, including in the City of Sacramento. Signed into law by Governor Arnold Schwarzenegger on September 29, 2004, the water meter retrofit program affects about 120,000 City of Sacramento residential customers. The law took effect January 1, 2005. To inform residents and businesses about its plan to begin implementing the comprehensive metering program, the City of Sacramento Department of Utilities will work with customers, City Council Members, and City staff to address water meter implementation costs, and a comprehensive installation plan. The Department of Utilities also will work with the community

to educate members about indoor and outdoor water conservation measures and benefits of metering.[1]

b. Local Regulations and Plans

Following is a description of the local regulations and plans that affect water services in the City of Sacramento.

- **Urban Water Management Plan**. The City of Sacramento prepared an Urban Water Management Plan in response to the Urban Water Management Planning Act of 1983, which is described above. The focus of the Plan is the conservation and efficient use of water in Sacramento's service area, and the development and implementation of plans to assure reliable water service in the future. The Plan contains projections for future water use, discusses the reliability of Sacramento's water supply, describes the City's water treatment system, and contains the water shortage contingency plan described below. In addition, the Plan contains best management practices for efficient water use. The City has completed an update to the Plan, adopted on November 14, 2006.[2]
- **Water Shortage Contingency Plan.** The City of Sacramento developed a Water Shortage Contingency Plan as part of its Urban Water Management Plan (described above), which contains four stages of actions to be undertaken in the event of water shortage supplies of up to 50 percent, such as could occur in a drought or emergency situation. The City Council determines the appropriate stage of action in the event of a crisis, after which the City Manager can authorize and implement applicable water conservation and rationing requirements.
- **Sacramento Groundwater Authority Groundwater Management Plan.** The City of Sacramento, with the County of Sacramento and the cities of Citrus

[1] City of Sacramento Department of Utilities web site, http://www.cityofsacramento.org/utilities/watermeters/index.html. Accessed March 27, 2007.

[2] The current 2006 *City of Sacramento Urban Water Management Plan* is available at http://www.cityofsacramento.org/utilities/urbanwater/index.html. Accessed on March 27, 2007.

Heights and Folsom have signed a joint powers agreement to form the Sacramento Groundwater Authority (SGA), whose charge is to manage the Sacramento region's North Area Groundwater Basin. The SGA adopted a GMP in December of 2003.

- **Sacramento General Plan and North Sacramento Community Plan.** The Public Facilities and Services Element of the City's General Plan and the Utilities Element of the North Sacramento Community Plan includes goals, policies and objectives that relate to ensuring the provision of sufficient water supply and treatment facilities. In general, the City's goal is to provide high-quality services to all areas of the city in a carefully planned manner.
- **Sacramento Water Distribution System Master Plan.** Completed in 2005, the Master Plan details the extent of major infrastructure improvements through the year 2030 and assumes build-out of the City and maintenance of existing levels of water service.

2. Existing Conditions

This section provides information about existing and future projected water supply and demand for the Plan Area and City as a whole.

a. Existing and Future Projected Supply and Demand

The City of Sacramento provides water service to an approximately 63,114-acre area (that roughly corresponds to the area within the city limits) from a combination of surface and groundwater sources. The Sacramento and American rivers provide 85 percent of this water. The remaining 15 percent is well water. Treated water is currently produced at the City's two water treatment plants: the Fairbairn Water Treatment Plan on the American River and the City of Sacramento Water Treatment Plant on the Sacramento River. In addition to the two water treatment plants, the City's Department of Utilities operates and maintains eight pump stations, thousands of hydrants, and more than 1,500 miles of pipeline necessary to transport this water to city homes and businesses. The City's water demand has increased from 105,861 acre feet in 1985 to 139,000 acre feet in 2005, representing a 31 percent increase.[3]

The existing potable water supply for the Plan Area is provided from two different sources, nearby wells located outside the Plan Area boundaries and the City of Sacramento water treatment facilities. Well water is needed to supplement the potable water supply provided by the City's treatment facilities due to the Plan Area's distance from the water treatment facilities.

Based on proposed zoning designations in the Plan, it is estimated that the future average daily demand would increase by approximately 1.25 million gallons per day (mgd) or 94 percent above existing consumption rate for the Plan Area, as shown in Table 4.13-1.

b. Existing Water Transmission and Distribution System

Transmission and distribution mains in the Plan Area range from 4 inches to 12 inches. One exception is an 18-inch transmission main located in Bell Avenue, between Raley Boulevard and Astoria Street. Water mains in the Plan Area are generally undersized and would not meet current fire flow requirements.[4]

The Bell Avenue pump station pressurizes the entire Plan Area, except during fire flows. According to the City's Department of Utilities, the pump station site is small and cannot accommodate an expansion of its current configuration.

3. Standards of Significance

For purposes of this environmental document, an impact is considered significant if the Plan would:

- Create an increase in water demand of more than 10 mgd.

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[3] City of Sacramento, 2006. *Urban Water Management Plan*, page 6-1.

[4] Personal communication with Dan Sherry, Department of Utilities, May 2, 2005.

TABLE 4.13-1 PROJECTED **WATER DEMAND**

Land Use	Zone	Units Per Acre	Dwelling Units	Gross Acres	Gallons Per Day Per Unit	Parking Factor (Max. Day)	Peaking Factor (Peak Hour)	Max. Day Flow (gpd/du)	Average Flow Per Acre (ac-ft/ac-yr)	Max. Day Flow Per Acre (ac-ft/ac-yr)	Total Daily Average Flow (gpd)	Total Max. Day Flow (gpd)	Peak Hour Flow (gph)	Yearly Average Flow (MG)	Yearly Average Flow (acre-feet)
PROPOSED															
Single-Family Alternative	R-1A	15	3,289	219	630	1.8	1.3	1,134	N/A	N/A	2,072,196	3,729,953	202,039	756.35	2,321.16
Residential Mixed Use	RMX	36	1,889	52	225	1.8	1.3	405	N/A	N/A	425,088	765,158	41,446	155.16	476.16
General Commercial	C-2	N/A	N/A	20	N/A	1.8	1.3	N/A	3.0	5.4	54,850	98,730	5,348	20.02	61.44
Light Industrial	M-1	N/A	N/A	11	N/A	1.8	1.3	N/A	4.0	7.2	38,531	69,355	3,757	14.06	43.16
Total				*303*							*2,590,665*	*4,663,197*	*252,590*	*946*	*2,902*
EXISTING															
Standard Single Family	R-1	8	1,344	168	630	1.8	1.3	1,134	N/A	N/A	846,871	1,524,368	82,570	309.11	948.62
General Commercial	C-2	N/A	N/A	3	N/A	1.8	1.3	N/A	3.0	5.4	8,303	14,945	809	3.03	9.30
Heavy Commercial Zone	C-4	N/A	N/A	0	N/A	1.8	1.3	N/A	3.0	5.4	643	1,157	63	0.23	0.72
Industrial	M-1	N/A	N/A	135	N/A	1.8	1.3	N/A	4.0	7.2	482,045	867,681	46,999	175.95	539.96
Total				***306***							***1,337,862***	***2,408,151***	***130,442***	***488***	***1,499***

Source: Kimley-Horn and Associates.

4. Impact Discussion

The following provides an analysis of the effects of the Plan on water services.

a. Plan Impacts

Development allowed under the Plan would not generate an increase in water demand of more than 10 mgd. However, the existing transmission and distribution system are undersized to meet current demands and proposed demand is projected to almost double water demand. Additionally, the Bell Avenue pump station does not have sufficient capacity to meet current fire flow requirements.

The Plan recommends that additional water analysis be conducted to determine whether upgrading the distribution lines within and around the Plan Area would be adequate to increase the pressures during high demand, or if the capacity of the Bell Avenue pump station would also need to be upgraded.[5]

Since the current transmission and distribution system and pump station do not meet existing demand and fire flow requirements, and future improvements recommended in the Plan may not come to fruition in the immediate future, development allowed under the Plan would result in a significant impact. The Plan also identifies an implementing action that directs the City to study the feasibility and then develop an appropriate funding mechanism to provide for water service infrastructure improvements. Thus, once adopted, implementation of recommendations in the Plan would reduce water service-related impacts to a *less-than-significant* level.

b. Cumulative Impacts

No cumulative impacts to the City's water supply are anticipated as a result of Plan implementation since the projected increase in demand is 88 percent below the significance threshold for water usage. In addition, the actual rate of usage as a result of im-

[5] Sacramento Housing and Redevelopment Agency and City of Sacramento, 2007. *McClellan Heights and Parker Homes Land Use and Infrastructure Draft Plan*, page 5-3.

plementing the Plan will be dependent on the type of development that is actually built and the rate that development occurs, resulting in smaller, incremental increases in water demand, thereby further reducing the potential for cumulative impacts.

Development outside the Plan Area could contribute to a cumulative impact on the Bell Avenue pump station's ability to provide adequate water pressure. This impact would be mitigated through Mitigation Measure UTIL-1 below.

5. Impacts and Mitigation Measures

Impact UTIL-1: Additional development would exacerbate the existing inadequacy of the water mains and pump station in the Plan Area.

Mitigation Measure UTIL-1: The City should calibrate and run its hydraulic water model for the Plan Are to determine the extent of improvements that would be required for new development anticipated for the Plan. Also, implement the recommendations in the *McClellan Heights and Parker Homes Land Use and Infrastructure Plan* which include (1) replace existing 4-inch and 6-inch mains with 8-inch plastic mains; (2) replace existing 8-inch steel mains with 12-inch plastic mains; (3) upgrade existing services to copper. Additionally, perform a study to determine of the capacity of the Bell Avenue pump station will need to be upgraded, and upgrade the facility if warranted. Cost estimates based on Plan buildout are contained in the *McClellan Heights and Parker Homes Land Use and Infrastructure Plan.*

Significance After Mitigation. Implementation of this mitigation measure would reduce this impact to a *less than significant level*.

B. Wastewater

This section includes a description of the regulatory framework that directs wastewater services and a discussion of the existing wastewater system that services the Plan Area.

1. Regulatory Framework

This following programs, policies and regulations direct the provision of wastewater services in the City of Sacramento.

a. Federal and State Regulations

The federal National Pollutant Discharge Elimination System (NPDES) program requires all dischargers to receive a permit to release effluent into surface waters. Since the City of Sacramento wastewater treatment plant releases effluent into the Sacramento River, the City is subject to NPDES permitting requirements, as implemented by the State Regional Water Quality Control Board (RWQCB). A more detailed discussion of NPDES requirements related to wastewater effluent and water quality is provided in Section 4.6, Hydrology and Water Quality.

b. Regional and Local Plans and Regulations

Applicable regional and local plans and regulations that direct the provision of wastewater treatment facilities and wastewater discharge are discussed below.

- **Sacramento Regional Wastewater Treatment Plant 2020 Master Plan.** The Sacramento Regional County Sanitation District (SRCSD) provides wastewater treatment within the City of Sacramento.
- **Sacramento Regional County Sanitation District (SRCSD) Sewer Use Ordinance.** The Sewer Use Ordinance gives the SRCSD authority to regulate the use of public sewers connected to the Sacramento Regional Wastewater Treatment Plant (SRWTP). The SRCSD holds a National Pollutant Discharge Elimination

System (NPDES) Permit for discharges from the SRWTP into the Sacramento River.[6]

- **City of Sacramento Municipal Code, Chapter 13.08: Sewer Service System.** Section 13.08.30 of this chapter of the City's Municipal Code prohibits the discharge of any substances, materials, waters or waste if the discharge would violate any sewer use ordinance enacted by the SRCSD. In addition, Section 13.08.40 identifies specific waters, wastes, and substances that may not be discharged into the sewer.

- **Sacramento General Plan and North Sacramento Community Plan.** The Public Facilities and Services Element of the City's General Plan and the Utilities Element of the North Sacramento Community Plan includes goals, policies and objectives that relate to ensuring the provision of sufficient wastewater system capacity and wastewater discharge. In general, the City's goal is to provide high-quality services to all areas of the city in a carefully planned manner.

2. Existing Conditions

Wastewater treatment is provided to the City of Sacramento by the Sacramento Regional County Sanitation District (SRCSD). The SRCSD operates all regional interceptors and wastewater treatment plant serving the City except for the Combined Wastewater Treatment Plant and its associated interceptors and facilities, which are operated by the City of Sacramento. Within the City limits, responsibility for operation and maintenance of the local wastewater collection system is split between the City of Sacramento Department of Utilities and the County Sanitation District No. 1.

The Sacramento Regional Wastewater Treatment Plant (SRWTP), located just south of the city limits, is a secondary treatment facility which includes raw influent and effluent pumping, primary clarification, secondary treatment with the high-purity,

[6] NPDES Permit No. CA 0077682 was adopted in August 2000 by the Central Valley Resource Water Quality Control Board (CVRWQCB), which outlines performance standards for effluent into the Sacramento River.

oxygen-activated sludge process, cryogenic oxygen production, disinfection, dissolved air flotation sludge thickening, and anaerobic sludge digestion. Currently, all digested sludge is pumped to on-site solids storage basins and ultimately to on-site dedicated land disposal sites.[7] After secondary treatment and disinfection, a portion of the effluent from the plant is further treated in the SRCSD's Water Reclamation Facility and then used for landscape irrigation within the City of Elk Grove. The majority of the treated wastewater is dechlorinated and discharged into the Sacramento River.

The SRWTP is currently permitted to treat an average dry weather flow (ADWF) of 181 mgd and a daily peak wet weather flow of 392 mgd. Its current ADWF is approximately 150 mgd. In SRCSD's *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan,* flows are projected to be 218 mgd ADWF.[8]

The existing sanitary sewer system within the Plan Area was constructed between the early 1960's and the late 1980's. An exception is the light industrial area east of Winters Street, south of North Avenue, which does not currently have a sewer collection system.[9] The Plan Area's system connects into the SRCSD collection system, which conveys flows to the SRWTP for treatment. Sewer mains in the Plan Area range in size from 6 to 8 inches in the Parker Homes neighborhood, and from 6 to 18 inches in McClellan Heights. While a majority of existing mains are adequately sized, the City Department of Utilities recommended that the Plan Area's sewer system be replaced

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[7] Sacramento Regional County Sanitation District, 2001. *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan,* page 3-1.

[8] Sacramento Regional County Sanitation District, 2001. *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan,* page 3-19.

[9] The City Department of Utilities drain and sewer maps do not show an existing sewer collection system in the area zoned Light Industrial east of Winters Street. The area currently houses a storage facility and a truck yard, each of which has employees and, therefore are assumed to have restroom facilities are available.

since it is in poor condition and does not meet current City design standards.[10] This recommendation is included in the Plan.[11]

3. Standards of Significance

For purposes of this environmental document, an impact is considered significant if buildout of the Plan would:

- Substantially degrade water quality.

4. Impact Discussion

This section describes the potential impacts that could occur to sewer systems as a result of the Plan.

a. Plan Impacts

Implementation of the Plan would not result in any substantial degradation to water quality. New development would connect to the City's wastewater treatment system, thereby avoiding potential impacts to water quality. In addition, stormwater would be retained on-site, then treated in the City's combined wastewater treatment system.

Implementation of the Plan would not result in the need for new or expanded wastewater treatment facilities. As shown in Table 4.13-2, daily peak flows of projected buildout of the Plan is approximately 5.4 mgd, as compared to 4 mgd under existing General Plan land use designations.[12] The increase of approximately 1.4 mgd in wastewater flows that would occur under buildout of the Plan is less than 0.7 percent of the SRWTP's permitted dry weather flow of 181 mgd. Moreover, development allowed under the Plan would not be expected to be built out at one time. Instead,

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[10] Grehm, Karen, 1998. *Parker Homes Infrastructure Study*. City of Sacramento.

[11] Sacramento Housing and Redevelopment Agency (SHRA) and the City of Sacramento, 2007. *McClellan Heights and Parker Homes Land Use and Infrastructure Plan.*

[12] Sacramento Housing and Redevelopment Agency and City of Sacramento, 2006. *McClellan Heights and Parker Homes Land Use and Infrastructure Draft Plan*.

development would be anticipated to occur incrementally, over the 20-year life of the Plan and beyond. Thus, impacts of the Plan on wastewater treatment facilities would be *less than significant.*

As discussed above, substantial portions of the existing sewer mains in the Plan Area are undersized and do not meet current City design standards. The Plan includes recommendations that sewer mains in the Plan Area be upgraded as development occurs. The Plan also identifies an implementing action that directs the City to study the feasibility of, and then develop, an appropriate funding mechanism to provide for sewer and other recommended infrastructure improvements. Thus, once adopted, implementation of Plan recommendations would reduce impacts from buildout of the Plan to a *less-than-significant* level.

b. Cumulative Impacts

No cumulative impacts with regards to wastewater are anticipated as a result of the Plan as the projected increase in wastewater flows under buildout of the Plan is less than 0.7 percent of the SRWTP's permitted dry weather flow of 181 mgd. In addition, the actual rate of increase as a result of implementing the Plan will be dependent on the type of development proposed and the rate that development occurs, resulting in smaller, incremental increases in wastewater treatment needs, thereby further reducing the potential for cumulative impacts.

5. Impacts and Mitigation Measures

Since there were no significant impacts with regards to sewer infrastructure, no mitigation measures have been identified.

TABLE 4.13-2 **PROJECTED WASTEWATER FLOWS**

Land Use	Zone	Units Per Acre	Dwelling Units	People Per Dwelling Unit[a]	Gross Acres	Res. Unit WW Flow (gpd/person)[b]	WW Use (gpd/du)	Non-Res. Unit WW Flow (gpd)[c]	Avg. WW Flow (gpd)	Sanitary Sewer Peaking Factor[d]	Daily Peak WW Flow (gpd)	Avg. Groundwater Infiltration (gpd)[e]	Design Flow (gpd)	Design Flow (MGD)
PROPOSED														
Single-Family Alternative	R-1A	15	1,172	4	78.1	100	400	N/A	468,851	2.3	1,078,357	1,862	1,080,219	1.08
	R-1A	15	73	4	4.9	100	400	N/A	29,254	2.3	67,283	1,862	69,145	0.07
	R-1A	15	75	4	5.0	100	400	N/A	29,903	2.3	68,777	1,862	70,639	0.07
	R-1A	15	407	4	27.1	100	400	N/A	162,777	2.3	374,387	1,862	376,249	0.38
	R-1A	15	550	4	36.7	100	400	N/A	220,014	2.3	506,033	1,862	507,895	0.51
	R-1A	15	97	4	6.5	100	400	N/A	38,751	2.3	89,128	1,862	90.990	0.09
	R-1A	15	564	4	37.6	100	400	N/A	225,767	2.3	519,264	1,862	521,127	0.52
	R-1A	15	157	4	10.5	100	400	N/A	62,748	2.3	144,321	1,862	146,183	0.15
	R-1A	15	217	4	14.5	100	400	N/A	86,748	2.3	199,521	1,862	201,383	0.20
Residential Mixed Use	RMX	36	911	4	25.3	100	400	N/A	364,430	2.3	838,190	1,862	840,052	0.84
	RMX	36	612	4	17.0	100	400	N/A	244,697	2.3	562,804	1,862	564,666	0.56
	RMX	36	221	4	6.1	100	400	N/A	88,471	2.3	203,483	1,862	205,345	0.21
General Commercial	C-2	N/A	N/A	N/A	8.3	N/A	N/A	9,300	77,011	2.3	177,126	0	177,126	0.18
	C-2	N/A	N/A	N/A	3.2	N/A	N/A	10,500	33,931	2.3	78,041	0	78,041	0.08

TABLE 4.13-2 **WASTEWATER FLOWS** (CONTINUED)

Land Use	Zone	Units Per Acre	Dwelling Units	People Per Dwelling Unit[a]	Gross Acres	Res. Unit WW Flow (gpd/person)[b]	WW Use (gpd/du)	Non-Res. Unit WW Flow (gpd)[c]	Avg. WW Flow (gpd)	Sanitary Sewer Peaking Factor[d]	Daily Peak WW Flow (gpd)	Avg. Ground-water Infiltration (gpd)[e]	Design Flow (gpd)	Design Flow (MGD)
	C-2	N/A	N/A	N/A	8.3	N/A	N/A	9,300	76,779	2.3	176,591	0	176,591	0.18
Light Industrial	M-1	N/A	N/A	N/A	11.5	N/A	N/A	10,200	117,517	2.3	270,289	0	270,289	0.27
Total											*5,353,593*	*22,346*	*5,375,939*	*5.38*
EXISTING														
Standard Single Family	R-1	8	1344	3	168	100	300	N/A	403,272	2.3	927,526	1,862	929,388	0.93
General Commercial	C-2	N/A	N/A	N/A	3	N/A	N/A	7,400	22,940	2.3	52,762	0	52,762	0.05
Heavy Commercial Zone	C-4	N/A	N/A	N/A	0	N/A	N/A	7,400	1,776	2.3	4,085	1	4,086	0.00
Industrial	M-1	N/A	N/A	N/A	135	N/A	N/A	9,700	1,309,403	2.3	3,011,627	2	3,011,629	3.01
Total											***3,995,999***	***1,865***	***3,997,864***	***4.00***

[a] Four persons per residential unit assumed per City Design Standard 9.1.1, paragraph 2 (dated September 1, 1990).
[b] 100 gallons per person per day assumed per City Design Standard 9.1.1, paragraph 2 (dated September 1, 1990).
[c] Unit wastewater flow taken from City Design Standard 9.1, paragraph 2 (dated September 1, 1990).
[d] Peaking factor of 2.3 taken from City Design Standard 9.2 (dated September 1, 1990), assumes all development area in as a single WW source of approximately 2.3 MGD ADWF.
[e] Based on 500 gpd/in-dia-mile of pipe, per City Design Standard 9.2 (dated September 1, 1990).

Source: Kimley-Horn and Associates.

C. Stormwater

This section includes a description of the regulatory framework that directs stormwater drainage infrastructure, in addition to a discussion of the existing stormwater drainage system that services the Plan Area.

1. Regulatory Framework

a. Federal and State Regulations

The federal National Pollutant Discharge Elimination System (NPDES) program requires all dischargers to receive a permit to release effluent into surface waters, including stormwater runoff. Stormwater runoff that is collected into the City's stormwater drainage system released into the Sacramento River. Thus, the City is subject to NPDES permitting requirements, as implemented by the State Regional Water Quality Control Board (RWQCB). A more detailed discussion of NPDES requirements related to water quality is provided in Section 4.6, Hydrology and Water Quality.

b. Regional and Local Plans and Regulations

Regional and local plans and regulations are in place for the management of stormwater runoff to ensure that stormwater runoff does not degrade water quality. These include the City of Sacramento's Stormwater Quality Improvement Plan (SQIP) and the Sacramento Stormwater Management Program (SMWP), in addition to regulations governing construction site stormwater controls (Grading and Erosion Sediment Control Ordinance, Chapter 15.88 of the Sacramento Municipal Code). These regulations and plans are discussed in more detail in Section 4.6, Hydrology and Water Quality. Regarding the provision of adequate stormwater drainage facilities, the Public Facilities and Services Element of the City's General Plan and the Utilities Element of the North Sacramento Community Plan includes goals, policies and objectives that relate to ensuring the provision of sufficient wastewater system capacity and wastewater discharge. In general, the City's goal is to provide high-quality services to all areas of the city in a carefully planned manner. In addition, as a condition of development, the

City of Sacramento requires project applicants to provide connections to the City's stormwater drainage system, as well as any needed on-site stormwater detention facilities.

2. Existing Conditions

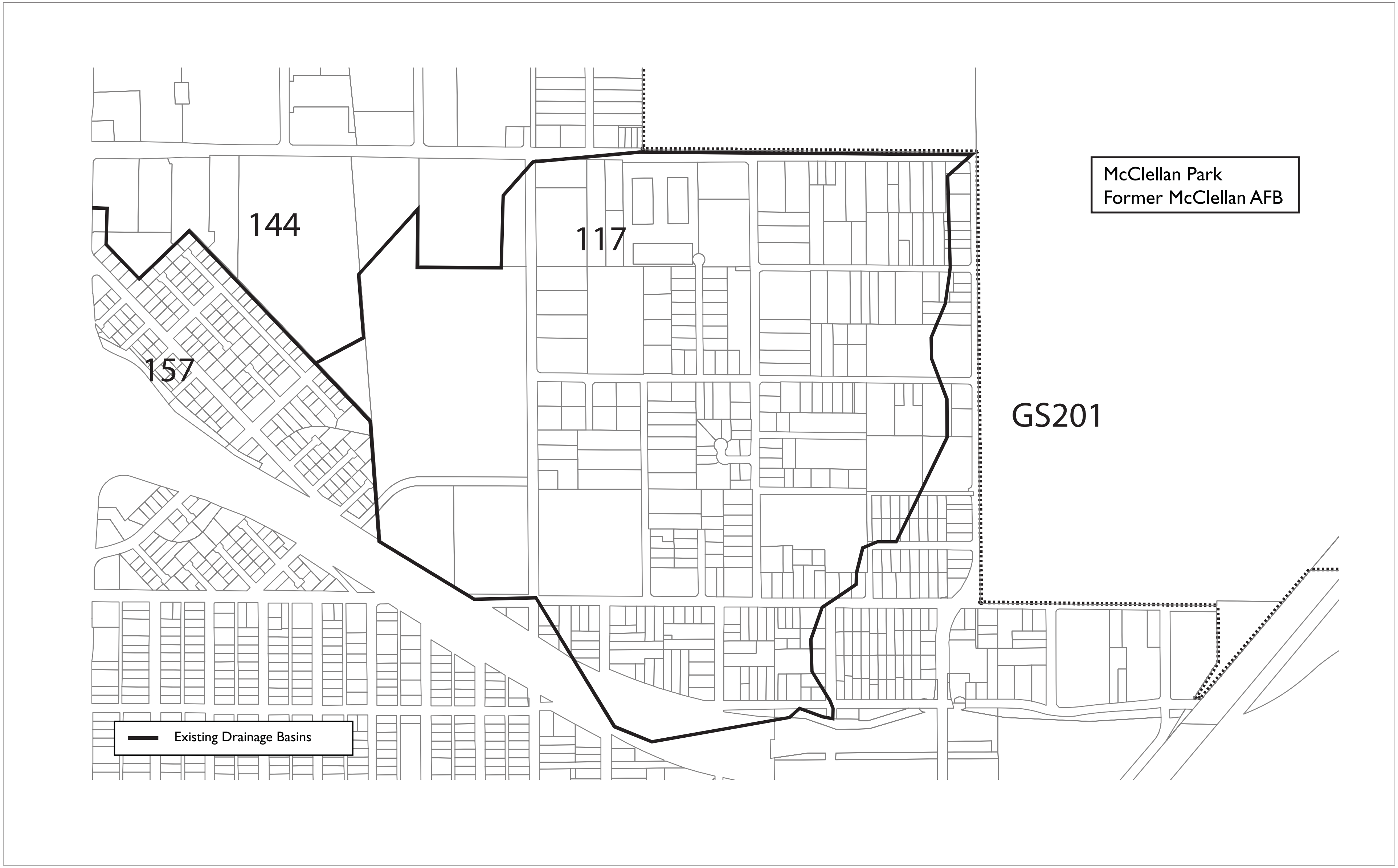
The City of Sacramento's stormwater drainage system is maintained by the City's Department of Utilities. Stormwater in the Plan Area, specifically urban runoff, is generally conveyed over land and collected in roadside drainage swales and underground through the piped drainage system. The drainage system is organized into local drainage basins. The Plan Area lies within four stormwater drainage basins: Basin 157, Basin 144, Basin 117, and Basin GS201, as shown in Figure 4.13-1. The Parker Homes neighborhood is contained entirely within Basin 157, while the McClellan Heights neighborhood is contained within portions of Basins 144 and GS201 and the entirety of Basin 117.

The Plan recommends a number of drainage improvements for the Plan Area to serve existing deficiencies and to support additional development.
Current City standards require drain lines and drop inlets in streets to collect surface run-off at regular intervals (400-feet maximum). Many streets in the Plan Area, however, do not have drain lines or inlets. These streets rely on roadside ditches to convey storm run off to the nearest drain inlet.

Following is a review and analysis of stormwater infrastructure serving the Plan Area:

a. Basin 157

Basin 157 includes the Parker Homes area and is lacking in underground drainage facilities. Stormwater is generally conveyed over land. North of I-80, there is a 12-inch to 21-inch drain line in Emmons Street and west of Lombard Court. This line connects runoff from the west end of this area and conveys it to the canal adjacent to the north side of I-80. On the east end of Parker Homes, the runoff is conveyed to the I-80 North Ditch through several small pipes. The I-80 North Ditch flows into a canal



Source: City of Sacramento

FIGURE 4.13-1

EXISTING DRAINAGE BASINS

on the north side of I-80. On the south side of I-80, there is a pipe ranging from twelve inches to 18 inches in diameter in North Avenue. This line becomes a 24-inch pipe in Clark Court, and a 30-inch pipe between Hills Court and Goss Court that drains into the canal on the south side of I-80. Runoff from Clark Court, Dewitt Court, Anderson Court and Buckley Way is conveyed overland until it flows into a drain inlet that leads to the 30-inch pipe that outfalls to the canal. A small portion of the area northeast of the intersection of North Avenue at Marysville Boulevard drains into a 12-inch line that flows south and connects to other facilities to the south.

The City conducted an assessment of infrastructure needs in the Parker Homes area in 1998.[13] That study indicated there were not any outstanding localized flooding issues identified by City maintenance staff. However, since underground facilities are lacking in the Parker Homes area, recommendations for drainage improvements were recommended. On the north side of I-80, these improvements include an extensive underground system with pipes ranging in size from 12 inches to 30 inches in diameter. Drain inlets would be included with these improvements.

On the south side of I-80, identified improvements were limited to placing a new 18 inch main in Doolittle Street, replacing the outfall at the canal, replacing the 24 inch main in Clark Court and providing a number of drain inlets.

b. Basin 144

Basin 144 is located in the northwest portion of the Plan Area and includes six industrial parcels in the southeast corner of Bell Avenue and Raley Boulevard, the extreme northern portion of the Village Green Mobile Home Park, and most of the Bell Avenue Elementary School. The entire basin area is approximately 520-acres. Storm runoff from these areas is collected in underground drain lines in Bell Avenue and is conveyed to Sump 144, located to the west of the Plan Area.

[13] Grehm, Karen. "Parker Homes Infrastructure Study." City of Sacramento, June 11, 1998.

Currently there are drain lines in Bell Avenue and between Raley Boulevard and Pinell Street ranging from 27-inches to 36-inches in diameter. These lines were sized to accommodate runoff from the industrial area north and south of Bell Avenue. There are currently curb and gutters existing on the south side of Bell Avenue and drain inlets to convey street runoff into the underground system. The drainage system conveys runoff to Sump 144 to be pumped to the I-80 North Ditch. The manmade ditch connects to Sump 157 to be discharged to the North East Main Drainage Canal.

In 1998, a draft analysis of the drainage facilities of Basin 144 was prepared by the City. The City evaluated the capacity of the existing storm drainage system for two development scenarios. First, the study evaluated the system capacity under the 1998 conditions. Second, the study evaluated the capacity of the existing drainage system assuming build out of the area occurs in accordance with the City's existing General Plan. The study found portions of the existing drainage system inadequate.

The analysis evaluated potential flooding hazards associated with 10-year and 100-year flood events. The study concludes minor localized flooding would be likely under 1998 development conditions, as shown in Table A-5. For General Plan build out, the study found development would "seriously aggravate local flooding conditions."

c. Basin 117

The majority of the Plan Area is within Basin 117, which includes nearly all of the Village Green Mobile Home Park and the area east of Parker Homes to west of Winters Street and north of I-80. The basin is approximately 210 acres. Runoff is collected into pipes and transported to Sump 117. Runoff is then pumped to the I-80 North Ditch, a concrete-lined channel, which connects to Sump 157. Concrete-lined channels are no longer permitted in the City. The 1998 report, *Basin 117 Interim Drainage Improvement Plan* states that "sump 117 has significant reliability problems, including no backup power, no standby pumping capacity, and poor emergency access, and inadequate security. No pump test data is available."

Drainage improvements in this area occur primarily adjacent to parcels which have been developed with curb, gutter sidewalk and along the basin's trunk line. One of the trunk lines is located near Rene Avenue, and the other near North Avenue.

The City compiled a model of Basin 117 drainage improvements in 1998. The study evaluated the capacity of the existing storm drainage system for two development scenarios. First, the study evaluated the system capacity under then-current level of development. Second, the study evaluated the capacity of the existing drainage system assuming build out of the area occurs in accordance with the City's General Plan. The study found that portions of the existing drainage system are inadequate.

The 10-year and 100-year flood events were analyzed. The study concluded that minor localized flooding would be likely under 1998 development conditions, as shown in Table A-6. For General Plan build out, the study found development would "seriously aggravate local flooding conditions." Localized flood events from 1986 to 1998 were also analyzed and it was reported the flooding was only observed along Paul Avenue.

The report listed the following improvements to mitigate the potential flood hazard:

- Construct a detention basin at Veralee Lane
- Upsize the North Trunk from Veralee Lane to Bell Avenue
- Upsize the South Trunk from Sump 117 to Dayton Avenue
- Upsize the mains in Pinell Street, Paul Avenue, Astoria Street and Dorothy June Way
- Replace all remaining lines at life-cycle
- Replace Sump 117 at life-cycle
- Flood-proof two existing residences
- Mitigate for increased downstream discharge to downstream basins.

Cost for these improvements in 1998 dollars was estimated to be $2.76 million.

d. Basin GS201

There have not been any previous hydraulic studies conducted for Basin GS201. Since Basin GS201 covers the former McClellan Air Force Base, it has been assumed that the drainage systems within the basin were designed to military standards that tend to be more exacting than older municipal standards.

3. Standards of Significance

For purposes of this environmental document, an impact is considered significant if the Plan would:

- ♦ Generate stormwater that would exceed the capacity of the stormwater system.

4. Impact Discussion

a. Plan Impacts

Implementation of the Plan would result in development that would exceed the capacity of the existing stormwater system. Based on a comparison of estimated runoff from the land uses in the Plan with the predicted flow rates calculated for the 10- and 100-year storm events for the existing zoning in the area used in the 1998 study, which are shown in Tables 4.13-3 and 4.13-4, it can be concluded that many of the pipes within the area would need to be upsized to accommodate the land uses envisioned in the Plan. The 1998 study made a number of recommendations to mitigate the potential flooding hazard in Basin 117. However, the average percent of impervious surface used for the previous hydrologic and hydraulic model for future conditions is 11 percent greater than that calculated from the Sacramento Method for the land uses shown in the Plan. Therefore, the recommendations from the 1998 report may be more extensive than what is required for the current land use plan. Therefore, recommended improvements in the 1998 report would mitigate the potential flood hazard in the Plan Area.

TABLE 4.13-3 **BASIN 144 POTENTIAL FLOODING HAZARDS**

Development Scenario	10-Year Storm	100-Year Storm
Existing Development	Street flooding in excess of 0.5 feet at four locations. No structures are flooded.	Street flooding in excess of 0.5 feet at 29 locations. One structure is flooded.
(1988) General Plan Buildout	Street flooding in excess of 0.5 feet at four locations. One structure is flooded.	Street flooding in excess of 0.5 feet at 50 locations. Two structures are flooded.

Source: City of Sacramento, Department of Utilities.

TABLE 4.13-4 **BASIN 117 POTENTIAL FLOODING HAZARDS**

Development Scenario	10-Year Storm	100-Year Storm
Existing Development	Street flooding in excess of 0.5 feet at seven locations. Five of these are within the Village Greens Mobile Home Park, and the other two are in front of schools. No structures are flooded.	Street flooding in excess of 0.5 feet at 19 locations. Property flooding occurs at one location.
(1988) General Plan Buildout	Street flooding in excess of 0.5 feet at 17 locations. One house is flooded.	Street flooding in excess of 0.5 feet at 27 locations. Five homes and one school is flooded.

Source: City of Sacramento, Department of Utilities.

The Plan includes recommendations that stormwater mains in the Plan Area be upgraded both for mains that serve existing development and as new development occurs. The Plan also identifies an implementing action that directs the City to study the feasibility and then develop an appropriate funding mechanism to provide for stormwater and other recommended infrastructure improvements. Thus, once adopted, implementation of recommendations in the Plan would reduce stormwater-related impacts to a *less-than-significant* level.

b. Cumulative Impacts

The 1998 storm drain studies conducted by the City were based on buildout projections for the Plan Area. The impacts discussed above are based on cumulative conditions.

5. Impacts and Mitigation Measures

Since no impacts were identified, no mitigation measures are required.

D. Solid Waste

This section discusses existing solid waste services in the City and potential impacts regarding solid waste that would result from buildout of the Plan.

1. Regulatory Framework

This following programs, policies and regulations direct the solid waste infrastructure in the City of Sacramento.

a. State Regulations

California's Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling and composting. To help achieve this, the Act requires that each City and County prepare and submit a Source Reduction and Recycling Element. AB 939 also established a goal for all California counties to provide at least 15 years of ongoing landfill capacity.[14]

With regard to household hazardous wastes, AB 939 established requirements for cities and counties to develop and implement plans for the safe management of these wastes.

[14] http://www.ciwmb.ca.gov/landfills/needfor/default.htm.

To help achieve this, AB 939 requires that each city and county prepare and submit a Household Hazardous Waste Element.

b. Local Regulations and Policies

The Public Facilities and Services Element of the Sacramento General Plan contains a number of goals, policies and regulations that relate to solid waste. In general, the City's goal is to provide high-quality services to all areas of the city in a carefully planned manner. Regarding solid waste, City policies include exploring options to reduce the need for landfills and expanding recycling and composting efforts to the maximum extent feasible. To comply with AB 939, the City of Sacramento's Comprehensive Zoning Ordinance contains provisions pertaining to solid waste recycling. Specifically, Section 17.72.020 requires that all non-residential and residential development prepare and submit a recycling program with the planning application and before the issuance of a building permit.

2. Existing Conditions

Solid waste service in the Plan Area is provided by the Solid Waste Division of the City of Sacramento's Department of Utilities. Solid waste from the Plan Area is taken to the Sacramento Recycling and Transfer Station (SRTS), located at 8491 Fruitridge Road in the southeastern part of the city. The SRTS serves both the City and the County of Sacramento, receiving waste, diverting recyclable materials, and compacting materials that will be transferred to a landfill.

Materials from SRTS that will be landfilled are currently transported to the Lockwood Landfill in Sparks, Nevada, which is owned and operated by Waste Management, Inc. The landfill receives over 4,000 tons of garbage a day, and is estimated to have enough capacity to remain open until 2035.[15] The City of Sacramento Solid Waste Division, the SRTS and the Lockwood Landfill all comply with applicable federal, State and local statutes and regulations related to the handling and disposal of waste.

[15] City of Sacramento, 2005. *General Plan Technical Background Report*.

3. Standards of Significance

For purposes of this environmental document, an impact is considered significant if buildout of the Plan would:

- Generate more than 500 tons of solid waste per year.

4. Impact Discussion

The following provides an analysis of the effects of the Plan on solid waste generation and disposal.

a. Plan Impacts

Buildout of the Plan all at one time would generate at least 500 tons of solid waste per year. However, given the size and location of the vacant and underutilized parcels in the Plan Area, development allowed under the Plan would not be expected to be built out at one time. Instead, development would be anticipated to occur incrementally, over the 20-year life of the Plan and beyond. It would be speculative to attempt to estimate the rate, amount or type of development and the associated solid waste that would be generated by individual future projects allowed under the Plan over its 20-year planning horizon. However, it can be assumed that individual development projects that would be likely to occur under the Plan would generate less than 500 tons per year.

Development projects likely to be proposed under this Plan would include small subdivisions, small-scale apartments, townhome projects and smaller-scale commercial development. The Plan does not anticipate any large subdivisions or commercial development that would generate over 500 tons of solid waste per year. Therefore, the potential impact of solid waste generation from implementation of the Plan would be *less than significant.*

b. Cumulative Impacts

For reasons discussed above, implementation of the Plan would have no impact with regards to solid waste. Accordingly, implementation of the Plan would not contribute to any significant cumulative impacts with regards to solid waste.

5. Impacts and Mitigation Measures

There are no impacts related to solid waste, and therefore no mitigation measures are required.

E. Energy

This section describes current conditions and potential impacts of buildout of the Plan with regard to energy use in the Plan Area.

1. Existing Conditions

Gas service is supplied to the City of Sacramento and the Plan Area by Pacific Gas and Electric (PG&E). PG&E gas transmission pipelines are concentrated north of the City of Sacramento. Distribution pipelines are located throughout the City, usually underground along City and County public utility easements.

Electricity is supplied to the City of Sacramento and the project site by the Sacramento Municipal Utility District (SMUD) which operates a variety of hydroelectric, photovoltaic, geothermal and co-generation power plants. SMUD also purchases power from PG&E and the Western Area Power Administration. Major electrical transmission lines are located in the northeastern portion of the City of Sacramento.

The City of Sacramento is a member of the Underground Service Alert (USA) One-Call program. Under this program, a contractor is required to notify the USA 48 hours in advance of performing excavation work. The developer has the responsibility for timely removal, relocation, or protection of any existing utility services located on the site of any construction project.[16]

2. Standards of Significance

For purposes of this environmental document, an impact is considered significant if buildout of the Plan would:

- ♦ Require PG&E to secure a new gas source beyond their current supplies.
- ♦ Result in the need for a new electrical source (e.g. hydroelectric and geothermal plants).

3. Impact Discussion

a. Plan Impacts

The land use changes and development projected under the Plan have been reviewed by SMUD and PG&E. Both agencies have indicated that they do not anticipate any major problems with serving additional development in the Plan Area.[17,18]

b. Cumulative Impacts

Implementation of the Plan would not contribute to any significant cumulative impacts with regard to electricity and gas services. Impacts could be further reduced by encouraging new developments to install EnergyStar products and participating in the City of Scaramento and utility provider conservation programs.

4. Impacts and Mitigation Measures

Since no impacts have been identified, no mitigation measures are required.

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[16] City of Sacramento, 2005. *General Plan Technical Background Report*.

[17] Personal communication with Jeff Berkenheimer, Associate Distribution System Engineer, Sacramento Municipal Utility District, August 23, 2006.

[18] Personal communication with Hal Hackney, Gas Distribution System Engineer, Pacific Gas & Electric Company, August 23, 2006.

F. Telecommunications

1. Existing Conditions

Local telephone service in the City of Sacramento is provided by AT&T, Citizens Utilities and General Telephone. Most of the City, however, is served by AT&T.

2. Standards of Significance

For purposes of this environmental document, an impact is considered significant if buildout of the Plan would:

- ♦ Result in a detriment to microwave, radar, or radio transmissions.

3. Impact Discussion

a. Plan Impacts

The Plan Area would allow additional infill development in an already developed area of the City. The telephone companies that service the City have indicated that there are no foreseeable problems with the provision of telephone service to infill or newly developing areas of the City. The Plan would not result in the need for new communication systems or result in a detriment to existing microwave, radar or radio transmissions.[19] Therefore, no impact would be expected to occur as a result of Plan implementation.

b. Cumulative Impacts

As discussed above, implementation of the Plan would have no impact with regard to telecommunications services. Accordingly, implementation of the Plan would not contribute to any significant cumulative impacts with regard to telecommunications services.

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[19] City of Sacramento, 2005. *General Plan Technical Background Report*.

4. Impacts and Mitigation Measures

Since no impacts were found with regards to telecommunications, no mitigation measures have been identified.

5 ALTERNATIVES TO THE PROPOSED PROJECT

The McClellan Heights and Parker Homes Land Use and Infrastructure Plan (hereafter "the Plan") has been described and analyzed in the previous sections with an emphasis on potentially significant impacts and recommended mitigation measures to avoid those impacts, to the extent feasible. The State CEQA Guidelines require the description and comparative analysis of a range of reasonable alternatives to the Plan that could feasibly attain the objectives of the project.

The following discussion is intended to inform the public and decision-makers of project alternatives that have been developed and the positive and negative aspects of those alternatives. In accordance with the CEQA Guidelines and procedures, three project alternatives, including the No Project Alternative, are discussed below. CEQA Guidelines also require that the environmentally superior alternative be identified. This information is included at the end of this chapter.

The following development alternatives are discussed and analyzed below:

- **Alternative 1: The No Project Alternative.** The Plan would not be adopted and the existing General Plan land use designations and zoning for the Plan Area would remain in effect. This alternative would include the infrastructure improvements that are recommended in the Plan.
- **Alternative 2: Remain as Industrial on Selected Areas on Bell Avenue and Winters Street.** Under this alternative, existing "industrial" General Plan land use designations and zoning would remain in the areas along Bell Avenue and Winters Street, as shown in Figure 5-1. Land use designations for the remaining Plan Area would be the same as in the Plan. This alternative would include the infrastructure improvements that were recommended in the Plan.
- **Alternative 3: Commercial on Selected Areas on Bell Avenue and Winters Street.** Under this alternative, the General Plan land use designation and zoning for areas along Bell Avenue and Winters Street would be changed from Industrial to a Limited Commercial zoning designation (this corresponds to the Commu-

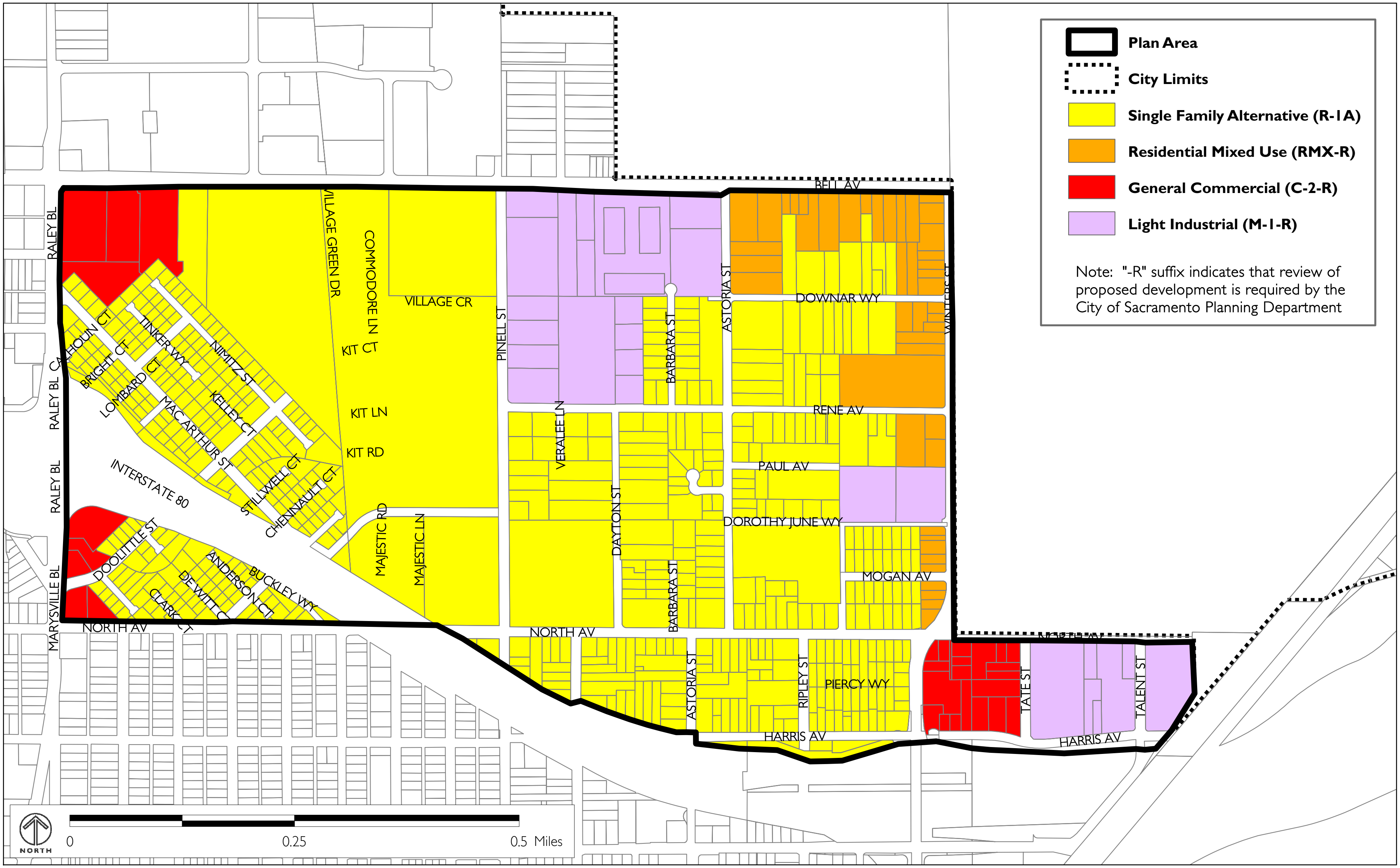

FIGURE 5-1

ALTERNATIVE 2: REMAIN AS INDUSTRIAL ON BELL AVENUE AND WINTERS STREET

nity/Neighborhood Commercial Offices General Plan land use designation) as shown in Figure 5-2. Land use designations for the remaining Plan Area would be the same as shown in the Plan. This alternative would include the infrastructure improvements that were recommended in the Plan.

Each alternative is analyzed below against the impact factors considered for the Plan, according to whether it would have a mitigating or adverse effect. Table 5-1 summarizes the results of this analysis.

A. Alternative 1: The No Project Alternative

This section compares the No Project Alternative to the Plan.

1. Principal Characteristics

Under this Alternative, no changes in General Plan land use designation or zoning designations would occur. Buildout assumptions include approximately 896,000 square feet of industrial space, 45,000 square feet of commercial/retail space, 5,000 square feet of office space and 70 new dwelling units. The projected increase in population is approximately 312 additional persons.[1]

2. Impact Analysis

The No Project Alternative would have the following impacts relative to the Plan.

a. Aesthetics

Similar to the Plan, no shadows would be cast by any new development which might adversely impact public gathering places or place residences and/or child centers in

[1] Analysis conducted by DC&E using existing General Plan land use designations in the Planning Area, taking into account existing development and existing zoning regulations. As noted in Section 4.9, average household size in the Plan Area was 3.12 persons in 2004. Since SACOG predicts 100 new households in the Plan Area by 2015, the projected population increase is 312 persons.

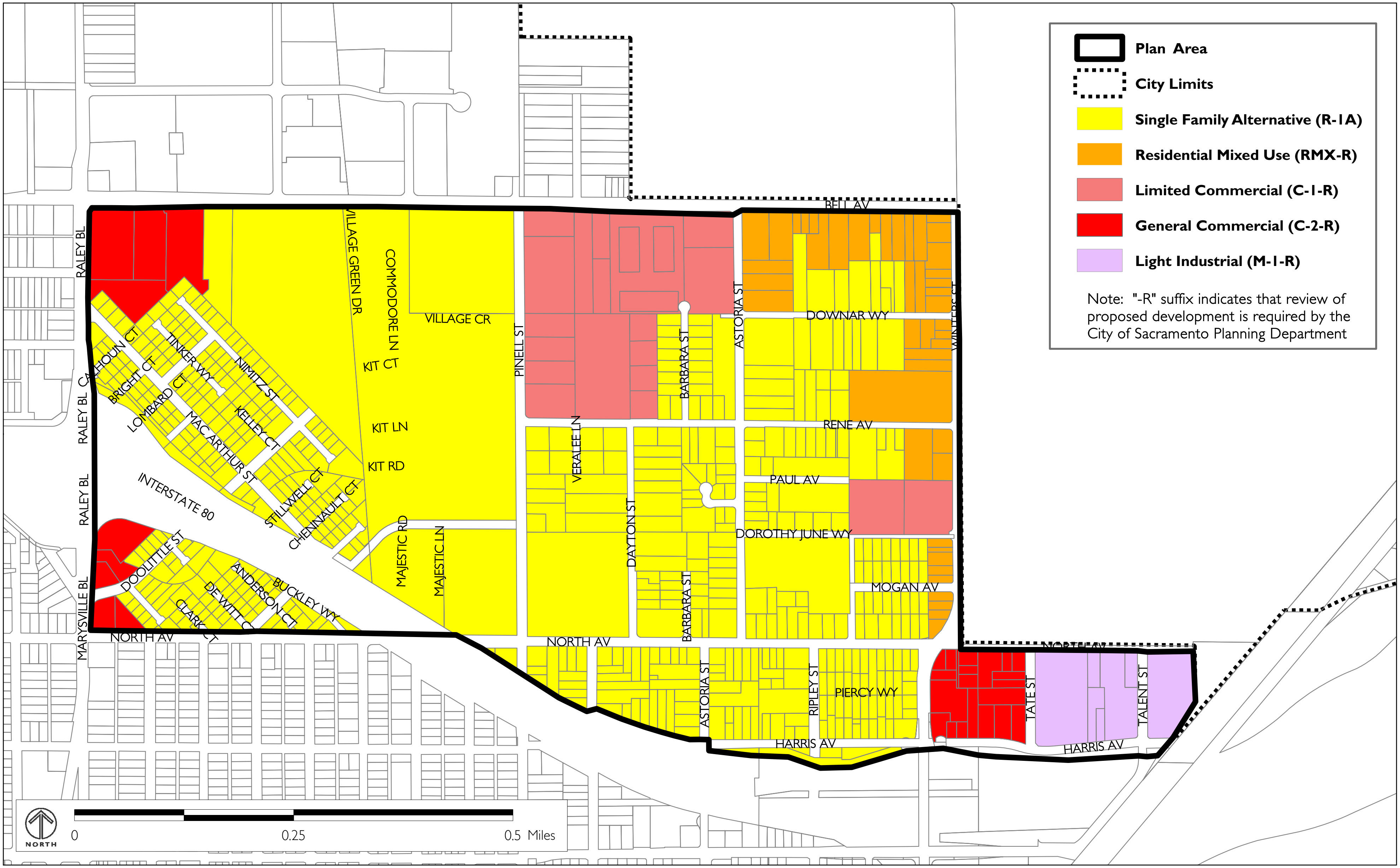

FIGURE 5-2

ALTERNATIVE 3: LIMITED COMMERCIAL ON BELL AVENUE AND WINTERS STREET

TABLE 5-1 **COMPARISON OF PLAN ALTERNATIVES**

Impact Factor	Alternative 1: No Project	Alternative 2: Remain as Industrial on Bell and Winters	Alternative 3: Limited Commercial on Bell and Winters
Aesthetics	=	=	=
Air Quality	+	+	+
Biological Resources	=	=	=
Cultural Resources	=	=	=
Hazardous Materials and Other Hazards	-	=	=
Hydrology and Water Quality	=	=	=
Land Use	-	-	=
Noise	+	+	=
Population, Employment and Housing	=	=	=
Public Services	+	=	=
Soils, Seismicity and Geology	=	=	=
Transportation and Circulation	+	+	=
Utilities and Service Systems	=	=	=

++ Substantial improvement compared to the Plan.
+ Insubstantial improvement compared to the Plan.
= Same impact as Plan.
- Insubstantial deterioration compared to the Plan.
-- Substantial deterioration compared to the Plan.

complete shade. Applicable setback and height requirements as set forth by City of Sacramento Zoning Regulations would be enforced; these would ensure that the adverse effects of shadows are minimized. City standards regarding project lighting would be enforced under this alternative and the Plan.

In conclusion, the No Project Alternative would be considered to have the *same impacts* as the Plan with respect to aesthetic issues.

b. Air Quality

Although the current zoning and attendant land uses would include more industrial than residential uses under the No Project Alternative, the distribution of development on vacant and underutilized parcels would be the same, and therefore would have similar construction-period air quality impacts. Emissions of criteria pollutants related to development under the No Project Alternative would be expected to be less when compared to the Plan. Although this Alternative would result in lower operational emissions, it would still be expected to exceed SMAQMD's ROG threshold of 65 pounds per day at projected buildout. This would result in a *significant and unavoidable* impact on air quality.

In conclusion, the No Project Alternative would be an *insubstantial improvement* when compared to the Plan with regard to air quality.

c. Biological Resources

Potential impacts on biological resources associated with the No Project Alternative would generally be the same as those identified under the Plan. Although the zoning and attendant land uses would be slightly different under the No Project Alternative, the types of biological resources and extent of habitat disturbance would be essentially the same as described in the Plan. Therefore, the No Project Alternative would be considered to have the *same impacts* on biological resources as the Plan.

d. Cultural Resources

Although the zoning and attendant land uses would be slightly different under the No Project Alternative, construction impacts on archaeological resources and human remains under this alternative would be the same as those identified under the Plan. Construction impacts on historic buildings and structures under the No Project Alternative would also be the same as those identified under the Plan. Therefore, the No Project Alternative would be considered to have the *same impacts* on cultural resources as the Plan.

e. Hazardous Materials and Other Hazards

Under the No Project Alternative, development would be distributed in a similar manner as the Plan. However, since the No Project Alternative would allow development according to existing General Plan land use designations for the Plan Area, a substantially larger amount of industrial uses and fewer residential units would be developed, compared to the Plan. This could theoretically result in higher levels of hazardous waste that would be generated, stored and transported. However, hazardous material generation, storage and clean-up are heavily regulated by federal, State and local regulations. This would reduce the potential impacts from hazards and hazardous materials to a less-than-significant level for both the No Project and the Plan. Therefore, the No Project Alternative would be considered an *insubstantial deterioration* when compared to the Plan in terms of hazards and hazardous materials.

f. Hydrology and Water Quality

As noted in Section 4.6, Hydrology and Water Quality, the entire Plan Area is located within an area that is at minimal risk for flooding hazards, according to the Flood Insurance Rate Maps issued by FEMA. Under the No Project Alternative, a more industrial uses would be developed at buildout, compared to than the Plan. However, this difference would not be substantial with respect to hydrology and water quality since the State and local regulations that require new development to provide adequate on-site drainage, connections to the City's drainage system and erosion, and grading and sediment control plans would apply under both scenarios. Potential impacts related to drainage are discussed in the "Utilities and Service Systems" below. Therefore, the No Project Alternative would be considered to have the *same impacts* on hydrology and water quality as the Plan.

g. Land Use

The No Project Alternative would preserve a larger amount of land with an industrial General Plan and zoning designation and thus would continue to allow industrial development near residential areas. This could worsen potential land use conflicts between the two types of land use. Therefore, the No Project Alternative would be considered an *insubstantial deterioration* compared to the Plan in terms of land use.

h. Noise

Under the No Project Alternative, there would be slightly fewer residential uses in areas along Bell Avenue and Winters Street, as compared to the Plan, which would include more light industrial uses. Accordingly, there would be a corresponding decrease in the amount of sensitive receptors exposed to exterior noise levels from traffic and aircraft from McClellan Airport that would exceed the City's noise exposure threshold. However, this would not be considered a substantial difference since this Alternative would still result in a primarily residential land use pattern, similar to the Plan. As is the case with the Plan, the No Project Alternative would be consistent with the currently adopted McClellan Airport CLUP noise contours.

The No Project Alternative would generate fewer vehicle trips than the Plan, so traffic noise impacts under the alternative would be slightly less intense than would occur as a result of the Plan. Construction noise impacts under each scenario would generally be the same. Therefore, the No Project Alternative would be considered an *insubstantial improvement* compared to the Plan in terms of noise impacts.

i. Population, Employment and Housing

Under the No Project Alternative, a lower amount of residential development would occur than under the Plan. As discussed in Section 4.9, the Plan would not result in substantial population growth that would be inconsistent with the City's General

Plan. Therefore, it can be concluded that the same effect would occur under the No Project Alternative. As with the Plan, this alternative would not require displacement of substantial numbers of existing housing or people. Therefore, the No Project Alternative would be considered to have the *same impacts* on population, employment and housing as the Plan.

j. Public Services

Under the No Project Alternative, more industrial development and less residential development would occur than under the Plan. As a result, there would be fewer households that would require additional police and fire services, schools and park space. However, as discussed in Section 4.10, Public Services, the Plan would not result in any significant impact with regard to public services. Therefore, the No Project Alternative would be considered an *insubstantial improvement* compared to the Plan in terms of public services.

k. Soils, Seismicity and Geology

The No Project Alternative would result in a similar pattern of urbanization as the Plan. Current local, State and federal regulations require specific mitigations to avoid impacts related to geologic and seismic hazards, which would apply under both scenarios. Therefore, the No Project Alternative would be considered to have the *same impacts* on soils, seismicity and geology as the Plan.

l. Transportation and Circulation

The No Project Alternative would result in fewer daily, AM peak hour and PM peak hour trips than the Plan. As a result, impacts from this Alternative would be expected to be less. It is possible that the intersection impacts identified for the Plan (which were found to be *less than significant*) may not occur under the No Project Alternative. Therefore, the No Project Alternative would be considered an *insubstantial improvement* compared to the Plan in terms of transportation and circulation.

m. Utilities and Service Systems

As discussed in Section 4.13, there are substantial existing deficiencies in water supply, sewer and stormwater systems for the Plan Area. The No Project Alternative would include the recommendations and implementation actions to address infrastructure deficiencies, as listed in the Plan. Therefore, the No Project Alternative would be considered to have the *same impacts* on utilities and service systems as the Plan.

B. Alternative 2: Remain as Industrial on Selected Sites on Bell Avenue and Winters Street

This section compares the "Remain as Industrial on Selected Sites on Bell Avenue and Winters Street" Alternative (henceforth "Alternative 2") with the Plan.

1. Principal Characteristics

Under this Alternative, an approximately 29-acre area bounded by Pinell Street, Rene Avenue, Bell Avenue, and Astoria Street, and a 4.7-acre area located along Winters Street and Dorothy June Way, would remain zoned for light industrial use instead of residential mixed use as identified in the Plan. As described above and shown in Figure 5-1, land use designations for the remainder of the Plan Area would be the same as shown in the Plan.

2. Impact Analysis

Alternative 2 would have the following impacts relative to adoption of the Plan.

a. Aesthetics

Similar to the Plan, no shadows would be cast by any new development which might adversely impact public gathering places or place residences and/or child centers in complete shade. Applicable setback and height requirements as set forth by City of Sacramento Zoning Regulations would be enforced; these would ensure that the adverse effects of shadows are minimized. City standards regarding project lighting would be enforced under this alternative and the Plan. Therefore, Alternative 2 would be considered to have the *same impacts* on aesthetics as the Plan.

b. Air Quality

Alternative 2 would generally be expected to have similar type and duration of construction as the Plan, and therefore would have similar construction-period air quality impacts. Emissions of criteria pollutants related to development associated with Alternative 2 would be expected to be less than that generated under the Plan. Although this Alternative would result in lower operational emissions, it would still be expected to exceed SMAQMD's ROG threshold of 65 pounds per day at projected buildout, and would also result in a significant and unavoidable impact on air quality. Therefore, Alternative 2 would be considered an *insubstantial improvement* when compared to the Plan in terms of air quality.

c. Biological Resources

Potential impacts on biological resources associated with the Alternative 2 would generally be the same as those identified under the Plan. Although the zoning and attendant land uses would be slightly different under Alternative 2, the types of biological resources and extent of habitat disturbance would be essentially the same as described in the Plan. Therefore, Alternative 2 would be considered to have the *same impacts* on biological resources as the Plan.

d. Cultural Resources

Although the zoning and attendant land uses would be slightly different under Alternative 2, construction impacts on archaeological resources and human remains under this alternative would be the same as those identified under the Plan. Construction impacts on historic buildings and structures under Alternative 2 would also be the same as those identified under the Plan. Therefore, the Alternative 2 would be considered to have the *same impacts* on cultural resources as the Plan.

e. Hazardous Materials and Other Hazards

Development under this Alternative would occur in a similar distribution as it would under the Plan. A slightly greater amount of industrial uses and a slightly lower number of residential units would occur under this alternative, compared to the Plan. However, these differences would be incremental. Moreover, hazardous material generation, storage and clean-up are heavily regulated by federal, State and local regulations which would under both scenarios. Therefore, Alternative 2 would be considered to have the *same impacts* on hazards and hazardous materials as the Plan.

f. Hydrology and Water Quality

As noted in Section 4.6, Hydrology and Water Quality, the entire Plan Area is located within an area that is at minimal risk for flooding, according to the Flood Insurance Rate Maps issued by FEMA. Although the zoning and attendant land uses would be slightly different under this alternative, State and local regulations pertaining to on-site drainage, connections to the City's drainage system and erosion, grading and sediment control plans would apply under both scenarios. Therefore, Alternative 2 would be considered to have the *same impacts* on hydrology and water quality as the Plan.

g. Land Use

The land use changes proposed under Alternative 2 are very similar to those envisioned in the Plan. This alternative would retain more land with its current industrial General Plan and zoning designation and thus would continue to allow industrial development near residential areas. This could worsen potential land use conflicts between the two land use types. Therefore, on balance, Alternative 2 would be considered an *insubstantial deterioration* compared to the Plan.

h. Noise

Under this alternative, there would be a slightly smaller amount of residential uses proposed in areas along Bell Avenue and Winters Street, compared to the Plan, which would retain more land for light industrial uses. Thus, there would be a corresponding decrease in the amount of sensitive receptors exposed to exterior noise levels from traffic and aircraft from McClellan Airport that would exceed the City's noise exposure thresholds. However, this would not be considered a substantial difference since this Alternative would still include a large amount of land zoned for residential uses, similar to the Plan. As is the case with the Plan, Alternative 2 would be consistent with the currently adopted McClellan Airport CLUP noise contours.

Alternative 2 would generate fewer vehicle trips than the Plan, so traffic noise impacts under the alternative would be slightly less intense than would occur as a result of the Plan. Construction noise impacts under each scenario would generally be the same. Therefore, Alternative 2 would be considered an *insubstantial improvement* compared to the Plan in terms of noise impacts.

i. Population, Employment and Housing

Under Alternative 2, a lower amount of residential development would occur than under the Plan. As discussed in Section 4.9, the Plan would not result in substantial population growth that would be inconsistent with the City's General Plan. Therefore, it can be concluded that the same effect would occur under Alternative 2. As with the Plan, this alternative would not require displacement of substantial numbers of existing housing or people. Therefore, Alternative 2 would be considered to have the *same impacts* on population, employment and housing as the Plan.

j. Public Services

Under Alternative 2, more industrial development and less residential development would occur than under the Plan. As a result, there would be fewer households that would require additional police and fire services, schools and park space. However, as discussed in Section 4.10, Public Services, the Plan would not result in any significant impact with regard to public services. Therefore, Alternative 2 would be considered to have the *same impacts* on public services as the Plan.

k. Soils, Seismicity and Geology

Alternative 2 would result in a similar pattern of urbanization as the Plan. Current local, State and federal regulations require specific mitigations to avoid impacts related to geologic and seismic hazards, which would apply under both scenarios. Therefore, Alternative 2 would be considered to have the *same impacts* on soils, seismicity and geology as the Plan.

l. Transportation and Circulation

This Alternative would result in fewer daily, AM peak hour and PM peak hour trips than the Plan. As a result, impacts from this Alternative would be expected to be fewer from the Plan. It is possible that the intersection impacts identified for the Plan (which were found to be *less than significant*) may not occur under Alternative 2. Overall, this alternative would be considered an *insubstantial improvement* to the Plan.

m. Utilities and Service Systems

As discussed in Section 4.13, there are substantial existing deficiencies in water supply, sewer and stormwater systems for the Plan Area. Development under this Alternative would occur in a similar distribution as the Plan. A slightly greater amount of industrial uses and slightly lower number of residential units would occur under Alternative 2, as compared to the Plan. However, these differences would be insubstantial with regards to impact to utilities and service systems. Moreover, the recommendations and implementation actions to address infrastructure deficiencies that are part of the Plan would also apply to this alternative. Therefore, Alternative 2 would be considered to have the *same impacts* on utilities and service systems as the Plan.

C. Alternative 3: Limited Commercial on Selected Sites on Bell Avenue and Winters Street

This section compares the "Limited Commercial on Selected Sites on Bell Avenue and Winters Street" Alternative (henceforth "Alternative 3") to the Plan.

1. Principal Characteristics

Under this alternative, the 29-acre area bounded by Pinell Street, Rene Avenue, Bell Avenue, and Astoria Street, and the 4.6-acre area bounded by Dorothy June Way, Paul Avenue, Winters Street, and Morgan Avenue would be zoned for Limited Commercial uses instead of Residential Mixed Use as identified in the Plan. As described above, and shown in Figure 5-2, land use designations for the remaining Plan Area would be the same as the Plan.

2. Impact Analysis

Alternative 3 would have the following impacts relative to the Plan.

a. Aesthetics

Similar to the Plan, no shadows would be cast by any new development which might adversely impact public gathering places or place residences and/or child centers in complete shade. Applicable setback and height requirements as set forth by City of Sacramento Zoning Regulations would be enforced; these would ensure that the adverse effects of shadows are minimized. City standards regarding project lighting would be enforced under this alternative and the Plan. Therefore, Alternative 3 would be considered to have the *same impacts* on aesthetics as the Plan.

b. Air Quality

Alternative 3 would generally be expected to have similar type and duration of construction as the Plan, and therefore would have similar construction-period air quality impacts. Emissions of criteria pollutants related to development associated with Alternative 3 would be expected to be less than that generated under the Plan. Although this Alternative would result in lower operational emissions, it would still be expected to exceed SMAQMD's ROG threshold of 65 pounds per day at projected buildout, and would also result in a significant and unavoidable impact on air quality. Therefore, Alternative 3would be considered an *insubstantial improvement* compared to the Plan in terms of air quality impacts.

c. Biological Resources

Potential impacts on biological resources associated with the Alternative 3 would generally be the same as those identified under the Plan. Although the zoning and attendant land uses would be slightly different under Alternative 3, the types of biological resources and extent of habitat disturbance would be essentially the same as described in the Plan. Therefore, Alternative 3 would be considered to have the *same impacts* on biological resources as the Plan.

d. Cultural Resources

Although the zoning and attendant land uses would be slightly different under Alternative 3, construction impacts on archaeological resources and human remains under this alternative would be the same as those identified under the Plan. Construction impacts on historic buildings and structures under Alternative 3 would also be the same as those identified under the Plan. Therefore, the Alternative 3 would be considered to have the *same impacts* on cultural resources as the Plan.

e. Hazardous Materials and Other Hazards

Development under this alternative would occur in a similar distribution and range of land uses as the Plan with regards to the level of household and other hazardous wastes generated, stored and transported. Hazardous material generation, storage and clean-up are heavily regulated by federal, State and local regulations which would apply to both this Alternative and the Plan. Therefore, Alternative 3 would be considered to have the *same impacts* as the Plan in regards to hazardous materials and other hazards.

f. Hydrology and Water Quality

As noted in Section 4.6, Hydrology and Water Quality, the entire Plan Area is located within an area that is at minimal risk for flooding, according to the Flood Insurance Rate Maps issued by FEMA. Although the zoning and attendant land uses would be slightly different under this alternative, State and local regulations pertaining to on-site drainage, connections to the City's drainage system and erosion, grading and sediment control plans would apply under both scenarios. Therefore, Alternative 3 would be considered to have the *same impacts* on hydrology and water quality as the Plan.

g. Land Use

The degree of land use changes proposed under Alternative 3 is the same as the Plan. The only difference is that under Alternative 3, a small amount of land would be zoned as Limited Commercial instead of Residential Mixed-Use. Uses allowed under the Limited Commercial zoning designation would be compatible with adjacent residential uses. As is the case with the Plan, Alternative 3 would be consistent with the currently adopted McClellan Airport CLUP noise exposure contours. Therefore, Alternative 3 would be considered to have the *same imapcts* as the Plan.

h. Noise

Under this alternative, there would be slightly fewer residential uses proposed in areas along Bell Avenue and Winters Street, as compared to the Plan, which would instead be proposed for commercial uses. Thus, there would be a corresponding decrease in the amount of sensitive receptors exposed to exterior noise levels from traffic and aircraft from McClellan Airport that would exceed the City's noise exposure threshold. However, this would not be considered a substantial difference since this Alternative would still include a large amount of land zoned for residential uses, similar to the Plan.

Alternative 3 would be expected to generate about 4 percent more trips than the Plan. In terms of noise, a 4 percent change in traffic volume corresponds to a change in noise level that is well below 1 dB. Accordingly, traffic noise impacts under Alternative 3 would be the same as those identified for the Plan. Construction noise impacts under Alternative 3 would generally be the same as those identified for the Plan. Overall, Alternative 3 would be considered to have the *same impacts* as the Plan with regards to noise impacts.

i. Population, Employment and Housing

Under Alternative 3, a slightly lower amount of residential development, and thus a lower number of households and housing units would occur than under the Plan. As discussed in Section 4.9, the Plan would result in no impact related to substantial population growth that is inconsistent with the City's General Plan. Therefore, it can be concluded that no impact with regards to substantial population growth would occur under Alternative 3. As with the Plan, this alternative would not require displacement of substantial numbers of existing housing or people. Overall, Alternative 3 would be considered to have the *same impacts* as the Plan with regard to population, employment and housing.

j. Public Services

Under Alternative 3, a slightly lower amount of residential development would occur than under the Plan. The relative decrease in households would not result in a substantial difference in the need for associated police and fire services and park space. There is the potential that the incremental difference would result in less of an impact to schools serving the Plan Area. However, as discussed in Section 4.10, Public Services, school impact fees assessed on new development would reduce this to a less-than-significant impact for both this Alternative and the Plan. On balance, Alternative 3 would be considered to have the *same imapcts* as the Plan with respect to public services.

k. Soils, Seismicity and Geology

Alternative 3 would propose development that is distributed in a similar manner as the Plan. Current local, State and federal regulations require specific mitigations to avoid impacts related to geologic and seismic hazards, which would apply to both this Alternative and the Plan. For these reasons, Alternative 3 is considered to have the *same impacts* as the Plan in regard to soils, seismicity and geology.

l. Transportation and Circulation

Alternative 3 would generate more daily and PM peak hour trips and fewer AM peak hour trips than the Plan. As a result, this alternative would result in the same intersection impacts as the Plan and could result in additional impacts. If this alternative is selected for implementation, additional analysis would be required to fully quantify potential impacts. Overall, this alternative would be considered to be have the *same impacts* as the Plan.

m. Utilities and Service Systems

As discussed in Section 4.13, there are substantial existing deficiencies in water supply, sewer and stormwater system in the Plan Area. Development under this Alternative would occur in a similar distribution as the Plan. A slightly greater amount of commercial uses and slightly lower number of residential units would occur under Alternative 3 as compared to the Plan. However, these differences would be insubstantial with regards to impact to utilities and service systems. Moreover, the recommendations and implementation actions to address infrastructure deficiencies that are part of the Plan would also apply to this alternative. Therefore, Alternative 3 would be considered to have the *same impacts* as the Plan with regards to utilities and service systems.

D. Environmentally Superior Alternative

CEQA requires the identification of an environmentally superior alternative in an EIR. If the "No Project" alternative is the environmentally superior alternative, than the EIR must also identify an environmentally superior alternative from the remaining alternatives.

Based on the information in Table 5-1, the No Project Alternative and Alternative 2 are both the environmentally superior choice in that they have the same scoring relative to all of the environmental impact factors analyzed. However, none of alternatives are substantially better than the Plan with regards to any particular environmental factor since none of the alternatives would cause a reduction of any significant and unavoidable impacts associated with the Plan. The differences in environmental impacts between the Plan and the alternatives were relatively minor. Moreover, the Plan would best satisfy the project objectives, which include strengthening the identity of McClellan Heights and Parker Homes as residential neighborhoods with a range of high-quality and safe housing that has access to neighborhood-serving retail, parks and other amenities to meet community needs.

6 CEQA-Required Assessment Conclusions

As required by CEQA, this chapter provides an overview of the impacts of the Land Use and Infrastructure Plan (hereafter "the Plan") based on the technical analyses presented in this EIR. The topics covered in this chapter include growth inducement, unavoidable significant effects, and expected significant irreversible environmental changes. A more detailed analysis of the Plan-generated environmental impacts is provided in Chapter 4. Note that the term "project" in this analysis refers to buildout of the Plan, which would occur incrementally via independent development projects, each necessitating environmental review.

A. Growth Inducement

A project is typically considered to be growth-inducing if it fosters economic or population growth. Typical growth inducements might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area, or the removal of major barriers to development. Not all growth inducement is necessarily negative. Negative impacts associated with growth inducement occur only where the projected growth would cause adverse environmental impacts.

Growth-inducing impacts fall into two general categories: direct and indirect. Direct growth-inducing impacts are generally associated with the provision of urban services to an undeveloped area. The provision of these services to a site, and the subsequent development, can serve to induce other landowners in the vicinity to convert their property to urban uses. Indirect, or secondary growth-inducing impacts consist of growth induced in the region by the additional demands for housing, goods and services associated with the population increase caused by, or attracted to, a new project.

1. Direct Impacts

As discussed in Chapter 3, based on proposed land use designations and available acres, the Plan could result in up to 860 new dwelling units, 232,000 square feet of commercial space, 25,000 square feet of office and 27,000 square feet of industrial uses over the long-term planning horizon of the Plan. Implementation of the Plan would induce some of the population growth in the City, in part because it is proposing a change in land use from light industrial to residential uses. This type of residential growth would be considered to be "infill growth" in that it would occur in an area that is already developed with urban uses and where urban services are provided. Infill growth can be beneficial in that it would help preserve open space and agricultural land elsewhere in the region, and the additional housing, particularly multifamily housing in the RMX-zoned areas, would help to increase the supply of affordable housing options to the residents of the Plan Area and the City overall.

As discussed in Chapter 3, the Plan Area has a number of deficiencies in roadway and utility infrastructure that serves existing development. The Plan includes goals, policies and actions for roadway and utility infrastructure improvements to address deficiencies for existing development, as well as improvements that would be needed to support new development, which would be the responsibility of the City and individual project applicants.

As a result, while the Plan would result in an increase in growth locally, the benefits from the additional infill housing and related development that would occur in the Plan Area would reduce the potential for negative impacts associated with directly induced growth to a *less-than-significant* level.

2. Indirect Impacts

The Plan would allow a mixture of housing, shopping and employment opportunities so that as the number of residents increases, they would not pressure adjacent communities to provide new commercial and employment opportunities. The additional housing and commercial uses would be well-situated to take advantage of employment opportunities at McClellan Park, and McClellan Park employees would have new housing options in close proximity to their workplace. Also, as previously stated, the Plan includes City policies and requirements for future developers in the Plan Area to demonstrate that there is adequate water, sewer and wastewater infrastructure to serve a planned development.

B. Unavoidable Significant Effects

While a majority of impacts associated with the Plan would be reduced to a less-than-significant level, adoption and implementation of the Plan would result in the following unavoidable significant impacts:

- **Impact AIR-1**: Operational emissions associated with implementation of the Plan would exceed the SMAQMD's threshold levels. As indicated in Table 4.2-6, the predominant sources of operational emissions are from hearths (fireplaces and wood stoves), consumer products, architectural coatings, and mobile sources (i.e. vehicles trips associated with Plan Area land uses).
- **Impact AIR-3**: Implementation of the Plan could result in significant health risks resulting from exposure of new sensitive receptors to aircraft and vehicular emissions.
- **Impact AIR-6**: Because emissions of ozone precursors and PM_{10} associated with buildout of the Plan are greater than emissions associated with the existing General Plan, impacts associated with these emissions would be considered to be *cumulatively significant*. Despite the implementation of Mitigation Measures AIR-1a and AIR-1b that would help to reduce such emissions, there is no mitigation available to reduce these emissions to below the SMAQMD's threshold levels. In addition, since greenhouse gas emissions are more appropriately evaluated on a regional, State, or even national scale rather than at an individual project level, it is anticipated that greenhouse gas emissions associated with future construction projects in the Plan Area would result in a cumulatively significant contribution to climate change.

- **Impact NOISE-1:** Exposure of new residences to traffic noise exceeding 60 L_{dn} or interior noise exceeding 45 L_{dn}, and instantaneous maximum noise of 50 dBA in bedrooms, and 55 dBA in other habitable rooms.

C. *Significant and Irreversible Changes*

Section 15126.2(c) of the CEQA Guidelines requires a discussion of the extent to which a project will commit nonrenewable resources to uses that future generations would probably be unable to reverse. An example of such an irreversible commitment is the construction of highway improvements that would provide public access to previously inaccessible areas.

A project would generally result in a significant irreversible impact if:

- Primary and secondary impacts would commit future generations to similar uses.
- The project would involve a large commitment of nonrenewable resources.
- The project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project.

1. Changes in Land Use that Commit Future Generations

Although the Plan would result in a different mix of land uses, development under the Plan would result in the conversion of the same total amount of vacant land to residential, commercial and industrial uses and the intensification of underutilized areas as under the existing City General Plan and zoning designations. The Plan would result in a comparatively greater amount of land to be developed with residential uses in the Plan Area, compared to that which would be built under existing land use designations.

2. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes issues related to increased energy consumption, conservation of agricultural lands and lost access to mining reserves. Development allowed under the Plan will require additional electric and gas services, and it will require resources for construction. However, it is anticipated that additional services will be provided with no significant impact to service providers. Additionally, no portion of the Plan Area consists of agricultural lands nor does any portion provide access to a mining reserve. Therefore, implementation of the Plan would not preclude access to any natural resources.

3. Irreversible Damage from Environmental Accidents

No significant environmental damage, such as an accidental spill or explosion of hazardous material, is anticipated as a result of adoption of the Plan. Uses allowed under the Plan would not include those which would result in the use or transport of unusual hazardous materials.

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7 REPORT PREPARATION

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8 GLOSSARY, ACRONYMS AND REFERENCES

A. Glossary

Ambient Noise Level
The composite of noise from all sources near and far; the normal or existing level of environmental noise at a given location.

Attainment Area
A geographic area in which levels of a criteria air pollutant meet the health-based primary standard (national ambient air quality standard, or NAAQS) for the pollutant. An area may have an acceptable level for one criteria air pollutant, but may have unacceptable levels for others. Thus, an area could be in both attainment and nonattainment at the same time. Attainment areas are defined using federal pollutant limits set by the Environmental Protection Agency.

A-Weighted Sound Level, dBA
The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.

Baseline Emissions
The emissions that would occur without policy intervention (in a business-as-usual scenario). Baseline estimates are needed to determine the effectiveness of emissions reduction programs (often called mitigation strategies).

Bicycle Lane (Class II facility)
A corridor expressly reserved for bicycles, existing on a street or roadway in addition to any lanes for use by motorized vehicles.

Bicycle Path (Class I facility)
A paved route not on a street or roadway and expressly reserved for bicycles traversing an otherwise unpaved area. Bicycle paths may parallel roads but typically are separated from them by landscaping.

Bicycle Route (Class III facility)
A facility shared with motorists and identified only by signs. A bicycle route has no pavement markings or lane stripes.

Blight
In this EIR, *urban decay*, or *blight*, is defined as physical deterioration that is prevalent and substantial to the point that it impairs the proper utilization of affected real estate or the health, safety, and welfare of the surrounding community. Physical deterioration includes, but is not limited to, abnormally high business vacancies, abandoned buildings and industrial sites, boarded doors and windows, parked trucks and long term unauthorized use of properties and parking lots, extensive gang or offensive graffiti painted on buildings, dumping of refuse or overturned dumpsters on properties, dead trees or shrubbery and uncontrolled weed growth or homeless encampments.

California Environmental Quality Act (CEQA)
A State law requiring State and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an Environmental Impact Report (EIR) must be prepared and certified as to its adequacy before taking action on the proposed project.

Carbon Dioxide (CO_2)
Colorless, odorless, non-poisonous gas that is a normal part of the ambient air. Carbon dioxide is a product of fossil fuel combustion. Although carbon dioxide does not directly impair human health, it is a greenhouse gas that traps terrestrial (i.e., infrared) radiation and contributes to the potential for global warming.

Carbon Monoxide (CO)
A colorless, odorless, highly poisonous gas produced by automobiles and other machines with internal combustion engines that imperfectly burn fossil fuels such as oil and gas.

Clean Air Act (CAA)
The principal national legislation passed by Congress for air quality management. Originally passed in 1963, it was greatly changed and strengthened in 1970 and 1977. In 1990, the Clean Air Act Amendments introduced significant changes in the federal approach to air quality management.

Criteria Air Pollutants
A group of very common air pollutants regulated by the Environmental Protection Agency on the basis of criteria (information on health and/or environmental effects of pollution). Criteria air pollutants are widely distributed all over the country.

Day/Night Noise Level, Ldn
The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.

dBA
The "A-weighted" scale for measuring sound in decibels; weighs or reduces the effects of low and high frequencies in order to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness, though the noise is actually ten times more intense.

Decibel, dB
A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

Drainage
(1) Surface water runoff; and (2) the removal of surface water or groundwater from land by drains, grading, or other means that include runoff controls to minimize erosion and sedimentation during and after construction or development, the means for preserving the water supply, and the prevention or alleviation of flooding.

Earthquake Fault Zone
The State of California's Alquist-Priolo Earthquake Fault Zoning Act identifies sites within a 1,000-foot-wide zone, with the fault at the center, as Earthquake Fault Zones. The Act requires that these sites undergo specialized geologic investigations prior to approval of certain types of new development. State law requires that these zones be incorporated into local General Plans.

Emission
Discharges into the atmosphere from such sources as smokestacks, residential chimneys, motor vehicles, locomotives, and aircraft.

Endangered Species
A species of animal or plant is considered to be endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes.

Environmental Impact Report (EIR)
A report required of General Plans by the California Environmental Quality Act which assesses all the environmental characteristics of an area and determines what effects or impacts will result if the area is altered or disturbed by a proposed action. (See "California Environmental Quality Act.")

Equivalent Noise Level (Leq)
The average A-weighted noise level during the measurement period.

Erosion
(1) The loosening and transportation of rock and soil debris by wind, rain, or running water. (2) The gradual wearing away of the upper layers of earth.

Expansive Soils
Soils that swell when they absorb water and shrink as they dry.

Fault
A fracture in the earth's crust forming a boundary between rock masses that have shifted.

Flood Insurance Rate Map (FIRM)
For each community, the official map on which the Federal Environmental Management Agency has delineated areas of special flood hazard and the risk premium zones applicable to that community.

Flood, 100-Year
The magnitude of a flood expected to occur, on average, every 100 years, based on historical data. The 100-year flood has a 1/100, or one percent, chance of occurring in any given year.

Frequency, Hz
The number of complete pressure fluctuations per second above and below atmospheric pressure.

General Plan
A city's basic planning document, which provides the blueprint for development throughout the community and is the vehicle through which competing interests and needs of the citizenry are balanced and meshed.

Geographic Information Systems (GIS)
A method of storing geographic information on computers. Geographic information can be obtained from a variety of sources, including topographic maps, soil maps, aerial and satellite photos, and remote sensing technology.

Grade
The average level of the finished surface of the ground adjacent to the exterior walls of the building.

Grade, Existing
The vertical elevation of the ground surface prior to excavating or filling.

Groundwater
Water under the Earth's surface, often confined to aquifers capable of supplying wells and springs.

Habitat
The particular living place which provides an environment suitable for survival of an organism, a species or a community.

Hazardous Waste
Any refuse or discarded material or combinations of refuse or discarded materials in solid, semisolid, liquid, or gaseous form which cannot be handled by routine waste management techniques because they pose a substantial present or potential hazard to human health or other living organisms because of their chemical, biological, or physical properties.

Historic Preservation
The preservation of historically significant structures and neighborhoods in order to facilitate restoration and rehabilitation of the building(s) to a former condition.

Historic Structure

Any structure that is (1) listed in the National Register of Historic Places or is eligible for individual listing on the National Register; (2) certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; or (3) designated by the city as a heritage preservation site.

Infill

Development or redevelopment of land that has been bypassed, remained vacant, and/or is underused as a result of the continuing urban development process.

Jobs/Housing Ratio

The jobs/housing balance divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 indicates a balance. A ratio greater than 1.0 indicates a net in-commute; less than 1.0 indicates a net out-commute.

Lmax, Lmin

The maximum and minimum A-weighted noise level during the measurement period.

L01, L10, L50, L90

The A-weighted noise levels that are exceeded 1 percent, 10 percent, 50 percent, and 90 percent of the time, respectively, during the measurement period.

Local Agency Formation Commission (LAFCO)

A State agency that works in an individual county with the authority to set the boundaries and Spheres of Influence of local agencies such as cities and special districts.

Level of Service (LOS) Standard, Traffic

A scale that measures the amount of traffic that a roadway or intersection can accommodate, based on such factors as maneuverability, driver dissatisfaction, and delay.

LOS A

Indicates a relatively free flow of traffic, with little or no limitation on vehicle movement or speed.

LOS B

A steady flow of traffic, with only slight delays in vehicle movement and speed.

LOS C

A reasonably steady, high-volume flow of traffic, with some limitations on vehicle movement and speed, and occasional backups on critical approaches.

LOS D

Designates where the level of traffic nears an unstable flow. Intersections still function, but short queues develop and cars may have to wait through one traffic signal change cycle during short peaks.

LOS E

Traffic characterized by slow movement and frequent (although momentary) stoppages. This type of congestion is considered severe, but is not uncommon at peak hours, with frequent stopping, longstanding queues, and blocked intersections.

LOS F

Represents unsatisfactory stop-and-go traffic characterized by "traffic jams" and stoppages of long duration. Vehicles at signalized intersections usually have to wait through one or more signal changes, and "upstream" intersections may be blocked by the long queues.

Liquefaction
The transformation of loose water-saturated granular materials (such as sand or silt) from a solid into a liquid state. A type of ground failure that can occur during an earthquake.

Maximum Credible Earthquake
The earthquake which produces the greatest levels of ground motion at the site as a result of the largest magnitude earthquake that could reasonably occur along the recognized faults or within a particular seismic source.

Mercalli Intensity Scale
A subjective measure of the observed effects (human reactions, structural damage, geologic effects) of an earthquake. Expressed in Roman numerals from I to XII.

Mitigation
Measures taken to eliminate or minimize damage from development activities by replacement of the resource or other means of compensation.

Moment Magnitude (Mw)
Moment magnitude is based on the seismic moment at the source, or hypocenter, of the earthquake. The moment magnitude scale is a way of rating the seismic moment of an earthquake with a simple, logarithmic numerical scale similar to the original Richter magnitude scale. Because it does not "saturate" the way local magnitude does, it is used for large earthquakes -- those that would have a local magnitude of about 6 or larger.

National Register of Historic Places
The listing maintained by the US National Park Service of areas that have been designated as historically significant.

Neotraditional Development

An approach to land use planning and urban design that promotes the building of neighborhoods with a mix of uses and housing types, architectural variety, a central public gathering place, interconnecting streets and alleys, and edges defined by greenbelts or boulevards. The basic goal is integration of the activities of potential residents with work, shopping, recreation, and transit all within walking distance.

NEPA – National Environmental Policy Act

Federal law requiring agencies to document and consider the environmental implications of their actions.

National Pollutant Discharge Elimination System (NPDES)

The national program for controlling discharges of pollutants from point sources (e.g., municipal sewage treatment plants, industrial facilities) into the waters of the United States.

New Urbanism

New Urbanism is an urban planning movement opposed to the spread-out, car-centered suburbs that have come to dominate the American landscape over the past 50 years. New Urbanists promote a return to the traditional urban planning that defines places like downtown Charleston, South Carolina; old town Alexandria, Va., historic San Francisco and Georgetown in Washington DC. These traditional neighborhoods feature walkable Main Street shopping districts, downtown parks, and grid streets. Core New Urbanist principles are: promote walkability, de-emphasize the car, mix uses and building types, and community.

Nitrogen Oxide(s)
A reddish brown gas that is a byproduct of combustion and ozone formation processes. Often referred to as NOx, this gas gives smog its "dirty air" appearance.

Nitrogen Oxides (NOx)
Gases consisting of one molecule of nitrogen and varying numbers of oxygen molecules. Nitrogen oxides are produced, for example, by the combustion of fossil fuels in vehicles and electric power plants. In the atmosphere, nitrogen oxides can contribute to formation of photochemical smog, impair visibility, and have health consequences; they are considered pollutants.

Noise
Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. Noise, simply, is "unwanted sound."

Noise Attenuation
Reduction of the level of a noise source using a substance, material, or surface, such as earth berms and/or solid concrete walls.

Noise Contour
A line connecting points of equal noise level as measured on the same scale. Noise levels greater than the 60 Ldn contour (measured in dBA) require noise attenuation in residential development.

Nonattainment
The condition of not achieving a desired or required level of performance. Frequently used in reference to air quality.

Open Space
Land and water areas retained for use as active or passive recreation areas or for resource protection in an essentially undeveloped state.

Ozone
A colorless gas with a pungent odor, having the molecular form of O3, found in two layers of the atmosphere, the stratosphere (about 90 percent of the total atmospheric loading) and the troposphere (about 10 percent). Ozone is a form of oxygen found naturally in the stratosphere that provides a protective layer shielding the Earth from ultraviolet radiation's harmful health effects on humans and the environment. In the troposphere, ozone is a chemical oxidant and major component of photochemical smog. Ozone can seriously affect the human respiratory system.

Particulate Matter (PM)
Solid particles or liquid droplets suspended or carried in the air (e.g., soot, dust, fumes, mist).

Particulate Matter (PM_{10})
A criteria air pollutant. Particulate matter includes dust, soot and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing and application of fertilizers and pesticides, road construction, industrial processes such as steel making, mining operations, agricultural burning (field and slash burning), and operation of fireplaces and woodstoves. Particulate pollution can cause eye, nose and throat irritation and other health problems.

Pollutant
Any introduced gas, liquid, or solid that makes a resource unfit for its normal or usual purpose.

Remediation
The action or measures taken, or to be taken, to lessen, clean-up, remove, or mitigate the existence of hazardous materials existing on the property to such standards, specifications, or requirements as may be established or required by federal, State, or county statute, rule, or regulation.

Richter Scale
A measure of the size or energy release of an earthquake at its source. The scale is logarithmic; the wave amplitude of each number on the scale is 10 times greater than that of the previous whole number.

Riparian Lands
Riparian lands are comprised of the vegetative and wildlife areas adjacent to perennial and intermittent streams. Riparian areas are delineated by the existence of plant species normally found near freshwater.

Runoff
That portion of rain or snow that does not percolate into the ground and is discharged into streams instead.

Section 106
Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their actions on historic properties and seek comments on their actions from an independent reviewing agency.

Seiche
An earthquake generated wave in an enclosed body of water such as a lake, reservoir, or bay.

Seismic
Caused by or subject to earthquakes or earth vibrations.

Seismic Hazard Zone

The State of California, Seismic Hazards Mapping Act identifies areas within the State where landslides and liquefaction are most likely to occur. The Act requires special investigation of these sites before some types of buildings may be constructed. Property owners must disclose that property lies within such a zone at the time of sale.

Slope

Land gradient described as the vertical rise divided by the horizontal run, and expressed in percent.

Solid Waste

Any unwanted or discarded material that is not a liquid or gas. Includes organic wastes, paper products, metals, glass, plastics, cloth, brick, rock, soil, leather, rubber, yard wastes, and wood, but does not include sewage and hazardous materials. Organic wastes and paper products comprise about 75 percent of typical urban solid waste.

Sphere of Influence

A planning tool used by cities to identify the potential future municipal boundary. In most cases, the sphere includes the area just beyond a city's boundary and includes territory and neighborhoods surrounding the city. A sphere allows cities to plan in cooperation with other agencies for public services such as police, fire, parks, roads, and flood control. LAFCOs (see definition above) designate Spheres of Influence based on the identification of the probable ultimate boundaries of each city.

Trip Generation

The dynamics that account for people making trips in automobiles or by means of public transportation. Trip generation is the basis for estimating the level of use for a transportation system and the impact of additional development or transportation facilities on an existing, local transportation system.

Tsunami
A large ocean wave generated by an earthquake in or near the ocean.

Wastewater
The spent or used water from individual homes, a community, a farm, or an industry that often contains dissolved or suspended matter.

Wetlands
Habitats where the influence of surface or groundwater has resulted in development of plant or animal communities adapted to aquatic or intermittently wet conditions. Wetlands include tidal flats, shallow subtidal areas, swamps, marshes, wet meadows, bogs, and similar areas.

Zoning
The division of a city or county by legislative regulations into areas, or zones, which specify allowable uses for real property and size restrictions for buildings within these areas; a program that implements policies of the General Plan.

B. Acronyms

AB	Assembly Bill
ADT	Average Daily Traffic
AST	aboveground storage tank
CAP	Clean Air Plan
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	carbon monoxide
EIR	Environmental Impact Report
EPA	(United States) Environmental Protection Agency
FEMA	Federal Emergency Management Agency

LOS	Level of Service
NO_2	nitrogen dioxide
NOx	nitrogen oxides
O_3	ozone
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in aerodynamic diameter
ppm	parts per million
SB	Senate Bill
SO_2	sulfur dioxide
TRB	Transportation Research Board

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Appendix A

Notice of Preparation (NOP) and Comments Received

DEVELOPMENT SERVICES
DEPARTMENT

CITY OF SACRAMENTO
CALIFORNIA

2101 ARENA BLVD.
SUITE 200
SACRAMENTO, CA
95834

PLANNING
916-808-5842
FAX: 916-566-3968

DATE: June 1, 2006

TO: Interested Persons

FROM: Scott Johnson, Environmental Project Manager

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN. (M03-190)

PUBLIC REVIEW PERIOD: June 2, 2006 through July 3, 2006

Introduction

The City of Sacramento Planning Division is the lead agency for the preparation of an Environmental Impact Report (EIR) for the above referenced project located in the City of Sacramento. The document is being prepared in compliance with the California Environmental Quality Act (CEQA).

The EIR will evaluate the potential environmental impacts of the proposed project, and recommend mitigation measures, as required. The EIR will be programmatic, pursuant to Sections 15168 and 15161 of the State CEQA Guidelines, respectively. The EIR will provide a programmatic evaluation of the environmental effects of the McClellan Heights/Parker Homes Land Use and Infrastructure Plan, including General Plan Amendments and rezones within the Plan area.

The programmatic discussion in the EIR will provide an analysis that can be tiered from to prepare the environmental review for future projects in the Plan area, where applicable. The tiering process will enable the City to streamline the environmental analysis of subsequent projects proposed under the Plan, focusing on those environmental concerns that are site-or project-specific, or for which substantial changes to the Plan are proposed

CEQA Section 15082 states that, once a decision is made to prepare an EIR, the lead agency (the City of Sacramento) must prepare a Notice of Preparation (NOP) to inform all responsible agencies that an EIR will be prepared. The NOP must also be sent to each governmental agency expected to be involved in approving or funding elements of the project. The purpose of the NOP is to provide sufficient information describing the project and the potential environmental effects to enable the agencies to make a meaningful response regarding the scope and content of the information to be included in the EIR.

Project Area
The location of the Plan area in relation to the surrounding region and state is shown in Figure 1. The Plan area, shown in Figure 2, consists of two communities in the City of Sacramento, the Parker Homes and McClellan Heights neighborhoods, located west of and adjacent to the McClellan Air Force Base (AFB)/Watt Avenue Redevelopment Area. The entire project area is approximately 306 acres. It is generally bounded by Interstate 80 to the south, Bell Avenue to the north, McClellan AFB to the east and Raley Boulevard to the west. A small thirteen-acre portion of the project area, part of the Parker Homes neighborhood, lies south of I-80, between Marysville Boulevard to the west and North Avenue to the south. Current land uses in the area consist of approximately 4.5 acres of commercial/office uses, 66 acres of industrial/warehouse uses, approximately 821 residential units[1] and 31 acres of public/institutional uses.

Project Description
The McClellan Heights/Parker Homes Land Use and Infrastructure Plan ("the Plan") is a comprehensive plan for the revitalization of these two neighborhoods that is responsive to the needs of residents and which builds on new opportunities and changes from the recent closure and Reuse Plan for the adjacent former McClellan Air Force Base (AFB). The Plan will include recommendations for land use changes and infrastructure improvements. The proposed Plan recommends a change in land use designations which would result in the transition of the Plan area from a mix of low-density residential and light industrial uses to residential and some higher intensity residential mixed-use areas which would include a few neighborhood-serving retail nodes at key intersections. A small 12-acre area located in between I-80 and the southern edge of the McClellan Business Park remains reserved for light industrial uses. The Plan will also include infrastructure and streetscape improvement recommendations. The adopted Plan would become the regulatory framework for the review of future public and private development in the area. Future development may occur at different times and be implemented by different developers, both public and private. The Plan would also provide for community-supporting retail and commercial development. The proposed new land use and zoning designations are illustrated in Figure 3.

Possible Project Approvals and/or Entitlements Required:

- Adoption of the McClellan Heights/Parker Homes Land Use and Infrastructure Plan
- General Plan Amendments
- Rezones
- Certification of the EIR
- City Council Override of the McClellan Airport CLUP

Environmental Effects
The City has reviewed the proposed McClellan Heights/Parker Homes Land Use and Infrastructure Plan, conducted two community meetings, one in each neighborhood (February 28, 2005 and March 14, 2005) on the project and determined that an EIR should be prepared. At this time, it is anticipated that the following environmental issues will be evaluated.

Land Use: The EIR will evaluate the proposed Plan's consistency with the City's General Plan, Zoning Ordinance, the North Sacramento Community Plan (1984), McClellan Airport's Airport Land Use Compatibility Plan (CLUP) and any other applicable plans. The evaluation will address standard land use consistency and compatibility issues, as well as the impacts of rezoning the project area from industrial to mixed uses.

Population and Housing: Impacts from increased population occurring from the proposed land use

[1] 2000 Census records and City of Sacramento Assessor Office records

changes and infrastructure improvements associated with the Plan will be evaluated in the EIR.

Seismicity, Soils, and Geology: The EIR will evaluate whether the geology and soils of the Plan area would significantly effect development which may occur under the proposed Plan.

Water: The EIR will assess potential impacts from implementation of the Plan on stormwater runoff, groundwater recharge and water quality. Mitigation measures may be proposed to mitigate changes in permeability of surfaces from the development of vacant lots. Infrastructure improvements recommended in the Plan will also be evaluated.

Air Quality: Potential air quality impacts of the project will be evaluated, including those associated with both construction and traffic associated with increased development in the Plan area (both stationary and mobile source emissions).

Traffic: The EIR will assess the potential transportation impacts associated with implementation of the Plan. Traffic impacts may occur from the introduction of new land uses resulting in additional development in the Plan area. Portions of the Plan area also include streets which are not up to City road standards. Mitigation measures will be developed, if possible and feasible, for all transportation impacts. All mitigation measures will reflect City policies and practices, and will consider phasing, feasibility and the availability of right-of-way. The analysis will include a review of the proposed project's potential impacts on the pedestrian, bicycle and transit systems.

Biological Resources: The EIR will identify any biological resources in the Plan area and evaluate the potential impact of the Plan on those biological resources.

Energy: The EIR will evaluate impacts on non-renewable sources of energy due to increased development potential associated with the Plan.

Hazards: The EIR will assess the potential for the Plan to result in public exposure to hazardous materials. This may be particularly focused on areas to be rezoned from industrial to residential uses.

Noise: The EIR will study the potential noise impacts associated with the Plan. The evaluation will include an analysis of the noise impacts associated with both project construction and the impact that the McClellan Airport may have on new sensitive receptors that may occur due to land use changes implemented by the Plan.

Public Services: Potential impacts on public services, including fire, police and school systems will be evaluated in the EIR. Impacts could occur due to increased residential and commercial development associated with the Plan.

Utilities: The EIR will assess the impacts on utility systems from future land uses and will also determine the extent that infrastructure improvements are needed to mitigate any significant impacts from new development associated with the Plan.

Aesthetics, Light and Glare: Impacts from the increased intensity of development proposed by the Plan will be evaluated in the EIR. Impacts of the policies in the Plan which address visual resources, aesthetic character and urban design will also be assessed.

Cultural Resources: The EIR will evaluate the project site for the presence of any significant archaeological and/or historic resources, and will determine whether the proposed project could potentially impact any such resources.

Recreation: The EIR will assess any potential impacts on recreational facilities due to increased residential development associated with the Plan.

Cumulative Impacts: Cumulative impacts of the Plan for each of the environmental issues evaluated in the EIR will be assessed.

<u>Alternatives</u>

The EIR will also examine a range of feasible alternatives to the proposed project. Feasible alternatives will be defined by the City based on EIR analysis, public community meetings, and public comments received on this NOP. At this time, it is anticipated that the following three alternatives will be examined in addition to the proposed project:

No Project (no development)
Commercial on Bell and Winter
Industrial on Bell and Winter

<u>Submitting Comments</u>

To ensure that the full range of project issues of interest to responsible government agencies and the public are addressed, comments and suggestions are invited from all interested parties. Written comments or questions concerning the EIR for the project should be directed to the following address by **5:00 p.m. on July 3, 2006**:

City of Sacramento
Environmental Planning Services
ATTN: Scott Johnson
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834
(916) 808-5842 phone
(916) 566-3968 fax
SRJohnson@cityofsacramento.org

All comments must include full name and address in order for staff to respond appropriately.

<u>Scoping Meeting</u>

A public scoping meeting will be held in conjunction with a community presentation of the project on June 14, 2006, from 6:00 p.m. to 8:30 p.m. at the following location:

Vista Nuevo Career and Technology High School
Multipurpose Room
2035 North Avenue
Sacramento, CA 95838

Responsible agencies and members of the public are invited to attend and provide input on the scope of the EIR.

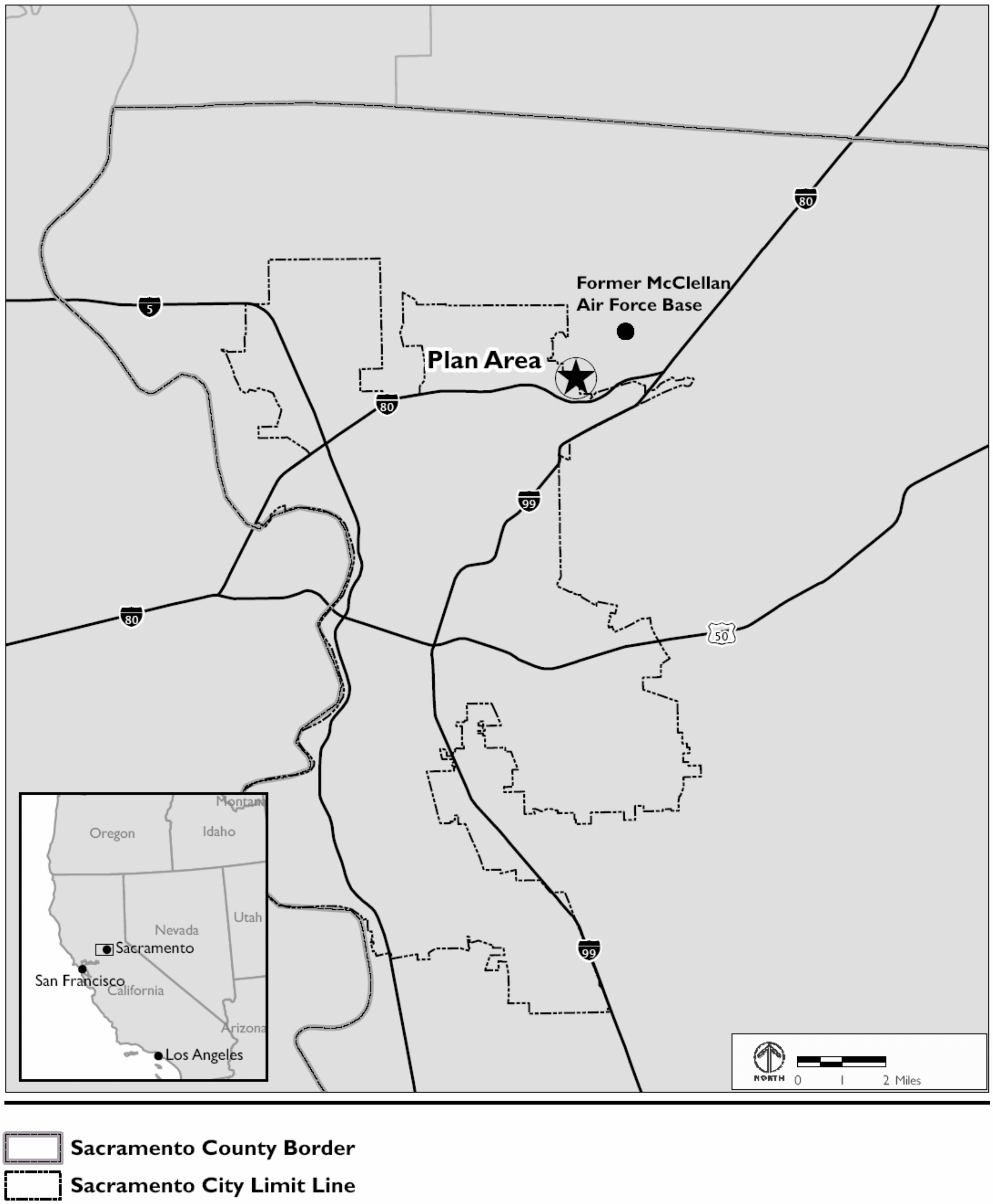
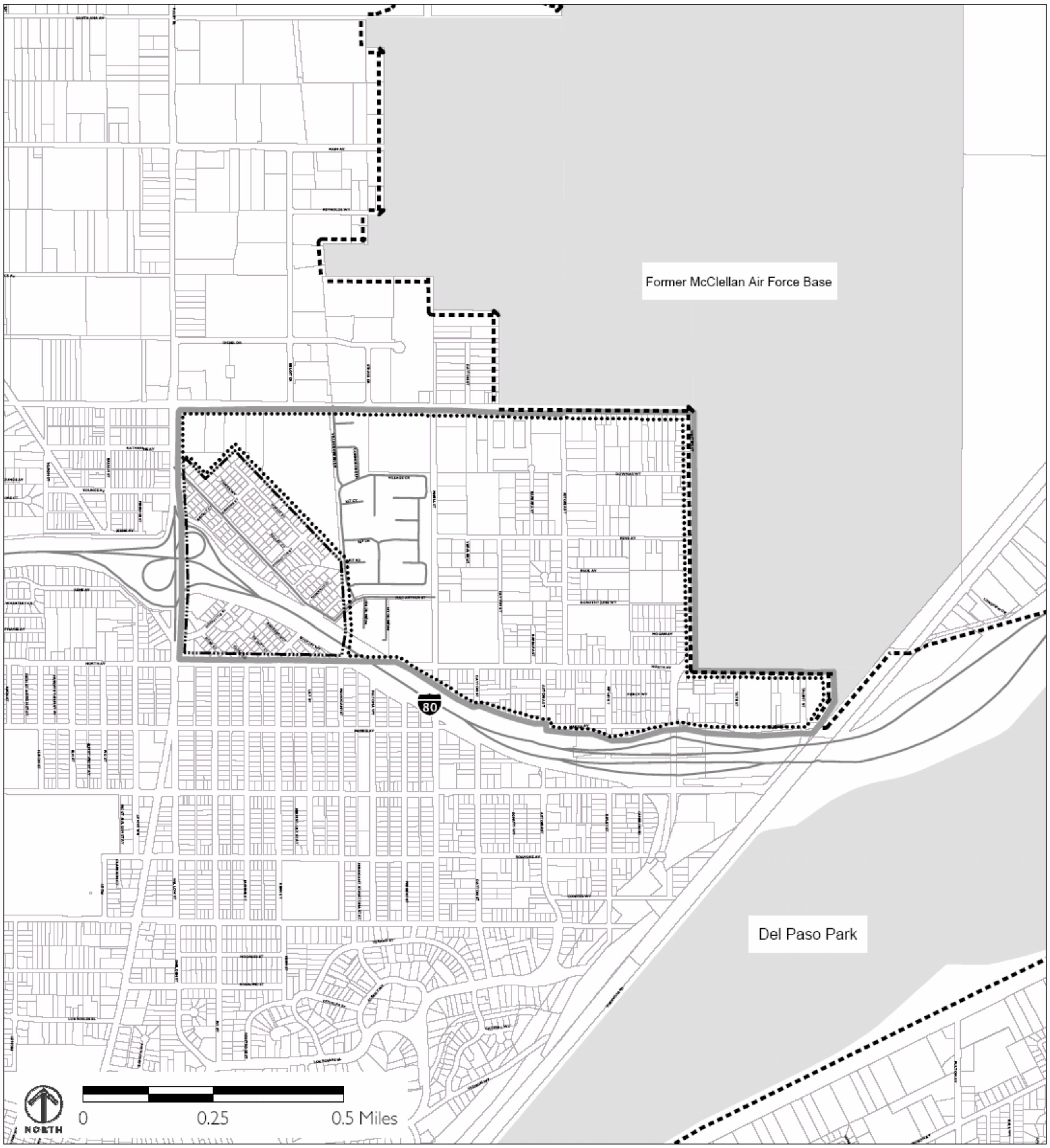


FIGURE 1

REGIONAL LOCATION



Data Source: City of Sacramento GIS

Project Area
City Boundary
McClellan Heights Neighborhood
Parker Homes Neighborhood

FIGURE 2

PROJECT AREA

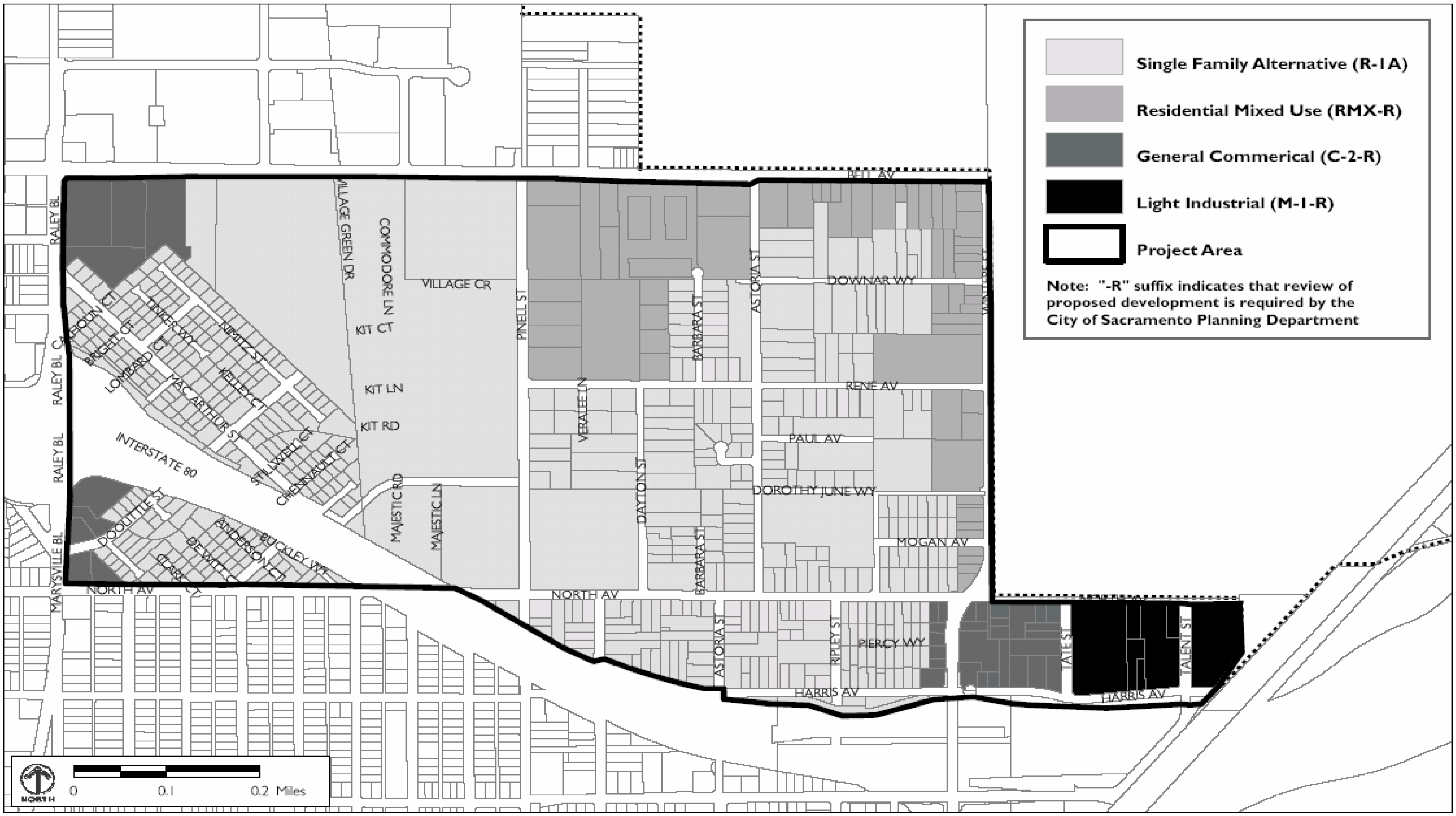


FIGURE 3

PROPOSED ZONING

DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS – M.S.#40
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-4959
FAX (916) 653-9531
TTY (916) 651-6827

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June 21, 2006

Mr. Scott Johnson
City of Sacramento
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834

Dear Mr. Johnson:

Re: City of Sacramento's Notice of Preparation of a Draft Environmental Impact Report for McClellan Heights/Parker Homes Land Use and Infrastructure Plan (M03-190); SCH# 2006062009

The California Department of Transportation (Caltrans), Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety, noise and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public and special use airports and heliports. The following comments are offered for your consideration.

The proposal is for a comprehensive plan (the Plan) for the "revitalization" of the McClellan Heights/Parker Homes neighborhoods. The Plan proposes land use changes and infrastructure improvements that would result in the transition from a mix of low-density residential and light industrial uses to residential and some higher intensity residential mixed-use areas that would include "neighborhood-serving retail nodes at key intersections."

As discussed in the Notice of Preparation (NOP), the project site is adjacent to the southern boundary of the McClellan Airport. The project site will be subject to aircraft overflights and subsequent aircraft-related noise and safety impacts.

Protecting people and property on the ground from the potential consequences of near-airport aircraft accidents is a fundamental land use compatibility-planning objective. While the chance of an aircraft injuring someone on the ground is historically quite low, an aircraft accident is a high consequence event. To protect people and property on the ground from the risks of near-airport aircraft accidents, some form of restrictions on land use are essential. The two principal methods for reducing the risk of injury and property damage on the ground are to limit the number of persons in an area and to limit the area covered by occupied structures. The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. Airport-related safety and land use concerns should be thoroughly addressed in the Draft Environmental Impact Report (DEIR).

The Caltrans Airport Land Use Planning Handbook (Handbook) identifies six airport safety zones based on risk levels. CEQA, Public Resources Code Section 21096, requires the Handbook be utilized as a resource in the preparation of environmental documents for projects within airport land use compatibility plan boundaries or if such a plan has not been adopted, within two miles of an airport. The Handbook is a resource that should be applied to all public use airports and is published on-line at http://www.dot.ca.gov/hq/planning/aeronaut/. The project site appears to be within Safety Zone 6 as defined in the Handbook.

The project site is located within the 60 to 65 decibel (dB) Community Noise Equivalent Level (CNEL) contours for the airport. The DEIR should also address cumulative noise impacts associated with the project site's proximity to roadways as well as the airport.

Section 11010 of the Business and Professions Code and Sections 1102.6, 1103.4, and 1353 of the Civil Code (http://www.leginfo.ca.gov/calaw.html) address buyer notification requirements for lands around airports. Any person who intends to offer land for sale or lease within an *airport influence area* is required to disclose that fact to the person buying the property. Buyer notification, sound insulation and avigation easements are typical noise mitigation measures. These measures, however, do not change exterior aircraft noise levels. It is likely that some future homeowners and tenants will be annoyed by aircraft noise in this area. Noise mitigation measures are not a substitute for good land use compatibility planning for new development. Airport-related noise and land use concerns should be thoroughly addressed in the DEIR.

Public Utilities Code, Section 21659 "Hazards Near Airports Prohibited" prohibits structural hazards near airports. In accordance with Federal Aviation Regulation, Part 77 "Objects Affecting Navigable Airspace" a Notice of Proposed Construction or Alteration (Form 7460-1) may be required by the Federal Aviation Administration (FAA) depending on structural heights. Form 7460-1 is available at http://forms.faa.gov/forms/faa7460-1.pdf. For further technical information, please refer to the FAA's web site at http://www.faa.gov/aso/aso500/obst_eval.htm.

The proposal should be submitted to the Sacramento County Airport Land Use Commission (ALUC), which is represented by the Sacramento Area Council of Governments (SACOG) for a consistency determination. The proposal should also be coordinated with Sacramento County Airport Systems (SCAS) staff to ensure that the proposal will be compatible with future as well as existing airport operations.

Aviation plays a significant role in California's transportation system. This role includes the movement of people and goods within and beyond our State's network of over 250 airports. Aviation contributes nearly 9 percent of both total State employment (1.7 million jobs) and total State output ($110.7 billion) annually. These benefits were identified in a recent study, "Aviation in California: Benefits to Our Economy and Way of Life," prepared for the Division of Aeronautics which is available at http://www.dot.ca.gov/hq/planning/aeronaut/. Aviation improves mobility, generates tax revenue, saves lives through emergency response, medical and fire fighting services, annually transports air cargo valued at over $170 billion and generates over $14 billion in tourist dollars, which in turn improves our economy and quality-of-life.

The protection of airports from incompatible land use encroachment is vital to California's economic future. McClellan Airport is an economic asset that should be protected through effective airport land use compatibility planning and awareness. Although the need for compatible and safe land uses near airports in California is both a local and a State issue, airport staff, airport land use commissions and airport land use compatibility plans are key to protecting an airport and the people residing and working in the vicinity of an airport. Consideration given to the issue of compatible land uses in the vicinity of an airport should help to relieve future conflicts between airports and their neighbors.

These comments reflect the areas of concern to the Division of Aeronautics with respect to airport-related noise and safety impacts and regional airport land use planning issues. We advise you to contact our district office concerning surface transportation issues.

Thank you for the opportunity to review and comment on this proposal. If you have any questions, please call me at (916) 654-5314.

Sincerely,

Sandy Henard
SANDY HENARD
Aviation Environmental Specialist

c: State Clearinghouse, McClellan Airport, Greg Chew-SACOG ALUC

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – SACRAMENTO AREA OFFICE
VENTURE OAKS – MS 15
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
PHONE (916) 274-0614
FAX (916) 274-0648
TTY (530) 741-4509

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June 28, 2006

06SAC0090
03-SAC-80 PM 8.669
McClellan Heights/Parker Homes Land Use and Infrastructure Plan (M03-190)
Notice of Preparation
SCH# 2006062009

Mr. Scott Johnson
City of Sacramento
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834

Dear Mr. Johnson:

Thank you for the opportunity to review and comment on the Notice of Preparation for the McClellan Heights/Parker Homes Land Use and Infrastructure Plan project. The 306-acre redevelopment project is adjacent to Interstate 80 (I-80), the I-80/Raley Boulevard interchange and the I-80/Winters Street interchange. The proposed Plan recommends a change in land use designations which would result in the transition of the Plan area from a mix of low-density residential and light industrial uses to residential and some higher intensity mixed-use areas which would include a few neighborhood-serving retail nodes at key intersections. Our comments are as follows:

- The design and circulation network for the project should be planned to encourage and facilitate the use of alternative transportation modes, including transit, bicycles, and pedestrian travel.

- A Traffic Impact Study (TIS) should be completed. The TIS should include the I-80/Winters Street and I-80/Raley Boulevard interchanges, and the mainline portion of I-80 between Norwood Avenue and Watt Avenue. The TIS should consider all possible traffic impacts to all ramps, ramp intersections, and the mainline. The "Guide for Preparation of Traffic Impact Studies" can be found on our website at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/. We would appreciate the opportunity to review the scope of the TIS before the Study begins.

- Any significant traffic impacts will require mitigation. Feasible mitigation measures are available including proportional mitigation funding for future improvements such as ramp widening, ramp intersection improvements, signalization modification, auxiliary lanes, or mainline improvements such as the I-80 Across the Top Bus/Carpool Lanes project (EA 03-37970).

- We recommend that noise levels be analyzed in the environmental document and that appropriate mitigation measures be developed if noise attenuation is necessary. Note that if soundwalls along I-80 are considered as mitigation, their cost and construction is the responsibility of any future developer(s).

- The project has the potential to create a significant negative hydrologic, hydraulic, and water quality impact to the State Highway right of way. Any cumulative impacts to the State's drainage facilities and bridges arising from the effects of this development on surface water runoff discharge from the peak (100-year) storm event should be minimized through project drainage mitigation measures.

- Pre- and post-project hydrologic/hydraulic plans and calculations for the project showing the coverage quantities for buildings, streets, parking, and landscaped areas shall be required, and submitted to the City of Sacramento and to the State Department of Transportation for review and approval prior to map recordation. Said plans and calculations shall examine potential cumulative impacts to the State's drainage facilities and bridges arising from effects of development on surface water runoff discharge from the peak (100 year) storm event, and identify appropriate mitigation measures.

- The requested drainage plans and calculations should be sent to Mr. Mike DeWall, District 3 Hydraulics Branch at the above address in Marysville. Mr. DeWall can be reached at (530) 741-4056.

- Any potential increases of discharge into the State drainage system must be mitigated.

- No net increase to the surface water (storm water) peak runoff discharge (100 year storm event) within the State's right-of-way and drainage facilities may be realized as a result of the completion of the project.

- Increases in peak runoff discharge for the 100-year return storm event to the State's highway right-of-way and drainage facilities must be reduced to at or below the pre-construction levels. Runoff identified in the plans and calculations must meet all Central Valley Regional Water Quality Control Board (RWQCB) water quality standards prior to entering the State's right-of-way or drainage facilities.

- Best Management Practices (BMP) systems should be included to remove pollutants and to manage storm water prior to discharging into the State's right-of-way. Once installed, the property owner must properly maintain these systems. The proponent/developer may be held liable for future damages due to impacts for which adequate mitigation was not undertaken or sustained. Acceptable constituency levels and appropriate BMP information can be obtained from the RWQCB.

- Sign plans for any proposed freeway monument signage should be provided to Caltrans for review and, depending on proposed sign location, approval. The plans should depict the layout, roadway setback, orientation, glare intensity, and sign size. Caltrans is required by law to enforce the Outdoor Advertising Act and Regulations and regulate the placement of advertising along the highways. http://www.dot.ca.gov/hq/oda/download/ODA_Act_&_Regulations.pdf. For more information contact Mr. James Arbis at (916) 654-6413.

- An Encroachment Permit will be required for any work conducted in the State's right of way, such as sign placement, traffic control, light installation, culvert maintenance, drainage pattern changes, sidewalk installation, or any new or rehabilitated access construction. To secure an application, please contact Mr. Brian Sumpter, Caltrans District 3, Office of Permits, at 530-634-7603.

If you have any questions about these comments please contact Alyssa Begley at (916) 274-0635.

Sincerely,

BRUCE DE TERRA, Chief
Office of Transportation Planning—South

From: "Greg Chew" <GChew@sacog.org>
To: <SRJohnson@cityofsacramento.org>
Date: 7/11/06 2:31PM
Subject: McClellan Heights/Parker Homes Land Use and Infrastructure Plan NOP

Mr. Johnson -

I am responding to your Public Notice regarding the above referenced project (M03-190) on behalf of the Airport Land Use Commission. The project is a plan to revitalize two neighborhoods near McClellan Field. The plan will include land use changes and infrastructure improvements. It will recommend a change in land use designations which would result in the transition of the plan area from a mix of low-density resident and light industrial to residential and some higher intensity residential mixed-use areas. The adopted plan would become a regulatory framework for the review of future public and private development in the area. The project is 306 acres located adjacent and southwest to McClellan Field mostly north of I-80.

I am providing the following comments as the staffperson representing the Airport Land Use Commission. The project area is located within the Influence Area of the McClellan Comprehensive Land Use Plan (CLUP), adopted in December, 1992. The CLUP was prepared by the ALUC under the authority of the Airport Land Use Commission Law, Chapter 4, Article 3.5 of the California Public Utilities Code. The ALUC's purpose is the protect public safety through the adoption of standards that minimize the public's exposure to safety hazards and excessive levels of noise, and prevent encroachment of incompatible land uses around public-use airports. The standards for noise and safety are document in the CLUP.

Any proposed development in the project area is subject to the review for compatibility with the CLUP. The entire area lies within the Overflight Zone, therefore making any proposed development subject to safety policies of the CLUP. The subject area is also located with the 65 CNEL noise contour, which makes any proposal subject to the CLUP's noise policies. Any proposal must be compatible with both policies to receive a compatible administrative review. For this particular geographic area, the noise policies will be more restrictive than the safety policies.

The current CLUP would not allow any residential uses with the 65 CNEL; however, most other manufacturing, utilities, retail/wholesale trades, and other non-residential uses would be allowed within this noise zone. The safety policies would restrict any of those if they contained high concentrations of people, such as hospitals, arenas, movie theaters, regional shopping centers etc.

As development proposals are submitted to the city, normally the review staff submits a copy of the application to the ALUC. If the ALUC administratively makes a determination that the project is not compatible with the CLUP, state law allows the governing body of the city (city council) to override the review by a 2/3s vote (6 out of 9 for the city council). If the propose does not receive the override, the project is denied.

Please note that the CLUP is being updated. Noise contours and safety zones are expected to change due to the change in McClellan from a military air force base to one that has civilian uses. Any changes may or may not affect the safety and noise zones that affect this project area. However, until the CLUP (soon to be called the Airport Compatibility Land Use Plan) is adopted by the ALUC, expected in 2007, the current CLUP will stay in effect.

If you have any questions, please feel free to contact me.

Greg Chew
Sacramento Area Council of Governments/Airport Land Use Commission
(916) 340-6227

From: "Newhouse. Monica" <NewhouseM@saccounty.net>
To: <srjohnson@cityofsacramento.org>
Date: 6/30/06 11:26AM
Subject: Scoping Comments on Preparation of Parker Homes EIR

Scott,

Please see our attached comments on the preparation of an EIR for the McClellan Heights/Parker Homes Land Use and Infrastructure Plan.

Beyond our concerns of the homes being within the 60 CNEL noise contour is that the EIR should also address the aircraft noise impact on the proposed project given the City of Sacramento's Planning Department General Plan scenario which includes the closure of Sacramento Executive Airport. The planning for the conversion of McClellan Air Field and the associated aircraft noise exposure contours did not foresee a possible closure of Executive Airport and therefore would not have accounted for any substantial relocation of aircraft operations from that facility. Given this possibility, the DEIR should analyze the additional level of aircraft noise exposure which might occur for the proposed project should this scenario be adopted.

If you have any questions, please feel free to contact me.

Monica R. Newhouse
Airport Noise Program Manager
Sacramento County Airport System
916-874-0704
mailto: newhousem@saccounty.net <mailto:newhousem@saccounty.net>

County Executive
Terry Schutten

Sacramento County
Airport System
G. Hardy Acree, Director of Airports

County of Sacramento

Sacramento International Airport
Mather Airport
Executive Airport
Franklin Field

June 30, 2006

Mr. Scott Johnson
City of Sacramento
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834

Dear Mr. Johnson:

Re: City of Sacramento's Notice of Preparation of a Draft Environmental Impact Report for McClellan Heights/Parker Homes Land Use and Infrastructure Plan (M03-190);

The Sacramento County Airport System welcomes the opportunity to provide comment on the scoping of the above-referenced document with respect to aircraft noise exposure and safety. The proposed development is inconsistent with the current Comprehensive Land Use Plan (CLUP) for McClellan Air Force Base and would likely also be inconsistent with the ongoing update to that plan for McClellan Airfield as the homes are located between the 65 and 60 CNEL noise exposure contours for aircraft noise.

The quality of life implications should be addressed in the Draft Environmental Impact Report (DEIR) for residential and other noise-sensitive urban development below the flight tracks of aircraft using McClellan Airfield. The project would likely result in potentially significant effects on human health and wellbeing for the public living within the project boundaries. As discussed in the Notice of Preparation (NOP), the project site is adjacent to the southern boundary of the McClellan Airport. The project site will be subject to aircraft overflights, subsequent aircraft-related noise, and potential safety implications.

Time and experience in many communities have proven that the traditional 65 CNEL noise exposure contour, based on a 20-year forecast to determine aircraft noise compatibility, is insufficient for airport land use planning. Experience has shown that land use authorities allow residential development up to the line of demarcation for aircraft noise exposure. In addition, guidance from the State recommending that land use planning considerations be made beyond the more traditional 65 CNEL contours is reflected in the most recent update to Sacramento International Airport's Airport Land Use Compatibility Plan (January 1994) as it prohibits new residential development within the 60 CNEL versus the 65 CNEL contour. This practice was also reflected in the Sacramento County Board of Supervisor's decision to prohibit residential development between the 60 and 65 CENL contours for Mather Airport in the May 13, 1997 "Supplement to March 12, 1997 Report on the Proposed Mather Comprehensive Land Use Plan and Airport Environs Zone". We believe that the building of homes within areas of greater noise exposure and the inconsistency with land use planning at other airports in the region should be thoroughly addressed in the DEIR.

The DEIR should also address the aircraft noise impact on the proposed project given the City of Sacramento's Planning Department General Plan scenario which includes the closure of Sacramento Executive Airport. The planning for the conversion of McClellan Air Field and the associated aircraft noise exposure contours did not foresee a possible closure of Executive

Airport and therefore would not have accounted for any substantial relocation of aircraft operations from that facility. Given this possibility, the DEIR should analyze the additional level of aircraft noise exposure which might occur for the proposed project should this scenario be adopted.

The Sacramento County Grand Jury addressed the drawbacks of land use incompatibility near regional airports in its Final 2001/2002 Report “Encroaching Land Use Imperils Sacramento’s Airport System” (p. 42-51), published June 30, 2002. Though their comments were primarily related to Sacramento International and Mather Airports, the concerns would also apply to encroachment at McClellan Air Field. This report summarized some of the potential negative impacts as follows:

> *The Grand Jury has concerns about the negative impact to the Sacramento County Airport System’s current and future plans for operations, growth and development at both Sacramento International Airport and Mather Field as a result of planning, zoning and land use decisions made by local political bodies.*
>
> *Land use decisions made by the Board of Supervisors, County Planning Department and Commission, and the City of Sacramento may seriously affect both airports’ operational status as well as future expansion plans. These decisions create a high probability for curfews, limited operations, restricted flight paths and the necessity of obtaining operational variances for continuation or expansion of air transit operations.*
>
> *These decisions have and will continue to expose Sacramento International Airport, Mather Field and the taxpayers of Sacramento County to potential liability for damages from lawsuits brought against airport operations at both facilities. This liability arises from lawsuits that could be brought by surrounding commercial operations and residential homeowners in new developments allowed to build in close proximity to known and pre-existing major aviation facilities.*

Should the project be approved, disclosure of aircraft overflight and noise impacts on the initial sale of homes, and Grants of Avigation and Noise Easements that would be executed upon purchase of homes and be part of disclosure statements on future re-sales should be minimum requirements.

Protecting people and property on the ground from the potential consequences of near-airport aircraft accidents is a fundamental land use compatibility-planning objective. While the chance of an aircraft injuring someone on the ground is historically quite low, an aircraft accident is a high consequence event. To protect people and property on the ground from the risks of near-airport aircraft accidents, some form of restrictions on land use are essential. The two principal methods for reducing the risk of injury and property damage on the ground are to limit the number of persons in an area and to limit the area covered by occupied structures. The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. Airport-related safety and land use concerns should be thoroughly addressed in the Draft Environmental Impact Report (DEIR), with particular emphasis placed on the level of residential density in the project area.

Thank you for considering the Airport System's request and comments. If you should have any questions, please feel free to contact me at 874-0704.

Sincerely,

Monica R. Newhouse
Airport Noise Program Manager

cc: G. Hardy Acree, Director of Airports, Sacramento County Airport System
Robert B. Leonard, Chief Operating Officer, Sacramento County Airport System
Ken Merz, Manager, McClellan Airport, Sacramento County Airport System

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Larry Greene
AIR POLLUTION CONTROL OFFICER

July 5, 2006

Mr Scott Johnson
Environmental Planning Services
City of Sacramento
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834

RE: NOP of DEIR for the McClellan Heights/Parker Homes Land Use and Infrastructure Plan (M03-091) SAC200400601003

Dear Mr Johnson,

Thank you for providing this notice or a programmatic EIR to the Sacramento Metropolitan Air Quality Management District (District) for staff review. We understand there may be subsequent environmental review of specific projects within the Plan area as they come forward for entitlement.

As you know, the District has adopted CEQA thresholds of significance for use in preparing and reviewing environmental documents. Separate thresholds were established for the construction phase and operational phase of projects. Those thresholds are available at www.airquality.org.

Because of the size of this Plan area project, we believe it will generate short term (construction) and long-term (operations) air quality impacts which may be in excess of the established District threshold for construction. An air quality analysis should be done on the project in order to determine if those impacts are significant. Demolition activities and building construction inputs will be critical to an accurate analysis. Relative to the construction impacts, if those impacts are significant, the SMAQMD standard construction mitigation measures should be used. Those measures include both on-site strategies and the possibility of a mitigation fee. They can be found on our website.

If the project is significant for operational impacts, we recommend the creation and implementation of an Air Quality Mitigation Plan (AQMP) which would seek to reduce emissions by 15%. We recommend that the AQMP be endorsed by us and included in the DEIR. In order to achieve this timing, we recommend that the proponent work with us as early as possible in order to create that AQMP. I would be the point of contact for that effort.

Parts of this Plan area are adjacent to Interstate 80. The California Air Resources Board (CARB) recently adopted the "Air Quality and Land Use Handbook: A Community Health Perspective" to provide guidance to local planners and decision-makers about land use compatibility issues. The Handbook suggests that, at a minimum, the siting of residential uses should not occur within 500 feet of a freeway. Traffic-related studies referenced in the Handbook reflect that the additional health risk attributable to the proximity effect was strongest within 1,000 feet. Other studies conducted near Southern California freeways indicate a dramatic drop off in the concentration of ultra-fine particulates beyond 300 feet. We urge the City to consider the most recent CARB guidance on air quality and land use prior to making a decision on this project. If the City approves this project, we urge the City to consider locating non-residential uses in the parts of the project area closest to the freeway, minimizing impacts on residential development. Mitigation measures, such as development guidelines that orient buildings away from the freeway or providing appropriate setback or buffer zones should be included.

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Please see the attached document describing SMAQMD Rules which may apply to this project.

Please send the environmental document, including the air quality analysis to me. If you have questions, please contact me at 874-4885 or jborkenhagen@airquality.org

You can contact me at 874-4885 /or by email at jborkenhagen@airquality.org.

Sincerely,

Jeane Borkenhagen

Jeane Borkenhagen

Cc: Larry Robinson, SMAQMD

SMAQMD Rules & Regulations Statement

*The following statement is recommended as standard condition of approval or construction document language for **all** construction projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916.874.4800. Specific rules that may relate to construction activities may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency and Equal Opportunity Employer

Mailing Address:
P.O. Box 2110
Sacramento, CA 95812-2110

Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/ Bus 36,38,50,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

Public Transit Since 1973

www.sacrt.com

June 29, 2006

Scott Johnson
City of Sacramento
Environmental Planning Services
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834

NAME OF DEVELOPMENT: McClellan Heights/Parker Homes Land Use and Infrastructure Plan

CONTROL NUMBER: M03-091

TYPE OF DOCUMENT: Notice of Preparation for DEIS

The McClellan Heights/Parker Homes Land Use and Infrastructure Plan project proposes recommendations for land use changes from low density residential and light industrial uses to higher intensity residential mix-uses, with a 12-acre area remaining light industrial. The total site is 306 acres bounded by I-80 to the south, Bell Avenue to the north, McClellan Business Park to the east and Raley Boulevard to the west, with 13 acres south of 1-80.

Route 18 provides hourly neighborhood ride service to the area with connectivity to the Marconi light rail station. The project site is within a 1/4 mile of the Roseville Road light rail station, however without good pedestrian access to the station.

Regional Transit (RT) sees this project as an opportunity to incorporate Transit Oriented Development (TOD) features into an existing community. RT emphasizes the importance of appropriate land use, site design and transit compatibility to the vitality of light rail service. The McClellan Heights neighborhood is the only residential area within a ½ mile of the Roseville light rail station. RT staff recommends the following Transit Oriented Development issues be evaluated for this area:

- A pedestrian and bike connection to the light rail station;
- Transit supportive residential development densities in the medium to high-density ranges within a ½ mile radius of the light rail station;
- Commercial/light industrial businesses with high numbers of employees per acre within a ½ mile radius of the light rail station;
- Connectivity of, and amenities for pedestrianways such as pavers, vertical curbs, tree shading, lighting and trellises to encourage walking to transit;

- Landscape planters provided between streets and sidewalks;
- Street configurations and lot patterns to support the transit system. Consider the impact of project design on transit accessibility. Physical barriers such as walls, cul-de-sacs, circuitous street patterns and speed bumps all impede access to transit; and
- Parking competes with transit usage. Therefore, parking should not exceed the required standards for the City.

RT staff recommends the following additional transit related issues be evaluated for the project:

- Contact Robert Hendrix, RT Facilities (916) 649-2759 to determine if bus shelter pads shall be incorporated in the improvement designs. If determined appropriate (by RT) provide a bus shelter pad as directed.
- Transit information shall be displayed in a prominent location in the residential sales/rental office, through a homeowner's association, or with real estate transactions.
- Project construction shall not impact transit service or pedestrian access to transit stops.
- Develop a program to offer transit passes at a 50% or greater discount to new homeowners for a period of six months or more. Program shall be reviewed and approved by RT prior to approval of any special permit for the project.
- Businesses shall join the McClellan Park TMA. Employers should offer employees subsidized transit passes at 50% or greater discount.

Thank you for the opportunity to comment. Please send any subsequent documents and hearing notices that pertain to this project as they become available. If you have further questions regarding these recommendations, please contact me at (916) 556-0506 or dsmith@sacrt.com.

Sincerely,

Don Smith

Don Smith
Senior Planner

c: Taiwo Jaiyeoba, Director of Planning, RT
Traci Canfield, Planner, RT

Pacific Gas and Electric Company
Land Services Office
343 Sacramento Street
Auburn, CA 95603

Direct: (530) 889-5089
Fax: (530) 889-3392
Email: dlkn@pge.com

June 27, 2006

City of Sacramento
Environmental Planning Services
Attn: Scott Johnson
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834

RE: NOTICE OF PREPARATION OF DRAFT EIR FOR THE MCCLELLAN HEIGHTS/PARKER HOMES LAND USE AND INFRASTRUCTURE PLAN (M03-091)

Dear City of Sacramento:

PG&E has reviewed this project and has the following comments:

PG&E operates and maintains tower lines which are located within the proposed project boundaries. **Land use is restricted within the easement.** One of PG&E's concerns is for continued access to the structures and lines with heavy equipment for maintenance and repair of the towers, insulators, and wires. Another is for adequate ground clearance from the wires as set forth in California Public Utilities Commission General Order No. 95 for the proposed improvements as shown on the plan. Should an infraction occur, the developer will be responsible for the costs of raising or the relocating of the facilities. The planting of trees is considered an unacceptable use within our easements. Unless approved by PG&E's Vegetation Management personal.

In the event the proposed project may conflict with the existing electric transmission facilities requiring the relocation of the electric line, all cost associated with the relocation of the electric transmission line shall be the responsibility of the developer. The developer shall also be responsible for the environmental review, permitting, and mitigation associated with any possible relocation of the transmission line.

The developer should work with PG&E in obtaining a no objection letter prior to approval to ensure consistent uses within PG&E's easement area and the safety of the public. Please submit plans to my attention at the above address showing the location of PG&E's easement area and any tower facilities in relation to the proposed project.

Please contact me with any questions at (530) 889-5089 or dlkn@pge.com.

Sincerely,

Donald Kennedy

Donald Kennedy
Land Agent

Appendix B

Air Quality

APPENDIX B. AIR QUALITY TECHNICAL INFORMATION

A. Carbon Monoxide Modeling

1. Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term "Gaussian dispersion" refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian ("normal") statistical distribution. Horizontal and vertical mixing generally occur at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

2. Dispersion Modeling

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes), and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such cross wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a "mixing cell" approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates which are a function of various meteorological and ground surface conditions.

3. Modeling Procedures

a. Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared for this project by the project traffic engineers, Kimley-Horn and Associates. CO emissions were modeled for existing year (2006) and future year (2027) with and without project conditions. Free flow traffic speeds were adjusted to a speed of 1.0 miles per hour (mph) for vehicles entering intersection segments, and 10 mph for vehicles exiting intersection segments to represent a worst-case scenario. CO modeling was conducted at the Raley Boulevard/Bell Avenue, Raley Boulevard/I-80 WB Ramp, Marysville Boulevard/I-80 EB Ramp, and Winters Street/I-80 WB Ramp intersections, were identified in the traffic analysis prepared by Kimley-Horn and Associates as the greatest impacted intersections/ in the vicinity of the proposed project. These intersections represent the intersections with the worst LOS and delay, as well as the highest traffic volumes of any intersections analyzed in the project area.

b. Vehicle Emission Rates

Vehicle emission rates were determined using the California Air Resources Board's EMFAC2002 (version 2.2) emission rate program. EMFAC2002 modeling procedures followed the guidelines recommended by Caltrans (California Department of Transportation 2003). The program assumed Sacramento County regional traffic data operating during the winter months. A mean January temperature of 38 degrees Fahrenheit and humidity of 30% were assumed.

c. Receptor Locations

CO concentrations were estimated at 4 receptor locations located at each of the intersections analyzed, for a total of 28 receptors. The receptors were placed 35.4 feet from the center of each intersection diagonal, 25 feet from the roadway centerline, and 3 feet from the boundary of the mixing zone to represent a worst-case scenario. Receptor heights were set at 5.9 feet.

d. Meteorological Conditions

Meteorological inputs to the CALINE4 model were determined using methodology recommended in Air Quality Technical Analysis Notes (California Department of Transportation 1988). The meteorological conditions used in the modeling represent a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. The meteorological inputs include: 0.5 meters per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 10 degrees, ambient temperature of 3.3 degrees centigrade, and a mixing height of 1,000 meters.

e. Background Concentrations and Eight-Hour Values

To account for sources of CO not included in the modeling, a background concentration of 9.0 ppm was added to the modeled existing 1-hour values, while a background concentration of 6.0 ppm was added to the modeled existing 8-hour values. One-and eight-hour background concentration data were taken from isopleths of ambient CO concentrations from the SMAQMD's Guide to Air Quality Assessment in Sacramento County (2004). Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.6. Background concentrations of 4.0 and 2.6 ppm were added to the modeled 2027 1- and 8-hour values respectively, and were taken from rollback

B. References Cited

Benson, P. E. 1989. CALINE4---a dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA.

California Department of Transportation. 1988. Air Quality Technical Analysis Notes. Sacramento, CA.

California Department of Transportation. 2003. Draft Use of EMFAC 2002 to Replace CT-EMFAC: A Users Guide. February 27

Sacramento Metropolitan Air Quality Management District. 2004. Guide for Air Quality Assessment in Sacramento County. July 10. Sacramento, CA.

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - Vacant Parcels.urb
Project Name: McClellan Parker Homes - Vacant Parcels
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.27	3.52	1.61	0	0.01
Hearth	0.13	2.26	0.96	0.01	0.18
Landscaping - No winter emissions					
Consumer Prdcts	16.29	-	-	-	-
Architectural Coatings	8.43	-	-	-	-
TOTALS(lbs/day,unmitigated)	25.13	5.78	2.57	0.01	0.19

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - Vacant Parcels.urb
Project Name: McClellan Parker Homes - Vacant Parcels
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.27	3.52	1.61	0	0.01
Hearth - No summer emissions					
Landscaping	0.75	0.09	5.84	0.03	0.02
Consumer Prdcts	16.29	-	-	-	-
Architectural Coatings	8.43	-	-	-	-
TOTALS(lbs/day,unmitigated)	25.74	3.62	7.44	0.03	0.02

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	3.17	2.69	30.47	0.07	11.33
Apartments low rise	2.60	1.86	21.08	0.05	7.84
Regnl shop. center	0.61	0.54	5.64	0.01	2.19

TOTAL EMISSIONS (lbs/day) 6.38 5.09 57.20 0.12 21.36

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2025 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	15.03	8.57 trips/dwelling unit	150.00	1,286.05
Apartments low rise	7.34	4.86 trips/dwelling unit	183.00	889.63
Regnl shop. center		11.69 trips/1000 sq. ft.	27.18	317.72

Sum of Total Trips 2,493.40
Total Vehicle Miles Traveled 14,119.06

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.50	0.00	100.00	0.00
Light Truck < 3,750 lbs	15.70	0.00	99.40	0.60
Light Truck 3,751- 5,750	16.50	0.00	100.00	0.00
Med Truck 5,751- 8,500	7.50	0.00	98.70	1.30
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.90	0.00	22.20	77.80
Heavy-Heavy 33,001-60,000	0.80	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.50	40.00	60.00	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	2.00	0.00	90.00	10.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
have changed from the defaults 9.57/50. to 8.57367/15.03
The Trip Rate and/or Acreage values for Apartments low rise

have changed from the defaults 6.9/11.44 to 4.86137/7.34

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 0.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 100.
The landscape year changed from 2005 to 2020.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2025.

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - Vacant Parcels (C-2 Retail).urb
Project Name: McClellan Parker Homes - Vacant Parcels (C-2 Retail)
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.03	0.40	0.34	0	0.00
Hearth - No summer emissions					
Landscaping	0.09	0.01	0.63	0.00	0.00
Consumer Prdcts	0.00	-	-	-	-
Architectural Coatings	0.59	-	-	-	-
TOTALS(lbs/day,unmitigated)	0.70	0.41	0.97	0.00	0.00

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Regnl shop. center	3.05	3.26	34.20	0.08	13.29
TOTAL EMISSIONS (lbs/day)	3.05	3.26	34.20	0.08	13.29

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2025 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Regnl shop. center		46.09 trips/1000 sq. ft.	41.77	1,925.00

Sum of Total Trips 1,925.00
Total Vehicle Miles Traveled 8,789.55

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.50	0.00	100.00	0.00
Light Truck < 3,750 lbs	15.70	0.00	99.40	0.60

Light Truck	3,751- 5,750	16.50	0.00	100.00	0.00
Med Truck	5,751- 8,500	7.50	0.00	98.70	1.30
Lite-Heavy	8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy	10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy	14,001-33,000	0.90	0.00	22.20	77.80
Heavy-Heavy	33,001-60,000	0.80	0.00	0.00	100.00
Line Haul > 60,000	lbs	0.00	0.00	0.00	100.00
Urban Bus		0.20	0.00	50.00	50.00
Motorcycle		1.50	40.00	60.00	0.00
School Bus		0.10	0.00	0.00	100.00
Motor Home		2.00	0.00	90.00	10.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
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has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.

Changes made to the default values for Area
The landscape year changed from 2005 to 2020.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2025.

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - Proposed Project.urb
Project Name: McClellan Parker Homes - Proposed Project
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	3.14	40.77	18.50	0	0.08
Hearth	1.51	25.89	11.02	0.17	2.09
Landscaping - No winter emissions					
Consumer Prdcts	175.19	-	-	-	-
Architectural Coatings	101.70	-	-	-	-
TOTALS(lbs/day,unmitigated)	281.54	66.65	29.52	0.17	2.17

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - Proposed Project.urb
Project Name: McClellan Parker Homes - Proposed Project
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	3.14	40.77	18.50	0	0.08
Hearth - No summer emissions					
Landscaping	8.63	1.13	69.02	0.44	0.22
Consumer Prdcts	175.19	-	-	-	-
Architectural Coatings	101.70	-	-	-	-
TOTALS(lbs/day,unmitigated)	288.66	41.90	87.52	0.44	0.30

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	39.70	31.77	359.93	0.78	133.81
Apartments low rise	18.30	12.54	142.05	0.31	52.81
Regnl shop. center	6.78	6.58	69.12	0.15	26.86

General light industry	1.35	0.86	9.70	0.02	3.68
TOTAL EMISSIONS (lbs/day)	66.12	51.75	580.81	1.26	217.16

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2025 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	220.10	6.90 trips/dwelling unit	2,201.00	15,190.36
Apartments low rise	55.20	4.34 trips/dwelling unit	1,380.00	5,995.24
Regnl shop. center		19.04 trips/1000 sq. ft.	204.38	3,890.88
General light industry		3.30 trips/1000 sq. ft.	119.79	395.16

Sum of Total Trips 25,471.64
Total Vehicle Miles Traveled 143,553.38

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.50	0.00	100.00	0.00
Light Truck < 3,750 lbs	15.70	0.00	99.40	0.60
Light Truck 3,751- 5,750	16.50	0.00	100.00	0.00
Med Truck 5,751- 8,500	7.50	0.00	98.70	1.30
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.90	0.00	22.20	77.80
Heavy-Heavy 33,001-60,000	0.80	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.50	40.00	60.00	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	2.00	0.00	90.00	10.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0
General light industry				50.0	25.0	25.0

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/733.67 to 6.90157/220.10
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/86.25 to 4.34438/55.20

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
 has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
 has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
 has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
 has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
 has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
 has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
 has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
 has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
 has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
 has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
 has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
 has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 0.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 100.
The landscape year changed from 2005 to 2020.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2025.

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - Proposed Project (C-2 Retail).urb
Project Name: McClellan Parker Homes - Proposed Project (C-2 Retail)
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.21	2.90	2.44	0	0.01
Hearth - No summer emissions					
Landscaping	0.09	0.01	0.63	0.00	0.00
Consumer Prdcts	0.00	-	-	-	-
Architectural Coatings	4.21	-	-	-	-
TOTALS(lbs/day,unmitigated)	4.51	2.91	3.07	0.00	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Regnl shop. center	11.76	11.74	123.29	0.28	47.91
TOTAL EMISSIONS (lbs/day)	11.76	11.74	123.29	0.28	47.91

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2025 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Regnl shop. center		23.11 trips/1000 sq. ft.	300.35	6,940.00
		Sum of Total Trips		6,940.00
		Total Vehicle Miles Traveled		31,688.05

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.50	0.00	100.00	0.00
Light Truck < 3,750 lbs	15.70	0.00	99.40	0.60

Light Truck	3,751- 5,750	16.50	0.00	100.00	0.00
Med Truck	5,751- 8,500	7.50	0.00	98.70	1.30
Lite-Heavy	8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy	10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy	14,001-33,000	0.90	0.00	22.20	77.80
Heavy-Heavy	33,001-60,000	0.80	0.00	0.00	100.00
Line Haul > 60,000	lbs	0.00	0.00	0.00	100.00
Urban Bus		0.20	0.00	50.00	50.00
Motorcycle		1.50	40.00	60.00	0.00
School Bus		0.10	0.00	0.00	100.00
Motor Home		2.00	0.00	90.00	10.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
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Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.

Changes made to the default values for Area
The landscape year changed from 2005 to 2020.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2025.

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - General Plan Buildout.urb
Project Name: McClellan Parker Homes - General Plan Buildout
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	1.39	18.14	8.26	0	0.03
Hearth	46.96	53.79	431.55	2.43	73.88
Landscaping - No winter emissions					
Consumer Prdcts	65.75	-	-	-	-
Architectural Coatings	87.69	-	-	-	-
TOTALS(lbs/day,unmitigated)	201.80	71.93	439.81	2.43	73.91

URBEMIS 2002 For Windows 8.7.0

File Name: C:_Portal Files\Revised from City Comments\McClellan - General Plan Buildout.urb
Project Name: McClellan Parker Homes - General Plan Buildout
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	1.39	18.14	8.26	0	0.03
Hearth - No summer emissions					
Landscaping	5.29	0.69	42.25	0.27	0.14
Consumer Prdcts	65.75	-	-	-	-
Architectural Coatings	87.69	-	-	-	-
TOTALS(lbs/day,unmitigated)	160.13	18.83	50.51	0.27	0.17

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	30.22	26.10	295.66	0.64	109.92
Regnl shop. center	5.22	5.70	59.90	0.13	23.28
General light industry	36.37	24.86	279.52	0.62	105.92

TOTAL EMISSIONS (lbs/day) 71.81 56.66 635.09 1.39 239.11

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2025 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	168.03	9.28 trips/dwelling unit	1,344.00	12,478.09
Regnl shop. center		66.22 trips/1000 sq. ft.	50.92	3,371.83
General light industry		3.87 trips/1000 sq. ft.	2,940.08	11,386.99

Sum of Total Trips 27,236.90
Total Vehicle Miles Traveled 158,081.91

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.50	0.00	100.00	0.00
Light Truck < 3,750 lbs	15.70	0.00	99.40	0.60
Light Truck 3,751- 5,750	16.50	0.00	100.00	0.00
Med Truck 5,751- 8,500	7.50	0.00	98.70	1.30
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.90	0.00	22.20	77.80
Heavy-Heavy 33,001-60,000	0.80	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.50	40.00	60.00	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	2.00	0.00	90.00	10.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0
General light industry				50.0	25.0	25.0

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
have changed from the defaults 9.57/448. to 9.28429/168.03

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
has been changed from off to on.
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Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 40.
The wood fireplace percentage changed from 10 to .
The natural gas fireplace percentage changed from 55 to 60.
The noncatalytic stove percentage changed from 50 to 0.
The pellet stove percentage changed from 0 to 50.
The landscape year changed from 2005 to 2020.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2025.

Appendix C

Traffic and Circulation

Appendix 4.12-A
Traffic Count Data Sheets

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 1
Page : 1

	RALEY BLVD.				BELL AVENUE												
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	13	115	7	135	32	17	10	59	26	104	52	182	6	24	93	123	499
7:15	3	197	3	203	45	25	10	80	28	109	66	203	12	23	102	137	623
7:30	10	162	11	183	56	36	6	98	36	76	68	180	8	36	145	189	650
7:45	10	163	5	178	67	51	11	129	49	101	67	217	13	80	120	213	737
Hour Total	36	637	26	699	200	129	37	366	139	390	253	782	39	163	460	662	2509
8:00am	9	148	3	160	61	74	19	154	39	78	63	180	7	59	99	165	659
8:15	6	129	8	143	51	53	18	122	53	85	35	173	9	15	101	125	563
8:30	9	122	5	136	38	33	15	86	41	58	31	130	10	30	83	123	475
8:45	7	110	9	126	46	27	6	79	38	70	39	147	8	23	78	109	461
Hour Total	31	509	25	565	196	187	58	441	171	291	168	630	34	127	361	522	2158
Grand	67	1146	51	1264	396	316	95	807	310	681	421	1412	73	290	821	1184	4667
% of Total	1.4%	24.6%	1.1%		8.5%	6.8%	2.0%		6.6%	14.6%	9.0%		1.6%	6.2%	17.6%		
Apprch %				27.1%				17.3%				30.3%				25.4%	
% of Apprch	5.3%	90.7%	4.0%		49.1%	39.2%	11.8%		22.0%	48.2%	29.8%		6.2%	24.5%	69.3%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/11/06

		Start	Peak Hr	.... Volumes	....				.... Percentages	....		
Direction	Street Name	Peak Hour	Factor	Left	Thru	Rght		Total	Left	Thru	Rght	
Southbound	RALEY BLVD.	07:15am	.892	32	670	22	0	724	4.4	92.5	3.0	.0
Westbound	BELL AVENUE		.748	229	186	46	0	461	49.6	40.3	9.9	.0
Northbound			.899	152	364	264	0	780	19.4	46.6	33.8	.0
Eastbound			.826	40	198	466	0	704	5.6	28.1	66.1	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 1
Page : 2

RALEY BLVD.

22 670 32

40
364
46
=====
450

Inbound 724
Outbound 450
Total 1174

46

152
360 186
22

40

186

Inbound 704
Outbound 360
198 Total 1064

Inbound 461
Outbound 494 229
Total 955

466

32
198 494
264
BELL AVENUE

Inbound 780
Outbound 1365
Total 2145

229 152 364 264
670
466
=====
1365

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 1
Page : 1

Start Time	RALEY BLVD. Southbound Left	Thru	Rght	Totl	BELL AVENUE Westbound Left	Thru	Rght	Totl	Northbound Left	Thru	Rght	Totl	Eastbound Left	Thru	Rght	Totl	Total
4:00pm	6	128	7	141	64	34	14	112	72	131	29	232	5	18	79	102	587
4:15	9	107	10	126	40	26	12	78	59	163	31	253	11	25	69	105	562
4:30	8	119	11	138	59	35	13	107	89	156	40	285	12	39	54	105	635
4:45	6	80	7	93	54	34	6	94	71	151	36	258	5	35	70	110	555
Hour Total	29	434	35	498	217	129	45	391	291	601	136	1028	33	117	272	422	2339
5:00pm	5	102	12	119	95	30	15	140	83	146	38	267	8	35	81	124	650
5:15	6	99	4	109	34	27	14	75	75	201	26	302	14	44	57	115	601
5:30	3	107	3	113	28	27	11	66	72	135	17	224	8	33	74	115	518
5:45	9	100	5	114	24	16	8	48	77	141	20	238	5	25	58	88	488
Hour Total	23	408	24	455	181	100	48	329	307	623	101	1031	35	137	270	442	2257
Grand	52	842	59	953	398	229	93	720	598	1224	237	2059	68	254	542	864	4596
% of Total	1.1%	18.3%	1.3%		8.7%	5.0%	2.0%		13.0%	26.6%	5.2%		1.5%	5.5%	11.8%		
Apprch %				20.7%				15.7%				44.8%				18.8%	
% of Apprch	5.5%	88.4%	6.2%		55.3%	31.8%	12.9%		29.0%	59.4%	11.5%		7.9%	29.4%	62.7%		

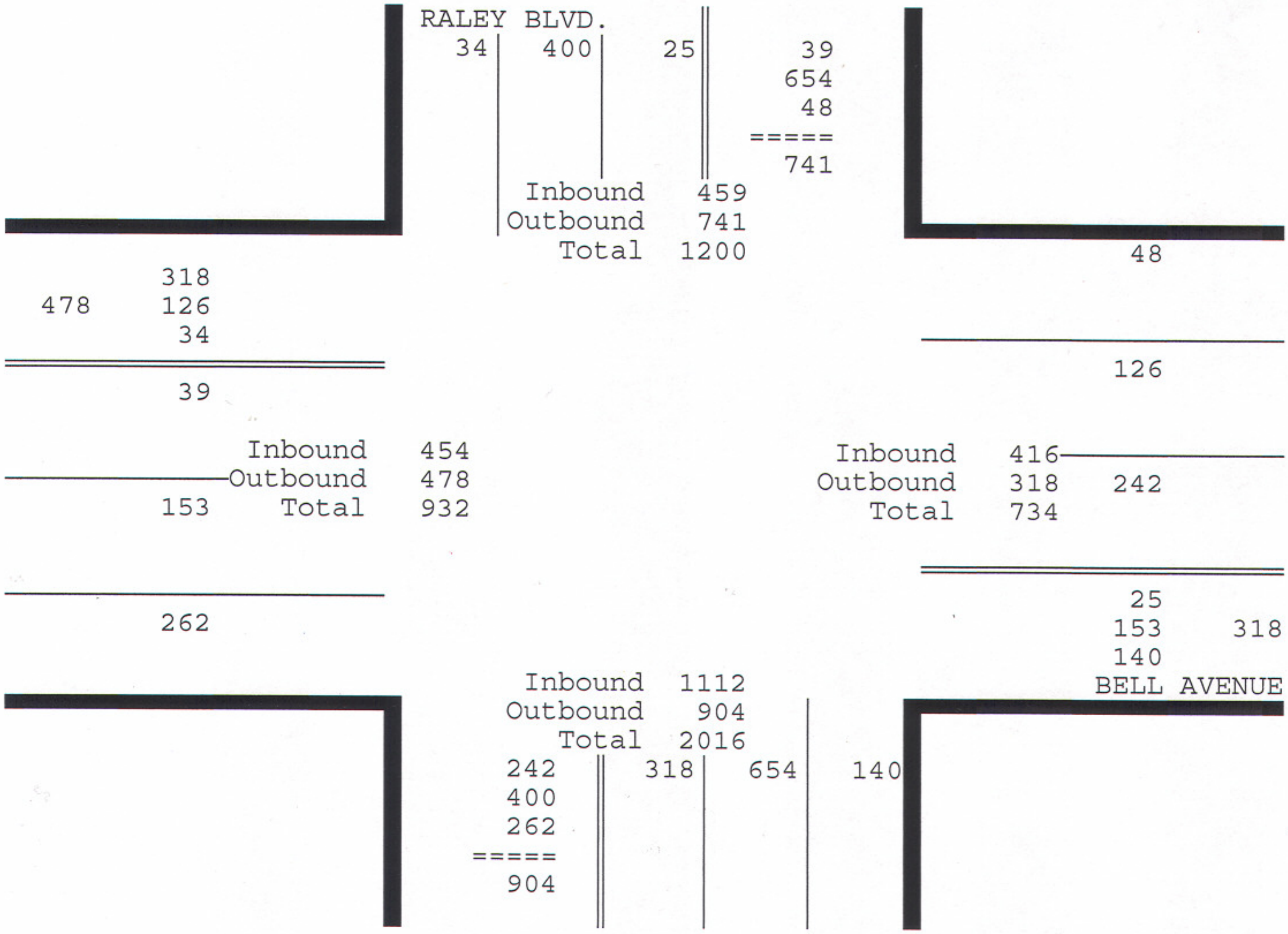
Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/11/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	RALEY BLVD.	04:30pm	.832	25	400	34	0	459	5.4	87.1	7.4	.0
Westbound	BELL AVENUE		.743	242	126	48	0	416	58.1	30.2	11.5	.0
Northbound			.921	318	654	140	0	1112	28.5	58.8	12.5	.0
Eastbound			.915	39	153	262	0	454	8.5	33.7	57.7	.0

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 1
Page : 2



CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/12/06
File I.D. : 2
Page : 1

	Southbound				BELL AVENUE Westbound				WINTERS STREET Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	0	0	0	0	12	24	0	36	48	0	49	97	0	13	19	32	165
7:15	0	0	0	0	24	33	0	57	35	0	33	68	0	20	20	40	165
7:30	0	0	0	0	31	43	0	74	49	0	39	88	0	23	22	45	207
7:45	0	0	0	0	28	65	0	93	46	0	34	80	0	35	16	51	224
Hour Total	0	0	0	0	95	165	0	260	178	0	155	333	0	91	77	168	761
8:00am	0	0	0	0	26	41	0	67	56	0	43	99	0	23	15	38	204
8:15	0	0	0	0	12	36	0	48	49	0	41	90	0	17	15	32	170
8:30	0	0	0	0	14	35	0	49	37	0	20	57	0	16	15	31	137
8:45	0	0	0	0	16	24	0	40	36	0	38	74	0	21	24	45	159
Hour Total	0	0	0	0	68	136	0	204	178	0	142	320	0	77	69	146	670
Grand	0	0	0	0	163	301	0	464	356	0	297	653	0	168	146	314	1431
% of Total	0.0%	0.0%	0.0%		11.4%	21.0%	0.0%		24.9%	0.0%	20.8%		0.0%	11.7%	10.2%		
Apprch %								32.4%				45.6%				21.9%	
% of Apprch	0.0%	0.0%	0.0%		35.1%	64.9%	0.0%		54.5%	0.0%	45.5%		0.0%	53.5%	46.5%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/12/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	.... Volumes Left	Thru	Rght	....	Total	.... Percentages Left	Thru	Rght	....
Southbound		07:30am	.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Westbound	BELL AVENUE		.758	97	185	0	0	282	34.3	65.6	.0	.0
Northbound	WINTERS STREET		.902	200	0	157	0	357	56.0	.0	43.9	.0
Eastbound			.814	0	98	68	0	166	.0	59.0	40.9	.0

0 0 0

0
0
0
=====
0

Inbound 0
Outbound 0
Total 0

0

200
385 185
0

0

185

Inbound 166
Outbound 385
98 Total 551

Inbound 282
Outbound 255 97
Total 537

68

0
98 255
157
BELL AVENUE

Inbound 357
Outbound 165
Total 522

97 200 0 157
0
68
=====
165
WINTERS STREET

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/12/06
File I.D. : 2
Page : 1

	Southbound				BELL AVENUE Westbound				WINTERS STREET Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
4:00pm	0	0	0	0	39	29	0	68	15	0	24	39	0	42	32	74	181
4:15	0	0	0	0	27	26	0	53	18	0	27	45	0	36	29	65	163
4:30	0	0	0	0	57	38	0	95	19	0	32	51	0	36	34	70	216
4:45	0	0	0	0	37	34	0	71	16	0	33	49	0	48	19	67	187
Hour Total	0	0	0	0	160	127	0	287	68	0	116	184	0	162	114	276	747
5:00pm	0	0	0	0	43	34	0	77	13	0	35	48	0	41	54	95	220
5:15	0	0	0	0	33	36	0	69	16	0	22	38	0	46	26	72	179
5:30	0	0	0	0	29	27	0	56	12	0	26	38	0	24	24	48	142
5:45	0	0	0	0	38	20	0	58	15	0	16	31	0	31	23	54	143
Hour Total	0	0	0	0	143	117	0	260	56	0	99	155	0	142	127	269	684
Grand	0	0	0	0	303	244	0	547	124	0	215	339	0	304	241	545	1431
% of Total	0.0%	0.0%	0.0%		21.2%	17.1%	0.0%		8.7%	0.0%	15.0%		0.0%	21.2%	16.8%		
Apprch %								38.2%				23.7%				38.1%	
% of Apprch	0.0%	0.0%	0.0%		55.4%	44.6%	0.0%		36.6%	0.0%	63.4%		0.0%	55.8%	44.2%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/12/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound		04:30pm	.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Westbound	BELL AVENUE		.821	170	142	0	0	312	54.4	45.5	.0	.0
Northbound	WINTERS STREET		.912	64	0	122	0	186	34.4	.0	65.5	.0
Eastbound			.800	0	171	133	0	304	.0	56.2	43.7	.0

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

0 0 0

0
0
0
=====
0

Inbound 0
Outbound 0
Total 0

0

64
206 142
0

0

142

Inbound 304
Outbound 206
171 Total 510

Inbound 312
Outbound 293 170
Total 605

133

0
171 293
122
BELL AVENUE

Inbound 186
Outbound 303
Total 489

170 64 0 122
0
133
=====
303
WINTERS STREET

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 3
Page : 1

	RALEY BLVD. Southbound				SR 80 WB RAMPS Westbound				Northbound				SR 80 WB ON RAMP Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	0	171	83	254	31	0	48	79	0	148	43	191	0	0	0	0	524
7:15	0	240	83	323	33	0	39	72	0	143	37	180	0	0	0	0	575
7:30	0	291	100	391	29	0	55	84	0	119	54	173	0	0	0	0	648
7:45	0	261	94	355	49	0	52	101	0	169	30	199	0	0	0	0	655
Hour Total	0	963	360	1323	142	0	194	336	0	579	164	743	0	0	0	0	2402
8:00am	0	211	75	286	57	0	39	96	0	162	36	198	0	0	0	0	580
8:15	0	221	65	286	29	0	45	74	0	107	27	134	0	0	0	0	494
8:30	0	177	58	235	29	0	43	72	0	102	39	141	0	0	0	0	448
8:45	0	159	62	221	52	0	38	90	0	129	29	158	0	0	0	0	469
Hour Total	0	768	260	1028	167	0	165	332	0	500	131	631	0	0	0	0	1991
Grand	0	1731	620	2351	309	0	359	668	0	1079	295	1374	0	0	0	0	4393
% of Total	0.0%	39.4%	14.1%		7.0%	0.0%	8.2%		0.0%	24.6%	6.7%		0.0%	0.0%	0.0%		
Apprch %				53.5%				15.2%				31.3%					
% of Apprch	0.0%	73.6%	26.4%		46.3%	0.0%	53.7%		0.0%	78.5%	21.5%		0.0%	0.0%	0.0%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	RALEY BLVD.	07:15am	.866	0	1003	352	0	1355	.0	74.0	25.9	.0
Westbound	SR 80 WB RAMPS		.874	168	0	185	0	353	47.5	.0	52.4	.0
Northbound			.942	0	593	157	0	750	.0	79.0	20.9	.0
Eastbound	SR 80 WB ON RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0

RALEY BLVD.
352 | 1003 | 0 ||

0
593
185
=====
778

Inbound 1355
Outbound 778
Total 2133

SR 80 WB ON RAMP
0
352 0
352

0

Inbound 0
Outbound 352
0 Total 352

0

185

0

Inbound 353
Outbound 157 168
Total 510

0
0 157
157
SR 80 WB RAMPS

Inbound 750
Outbound 1171
Total 1921

168
1003
0
=====
1171

|| 0 | 593 | 157

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 3
Page : 1

	RALEY BLVD. Southbound				SR 80 WB RAMPS Westbound				Northbound				SR 80 WB ON RAMP Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
4:00pm	0	195	86	281	51	0	78	129	0	215	47	262	0	0	0	0	672
4:15	0	178	73	251	50	0	70	120	0	220	57	277	0	0	0	0	648
4:30	0	169	87	256	53	0	96	149	0	224	54	278	0	0	0	0	683
4:45	0	135	59	194	70	0	77	147	0	214	51	265	0	0	0	0	606
Hour Total	0	677	305	982	224	0	321	545	0	873	209	1082	0	0	0	0	2609
5:00pm	0	219	107	326	52	0	86	138	0	236	60	296	0	0	0	0	760
5:15	0	153	71	224	41	0	88	129	0	201	49	250	0	0	0	0	603
5:30	0	174	61	235	32	0	64	96	0	207	41	248	0	0	0	0	579
5:45	0	170	42	212	21	0	49	70	0	188	51	239	0	0	0	0	521
Hour Total	0	716	281	997	146	0	287	433	0	832	201	1033	0	0	0	0	2463
Grand	0	1393	586	1979	370	0	608	978	0	1705	410	2115	0	0	0	0	5072
% of Total	0.0%	27.5%	11.6%		7.3%	0.0%	12.0%		0.0%	33.6%	8.1%		0.0%	0.0%	0.0%		
Apprch %				39.0%				19.3%				41.7%					
% of Apprch	0.0%	70.4%	29.6%		37.8%	0.0%	62.2%		0.0%	80.6%	19.4%		0.0%	0.0%	0.0%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/10/06

		Start	Peak Hr	.... Volumes					.... Percentages			
Direction	Street Name	Peak Hour	Factor	Left	Thru	Rght		Total	Left	Thru	Rght	
Southbound	RALEY BLVD.	04:15pm	.788	0	701	326	0	1027	.0	68.2	31.7	.0
Westbound	SR 80 WB RAMPS		.930	225	0	329	0	554	40.6	.0	59.3	.0
Northbound			.943	0	894	222	0	1116	.0	80.1	19.8	.0
Eastbound	SR 80 WB ON RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

RALEY BLVD.
326 701 0
0
894
329
=====
1223
Inbound 1027
Outbound 1223
Total 2250

SR 80 WB ON RAMP
0
326 0
326

0

Inbound 0
Outbound 326
0 Total 326

0

329

0

Inbound 554
Outbound 222 225
Total 776

0
0 222
222
SR 80 WB RAMPS

Inbound 1116
Outbound 926
Total 2042
225 0 894 222
701
0
=====
926

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville, CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 4
Page : 1

Start	RALEY BLVD. Southbound				SR 80 EB ON RAMP Westbound				Northbound				SR 80 EB RAMPS Eastbound				
Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	0	152	50	202	0	0	0	0	0	135	37	172	56	0	66	122	496
7:15	0	187	86	273	0	0	0	0	0	106	61	167	74	0	73	147	587
7:30	0	222	98	320	0	0	0	0	0	104	72	176	69	0	45	114	610
7:45	0	215	95	310	0	0	0	0	0	121	54	175	78	0	47	125	610
Hour Total	0	776	329	1105	0	0	0	0	0	466	224	690	277	0	231	508	2303
8:00am	0	216	52	268	0	0	0	0	0	137	47	184	61	0	53	114	566
8:15	0	186	64	250	0	0	0	0	0	97	46	143	37	0	54	91	484
8:30	0	154	52	206	0	0	0	0	0	97	37	134	44	0	43	87	427
8:45	0	174	37	211	0	0	0	0	0	108	42	150	50	0	48	98	459
Hour Total	0	730	205	935	0	0	0	0	0	439	172	611	192	0	198	390	1936
Grand	0	1506	534	2040	0	0	0	0	0	905	396	1301	469	0	429	898	4239
% of Total	0.0%	35.5%	12.6%		0.0%	0.0%	0.0%		0.0%	21.3%	9.3%		11.1%	0.0%	10.1%		
Apprch %				48.1%								30.7%				21.2%	
% of Apprch	0.0%	73.8%	26.2%		0.0%	0.0%	0.0%		0.0%	69.6%	30.4%		52.2%	0.0%	47.8%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	.... Volumes .... Left	Thru	Rght		Total	.... Percentages .... Left	Thru	Rght	
Southbound	RALEY BLVD.	07:15am	.915	0	840	331	0	1171	.0	71.7	28.2	.0
Westbound	SR 80 EB ON RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Northbound			.954	0	468	234	0	702	.0	66.6	33.3	.0
Eastbound	SR 80 EB RAMPS		.850	282	0	218	0	500	56.4	.0	43.6	.0

```
                  RALEY BLVD.
                   331 | 840 |     0 ||    282
                       |     |       ||    468
                       |     |       ||      0
                       |     |       ||  =====
                       |     |       ||    750
                       |  Inbound  1171
                       | Outbound   750
                       |    Total  1921
SR 80 EB RAMPS                                                  0
           0
  331      0
         331
                                                                0
         282

           Inbound   500                    Inbound     0
          Outbound   331                   Outbound   234       0
      0      Total   831                      Total   234

                                                                0
         218                                                    0      234
                                                              234
                       Inbound    702                   SR 80 EB ON RAMP
                      Outbound   1058
                         Total   1760
                      0 ||      0 |   468 |   234
                    840 ||        |       |
                    218 ||        |       |
                  ===== ||        |       |
                   1058 ||        |       |
```

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 4
Page : 1

	RALEY BLVD.				SR 80 EB ON RAMP								SR 80 EB RAMPS				
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
4:00pm	0	159	87	246	0	0	0	0	0	218	29	247	44	0	43	87	580
4:15	0	164	64	228	0	0	0	0	0	224	39	263	53	0	38	91	582
4:30	0	159	78	237	0	0	0	0	0	230	67	297	48	0	42	90	624
4:45	0	142	63	205	0	0	0	0	0	207	58	265	58	0	50	108	578
Hour Total	0	624	292	916	0	0	0	0	0	879	193	1072	203	0	173	376	2364
5:00pm	0	186	85	271	0	0	0	0	0	241	51	292	55	0	32	87	650
5:15	0	129	65	194	0	0	0	0	0	214	52	266	36	0	31	67	527
5:30	0	158	48	206	0	0	0	0	0	211	47	258	37	0	38	75	539
5:45	0	148	43	191	0	0	0	0	0	205	36	241	34	0	35	69	501
Hour Total	0	621	241	862	0	0	0	0	0	871	186	1057	162	0	136	298	2217
Grand	0	1245	533	1778	0	0	0	0	0	1750	379	2129	365	0	309	674	4581
% of Total	0.0%	27.2%	11.6%		0.0%	0.0%	0.0%		0.0%	38.2%	8.3%		8.0%	0.0%	6.7%		
Apprch %				38.8%								46.5%				14.7%	
% of Apprch	0.0%	70.0%	30.0%		0.0%	0.0%	0.0%		0.0%	82.2%	17.8%		54.2%	0.0%	45.8%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	.... Volumes				....	.... Percentages			....
				Left	Thru	Rght		Total	Left	Thru	Rght	
Southbound	RALEY BLVD.	04:15pm	.868	0	651	290	0	941	.0	69.1	30.8	.0
Westbound	SR 80 EB ON RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Northbound			.940	0	902	215	0	1117	.0	80.7	19.2	.0
Eastbound	SR 80 EB RAMPS		.870	214	0	162	0	376	56.9	.0	43.0	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 4
Page : 2

RALEY BLVD.
290 651 0
214
902
0
=====
1116

Inbound 941
Outbound 1116
Total 2057

SR 80 EB RAMPS
0
290 0
290

214

Inbound 376
Outbound 290
0 Total 666

162

0

0

Inbound 0
Outbound 215 0
Total 215

0
0 215
215
SR 80 EB ON RAMP

Inbound 1117
Outbound 813
Total 1930
0 0 902 215
651
162
=====
813

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 5
Page : 1

	MARYSVILLE BLVD. Southbound				NORTH AVENUE Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	6	203	8	217	4	0	16	20	1	140	3	144	16	3	3	22	403
7:15	5	242	14	261	11	1	6	18	2	150	5	157	11	7	6	24	460
7:30	8	253	8	269	9	4	16	29	4	147	4	155	13	3	11	27	480
7:45	11	244	8	263	6	4	16	26	2	148	6	156	11	4	4	19	464
Hour Total	30	942	38	1010	30	9	54	93	9	585	18	612	51	17	24	92	1807
8:00am	11	238	20	269	8	7	10	25	4	157	7	168	17	6	9	32	494
8:15	14	214	11	239	13	8	9	30	9	121	5	135	13	6	6	25	429
8:30	9	180	11	200	13	5	17	35	5	108	6	119	9	2	3	14	368
8:45	14	190	16	220	8	2	8	18	6	133	6	145	9	3	6	18	401
Hour Total	48	822	58	928	42	22	44	108	24	519	24	567	48	17	24	89	1692
Grand	78	1764	96	1938	72	31	98	201	33	1104	42	1179	99	34	48	181	3499
% of Total	2.2%	50.4%	2.7%		2.1%	.9%	2.8%		.9%	31.6%	1.2%		2.8%	1.0%	1.4%		
Apprch %				55.4%				5.7%				33.7%				5.2%	
% of Apprch	4.0%	91.0%	5.0%		35.8%	15.4%	48.8%		2.8%	93.6%	3.6%		54.7%	18.8%	26.5%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	MARYSVILLE BLVD.	07:15am	.987	35	977	50	0	1062	3.2	91.9	4.7	.0
Westbound	NORTH AVENUE		.845	34	16	48	0	98	34.6	16.3	48.9	.0
Northbound			.946	12	602	22	0	636	1.8	94.6	3.4	.0
Eastbound			.797	52	20	30	0	102	50.9	19.6	29.4	.0

MARYSVILLE BLVD.

50 977 35

52
602
48
=====
702

Inbound 1062
Outbound 702
Total 1764

48

12
78 16
50

52

16

Inbound 102
Outbound 78
Total 180

20

Inbound 98
Outbound 77
Total 175

34

30

35
20 77
22

NORTH AVENUE

Inbound 636
Outbound 1041
Total 1677

34 12 602 22
977
30
=====
1041

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 5
Page : 1

Start Time	MARYSVILLE BLVD. Southbound Left	Thru	Rght	Totl	NORTH AVENUE Westbound Left	Thru	Rght	Totl	Northbound Left	Thru	Rght	Totl	Eastbound Left	Thru	Rght	Totl	Total
4:00pm	9	171	22	202	7	4	2	13	6	230	4	240	15	1	7	23	478
4:15	4	189	11	204	8	4	11	23	5	234	9	248	18	5	8	31	506
4:30	7	171	24	202	7	3	11	21	13	262	11	286	24	1	9	34	543
4:45	4	172	17	193	12	2	15	29	4	224	5	233	26	6	11	43	498
Hour Total	24	703	74	801	34	13	39	86	28	950	29	1007	83	13	35	131	2025
5:00pm	9	187	21	217	4	3	15	22	5	258	7	270	19	4	10	33	542
5:15	8	138	13	159	11	0	10	21	10	239	5	254	17	3	9	29	463
5:30	7	177	13	197	11	7	15	33	4	226	5	235	17	2	6	25	490
5:45	14	155	14	183	8	3	11	22	4	214	4	222	16	4	9	29	456
Hour Total	38	657	61	756	34	13	51	98	23	937	21	981	69	13	34	116	1951
Grand	62	1360	135	1557	68	26	90	184	51	1887	50	1988	152	26	69	247	3976
% of Total	1.6%	34.2%	3.4%		1.7%	.7%	2.3%		1.3%	47.5%	1.3%		3.8%	.7%	1.7%		
Apprch %				39.2%				4.6%				50.0%				6.2%	
% of Apprch	4.0%	87.3%	8.7%		37.0%	14.1%	48.9%		2.6%	94.9%	2.5%		61.5%	10.5%	27.9%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	MARYSVILLE BLVD.	04:15pm	.940	24	719	73	0	816	2.9	88.1	8.9	.0
Westbound	NORTH AVENUE		.819	31	12	52	0	95	32.6	12.6	54.7	.0
Northbound			.906	27	978	32	0	1037	2.6	94.3	3.0	.0
Eastbound			.820	87	16	38	0	141	61.7	11.3	26.9	.0

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 5

MARYSVILLE BLVD.

73 719 24

87
978
52
=====
1117

Inbound 816
Outbound 1117
Total 1933

52

27
112 12
73
=====
87

12

Inbound 141
Outbound 112
16 Total 253

Inbound 95
Outbound 72 31
Total 167

38

24
16 72
32

NORTH AVENUE

Inbound 1037
Outbound 788
Total 1825

31 27 978 32
719
38
=====
788

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 6
Page : 1

	BELOIT DRIVE Southbound				BELL AVENUE Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	4	0	15	19	0	67	8	75	0	0	0	0	32	57	0	89	183
7:15	4	0	13	17	0	70	9	79	0	0	0	0	27	71	0	98	194
7:30	5	0	27	32	0	66	13	79	0	0	0	0	28	89	0	117	228
7:45	4	0	32	36	0	91	11	102	0	0	0	0	20	134	0	154	292
Hour Total	17	0	87	104	0	294	41	335	0	0	0	0	107	351	0	458	897
8:00am	6	0	32	38	0	154	18	172	0	0	0	0	24	113	0	137	347
8:15	7	0	24	31	0	88	17	105	0	0	0	0	9	51	0	60	196
8:30	7	0	19	26	0	70	4	74	0	0	0	0	11	61	0	72	172
8:45	4	0	18	22	0	59	11	70	0	0	0	0	16	46	0	62	154
Hour Total	24	0	93	117	0	371	50	421	0	0	0	0	60	271	0	331	869
Grand	41	0	180	221	0	665	91	756	0	0	0	0	167	622	0	789	1766
% of Total	2.3%	0.0%	10.2%		0.0%	37.7%	5.2%		0.0%	0.0%	0.0%		9.5%	35.2%	0.0%		
Apprch %				12.5%				42.8%								44.7%	
% of Apprch	18.6%	0.0%	81.4%		0.0%	88.0%	12.0%		0.0%	0.0%	0.0%		21.2%	78.8%	0.0%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/11/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	BELOIT DRIVE	07:30am	.901	22	0	115	0	137	16.0	.0	83.9	.0
Westbound	BELL AVENUE		.666	0	399	59	0	458	.0	87.1	12.8	.0
Northbound			.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Eastbound			.760	81	387	0	0	468	17.3	82.6	.0	.0

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

BELOIT DRIVE

115 0 22

81
0
59
=====
140

Inbound 137
Outbound 140
Total 277

59

0
514 399
115

81

399

Inbound 468
Outbound 514
387 Total 982

Inbound 458
Outbound 409 0
Total 867

0

22
387 409
0

BELL AVENUE

Inbound 0
Outbound 0
Total 0

0 0 0 0
0
0
=====
0

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 6
Page : 1

Start Time	BELOIT DRIVE Southbound Left	Thru	Rght	Totl	BELL AVENUE Westbound Left	Thru	Rght	Totl	Northbound Left	Thru	Rght	Totl	Eastbound Left	Thru	Rght	Totl	Total
4:00pm	8	0	20	28	0	61	7	68	0	0	0	0	11	47	0	58	154
4:15	6	0	18	24	0	52	2	54	0	0	0	0	10	54	0	64	142
4:30	10	0	21	31	0	70	4	74	0	0	0	0	13	72	0	85	190
4:45	7	0	28	35	0	57	2	59	0	0	0	0	12	74	0	86	180
Hour Total	31	0	87	118	0	240	15	255	0	0	0	0	46	247	0	293	666
5:00pm	12	0	52	64	0	72	4	76	0	0	0	0	10	66	0	76	216
5:15	6	0	15	21	0	54	3	57	0	0	0	0	6	71	0	77	155
5:30	7	0	15	22	0	38	8	46	0	0	0	0	1	55	0	56	124
5:45	3	0	13	16	0	35	2	37	0	0	0	0	5	49	0	54	107
Hour Total	28	0	95	123	0	199	17	216	0	0	0	0	22	241	0	263	602
Grand	59	0	182	241	0	439	32	471	0	0	0	0	68	488	0	556	1268
% of Total	4.7%	0.0%	14.4%		0.0%	34.6%	2.5%		0.0%	0.0%	0.0%		5.4%	38.5%	0.0%		
Apprch %				19.0%				37.1%								43.8%	
% of Apprch	24.5%	0.0%	75.5%		0.0%	93.2%	6.8%		0.0%	0.0%	0.0%		12.2%	87.8%	0.0%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/11/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	.... Volumes .... Left	Thru	Rght		Total	.... Percentages .... Left	Thru	Rght	
Southbound	BELOIT DRIVE	04:30pm	.590	35	0	116	0	151	23.1	.0	76.8	.0
Westbound	BELL AVENUE		.875	0	253	13	0	266	.0	95.1	4.8	.0
Northbound			.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Eastbound			.942	41	283	0	0	324	12.6	87.3	.0	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 6
Page : 2

BELOIT DRIVE

116 0 35

41
0
13
=====
54

Inbound 151
Outbound 54
Total 205

13

0
369 253
116
41

253

Inbound 324
Outbound 369
283 Total 693

Inbound 266
Outbound 318 0
Total 584

0

35
283 318
0

BELL AVENUE

Inbound 0
Outbound 0
Total 0

0
0
0
=====
0

0 0 0

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 7
Page : 1

Start Time	DRIVEWAY Southbound Left	Thru	Rght	Totl	BELL AVENUE Westbound Left	Thru	Rght	Totl	PINELL DRIVE Northbound Left	Thru	Rght	Totl	Eastbound Left	Thru	Rght	Totl	Total
7:00am	0	0	0	0	4	68	0	72	8	0	3	11	1	42	18	61	144
7:15	0	0	0	0	1	69	0	70	10	0	1	11	0	57	18	75	156
7:30	1	0	0	1	8	64	0	72	14	0	6	20	0	63	30	93	186
7:45	0	0	0	0	6	90	0	96	14	0	5	19	0	64	73	137	252
Hour Total	1	0	0	1	19	291	0	310	46	0	15	61	1	226	139	366	738
8:00am	1	0	0	1	11	90	0	101	82	2	10	94	1	63	55	119	315
8:15	0	1	0	1	10	83	0	93	19	0	6	25	0	46	12	58	177
8:30	0	0	0	0	6	65	0	71	8	0	6	14	1	46	21	68	153
8:45	0	0	0	0	3	61	0	64	9	0	5	14	0	40	10	50	128
Hour Total	1	1	0	2	30	299	0	329	118	2	27	147	2	195	98	295	773
Grand	2	1	0	3	49	590	0	639	164	2	42	208	3	421	237	661	1511
% of Total	.1%	.1%	0.0%		3.2%	39.0%	0.0%		10.9%	.1%	2.8%		.2%	27.9%	15.7%		
Apprch %				.2%				42.3%				13.8%				43.7%	
% of Apprch	66.7%	33.3%	0.0%		7.7%	92.3%	0.0%		78.8%	1.0%	20.2%		.5%	63.7%	35.9%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/11/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	.... Volumes .... Left	Thru	Rght		Total	.... Percentages .... Left	Thru	Rght	
Southbound	DRIVEWAY	07:30am	.750	2	1	0	0	3	66.6	33.3	.0	.0
Westbound	BELL AVENUE		.896	35	327	0	0	362	9.6	90.3	.0	.0
Northbound	PINELL DRIVE		.420	129	2	27	0	158	81.6	1.2	17.0	.0
Eastbound			.743	1	236	170	0	407	.2	57.9	41.7	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 7
Page : 2

DRIVEWAY

0 1 2

1
2
0
=====
3

Inbound 3
Outbound 3
Total 6

0

129
456 327
0
=====
1

327

Inbound 407
Outbound 456
Total 863

236

Inbound 362
Outbound 265
Total 627

35

170

2
236 265
27

BELL AVENUE

Inbound 158
Outbound 206
Total 364

35 129 2 27
1
170
=====
206

PINELL DRIVE

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 7
Page : 1

Start Time	DRIVEWAY Southbound Left	Thru	Rght	Totl	BELL AVENUE Westbound Left	Thru	Rght	Totl	PINELL DRIVE Northbound Left	Thru	Rght	Totl	Eastbound Left	Thru	Rght	Totl	Total
4:00pm	0	1	0	1	2	56	0	58	12	0	2	14	0	48	7	55	128
4:15	1	0	1	2	3	36	0	39	16	1	3	20	1	41	15	57	118
4:30	0	0	0	0	0	66	0	66	8	0	2	10	0	70	12	82	158
4:45	0	0	1	1	1	54	0	55	4	0	2	6	1	72	8	81	143
Hour Total	1	1	2	4	6	212	0	218	40	1	9	50	2	231	42	275	547
5:00pm	0	0	0	0	5	68	1	74	8	0	2	10	0	71	7	78	162
5:15	1	0	0	1	0	49	0	49	7	0	2	9	1	71	5	77	136
5:30	0	0	2	2	2	39	1	42	5	1	1	7	0	61	1	62	113
5:45	0	0	2	2	2	31	0	33	5	0	3	8	1	46	5	52	95
Hour Total	1	0	4	5	9	187	2	198	25	1	8	34	2	249	18	269	506
Grand	2	1	6	9	15	399	2	416	65	2	17	84	4	480	60	544	1053
% of Total	.2%	.1%	.6%		1.4%	37.9%	.2%		6.2%	.2%	1.6%		.4%	45.6%	5.7%		
Apprch %				.9%				39.5%				8.0%				51.7%	
% of Apprch	22.2%	11.1%	66.7%		3.6%	95.9%	.5%		77.4%	2.4%	20.2%		.7%	88.2%	11.0%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/11/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	DRIVEWAY	04:30pm	.500	1	0	1	0	2	50.0	.0	50.0	.0
Westbound	BELL AVENUE		.824	6	237	1	0	244	2.4	97.1	.4	.0
Northbound	PINELL DRIVE		.875	27	0	8	0	35	77.1	.0	22.8	.0
Eastbound			.970	2	284	32	0	318	.6	89.3	10.0	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/11/06
File I.D. : 7
Page : 2

DRIVEWAY

1 0 1

2
0
1
=====
3

Inbound 2
Outbound 3
Total 5

1

27
265 237
1

2

237

Inbound 318
Outbound 265
284 Total 583

Inbound 244
Outbound 293 6
Total 537

32

1
284 293
8
BELL AVENUE

Inbound 35
Outbound 38
Total 73

6 27 0 8
0
32
=====
38
PINELL DRIVE

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 8

	WINTERS STREET Southbound				SR 80 EB OFF RAMP Westbound				Northbound				SR 80 EB ON RAMP Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	26	32	0	58	0	0	0	0	0	37	29	66	27	0	9	36	160
7:15	40	36	0	76	0	0	0	0	0	23	26	49	26	0	14	40	165
7:30	40	36	0	76	0	0	0	0	0	22	39	61	32	1	14	47	184
7:45	45	49	0	94	0	0	0	0	0	12	25	37	43	0	9	52	183
Hour Total	151	153	0	304	0	0	0	0	0	94	119	213	128	1	46	175	692
8:00am	39	38	0	77	0	0	0	0	0	19	17	36	31	2	15	48	161
8:15	34	38	0	72	0	0	0	0	0	39	32	71	27	1	9	37	180
8:30	39	44	0	83	0	0	0	0	0	23	31	54	22	0	7	29	166
8:45	41	29	0	70	0	0	0	0	0	34	27	61	22	1	7	30	161
Hour Total	153	149	0	302	0	0	0	0	0	115	107	222	102	4	38	144	668
Grand	304	302	0	606	0	0	0	0	0	209	226	435	230	5	84	319	1360
% of Total	22.4%	22.2%	0.0%		0.0%	0.0%	0.0%		0.0%	15.4%	16.6%		16.9%	.4%	6.2%		
Apprch %				44.6%								32.0%				23.5%	
% of Apprch	50.2%	49.8%	0.0%		0.0%	0.0%	0.0%		0.0%	48.0%	52.0%		72.1%	1.6%	26.3%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/10/06

		Start	Peak Hr	.... Volumes	....				.... Percentages	....		
Direction	Street Name	Peak Hour	Factor	Left	Thru	Rght		Total	Left	Thru	Rght	
Southbound	WINTERS STREET	07:30am	.848	158	161	0	0	319	49.5	50.4	.0	.0
Westbound	SR 80 EB OFF RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Northbound			.722	0	92	113	0	205	.0	44.8	55.1	.0
Eastbound	SR 80 EB ON RAMP		.885	133	4	47	0	184	72.2	2.1	25.5	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 8
Page : 2

WINTERS STREET

0 | 161 | 158

133
92
0
=====
225

Inbound 319
Outbound 225
Total 544

SR 80 EB ON RAMP
0
0 0
0
133

Inbound 184
Outbound 0
4 Total 184

47

0

0

Inbound 0
Outbound 275 0
Total 275

158
4 275
113
SR 80 EB OFF RAMP

Inbound 205
Outbound 208
Total 413

0 | 0 | 92 | 113
161
47
=====
208

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 8
Page : 1

	WINTERS STREET				SR 80 EB OFF RAMP								SR 80 EB ON RAMP				
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
4:00pm	76	47	0	123	0	0	0	0	0	29	35	64	9	2	8	19	206
4:15	51	43	0	94	0	0	0	0	0	23	42	65	14	0	14	28	187
4:30	72	42	0	114	0	0	0	0	0	29	40	69	12	0	12	24	207
4:45	61	47	0	108	0	0	0	0	0	19	48	67	14	1	11	26	201
Hour Total	260	179	0	439	0	0	0	0	0	100	165	265	49	3	45	97	801
5:00pm	77	44	0	121	0	0	0	0	0	26	46	72	9	0	9	18	211
5:15	51	40	0	91	0	0	0	0	0	26	25	51	9	0	8	17	159
5:30	61	28	0	89	0	0	0	0	0	25	25	50	15	0	14	29	168
5:45	29	34	0	63	0	0	0	0	0	11	21	32	11	1	12	24	119
Hour Total	218	146	0	364	0	0	0	0	0	88	117	205	44	1	43	88	657
Grand	478	325	0	803	0	0	0	0	0	188	282	470	93	4	88	185	1458
% of Total	32.8%	22.3%	0.0%		0.0%	0.0%	0.0%		0.0%	12.9%	19.3%		6.4%	.3%	6.0%		
Apprch %				55.1%								32.2%				12.7%	
% of Apprch	59.5%	40.5%	0.0%		0.0%	0.0%	0.0%		0.0%	40.0%	60.0%		50.3%	2.2%	47.6%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/10/06

		Start	Peak Hr	.... Volumes	....				.... Percentages	....		
Direction	Street Name	Peak Hour	Factor	Left	Thru	Rght		Total	Left	Thru	Rght	
Southbound	WINTERS STREET	04:15pm	.903	261	176	0	0	437	59.7	40.2	.0	.0
Westbound	SR 80 EB OFF RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0
Northbound			.948	0	97	176	0	273	.0	35.5	64.4	.0
Eastbound	SR 80 EB ON RAMP		.857	49	1	46	0	96	51.0	1.0	47.9	.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 8
Page : 2

WINTERS STREET

0 | 176 | 261

49
97
0
=====
146

Inbound 437
Outbound 146
Total 583

SR 80 EB ON RAMP

0
0 0
0

49

Inbound 96
Outbound 0
1 Total 96

46

0

0

Inbound 0
Outbound 438 0
Total 438

261
1 438
176

SR 80 EB OFF RAMP

Inbound 273
Outbound 222
Total 495

0 | 0 | 97 | 176
176
46
=====
222

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 9

	WINTERS STREET				SR 80 WB OFF RAMP								SR 80 WB ON RAMP				
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
7:00am	0	44	9	53	14	0	68	82	12	52	0	64	0	0	0	0	199
7:15	0	55	20	75	21	0	53	74	11	38	0	49	0	0	0	0	198
7:30	0	62	23	85	14	0	49	63	12	42	0	54	0	0	0	0	202
7:45	0	63	15	78	31	3	62	96	7	48	0	55	0	0	0	0	229
Hour Total	0	224	67	291	80	3	232	315	42	180	0	222	0	0	0	0	828
8:00am	0	57	8	65	20	10	56	86	4	48	0	52	0	0	0	0	203
8:15	0	38	20	58	34	21	58	113	5	61	0	66	0	0	0	0	237
8:30	0	56	11	67	27	13	58	98	8	37	0	45	0	0	0	0	210
8:45	0	49	9	58	21	1	39	61	11	45	0	56	0	0	0	0	175
Hour Total	0	200	48	248	102	45	211	358	28	191	0	219	0	0	0	0	825
Grand	0	424	115	539	182	48	443	673	70	371	0	441	0	0	0	0	1653
% of Total	0.0%	25.7%	7.0%		11.0%	2.9%	26.8%		4.2%	22.4%	0.0%		0.0%	0.0%	0.0%		
Apprch %				32.6%				40.7%				26.7%					
% of Apprch	0.0%	78.7%	21.3%		27.0%	7.1%	65.8%		15.9%	84.1%	0.0%		0.0%	0.0%	0.0%		

Peak Hour Analysis By Entire Intersection for the Period: 07:00am to 08:45am on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	WINTERS STREET	07:45am	.859	0	214	54	0	268	.0	79.8	20.1	.0
Westbound	SR 80 WB OFF RAMP		.869	112	47	234	0	393	28.4	11.9	59.5	.0
Northbound			.826	24	194	0	0	218	11.0	88.9	.0	.0
Eastbound	SR 80 WB ON RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0

WINTERS STREET

54 214 0 0
194
234
=====
428

Inbound 268
Outbound 428
Total 696

SR 80 WB ON RAMP

24
125 47
54

0

Inbound 0
Outbound 125
0 Total 125

0

234

47

Inbound 393
Outbound 0 112
Total 393

0
0 0
0

SR 80 WB OFF RAMP

Inbound 218
Outbound 326
Total 544

112 24 194 0
214
0
=====
326

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

CITY OF SACRAMENTO

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 9
Page : 1

	WINTERS STREET				SR 80 WB OFF RAMP								SR 80 WB ON RAMP				
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Left	Thru	Rght	Totl	Total
4:00pm	0	102	37	139	21	0	30	51	9	29	0	38	0	0	0	0	228
4:15	0	68	36	104	26	0	28	54	13	24	0	37	0	0	0	0	195
4:30	0	90	46	136	24	0	38	62	7	34	0	41	0	0	0	0	239
4:45	0	81	35	116	27	0	33	60	8	25	0	33	0	0	0	0	209
Hour Total	0	341	154	495	98	0	129	227	37	112	0	149	0	0	0	0	871
5:00pm	0	98	30	128	23	1	25	49	6	29	0	35	0	0	0	0	212
5:15	0	66	31	97	25	0	31	56	4	31	0	35	0	0	0	0	188
5:30	0	68	27	95	21	0	27	48	16	24	0	40	0	0	0	0	183
5:45	0	41	16	57	22	0	17	39	4	18	0	22	0	0	0	0	118
Hour Total	0	273	104	377	91	1	100	192	30	102	0	132	0	0	0	0	701
Grand	0	614	258	872	189	1	229	419	67	214	0	281	0	0	0	0	1572
% of Total	0.0%	39.1%	16.4%		12.0%	.1%	14.6%		4.3%	13.6%	0.0%		0.0%	0.0%	0.0%		
Apprch %				55.5%				26.7%				17.9%					
% of Apprch	0.0%	70.4%	29.6%		45.1%	.2%	54.7%		23.8%	76.2%	0.0%		0.0%	0.0%	0.0%		

Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 01/10/06

Direction	Street Name	Start Peak Hour	Peak Hr Factor	Volumes Left	Thru	Rght		Total	Percentages Left	Thru	Rght	
Southbound	WINTERS STREET	04:00pm	.890	0	341	154	0	495	.0	68.8	31.1	.0
Westbound	SR 80 WB OFF RAMP		.915	98	0	129	0	227	43.1	.0	56.8	.0
Northbound			.909	37	112	0	0	149	24.8	75.1	.0	.0
Eastbound	SR 80 WB ON RAMP		.0	0	0	0	0	0	0.0	0.0	0.0	0.0

CITY OF SACRAMENTO

All Traffic Data
5098 Foothills Blvd. 3-302
Roseville,CA. 95678
(916)771-8700

Site Code : 00000000
Start Date: 01/10/06
File I.D. : 9
Page : 2

WINTERS STREET

154 341 0

0
112
129
=====
241

Inbound 495
Outbound 241
Total 736

SR 80 WB ON RAMP

37
191 0
154

0

Inbound 0
Outbound 191
0 Total 191

0

129

0

Inbound 227
Outbound 0 98
Total 227

0
0 0
0

SR 80 WB OFF RAMP

Inbound 149
Outbound 439
Total 588

98 37 112 0
341
0
=====
439

Appendix 4.12-B

Analysis Worksheets for Existing Conditions

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Raley Blvd. & Bell Ave.

Cycle (sec):	100	Critical Vol./Cap. (X):	0.685
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	29.7
Optimal Cycle:	72	Level Of Service:	C

Street Name:	Raley Blvd.						Bell Ave.					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	152	364	264	32	670	22	40	198	466	229	186	46
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	152	364	264	32	670	22	40	198	466	229	186	46
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	152	364	264	32	670	22	40	198	466	229	186	46
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	152	364	264	32	670	22	40	198	466	229	186	46
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	152	364	264	32	670	22	40	198	466	229	186	46
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.85	0.95	0.85	0.85	0.95	0.92	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.60	0.40
Final Sat.:	1805	3610	1615	1805	3610	1615	1805	1615	1615	1805	2807	694
Capacity Analysis Module:												
Vol/Sat:	0.08	0.10	0.16	0.02	0.19	0.01	0.02	0.12	0.29	0.13	0.07	0.07
Crit Moves:	****				****				****	****		
Green/Cycle:	0.12	0.36	0.36	0.04	0.27	0.27	0.15	0.42	0.42	0.19	0.45	0.45
Volume/Cap:	0.69	0.28	0.46	0.46	0.69	0.05	0.15	0.29	0.69	0.69	0.15	0.15
Uniform Del:	42.0	23.1	24.8	47.1	32.6	26.9	36.8	19.1	23.6	38.0	15.9	15.9
IncremntDel:	8.6	0.1	0.6	4.8	2.0	0.0	0.2	0.1	2.1	5.8	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.6	23.2	25.4	51.8	34.7	27.0	37.0	19.2	25.6	43.8	16.0	16.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.6	23.2	25.4	51.8	34.7	27.0	37.0	19.2	25.6	43.8	16.0	16.0
HCM2kAvg:	6	4	6	2	10	1	1	4	13	8	2	2

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap. (X):        0.578
Loss Time (sec):        0 (Y+R =  4 sec) Average Delay (sec/veh):       12.9
Optimal Cycle:          0               Level Of Service:                  B
********************************************************************************
Street Name:                Pinell St.                          Bell Ave.
Approach:       North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign         Stop Sign         Stop Sign         Stop Sign
Rights:           Include           Include           Include           Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1! 0  0    0  1  0  0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     129     2    27     2     1     0     1   236   170    35   327     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  129     2    27     2     1     0     1   236   170    35   327     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   129     2    27     2     1     0     1   236   170    35   327     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  129     2    27     2     1     0     1   236   170    35   327     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   129     2    27     2     1     0     1   236   170    35   327     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.82 0.01  0.17  0.67 0.33  0.00  1.00 0.58  0.42  1.00 1.00  0.00
Final Sat.:   469     7    98   336  168     0   604  408   294   601  660     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.27 0.27  0.27  0.01 0.01  xxxx  0.00 0.58  0.58  0.06 0.50  xxxx
Crit Moves:       ****        ****                  ****                  ****
Delay/Veh:   10.7 10.7  10.7   9.2  9.2   0.0   8.5 14.2  14.2   8.9 13.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  10.7 10.7  10.7   9.2  9.2   0.0   8.5 14.2  14.2   8.9 13.0   0.0
LOS by Move:   B    B     B     A    A     *     A    B     B     A    B     *
ApproachDel:      10.7               9.2              14.2              12.6
Delay Adj:        1.00              1.00              1.00              1.00
ApprAdjDel:       10.7               9.2              14.2              12.6
LOS by Appr:        B                 A                 B                 B
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Winters St. & Bell Ave.
********************************************************************************
Average Delay (sec/veh):       7.2   Worst Case Level Of Service:       B[ 14.2]
********************************************************************************
Street Name:           Winters St.                          Bell Ave.
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        0  0  1! 0  1    0  0  0  0  0    0  0  1  1  0    0  1  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     200    0   157     0    0     0     0   98    68    97  185     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200    0   157     0    0     0     0   98    68    97  185     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   200    0   157     0    0     0     0   98    68    97  185     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:   200    0   157     0    0     0     0   98    68    97  185     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  418 xxxx    83  xxxx xxxx xxxxx  xxxx xxxx xxxxx   166 xxxx xxxxx
Potent Cap.:  568 xxxx   966  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1424 xxxx xxxxx
Move Cap.:    537 xxxx   966  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1424 xxxx xxxxx
Volume/Cap:  0.37 xxxx  0.16  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.07 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx   0.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Stopped Del:xxxxx xxxx   9.1 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  614 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  2.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd StpDel:xxxxx 15.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx
Shared LOS:     *    C     *     *    *     *     *    *     *     A    *     *
ApproachDel:       14.2            xxxxxx            xxxxxx            xxxxxx
ApproachLOS:         B                *                 *                 *
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Winters St. & I-80 WB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.265
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	17.8
Optimal Cycle:	31	Level Of Service:	B

Street Name:	Winters St.						I-80 WB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 0			0 0 1 1 0			0 0 0 0 0			0 0 1! 0 1		
Volume Module:												
Base Vol:	24	194	0	0	214	54	0	0	0	112	47	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	194	0	0	214	54	0	0	0	112	47	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	194	0	0	214	54	0	0	0	112	47	234
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	194	0	0	214	54	0	0	0	112	47	234
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	24	194	0	0	214	54	0	0	0	112	47	234
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	1.00	0.92	0.92	1.00	1.00	1.00	0.83	0.83	0.83
Lanes:	1.00	2.00	0.00	0.00	1.60	0.40	0.00	0.00	0.00	0.41	0.17	1.42
Final Sat.:	1805	3610	0	0	2796	706	0	0	0	640	269	2245
Capacity Analysis Module:												
Vol/Sat:	0.01	0.05	0.00	0.00	0.08	0.08	0.00	0.00	0.00	0.18	0.18	0.10
Crit Moves:	****				****					****		
Green/Cycle:	0.05	0.34	0.00	0.00	0.29	0.29	0.00	0.00	0.00	0.66	0.66	0.66
Volume/Cap:	0.26	0.16	0.00	0.00	0.26	0.26	0.00	0.00	0.00	0.26	0.26	0.16
Uniform Del:	45.7	23.1	0.0	0.0	27.4	27.4	0.0	0.0	0.0	7.0	7.0	6.4
IncremntDel:	1.6	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
Delay/Veh:	47.3	23.1	0.0	0.0	27.5	27.5	0.0	0.0	0.0	7.1	7.1	6.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	47.3	23.1	0.0	0.0	27.5	27.5	0.0	0.0	0.0	7.1	7.1	6.5
HCM2kAvg:	1	2	0	0	3	3	0	0	0	4	4	2

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Winters St. & I-80 EB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.180
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	19.7
Optimal Cycle:	28	Level Of Service:	B

Street Name:	Winters St.						I-80 EB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1	1 0	2 0	2	0 0	1 0	1!	0 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	92	113	158	161	0	133	4	47	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	92	113	158	161	0	133	4	47	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	92	113	158	161	0	133	4	47	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	92	113	158	161	0	133	4	47	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	92	113	158	161	0	133	4	47	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.87	0.87	0.92	0.95	1.00	0.93	0.93	0.93	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	2.00	2.00	0.00	1.57	0.03	0.40	0.00	0.00	0.00
Final Sat.:	0	1655	1655	3502	3610	0	2753	60	703	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.07	0.05	0.04	0.00	0.05	0.07	0.07	0.00	0.00	0.00
Crit Moves:			****	****				****				
Green/Cycle:	0.00	0.38	0.38	0.25	0.63	0.00	0.37	0.37	0.37	0.00	0.00	0.00
Volume/Cap:	0.00	0.15	0.18	0.18	0.07	0.00	0.13	0.18	0.18	0.00	0.00	0.00
Uniform Del:	0.0	20.4	20.7	29.4	7.2	0.0	20.8	21.2	21.2	0.0	0.0	0.0
IncremntDel:	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	20.5	20.8	29.5	7.2	0.0	20.8	21.3	21.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	20.5	20.8	29.5	7.2	0.0	20.8	21.3	21.3	0.0	0.0	0.0
HCM2kAvg:	0	2	2	2	1	0	2	3	3	0	0	0

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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap. (X):        0.378
Loss Time (sec):        0 (Y+R =  4 sec) Average Delay (sec/veh):         9.8
Optimal Cycle:         37                Level Of Service:                  A
********************************************************************************
Street Name:           Marysville Blvd.                    North Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  1  0   1  0  1  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12  602    22   35  977    50   52   20    30   34   16    48
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   12  602    22   35  977    50   52   20    30   34   16    48
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    12  602    22   35  977    50   52   20    30   34   16    48
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   12  602    22   35  977    50   52   20    30   34   16    48
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    12  602    22   35  977    50   52   20    30   34   16    48
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.95  0.95 0.95 0.94  0.94 0.94 0.94  0.94 0.97 0.97  0.85
Lanes:       1.00 1.93  0.07 1.00 1.90  0.10 0.51 0.20  0.29 0.68 0.32  1.00
Final Sat.:  1805 3465   127 1805 3410   175  907  349   523 1249  588  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.17  0.17 0.02 0.29  0.29 0.06 0.06  0.06 0.03 0.03  0.03
Crit Moves:  ****                 ****       ****                  ****
Green/Cycle: 0.02 0.70  0.70 0.08 0.76  0.76 0.15 0.15  0.15 0.07 0.07  0.07
Volume/Cap:  0.38 0.25  0.25 0.25 0.38  0.38 0.38 0.38  0.38 0.38 0.38  0.41
Uniform Del: 48.6  5.5   5.5 43.4  4.1   4.1 38.2 38.2  38.2 44.3 44.3  44.4
IncremntDel:  7.4  0.1   0.1  0.9  0.1   0.1  0.9  0.9   0.9  1.8  1.8   2.4
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:   55.9  5.6   5.6 44.3  4.2   4.2 39.0 39.0  39.0 46.1 46.1  46.7
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  55.9  5.6   5.6 44.3  4.2   4.2 39.0 39.0  39.0 46.1 46.1  46.7
HCM2kAvg:       1    3     3    1    5     5    3    3     3    2    2     2
********************************************************************************
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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Raley Blvd. & I-80 WB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.371
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	6.8
Optimal Cycle:	36	Level Of Service:	A

Street Name:	Raley Blvd.						I-80 WB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 1 1 0			0 0 1 1 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	593	157	0	1003	352	0	0	0	168	0	185
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	593	157	0	1003	352	0	0	0	168	0	185
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	0	593	0	0	1003	0	0	0	0	168	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	593	0	0	1003	0	0	0	0	168	0	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	0	593	0	0	1003	0	0	0	0	168	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Lanes:	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Final Sat.:	0	3610	0	0	3610	0	0	0	0	1809	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.16	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.09	0.00	0.00
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.75	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.25	0.00	0.00
Volume/Cap:	0.00	0.22	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.37	0.00	0.00
Uniform Del:	0.0	3.8	0.0	0.0	4.3	0.0	0.0	0.0	0.0	31.0	0.0	0.0
IncremntDel:	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Delay/Veh:	0.0	3.8	0.0	0.0	4.4	0.0	0.0	0.0	0.0	31.5	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	3.8	0.0	0.0	4.4	0.0	0.0	0.0	0.0	31.5	0.0	0.0
HCM2kAvg:	0	3	0	0	5	0	0	0	0	5	0	0

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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap. (X):         0.311
Loss Time (sec):        0 (Y+R =  4 sec) Average Delay (sec/veh):          8.7
Optimal Cycle:         33                Level Of Service:                   A
********************************************************************************
Street Name:           Marysville Blvd.                      I-80 EB
Approach:       North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Protected         Protected         Protected
Rights:           Ignore            Ignore            Ignore           Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1  1  0    0  0  1  1  0    1  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  468   234     0  840   331   282     0   218     0     0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  468   234     0  840   331   282     0   218     0     0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0  468     0     0  840     0   282     0     0     0     0     0
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:    0  468     0     0  840     0   282     0     0     0     0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0  468     0     0  840     0   282     0     0     0     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.95  1.00 0.95  0.95  0.95 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  0.00  0.00 2.00  0.00  2.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0 3610     0     0 3610     0  3618    0     0     0     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.13  0.00  0.00 0.23  0.00  0.08 0.00  0.00  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.00 0.75  0.00  0.00 0.75  0.00  0.25 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.17  0.00  0.00 0.31  0.00  0.31 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0  3.6   0.0   0.0  4.1   0.0  30.4  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  0.0   0.0   0.0  0.1   0.0   0.2  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  3.6   0.0   0.0  4.2   0.0  30.6  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  3.6   0.0   0.0  4.2   0.0  30.6  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:       0    2     0     0    4     0     4    0     0     0     0     0
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #11 Beloit Dr. & Bell Ave.
*********************************************************************************
Average Delay (sec/veh):      2.2   Worst Case Level Of Service:      B[ 12.3]
*********************************************************************************
Street Name:            Beloit Dr.                          Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    0  1  1  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    22    0   115    81  387     0     0  399    59
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    22    0   115    81  387     0     0  399    59
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    22    0   115    81  387     0     0  399    59
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    22    0   115    81  387     0     0  399    59
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.8 xxxx   6.9   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   784 xxxx   229   458 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   334 xxxx   780  1114 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   315 xxxx   780  1114 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.07 xxxx  0.15  0.07 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  630 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.8 xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx 12.3 xxxxx   8.5 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     A    *     *     *    *     *
ApproachDel:     xxxxxx             12.3            xxxxxx           xxxxxx
ApproachLOS:        *                 B                *                *
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Raley Blvd. & Bell Ave.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        0.581
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        28.1
Optimal Cycle:        54                Level Of Service:                  C
********************************************************************************
Street Name:           Raley Blvd.                         Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     318   654   140    25   400    34    39   153   262   242   126    48
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  318   654   140    25   400    34    39   153   262   242   126    48
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:   318   654   140    25   400    34    39   153   262   242   126    48
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  318   654   140    25   400    34    39   153   262   242   126    48
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Final Vol.:   318   654   140    25   400    34    39   153   262   242   126    48
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.95  0.95  0.85  0.95  0.95  0.85  0.95  0.86  0.86  0.95  0.91  0.91
Lanes:       1.00  2.00  1.00  1.00  2.00  1.00  1.00  1.00  1.00  1.00  1.45  0.55
Final Sat.:  1805  3610  1615  1805  3610  1615  1805  1634  1634  1805  2507   955
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18  0.18  0.09  0.01  0.11  0.02  0.02  0.09  0.16  0.13  0.05  0.05
Crit Moves:  ****                    ****                          ****  ****
Green/Cycle: 0.30  0.46  0.46  0.04  0.19  0.19  0.15  0.28  0.28  0.23  0.35  0.35
Volume/Cap:  0.58  0.40  0.19  0.40  0.58  0.11  0.14  0.34  0.58  0.58  0.14  0.14
Uniform Del: 29.5  17.9  16.1  47.2  36.8  33.5  36.7  28.9  31.2  34.2  22.0  22.0
IncremntDel:  1.6   0.2   0.1   4.0   1.3   0.2   0.2   0.2   1.2   2.1   0.1   0.1
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:   31.1  18.1  16.2  51.2  38.1  33.6  37.0  29.1  32.4  36.3  22.0  22.0
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  31.1  18.1  16.2  51.2  38.1  33.6  37.0  29.1  32.4  36.3  22.0  22.0
HCM2kAvg:       9     7     3     1     6     1     1     4     8     8     2     2
********************************************************************************
```

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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap. (X):        0.415
Loss Time (sec):        0 (Y+R =  4 sec) Average Delay (sec/veh):        10.1
Optimal Cycle:          0                Level Of Service:                  B
********************************************************************************
Street Name:                Pinell St.                         Bell Ave.
Approach:       North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign         Stop Sign         Stop Sign         Stop Sign
Rights:            Include           Include           Include           Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       27    0     8    1    0     1    2  284    32    6  237     1
Growth Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    27    0     8    1    0     1    2  284    32    6  237     1
User Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     27    0     8    1    0     1    2  284    32    6  237     1
Reduct Vol:      0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    27    0     8    1    0     1    2  284    32    6  237     1
PCE Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     27    0     8    1    0     1    2  284    32    6  237     1
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:        0.77 0.00  0.23 0.50 0.00  0.50 1.00 0.90  0.10 1.00 0.99  0.01
Final Sat.:    488    0   145  322    0   322  676  684    77  669  739     3
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.06 xxxx  0.06 0.00 xxxx  0.00 0.00 0.42  0.42 0.01 0.32  0.32
Crit Moves:   ****             ****                          ****             ****
Delay/Veh:     8.5  0.0   8.5  8.0  0.0   8.0  8.0 10.7  10.7  8.1  9.7   9.7
Delay Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:    8.5  0.0   8.5  8.0  0.0   8.0  8.0 10.7  10.7  8.1  9.7   9.7
LOS by Move:    A    *     A    A    *     A    A    B     B    A    A     A
ApproachDel:        8.5               8.0              10.6               9.7
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:         8.5               8.0              10.6               9.7
LOS by Appr:         A                 A                 B                 A
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Winters St. & Bell Ave.
********************************************************************************
Average Delay (sec/veh):       4.7   Worst Case Level Of Service:        B[ 12.8]
********************************************************************************
Street Name:           Winters St.                        Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  1! 0  1    0  0  0  0  0    0  0  1  1  0    0  1  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      64    0   122     0    0     0     0  171   133   170  142     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   64    0   122     0    0     0     0  171   133   170  142     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    64    0   122     0    0     0     0  171   133   170  142     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    64    0   122     0    0     0     0  171   133   170  142     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  649 xxxx   152  xxxx xxxx xxxxx  xxxx xxxx xxxxx   304 xxxx xxxxx
Potent Cap.:  407 xxxx   873  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1268 xxxx xxxxx
Move Cap.:    361 xxxx   873  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1268 xxxx xxxxx
Volume/Cap:  0.18 xxxx  0.14  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.13 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx   0.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.5 xxxx xxxxx
Stopped Del:xxxxx xxxx   9.4 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.3 xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  506 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  1.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.5 xxxx xxxxx
Shrd StpDel:xxxxx 14.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.3 xxxx xxxxx
Shared LOS:     *    B     *     *    *     *     *    *     *     A    *     *
ApproachDel:        12.8            xxxxxx           xxxxxx           xxxxxx
ApproachLOS:          B                *                *                *
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap. (X):        0.260
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        15.1
Optimal Cycle:        31               Level Of Service:                 B
********************************************************************************
Street Name:               Winters St.                         I-80 WB
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  0  0  0    0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      37  112     0     0  341   154     0     0     0    98     0   129
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   37  112     0     0  341   154     0     0     0    98     0   129
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    37  112     0     0  341   154     0     0     0    98     0   129
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:   37  112     0     0  341   154     0     0     0    98     0   129
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    37  112     0     0  341   154     0     0     0    98     0   129
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.90 1.00  0.90
Lanes:       1.00 2.00  0.00  0.00 1.38  0.62  0.00 0.00  0.00  0.60 0.00  1.40
Final Sat.:  1805 3610     0     0 2370  1070     0     0     0  1026     0  2378
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.03  0.00  0.00 0.14  0.14  0.00 0.00  0.00  0.10 0.00  0.05
Crit Moves:  ****                  ****                          ****
Green/Cycle: 0.08 0.63  0.00  0.00 0.55  0.55  0.00 0.00  0.00  0.37 0.00  0.37
Volume/Cap:  0.26 0.05  0.00  0.00 0.26  0.26  0.00 0.00  0.00  0.26 0.00  0.15
Uniform Del: 43.3  7.0   0.0   0.0 11.6  11.6   0.0  0.0   0.0  22.1  0.0  21.2
IncremntDel:  1.0  0.0   0.0   0.0  0.1   0.1   0.0  0.0   0.0   0.2  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Delay/Veh:   44.3  7.0   0.0   0.0 11.7  11.7   0.0  0.0   0.0  22.3  0.0  21.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  44.3  7.0   0.0   0.0 11.7  11.7   0.0  0.0   0.0  22.3  0.0  21.2
HCM2kAvg:       1    1     0     0    4     4     0     0     0     4     0     2
********************************************************************************
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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Winters St. & I-80 EB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.226
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	17.5
Optimal Cycle:	29	Level Of Service:	B

Street Name:	Winters St.						I-80 EB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1	1 0	2 0	2	0 0	1 0	1!	0 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	97	176	261	176	0	49	1	46	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	97	176	261	176	0	49	1	46	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	97	176	261	176	0	49	1	46	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	97	176	261	176	0	49	1	46	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	97	176	261	176	0	49	1	46	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.86	0.86	0.92	0.95	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	2.00	2.00	0.00	1.35	0.01	0.64	0.00	0.00	0.00
Final Sat.:	0	1630	1630	3502	3610	0	2197	23	1053	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.11	0.07	0.05	0.00	0.02	0.04	0.04	0.00	0.00	0.00
Crit Moves:			****	****				****				
Green/Cycle:	0.00	0.48	0.48	0.33	0.81	0.00	0.19	0.19	0.19	0.00	0.00	0.00
Volume/Cap:	0.00	0.12	0.23	0.23	0.06	0.00	0.12	0.23	0.23	0.00	0.00	0.00
Uniform Del:	0.0	14.5	15.3	24.3	2.0	0.0	33.3	34.0	34.0	0.0	0.0	0.0
IncremntDel:	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.3	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	14.5	15.4	24.4	2.0	0.0	33.4	34.3	34.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	14.5	15.4	24.4	2.0	0.0	33.4	34.3	34.3	0.0	0.0	0.0
HCM2kAvg:	0	2	3	3	1	0	1	2	2	0	0	0

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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap. (X):        0.406
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):       11.5
Optimal Cycle:        38              Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                    North Ave.
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include          Include           Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  978    32    24  719    73    87   16    38    31   12    52
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  978    32    24  719    73    87   16    38    31   12    52
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27  978    32    24  719    73    87   16    38    31   12    52
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27  978    32    24  719    73    87   16    38    31   12    52
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    27  978    32    24  719    73    87   16    38    31   12    52
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  0.95 0.94  0.94  0.94 0.94  0.94  0.97 0.97  0.85
Lanes:       1.00 1.94  0.06  1.00 1.82  0.18  0.62 0.11  0.27  0.72 0.28  1.00
Final Sat.:  1805 3478   114  1805 3231   328  1096  202   479  1322  512  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.28  0.28  0.01 0.22  0.22  0.08 0.08  0.08  0.02 0.02  0.03
Crit Moves:       ****        ****             ****                         ****
Green/Cycle: 0.05 0.69  0.69  0.03 0.68  0.68  0.20 0.21  0.21  0.06 0.08  0.08
Volume/Cap:  0.33 0.41  0.41  0.41 0.33  0.33  0.41 0.37  0.37  0.37 0.30  0.41
Uniform Del: 46.2  6.6   6.6  47.4  6.6   6.6  35.2 33.7  33.7  45.0 43.4  43.8
IncremntDel:  2.3  0.1   0.1   4.5  0.1   0.1   0.8  0.6   0.6   2.0  1.1   2.1
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   48.5  6.7   6.7  51.9  6.7   6.7  35.9 34.3  34.3  47.0 44.5  45.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  48.5  6.7   6.7  51.9  6.7   6.7  35.9 34.3  34.3  47.0 44.5  45.9
HCM2kAvg:       1    7     7     1    5     5     4    4     4     2    2     2
********************************************************************************
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Raley Blvd. & I-80 WB
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        0.372
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):         9.6
Optimal Cycle:        36                Level Of Service:                  A
********************************************************************************
Street Name:            Raley Blvd.                        I-80 WB
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore          Include           Ignore
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  0  1  1  0    0  0  1  1  0    0  0  0  0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  894   222     0  701   326     0     0     0   225     0   329
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  894   222     0  701   326     0     0     0   225     0   329
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Volume:     0  894     0     0  701     0     0     0     0   225     0     0
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:    0  894     0     0  701     0     0     0     0   225     0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:     0  894     0     0  701     0     0     0     0   225     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.95  1.00 0.95  0.95  1.00 1.00  1.00  0.95 1.00  1.00
Lanes:       0.00 2.00  0.00  0.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Final Sat.:     0 3610     0     0 3610     0     0     0     0  1809     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.25  0.00  0.00 0.19  0.00  0.00 0.00  0.00  0.12 0.00  0.00
Crit Moves:       ****        ****                                ****
Green/Cycle: 0.00 0.67  0.00  0.00 0.67  0.00  0.00 0.00  0.00  0.33 0.00  0.00
Volume/Cap:  0.00 0.37  0.00  0.00 0.29  0.00  0.00 0.00  0.00  0.37 0.00  0.00
Uniform Del:  0.0  7.4   0.0   0.0  6.9   0.0   0.0  0.0   0.0  25.3  0.0   0.0
IncremntDel:  0.0  0.1   0.0   0.0  0.1   0.0   0.0  0.0   0.0   0.4  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Delay/Veh:    0.0  7.5   0.0   0.0  7.0   0.0   0.0  0.0   0.0  25.7  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  7.5   0.0   0.0  7.0   0.0   0.0  0.0   0.0  25.7  0.0   0.0
HCM2kAvg:       0    6     0     0    4     0     0    0     0     6     0     0
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        0.309
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):         6.4
Optimal Cycle:        33                Level Of Service:                  A
********************************************************************************
Street Name:           Marysville Blvd.                      I-80 EB
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected         Protected        Protected
Rights:            Ignore           Ignore            Ignore          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1  1  0    0  0  1  1  0    1  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  902   215     0  651   290   214     0   162     0     0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  902   215     0  651   290   214     0   162     0     0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0  902     0     0  651     0   214     0     0     0     0     0
Reduct Vol:     0    0     0     0    0     0     0     0     0     0     0     0
Reduced Vol:    0  902     0     0  651     0   214     0     0     0     0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0  902     0     0  651     0   214     0     0     0     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.95  1.00 0.95  0.95  0.95 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  0.00  0.00 2.00  0.00  2.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0 3610     0     0 3610     0  3618    0     0     0     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.25  0.00  0.00 0.18  0.00  0.06 0.00  0.00  0.00 0.00  0.00
Crit Moves:       ****        ****             ****
Green/Cycle: 0.00 0.81  0.00  0.00 0.81  0.00  0.19 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.31  0.00  0.00 0.22  0.00  0.31 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0  2.4   0.0   0.0  2.2   0.0  34.7  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  0.1   0.0   0.0  0.0   0.0   0.3  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  2.5   0.0   0.0  2.3   0.0  35.0  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  2.5   0.0   0.0  2.3   0.0  35.0  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:       0    4     0     0    2     0     3    0     0     0     0     0
********************************************************************************
```

```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Beloit Dr. & Bell Ave.
*******************************************************************************
Average Delay (sec/veh):      2.7   Worst Case Level Of Service:       B[ 10.9]
*******************************************************************************
Street Name:            Beloit Dr.                         Bell Ave.
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Uncontrolled      Uncontrolled
Rights:           Include          Include           Include           Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    0  1  1  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0    35    0   116    41  283     0     0  253    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0    35    0   116    41  283     0     0  253    13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0    35    0   116    41  283     0     0  253    13
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0    0     0    35    0   116    41  283     0     0  253    13
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.8 xxxx   6.9   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   483 xxxx   133   266 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   518 xxxx   898  1310 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   505 xxxx   898  1310 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.07 xxxx  0.13  0.03 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.8 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  761 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.7 xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx 10.9 xxxxx   7.8 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     A    *     *     *    *     *
ApproachDel:     xxxxxx             10.9           xxxxxx            xxxxxx
ApproachLOS:        *                B                *                 *
```

Appendix 4.12-C

Trip Generation Assumptions and Calculations

Trip Generation Comparison

Comparison of Build out	Daily Trips	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	Total	IN	OUT	Total
General Plan Buildout	27,009	2118	1310	3427	1783	2078	3861
Proposed Land Uses	32,412	731	1708	2438	1778	1294	3072
Change from Existing to Proposed	5,402	-1387	398	-989	-4	-784	-789

TRIP GENERATION FOR GENERAL PLAN BUILDOUT

TRIP GENERATION (GENERAL PLAN BUILD-OUT)													
CITY LAND USE DESIGNATION	AREA (Acres)[1]	LAND USE DENSITY OR INTENISTY[2]	ITE LAND USE CODE[3]	ITE LAND USE DESCRIPTION[3,4]	Size (Units)[4]	Daily Trips	AM PEAK HOUR			PM PEAK HOUR		
							IN	OUT	Total	IN	OUT	Total
R-1	**168.03**	**8.00**	210	Single Family, D.U.	1,344	12,864	252	756	1,008	856	502	1,358
C-2, C-4	**3.34**	**0.35**	820	Shopping Center, ksf	50.92	4,379	64	40	104	192	209	401
M-1	**134.99**	**0.50**	140	Light Industrial, ksf	2,940.08	11,387	1,861	556	2,417	821	1,459	2,280
Totals:	*306.36*			*Subtotal Raw Trip Generation*		*28,630*	*2,177*	*1,353*	*3,530*	*1,869*	*2,170*	*4,039*
Internal Reduction (Residential and Commercial Uses)[5]					2%	-573	-44	-27	-71	-37	-43	-81
Alternate Modes: *Residential*					1%	-129	-3	-8	-10	-9	-5	-14
Alternate Modes: *Commercial*					1%	-44	-1	0	-1	-2	-2	-4
Pass-by trips (Commercial Uses)					20%	-876	-13	-8	-21	-38	-42	-80
Subtotal of Reductions						*-1,621*	*-60*	*-43*	*-103*	*-86*	*-92*	*-179*
TOTAL TRIPS						**27,009**	**2,118**	**1,310**	**3,427**	**1,783**	**2,078**	**3,861**

Notes

1. Per Design, Community and Environment
2. Dwelling units per acre for residential and Floor Area Ratio of non-residential
3. Per *Trip Generation* ,Seventh Edition, ITE.
4. D.U. - Dwelling Unit, ksf - Thousand Square Feet of gross leasable area.
5. Per *Trip Generation Handbook* , ITE.

TRIP GENERATION FOR PROPOSED PROJECT BUILDOUT

TRIP GENERATION (PROPOSED PROJECT BUILD-OUT)												
CITY LAND USE DESIGNATION	Area (Acres)[1]	Land Use Density or Intensity[2]	ITE LAND USE CODE	ITE LAND USE DESCRIPTION[3,4]	SIZE (UNITS)[4]	Daily Trips	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
							IN	OUT	Total	IN	OUT	Total
R1A	**220.10**	**10.00**	210	Single Family, D.U.	2,201	17,871	388	1,162	1,550	1,091	641	1,732
RMX (Housing)	**55.20**	**25.00**	220	Apartment, D.U.	1,380	8,444	136	544	680	505	272	777
RMX (Retail)	**55.20**	**See Below**	820	Shopping Center, ksf	204.38	10,808	147	93	240	482	521	1,003
C-2	**19.70**	**0.35**	820	Shopping Center, ksf	300.35	13,880	185	118	303	621	673	1,294
M-1	**11.00**	**0.25**	140	Light Industrial, ksf	119.79	444	59	18	77	29	52	81
Total area:	**306.00**			*Subtotal Raw Trip Generation*		*51,447*	*915*	*1,935*	*2,850*	*2,728*	*2,158*	*4,886*
ITE Int Red: Non-RMX Zones[5]:		Daily:	11%	PM:	12%	-3,541	0	0	0	-209	-164	-373
Internal Trip Reduction: RMX[6]:		AM:	12%	PM & Daily:	25%	-4,813	-34	-76	-110	-247	-198	-445
				Alternate Modes: Residential[6]	4%	-1,053	-21	-68	-89	-64	-37	-100
				Alternate Modes: Commercial[6]	4%	-988	-13	-8	-22	-44	-48	-92
				Pass-by trips (Commercial Uses)[5]	35%	-8,641	-116	-74	-190	-386	-418	-804
				Subtotal of Reductions		*-19,035*	*-184*	*-227*	*-411*	*-950*	*-864*	*-1,814*
				TOTAL TRIPS		**32,412**	**731**	**1,708**	**2,438**	**1,778**	**1,294**	**3,072**

Notes
1. Per Design, Community and Environment
2. Dwelling units per acre for residential and Floor Area Ratio of non-residential
3. Per *Trip Generation* ,Seventh Edition, ITE.
4. D.U. - Dwelling Unit, ksf - Thousand Square Feet of gross leasable area.
5. Per *Trip Generation Handbook* , ITE.
6. Per *Trip Generation fo r New Urbanist Developments* , Final Report. Florida Department of Transportation, 2004.

Commercial Areas in RMX Zone				
Gross Acres	Buildable Area	Net Acres Acres	FAR	Building Area, sf
55.20	85%	46.92	0.1	204,384

TRIP GENERATION FOR BUILDOUT OF VACANT PARCELS WITH PROPOSED LAND USES

Revised 9-7-06

TRIP GENERATION (PROPOSED PROJECT BUILD-OUT)												
CITY LAND USE DESIGNATION	Area (Acres)[1]	Land Use Density or Intensity[2]	ITE LAND USE CODE	ITE LAND USE DESCRIPTION[3,4]	SIZE (UNITS)[4]	Daily Trips	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
							IN	OUT	Total	IN	OUT	Total
R1A	**15.03**	**10.00**	210	Single Family, D.U.	150	1,513	29	86	115	97	58	155
RMX (Housing)	**7.34**	**25.00**	220	Apartment, D.U.	183	1,253	19	75	94	77	42	119
RMX (Retail)	**7.34**	**See Below**	820	Shopping Center, ksf	27.18	2,912	44	28	72	127	138	265
C-2	**2.74**	**0.35**	820	Shopping Center, ksf	41.77	3,850	57	36	93	169	183	352
M-1	**0.00**	**0.25**	140	Light Industrial, ksf	0.00	0	0	0	0	0	0	0
Total area:	**25.11**			*Subtotal Raw Trip Generation*		*9,528*	*149*	*224*	*373*	*470*	*420*	*890*
ITE Int Red: Non-RMX Zones[5]:	Daily:	11%		PM:	12%	-590	0	0	0	-32	-29	-61
Internal Trip Reduction: RMX[6]:	AM:	12%		PM & Daily:	25%	-1,041	-8	-12	-20	-51	-45	-96
				Alternate Modes: Residential[6]	4%	-111	-2	-6	-8	-7	-4	-11
				Alternate Modes: Commercial[6]	4%	-270	-4	-3	-7	-12	-13	-25
				Pass-by trips (Commercial Uses)[5]	35%	-2,367	-35	-22	-58	-104	-112	-216
				Subtotal of Reductions		*-4,379*	*-49*	*-43*	*-92*	*-205*	*-203*	*-408*
				TOTAL TRIPS		**5,149**	**100**	**180**	**280**	**265**	**217**	**482**

Notes

1. Per Design, Community and Environment
2. Dwelling units per acre for residential and Floor Area Ratio of non-residential
3. Per *Trip Generation* ,Seventh Edition, ITE.
4. D.U. - Dwelling Unit, ksf - Thousand Square Feet of gross leasable area.
5. Per *Trip Generation Handbook* , ITE.
6. Per *Trip Generation fo r New Urbanist Developments* , Final Report. Florida Department of Transportation, 2004.

Commercial Areas in RMX Zone				
Gross Acres	Buildable Area	Net Acres Acres	FAR	Building Area, sf
7.34	85%	6.24	0.1	27,176

Appendix 4.12-D

Analysis Worksheets for Existing plus Proposed Project Conditions

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--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Raley Blvd. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.695
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        29.8
Optimal Cycle:       75                Level Of Service:                  C
********************************************************************************
Street Name:             Raley Blvd.                         Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  1   1  0  2  0  1   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     152  364   264    32  670    22    40  198   466   229  186    46
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  152  364   264    32  670    22    40  198   466   229  186    46
Added Vol:      6    3     2     7    4     0     0   14     7     3   31    15
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  158  367   266    39  674    22    40  212   473   232  217    61
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   158  367   266    39  674    22    40  212   473   232  217    61
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  158  367   266    39  674    22    40  212   473   232  217    61
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   158  367   266    39  674    22    40  212   473   232  217    61
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.85  0.85  0.95 0.92  0.92
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 1.56  0.44
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 1617  1617  1805 2725   766
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.10  0.16  0.02 0.19  0.01  0.02 0.13  0.29  0.13 0.08  0.08
Crit Moves:  ****                   ****                    ****  ****
Green/Cycle: 0.13 0.35  0.35  0.05 0.27  0.27  0.13 0.42  0.42  0.18 0.47  0.47
Volume/Cap:  0.70 0.29  0.47  0.47 0.70  0.05  0.17 0.31  0.70  0.70 0.17  0.17
Uniform Del: 41.9 23.6  25.4  46.5 32.9  27.1  38.5 19.3  23.7  38.1 15.0  15.0
IncremntDel:  9.0  0.1   0.6   4.2  2.2   0.0   0.3  0.1   2.2   6.3  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   50.9 23.7  26.0  50.8 35.1  27.2  38.9 19.4  25.9  44.4 15.1  15.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  50.9 23.7  26.0  50.8 35.1  27.2  38.9 19.4  25.9  44.4 15.1  15.1
HCM2kAvg:       6    4     7     2   10     1     1    4    13     8    2     2
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.623
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        14.4
Optimal Cycle:        0                Level Of Service:                  B
********************************************************************************
Street Name:             Pinell St.                        Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  0   1  0  0  1  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     129    2    27    2    1     0    1  236   170   35  327     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  129    2    27    2    1     0    1  236   170   35  327     0
Added Vol:      0    0     1    1    0     0    0   24     0    2   50     2
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:  129    2    28    3    1     0    1  260   170   37  377     2
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   129    2    28    3    1     0    1  260   170   37  377     2
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  129    2    28    3    1     0    1  260   170   37  377     2
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:   129    2    28    3    1     0    1  260   170   37  377     2
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.81 0.01  0.18 0.75 0.25  0.00 1.00 0.60  0.40 1.00 0.99  0.01
Final Sat.:   451    7    98  359  120     0  594  417   273  597  653     3
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.29 0.29  0.29 0.01 0.01  xxxx 0.00 0.62  0.62 0.06 0.58  0.58
Crit Moves:       ****            ****            ****                  ****
Delay/Veh:   11.0 11.0  11.0  9.4  9.4   0.0  8.6 15.7  15.7  9.0 14.9  14.9
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  11.0 11.0  11.0  9.4  9.4   0.0  8.6 15.7  15.7  9.0 14.9  14.9
LOS by Move:    B    B     B    A    A     *    A    C     C    A    B     B
ApproachDel:      11.0             9.4             15.6             14.4
Delay Adj:        1.00            1.00             1.00             1.00
ApprAdjDel:       11.0             9.4             15.6             14.4
LOS by Appr:        B               A                C                B
********************************************************************************
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Winters St. & Bell Ave.
********************************************************************************
Average Delay (sec/veh):      8.6   Worst Case Level Of Service:       C[ 17.5]
********************************************************************************
Street Name:           Winters St.                          Bell Ave.
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Uncontrolled      Uncontrolled
Rights:           Include          Include          Include           Include
Lanes:        0  0  1! 0  1   0  0  0  0  0   0  0  1  1  0   0  1  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     200    0   157     0    0     0     0   98    68    97  185     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200    0   157     0    0     0     0   98    68    97  185     0
Added Vol:     46    0     4     0    0     0     0    5    59     2    3     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  246    0   161     0    0     0     0  103   127    99  188     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   246    0   161     0    0     0     0  103   127    99  188     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:   246    0   161     0    0     0     0  103   127    99  188     0
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  459 xxxx   115  xxxx xxxx xxxxx  xxxx xxxx xxxxx   230 xxxx xxxxx
Potent Cap.:  536 xxxx   922  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1350 xxxx xxxxx
Move Cap.:    504 xxxx   922  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1350 xxxx xxxxx
Volume/Cap:  0.49 xxxx  0.17  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.07 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx   0.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Stopped Del:xxxxx xxxx   9.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.9 xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  568 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  3.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd StpDel:xxxxx 19.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.9 xxxx xxxxx
Shared LOS:     *    C     *     *    *     *     *    *     *     A    *     *
ApproachDel:      17.5            xxxxxx            xxxxxx            xxxxxx
ApproachLOS:        C                *                 *                 *
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.296
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        17.6
Optimal Cycle:       32                 Level Of Service:                  B
********************************************************************************
Street Name:             Winters St.                          I-80 WB
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  0  0  0    0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24  194     0     0  214    54     0     0     0   112   47   234
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   24  194     0     0  214    54     0     0     0   112   47   234
Added Vol:      0   20     0     0   42    38     0     0     0     0    0    18
PasserByVol:    0    0     0     0    0     0     0     0     0     0    0     0
Initial Fut:   24  214     0     0  256    92     0     0     0   112   47   252
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    24  214     0     0  256    92     0     0     0   112   47   252
Reduct Vol:     0    0     0     0    0     0     0     0     0     0    0     0
Reduced Vol:   24  214     0     0  256    92     0     0     0   112   47   252
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    24  214     0     0  256    92     0     0     0   112   47   252
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.82 0.82  0.82
Lanes:       1.00 2.00  0.00  0.00 1.47  0.53  0.00 0.00  0.00  0.39 0.16  1.45
Final Sat.:  1805 3610     0     0 2549   916     0    0     0   616  258  2259
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.06  0.00  0.00 0.10  0.10  0.00 0.00  0.00  0.18 0.18  0.11
Crit Moves:  ****                  ****                          ****
Green/Cycle: 0.04 0.38  0.00  0.00 0.34  0.34  0.00 0.00  0.00  0.62 0.62  0.62
Volume/Cap:  0.30 0.15  0.00  0.00 0.30  0.30  0.00 0.00  0.00  0.30 0.30  0.18
Uniform Del: 46.2 20.1   0.0   0.0 24.2  24.2   0.0  0.0   0.0   9.0  9.0   8.3
IncremntDel:  2.0  0.1   0.0   0.0  0.1   0.1   0.0  0.0   0.0   0.1  0.1   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Delay/Veh:   48.3 20.2   0.0   0.0 24.4  24.4   0.0  0.0   0.0   9.2  9.2   8.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  48.3 20.2   0.0   0.0 24.4  24.4   0.0  0.0   0.0   9.2  9.2   8.4
HCM2kAvg:       1    2     0     0    4     4     0    0     0     5    5     3
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Winters St. & I-80 EB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.196
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.1
Optimal Cycle:       28                Level Of Service:                  C
********************************************************************************
Street Name:                Winters St.                        I-80 EB
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1  1  0    2  0  2  0  0    1  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   92   113   158  161     0   133    4    47     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   92   113   158  161     0   133    4    47     0    0     0
Added Vol:      0    2     0    38    4     0    18    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   94   113   196  165     0   151    4    47     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0   94   113   196  165     0   151    4    47     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0   94   113   196  165     0   151    4    47     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0   94   113   196  165     0   151    4    47     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Lanes:       0.00 1.00  1.00  2.00 2.00  0.00  1.60 0.03  0.37  0.00 0.00  0.00
Final Sat.:     0 1657  1657  3502 3610     0  2825   56   657     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.06  0.07  0.06 0.05  0.00  0.05 0.07  0.07  0.00 0.00  0.00
Crit Moves:             ****  ****                   ****
Green/Cycle: 0.00 0.35  0.35  0.29 0.63  0.00  0.37 0.37  0.37  0.00 0.00  0.00
Volume/Cap:  0.00 0.16  0.20  0.20 0.07  0.00  0.15 0.20  0.20  0.00 0.00  0.00
Uniform Del:  0.0 22.5  22.8  27.0  7.0   0.0  21.3 21.7  21.7   0.0  0.0   0.0
IncremntDel:  0.0  0.1   0.1   0.1  0.0   0.0   0.0  0.1   0.1   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Delay/Veh:    0.0 22.6  22.9  27.1  7.0   0.0  21.3 21.8  21.8   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 22.6  22.9  27.1  7.0   0.0  21.3 21.8  21.8   0.0  0.0   0.0
HCM2kAvg:       0    2     2     2    1     0     2    3     3     0    0     0
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.383
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        10.3
Optimal Cycle:       37                Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                     North Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  1  0   1  0  1  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12  602    22   35  977    50   52   20    30   34   16    48
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   12  602    22   35  977    50   52   20    30   34   16    48
Added Vol:      0    3     4    3    3     0    0    0     0    8    0     4
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   12  605    26   38  980    50   52   20    30   42   16    52
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    12  605    26   38  980    50   52   20    30   42   16    52
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   12  605    26   38  980    50   52   20    30   42   16    52
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    12  605    26   38  980    50   52   20    30   42   16    52
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.94  0.94 0.95 0.94  0.94 0.94 0.94  0.94 0.97 0.97  0.85
Lanes:       1.00 1.92  0.08 1.00 1.90  0.10 0.51 0.20  0.29 0.72 0.28  1.00
Final Sat.:  1805 3440   148 1805 3411   174  907  349   523 1328  506  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.18  0.18 0.02 0.29  0.29 0.06 0.06  0.06 0.03 0.03  0.03
Crit Moves:  ****                 ****       ****                  ****
Green/Cycle: 0.02 0.69  0.69 0.08 0.75  0.75 0.15 0.15  0.15 0.08 0.08  0.08
Volume/Cap:  0.38 0.26  0.26 0.26 0.38  0.38 0.38 0.38  0.38 0.38 0.38  0.39
Uniform Del: 48.6  6.0   6.0 43.0  4.4   4.4 38.3 38.3  38.3 43.5 43.5  43.5
IncremntDel:  7.6  0.1   0.1  0.9  0.1   0.1  0.9  0.9   0.9  1.6  1.6   1.9
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh:   56.2  6.1   6.1 44.0  4.5   4.5 39.3 39.3  39.3 45.1 45.1  45.4
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  56.2  6.1   6.1 44.0  4.5   4.5 39.3 39.3  39.3 45.1 45.1  45.4
HCM2kAvg:       1    4     4    1    6     6    3    3     3    2    2     2
********************************************************************************
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 Raley Blvd. & I-80 WB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.544
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	13.8
Optimal Cycle:	50	Level Of Service:	B

Street Name:	Raley Blvd.						I-80 WB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1 0 1 0			0 0 1 1 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	593	157	0	1003	352	0	0	0	168	0	185
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	593	157	0	1003	352	0	0	0	168	0	185
Added Vol:	6	10	0	0	15	2	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	603	157	0	1018	354	0	0	0	168	0	185
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	6	603	0	0	1018	0	0	0	0	168	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	603	0	0	1018	0	0	0	0	168	0	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	6	603	0	0	1018	0	0	0	0	168	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Lanes:	0.02	1.98	0.00	0.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Final Sat.:	36	3574	0	0	3610	0	0	0	0	1809	0	0
Capacity Analysis Module:												
Vol/Sat:	0.17	0.17	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.09	0.00	0.00
Crit Moves:	****				****					****		
Green/Cycle:	0.31	0.83	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.17	0.00	0.00
Volume/Cap:	0.54	0.20	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.54	0.00	0.00
Uniform Del:	28.6	1.8	0.0	0.0	16.1	0.0	0.0	0.0	0.0	37.9	0.0	0.0
IncremntDel:	0.6	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	2.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Delay/Veh:	29.2	1.8	0.0	0.0	16.5	0.0	0.0	0.0	0.0	39.9	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	29.2	1.8	0.0	0.0	16.5	0.0	0.0	0.0	0.0	39.9	0.0	0.0
HCM2kAvg:	8	2	0	0	11	0	0	0	0	6	0	0

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.449
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        16.2
Optimal Cycle:       41                 Level Of Service:                 B
********************************************************************************
Street Name:         Marysville Blvd.                      I-80 EB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore           Ignore           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1  1  0   0  1  0  1  0   1  0  1! 0  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  468   234     0  840   331   282    0   218     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  468   234     0  840   331   282    0   218     0    0     0
Added Vol:      0   16     6     2   14     0     1    0     8     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  484   240     2  854   331   283    0   226     0    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0  484     0     2  854     0   283    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  484     0     2  854     0   283    0     0     0    0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0  484     0     2  854     0   283    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.95  0.95 0.95  0.95  0.95 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  0.00  0.01 1.99  0.00  2.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0 3610     0     8 3602     0  3618    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.13  0.00  0.24 0.24  0.00  0.08 0.00  0.00  0.00 0.00  0.00
Crit Moves:       ****        ****              ****
Green/Cycle: 0.00 0.30  0.00  0.53 0.83  0.00  0.17 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.45  0.00  0.45 0.29  0.00  0.45 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0 28.4   0.0  14.6  2.0   0.0  37.0  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  0.3   0.0   0.2  0.1   0.0   0.5  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  1.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0 28.7   0.0  14.8  2.0   0.0  37.5  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 28.7   0.0  14.8  2.0   0.0  37.5  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:       0    6     0     8    3     0     4    0     0     0    0     0
********************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #11 Beloit Dr. & Bell Ave.
*******************************************************************************
Average Delay (sec/veh):      2.2   Worst Case Level Of Service:      B[ 12.9]
*******************************************************************************
Street Name:              Beloit Dr.                       Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  0  1! 0  0   0  1  1  0  0   0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    22    0   115    81  387     0     0  399    59
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    22    0   115    81  387     0     0  399    59
Added Vol:      0    0     0     1    0     0     0   23     0     0   49     2
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    23    0   115    81  410     0     0  448    61
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    23    0   115    81  410     0     0  448    61
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    23    0   115    81  410     0     0  448    61
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.8 xxxx   6.9   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   846 xxxx   255   509 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   305 xxxx   751  1066 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   287 xxxx   751  1066 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.08 xxxx  0.15  0.08 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  591 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.9 xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx 12.9 xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    B     *     A    *     *     *    *     *
ApproachDel:     xxxxxx             12.9           xxxxxx           xxxxxx
ApproachLOS:        *                 B                *                *
```

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Raley Blvd. & Bell Ave.

Cycle (sec): 100
Loss Time (sec): 0 (Y+R = 4 sec)
Optimal Cycle: 58
Critical Vol./Cap. (X): 0.609
Average Delay (sec/veh): 29.0
Level Of Service: C

Street Name:	Raley Blvd.						Bell Ave.					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	318	654	140	25	400	34	39	153	262	242	126	48
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	318	654	140	25	400	34	39	153	262	242	126	48
Added Vol:	19	10	7	18	9	0	0	36	19	7	26	13
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	337	664	147	43	409	34	39	189	281	249	152	61
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	337	664	147	43	409	34	39	189	281	249	152	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	337	664	147	43	409	34	39	189	281	249	152	61
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	337	664	147	43	409	34	39	189	281	249	152	61
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.85	0.95	0.86	0.86	0.95	0.91	0.91
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.43	0.57
Final Sat.:	1805	3610	1615	1805	3610	1615	1805	1643	1643	1805	2465	989
Capacity Analysis Module:												
Vol/Sat:	0.19	0.18	0.09	0.02	0.11	0.02	0.02	0.12	0.17	0.14	0.06	0.06
Crit Moves:	****				****				****	****		
Green/Cycle:	0.31	0.44	0.44	0.06	0.19	0.19	0.13	0.28	0.28	0.23	0.38	0.38
Volume/Cap:	0.61	0.42	0.21	0.42	0.61	0.11	0.16	0.41	0.61	0.61	0.16	0.16
Uniform Del:	29.6	19.5	17.5	45.6	37.4	33.8	38.5	29.2	31.2	34.7	20.8	20.8
IncremntDel:	2.0	0.2	0.1	2.8	1.6	0.2	0.3	0.2	1.4	2.7	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	31.5	19.7	17.6	48.4	39.0	34.0	38.9	29.5	32.6	37.4	20.8	20.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.5	19.7	17.6	48.4	39.0	34.0	38.9	29.5	32.6	37.4	20.8	20.8
HCM2kAvg:	10	7	3	2	7	1	1	5	8	8	2	2

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                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.502
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):      11.3
Optimal Cycle:        0              Level Of Service:                  B
********************************************************************************
Street Name:            Pinell St.                          Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  0  1! 0  0   1  0  0  1  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27    0     8    1    0     1    2  284    32    6  237     1
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   27    0     8    1    0     1    2  284    32    6  237     1
Added Vol:      0    0     2    2    0     1    1   61     0    1   45     1
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   27    0    10    3    0     2    3  345    32    7  282     2
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    27    0    10    3    0     2    3  345    32    7  282     2
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   27    0    10    3    0     2    3  345    32    7  282     2
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:    27    0    10    3    0     2    3  345    32    7  282     2
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.73 0.00  0.27 0.60 0.00  0.40 1.00 0.92  0.08 1.00 0.99  0.01
Final Sat.:   438    0   162  359    0   239  668  687    64  660  726     5
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 xxxx  0.06 0.01 xxxx  0.01 0.00 0.50  0.50 0.01 0.39  0.39
Crit Moves:  ****            ****                  ****                  ****
Delay/Veh:    8.7  0.0   8.7  8.4  0.0   8.4  8.1 12.1  12.1  8.1 10.6  10.6
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   8.7  0.0   8.7  8.4  0.0   8.4  8.1 12.1  12.1  8.1 10.6  10.6
LOS by Move:   A    *     A    A    *     A    A    B     B    A    B     B
ApproachDel:        8.7              8.4             12.1             10.5
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         8.7              8.4             12.1             10.5
LOS by Appr:         A                A                B                B
********************************************************************************
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Winters St. & Bell Ave.
********************************************************************************
Average Delay (sec/veh):      6.7   Worst Case Level Of Service:      C[ 19.0]
********************************************************************************
Street Name:           Winters St.                         Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  1   0  0  0  0  0   0  0  1  1  0   0  1  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      64    0   122     0    0     0     0  171   133   170  142     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   64    0   122     0    0     0     0  171   133   170  142     0
Added Vol:     71    0     4     0    0     0     0    7    67     5    8     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  135    0   126     0    0     0     0  178   200   175  150     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   135    0   126     0    0     0     0  178   200   175  150     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:   135    0   126     0    0     0     0  178   200   175  150     0
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  703 xxxx   189  xxxx xxxx xxxxx  xxxx xxxx xxxxx   378 xxxx xxxxx
Potent Cap.:  376 xxxx   827  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1192 xxxx xxxxx
Move Cap.:    329 xxxx   827  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1192 xxxx xxxxx
Volume/Cap:  0.41 xxxx  0.15  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.15 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:       xxxxx xxxx   0.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.5 xxxx xxxxx
Stopped Del:xxxxx xxxx   9.7 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.5 xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  407 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  2.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.5 xxxx xxxxx
Shrd StpDel:xxxxx 21.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.5 xxxx xxxxx
Shared LOS:     *    C     *     *    *     *     *    *     *     A    *     *
ApproachDel:       19.0           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         C                *                *                *
```

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Winters St. & I-80 WB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.294
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	14.9
Optimal Cycle:	32	Level Of Service:	B

Street Name:	Winters St.						I-80 WB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 0			0 0 1 1 0			0 0 0 0 0			0 0 1! 0 1		
Volume Module:												
Base Vol:	37	112	0	0	341	154	0	0	0	98	0	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	112	0	0	341	154	0	0	0	98	0	129
Added Vol:	0	50	0	0	37	32	0	0	0	0	0	45
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	162	0	0	378	186	0	0	0	98	0	174
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	37	162	0	0	378	186	0	0	0	98	0	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	162	0	0	378	186	0	0	0	98	0	174
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	162	0	0	378	186	0	0	0	98	0	174
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	1.00	0.90	0.90	1.00	1.00	1.00	0.89	1.00	0.89
Lanes:	1.00	2.00	0.00	0.00	1.34	0.66	0.00	0.00	0.00	0.53	0.00	1.47
Final Sat.:	1805	3610	0	0	2301	1132	0	0	0	893	0	2480
Capacity Analysis Module:												
Vol/Sat:	0.02	0.04	0.00	0.00	0.16	0.16	0.00	0.00	0.00	0.11	0.00	0.07
Crit Moves:	****				****					****		
Green/Cycle:	0.07	0.63	0.00	0.00	0.56	0.56	0.00	0.00	0.00	0.37	0.00	0.37
Volume/Cap:	0.29	0.07	0.00	0.00	0.29	0.29	0.00	0.00	0.00	0.29	0.00	0.19
Uniform Del:	44.2	7.3	0.0	0.0	11.7	11.7	0.0	0.0	0.0	22.1	0.0	21.2
IncremntDel:	1.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	45.5	7.3	0.0	0.0	11.8	11.8	0.0	0.0	0.0	22.3	0.0	21.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.5	7.3	0.0	0.0	11.8	11.8	0.0	0.0	0.0	22.3	0.0	21.2
HCM2kAvg:	1	1	0	0	5	5	0	0	0	4	0	2

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #6 Winters St. & I-80 EB
******************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.246
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       18.8
Optimal Cycle:       30              Level Of Service:                 B
******************************************************************************
Street Name:             Winters St.                         I-80 EB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1  1  0   2  0  2  0  0   1  0  1! 0  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0   97   176   261  176     0    49    1    46     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0   97   176   261  176     0    49    1    46     0    0     0
Added Vol:     0    5     0    32    5     0    45    0     0     0    0     0
PasserByVol:   0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   0  102   176   293  181     0    94    1    46     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  102   176   293  181     0    94    1    46     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  102   176   293  181     0    94    1    46     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    0  102   176   293  181     0    94    1    46     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.86  0.86  0.92 0.95  1.00  0.90 0.90  0.90  1.00 1.00  1.00
Lanes:       0.00 1.00  1.00  2.00 2.00  0.00  1.50 0.01  0.49  0.00 0.00  0.00
Final Sat.:    0 1634  1634  3502 3610     0  2578   18   841     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.06  0.11  0.08 0.05  0.00  0.04 0.05  0.05  0.00 0.00  0.00
Crit Moves:             ****  ****                   ****
Green/Cycle: 0.00 0.44  0.44  0.34 0.78  0.00  0.22 0.22  0.22  0.00 0.00  0.00
Volume/Cap:  0.00 0.14  0.25  0.25 0.06  0.00  0.16 0.25  0.25  0.00 0.00  0.00
Uniform Del:  0.0 16.9  17.7  23.8  2.6   0.0  31.4 32.0  32.0   0.0  0.0   0.0
IncremntDel:  0.0  0.0   0.1   0.1  0.0   0.0   0.1  0.2   0.2   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Delay/Veh:    0.0 16.9  17.8  23.9  2.6   0.0  31.5 32.2  32.2   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 16.9  17.8  23.9  2.6   0.0  31.5 32.2  32.2   0.0  0.0   0.0
HCM2kAvg:      0    2     3     3    1     0     2    3     3     0    0     0
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                     Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
*******************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.420
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       12.1
Optimal Cycle:       39               Level Of Service:                  B
*******************************************************************************
Street Name:         Marysville Blvd.                    North Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  978    32    24  719    73    87   16    38    31   12    52
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  978    32    24  719    73    87   16    38    31   12    52
Added Vol:      0    6    10     8    6     0     0    0     0     7    0     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   27  984    42    32  725    73    87   16    38    38   12    59
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27  984    42    32  725    73    87   16    38    38   12    59
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27  984    42    32  725    73    87   16    38    38   12    59
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    27  984    42    32  725    73    87   16    38    38   12    59
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.94  0.94  0.95 0.94  0.94  0.94 0.94  0.94  0.96 0.96  0.85
Lanes:       1.00 1.92  0.08  1.00 1.82  0.18  0.62 0.11  0.27  0.76 0.24  1.00
Final Sat.:  1805 3441   147  1805 3234   326  1096  202   479  1391  439  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.29  0.29  0.02 0.22  0.22  0.08 0.08  0.08  0.03 0.03  0.04
Crit Moves:       ****        ****             ****                         ****
Green/Cycle: 0.05 0.68  0.68  0.04 0.68  0.68  0.19 0.21  0.21  0.07 0.09  0.09
Volume/Cap:  0.33 0.42  0.42  0.42 0.33  0.33  0.42 0.39  0.39  0.39 0.31  0.42
Uniform Del: 46.3  7.1   7.1  46.7  6.7   6.7  35.7 34.3  34.3  44.4 42.8  43.3
IncremntDel:  2.4  0.1   0.1   3.7  0.1   0.1   0.8  0.7   0.7   1.9  1.1   2.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   48.6  7.2   7.2  50.4  6.7   6.7  36.6 35.0  35.0  46.3 44.0  45.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  48.6  7.2   7.2  50.4  6.7   6.7  36.6 35.0  35.0  46.3 44.0  45.3
HCM2kAvg:       1    7     7     2    5     5     4    4     4     2    2     2
*******************************************************************************
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Raley Blvd. & I-80 WB
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.593
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       16.9
Optimal Cycle:       56               Level Of Service:                 B
********************************************************************************
Street Name:               Raley Blvd.                         I-80 WB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore          Include           Ignore
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  0  1  0   0  0  1  1  0   0  0  0  0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  894   222    0  701   326    0    0     0  225    0   329
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  894   222    0  701   326    0    0     0  225    0   329
Added Vol:    23   37     0    0   34     1    0    0     0    0    0     0
PasserByVol:   0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:  23  931   222    0  735   327    0    0     0  225    0   329
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Volume:   23  931     0    0  735     0    0    0     0  225    0     0
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  23  931     0    0  735     0    0    0     0  225    0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:   23  931     0    0  735     0    0    0     0  225    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  1.00 0.95  0.95  1.00 1.00  1.00  0.95 1.00  1.00
Lanes:       0.05 1.95  0.00  0.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Final Sat.:    87 3519     0     0 3610     0     0    0     0  1809    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.26 0.26  0.00  0.00 0.20  0.00  0.00 0.00  0.00  0.12 0.00  0.00
Crit Moves:  ****                  ****                         ****
Green/Cycle: 0.45 0.79  0.00  0.00 0.34  0.00  0.00 0.00  0.00  0.21 0.00  0.00
Volume/Cap:  0.59 0.33  0.00  0.00 0.59  0.00  0.00 0.00  0.00  0.59 0.00  0.00
Uniform Del: 20.8  3.0   0.0   0.0 27.0   0.0   0.0  0.0   0.0  35.6  0.0   0.0
IncremntDel:  0.6  0.1   0.0   0.0  0.8   0.0   0.0  0.0   0.0   2.5  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Delay/Veh:   21.4  3.1   0.0   0.0 27.8   0.0   0.0  0.0   0.0  38.1  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  21.4  3.1   0.0   0.0 27.8   0.0   0.0  0.0   0.0  38.1  0.0   0.0
HCM2kAvg:     11    4     0     0   10     0     0    0     0     7    0     0
********************************************************************************
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.515
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):      13.6
Optimal Cycle:       47              Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                      I-80 EB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Ignore           Ignore           Ignore          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        0  0  1  1  0   0  1  0  1  0   1  0  1! 0  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  902   215     0  651   290   214    0   162     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  902   215     0  651   290   214    0   162     0    0     0
Added Vol:      0   58    23     1   33     0     2    0    22     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  960   238     1  684   290   216    0   184     0    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0  960     0     1  684     0   216    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  960     0     1  684     0   216    0     0     0    0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0  960     0     1  684     0   216    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.95  0.95 0.95  0.95  0.95 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  0.00  0.01 1.99  0.00  2.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0 3610     0     5 3605     0  3618    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.27  0.00  0.19 0.19  0.00  0.06 0.00  0.00  0.00 0.00  0.00
Crit Moves:       ****        ****             ****
Green/Cycle: 0.00 0.52  0.00  0.37 0.88  0.00  0.12 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.52  0.00  0.52 0.21  0.00  0.52 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0 16.0   0.0  24.6  0.8   0.0  41.6  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  0.3   0.0   0.4  0.0   0.0   1.1  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  1.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0 16.2   0.0  25.0  0.9   0.0  42.7  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 16.2   0.0  25.0  0.9   0.0  42.7  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:       0   10     0     8    2     0     4    0     0     0    0     0
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                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #11 Beloit Dr. & Bell Ave.
*******************************************************************************
Average Delay (sec/veh):      2.5   Worst Case Level Of Service:      B[ 11.5]
*******************************************************************************
Street Name:           Beloit Dr.                          Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  0  1! 0  0   0  1  1  0  0   0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    35    0   116    41  283     0     0  253    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    35    0   116    41  283     0     0  253    13
Added Vol:      0    0     0     2    0     1     1   60     0     0   45     1
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    37    0   117    42  343     0     0  298    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    37    0   117    42  343     0     0  298    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    37    0   117    42  343     0     0  298    14
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.8 xxxx   6.9   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   561 xxxx   156   312 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   463 xxxx   868  1260 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   451 xxxx   868  1260 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.08 xxxx  0.13  0.03 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.0 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  710 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.8 xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx 11.5 xxxxx   8.0 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     A    *     *     *    *     *
ApproachDel:     xxxxxx            11.5            xxxxxx           xxxxxx
ApproachLOS:        *                B                *                *
```

Appendix 4.12-E

Analysis Worksheets for Cumulative Conditions

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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Raley Blvd. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        1.146
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        79.4
Optimal Cycle:      180                Level Of Service:                  E
********************************************************************************
Street Name:           Raley Blvd.                          Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     152  364   264    32  670    22    40  198   466   229  186    46
Growth Adj:  1.63 1.63  1.63  1.63 1.63  1.63  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:  248  593   430    52 1092    36    68  337   792   389  316    78
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   248  593   430    52 1092    36    68  337   792   389  316    78
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  248  593   430    52 1092    36    68  337   792   389  316    78
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   248  593   430    52 1092    36    68  337   792   389  316    78
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.85  0.85  0.95 0.92  0.92
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 1.60  0.40
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 1615  1615  1805 2807   694
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.16  0.27  0.03 0.30  0.02  0.04 0.21  0.49  0.22 0.11  0.11
Crit Moves:  ****                  ****                    ****  ****
Green/Cycle: 0.12 0.35  0.35  0.04 0.26  0.26  0.15 0.43  0.43  0.19 0.46  0.46
Volume/Cap:  1.15 0.47  0.77  0.77 1.15  0.08  0.24 0.49  1.15  1.15 0.24  0.24
Uniform Del: 44.0 25.6  29.1  47.7 36.8  27.7  37.1 20.7  28.6  40.6 16.3  16.3
IncremntDel:106.1  0.3   6.4  40.6 78.1   0.1   0.5  0.2  77.7  94.5  0.1   0.1
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  150.1 25.9  35.6  88.3  115  27.8  37.6 20.8 106.3 135.1 16.4  16.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 150.1 25.9  35.6  88.3  115  27.8  37.6 20.8 106.3 135.1 16.4  16.4
HCM2kAvg:      15    7    13     3   29     1     2    8    40    23    4     4
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.517
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):      20.5
Optimal Cycle:       47              Level Of Service:                 C
********************************************************************************
Street Name:               Pinell St.                        Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1! 0  0    0  1  0  0  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     129     2    27     2     1     0     1   236   170    35   327     0
Growth Adj:  3.17 1.00  3.17  1.00 1.00  1.00  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:  409     2    86     2     1     0     2   401   289    60   556     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   409     2    86     2     1     0     2   401   289    60   556     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  409     2    86     2     1     0     2   401   289    60   556     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   409     2    86     2     1     0     2   401   289    60   556     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.94 0.94  0.94  0.97 0.97  1.00  0.95 0.89  0.89  0.95 0.95  0.95
Lanes:       0.82 0.01  0.17  0.67 0.33  0.00  1.00 1.16  0.84  1.00 2.00  0.00
Final Sat.:  1468    7   307  1226  613     0  1805 1966  1416  1805 3610     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.28 0.28  0.28  0.00 0.00  0.00  0.00 0.20  0.20  0.03 0.15  0.00
Crit Moves:  ****                  ****                ****        ****
Green/Cycle: 0.54 0.54  0.54  0.00 0.00  0.00  0.00 0.39  0.39  0.06 0.46  0.00
Volume/Cap:  0.52 0.52  0.52  0.52 0.52  0.00  0.34 0.52  0.52  0.52 0.34  0.00
Uniform Del: 14.8 14.8  14.8  49.8 49.8   0.0  49.8 23.0  23.0  45.3 17.5   0.0
IncremntDel:  0.5  0.5   0.5  63.7 63.7   0.0  35.9  0.4   0.4   4.1  0.1   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   15.2 15.2  15.2 113.4  113   0.0  85.7 23.4  23.4  49.4 17.7   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.2 15.2  15.2 113.4  113   0.0  85.7 23.4  23.4  49.4 17.7   0.0
HCM2kAvg:      10   10    10     1    1     0     0    8     8     3    5     0
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Winters St. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.618
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        17.5
Optimal Cycle:       60                Level Of Service:                  B
********************************************************************************
Street Name:           Winters St.                        Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  2    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     200    0   157     0    0     0     0   98    68    97  185     0
Growth Adj:  4.00 4.00  4.00  1.00 1.00  1.00  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:  800    0   628     0    0     0     0  167   116   165  315     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   800    0   628     0    0     0     0  167   116   165  315     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  800    0   628     0    0     0     0  167   116   165  315     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   800    0   628     0    0     0     0  167   116   165  315     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.75  1.00 1.00  1.00  1.00 0.89  0.89  0.95 0.95  1.00
Lanes:       1.00 0.00  2.00  0.00 0.00  0.00  0.00 1.18  0.82  1.00 2.00  0.00
Final Sat.:  1805    0  2842     0    0     0     0 2001  1389  1805 3610     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.44 0.00  0.22  0.00 0.00  0.00  0.00 0.08  0.08  0.09 0.09  0.00
Crit Moves:  ****                                   ****        ****
Green/Cycle: 0.72 0.00  0.72  0.00 0.00  0.00  0.00 0.13  0.13  0.15 0.28  0.00
Volume/Cap:  0.62 0.00  0.31  0.00 0.00  0.00  0.00 0.62  0.62  0.62 0.31  0.00
Uniform Del:  7.2  0.0   5.1   0.0  0.0   0.0   0.0 40.8  40.8  40.0 28.2   0.0
IncremntDel:  0.9  0.0   0.1   0.0  0.0   0.0   0.0  2.6   2.6   4.3  0.2   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:    8.1  0.0   5.2   0.0  0.0   0.0   0.0 43.4  43.4  44.3 28.4   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   8.1  0.0   5.2   0.0  0.0   0.0   0.0 43.4  43.4  44.3 28.4   0.0
HCM2kAvg:      13    0     4     0    0     0     0    5     5     6    4     0
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        1.059
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        48.6
Optimal Cycle:      180                Level Of Service:                  D
********************************************************************************
Street Name:           Winters St.                      I-80 WB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  0  0  0    0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24  194     0     0  214    54     0    0     0   112   47   234
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:   96  776     0     0  856   216     0    0     0   448  188   936
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    96  776     0     0  856   216     0    0     0   448  188   936
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   96  776     0     0  856   216     0    0     0   448  188   936
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    96  776     0     0  856   216     0    0     0   448  188   936
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.92  0.92  1.00 1.00  1.00  0.83 0.83  0.83
Lanes:       1.00 2.00  0.00  0.00 1.60  0.40  0.00 0.00  0.00  0.41 0.17  1.42
Final Sat.:  1805 3610     0     0 2796   706     0    0     0   640  269  2245
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.21  0.00  0.00 0.31  0.31  0.00 0.00  0.00  0.70 0.70  0.42
Crit Moves:  ****                  ****                          ****
Green/Cycle: 0.05 0.34  0.00  0.00 0.29  0.29  0.00 0.00  0.00  0.66 0.66  0.66
Volume/Cap:  1.06 0.63  0.00  0.00 1.06  1.06  0.00 0.00  0.00  1.06 1.06  0.63
Uniform Del: 47.5 27.8   0.0   0.0 35.6  35.6   0.0  0.0   0.0  17.0 17.0   9.9
IncremntDel:111.6  1.1   0.0   0.0 45.4  45.4   0.0  0.0   0.0  40.9 40.9   0.5
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Delay/Veh:  159.1 28.9   0.0   0.0 81.0  81.0   0.0  0.0   0.0  57.9 57.9  10.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 159.1 28.9   0.0   0.0 81.0  81.0   0.0  0.0   0.0  57.9 57.9  10.4
HCM2kAvg:       7   11     0     0   25    25     0    0     0    51   51    13
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Winters St. & I-80 EB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.721
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        24.9
Optimal Cycle:       82                Level Of Service:                  C
********************************************************************************
Street Name:             Winters St.                          I-80 EB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1  1  0   2  0  2  0  0   1  0  1! 0  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   92   113  158  161     0  133    4    47    0    0     0
Growth Adj:  4.00 4.00  4.00 4.00 4.00  4.00 4.00 4.00  4.00 4.00 4.00  4.00
Initial Bse:    0  368   452  632  644     0  532   16   188    0    0     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0  368   452  632  644     0  532   16   188    0    0     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0  368   452  632  644     0  532   16   188    0    0     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0  368   452  632  644     0  532   16   188    0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 0.87  0.87 0.92 0.95  1.00 0.93 0.93  0.93 1.00 1.00  1.00
Lanes:       0.00 1.00  1.00 2.00 2.00  0.00 1.57 0.03  0.40 0.00 0.00  0.00
Final Sat.:     0 1655  1655 3502 3610     0 2753   60   703    0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.22  0.27 0.18 0.18  0.00 0.19 0.27  0.27 0.00 0.00  0.00
Crit Moves:             **** ****                  ****
Green/Cycle: 0.00 0.38  0.38 0.25 0.63  0.00 0.37 0.37  0.37 0.00 0.00  0.00
Volume/Cap:  0.00 0.59  0.72 0.72 0.28  0.00 0.52 0.72  0.72 0.00 0.00  0.00
Uniform Del:  0.0 24.8  26.5 34.3  8.4   0.0 24.5 27.0  27.0  0.0  0.0   0.0
IncremntDel:  0.0  0.7   2.3  2.9  0.1   0.0  0.4  2.5   2.5  0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00 1.00 1.00  0.00 1.00 1.00  1.00 0.00 0.00  0.00
Delay/Veh:    0.0 25.5  28.8 37.2  8.4   0.0 24.9 29.6  29.6  0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0 25.5  28.8 37.2  8.4   0.0 24.9 29.6  29.6  0.0  0.0   0.0
HCM2kAvg:       0   10    13   11    4     0    9   14    14    0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.682
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        17.1
Optimal Cycle:       72                Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                     North Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12  602    22    35  977    50    52   20    30    34   16    48
Growth Adj:  1.63 1.63  1.63  1.63 1.63  1.63  2.42 2.42  2.42  2.42 2.42  2.42
Initial Bse:   20  981    36    57 1593    82   126   48    73    82   39   116
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20  981    36    57 1593    82   126   48    73    82   39   116
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   20  981    36    57 1593    82   126   48    73    82   39   116
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    20  981    36    57 1593    82   126   48    73    82   39   116
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  0.95 0.94  0.94  0.94 0.94  0.94  0.97 0.97  0.85
Lanes:       1.00 1.93  0.07  1.00 1.90  0.10  0.51 0.20  0.29  0.68 0.32  1.00
Final Sat.:  1805 3465   127  1805 3410   175   907  349   523  1249  588  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.28  0.28  0.03 0.47  0.47  0.14 0.14  0.14  0.07 0.07  0.07
Crit Moves:  ****                  ****        ****                   ****
Green/Cycle: 0.02 0.63  0.63  0.07 0.68  0.68  0.20 0.20  0.20  0.10 0.10  0.10
Volume/Cap:  0.68 0.45  0.45  0.45 0.68  0.68  0.68 0.68  0.68  0.68 0.68  0.75
Uniform Del: 49.0  9.6   9.6  44.6  9.4   9.4  36.8 36.8  36.8  43.7 43.7  44.0
IncremntDel: 50.9  0.1   0.1   2.5  0.8   0.8   5.3  5.3   5.3  10.4 10.4  17.7
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   99.9  9.7   9.7  47.2 10.2  10.2  42.1 42.1  42.1  54.1 54.1  61.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  99.9  9.7   9.7  47.2 10.2  10.2  42.1 42.1  42.1  54.1 54.1  61.7
HCM2kAvg:       2    8     8     2   16    16     8    8     8     5    5     5
********************************************************************************
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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Raley Blvd. & I-80 WB

Cycle (sec):	100	Critical Vol./Cap. (X):	0.605
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	8.3
Optimal Cycle:	58	Level Of Service:	A

Street Name:	Raley Blvd.						I-80 WB					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	2	0 1	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	593	157	0	1003	352	0	0	0	168	0	185
Growth Adj:	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Initial Bse:	0	967	256	0	1635	574	0	0	0	274	0	302
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	0	967	0	0	1635	0	0	0	0	274	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	967	0	0	1635	0	0	0	0	274	0	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	0	967	0	0	1635	0	0	0	0	274	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Lanes:	0.00	2.00	1.00	0.00	2.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	3610	1900	0	3610	1900	0	0	0	1805	0	1900
Capacity Analysis Module:												
Vol/Sat:	0.00	0.27	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.15	0.00	0.00
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.75	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.25	0.00	0.00
Volume/Cap:	0.00	0.36	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.60	0.00	0.00
Uniform Del:	0.0	4.3	0.0	0.0	5.8	0.0	0.0	0.0	0.0	33.1	0.0	0.0
IncremntDel:	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	2.3	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Delay/Veh:	0.0	4.4	0.0	0.0	6.1	0.0	0.0	0.0	0.0	35.4	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	4.4	0.0	0.0	6.1	0.0	0.0	0.0	0.0	35.4	0.0	0.0
HCM2kAvg:	0	5	0	0	12	0	0	0	0	9	0	0

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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.827
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        14.6
Optimal Cycle:      132                 Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                     I-80 EB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore           Ignore          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    0  0  2  0  1    2  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  468   234     0  840   331   282    0   218     0    0     0
Growth Adj:  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64
Initial Bse:    0 1236   618     0 2218   874   745    0   576     0    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0 1236     0     0 2218     0   745    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1236     0     0 2218     0   745    0     0     0    0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0 1236     0     0 2218     0   745    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  1.00  1.00 0.95  1.00  0.92 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  2.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  1900     0 3610  1900  3502    0  1900     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.34  0.00  0.00 0.61  0.00  0.21 0.00  0.00  0.00 0.00  0.00
Crit Moves:  ****                    ****        ****
Green/Cycle: 0.00 0.74  0.00  0.00 0.74  0.00  0.26 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.46  0.00  0.00 0.83  0.00  0.83 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0  5.0   0.0   0.0  8.6   0.0  35.0  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  0.1   0.0   0.0  2.3   0.0   6.4  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  5.2   0.0   0.0 10.8   0.0  41.4  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  5.2   0.0   0.0 10.8   0.0  41.4  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:       0    8     0     0   25     0    14    0     0     0    0     0
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #11 Beloit Dr. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.740
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.2
Optimal Cycle:       88                Level Of Service:                  C
********************************************************************************
Street Name:           Beloit Dr.                          Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  0  0  0   0  0  1! 0  0   1  0  2  0  0   0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   22    0   115   81  387     0    0  399    59
Growth Adj:  1.70 1.70  1.70 2.89 1.70  2.89 2.89 2.89  2.89 2.89 2.89  2.89
Initial Bse:    0    0     0   64    0   332  234 1118     0    0 1153   171
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0    0     0   64    0   332  234 1118     0    0 1153   171
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0    0     0   64    0   332  234 1118     0    0 1153   171
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Vol.:     0    0     0   64    0   332  234 1118     0    0 1153   171
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 1.00  1.00 0.88 1.00  0.88 0.95 0.95  1.00 1.00 0.93  0.93
Lanes:       0.00 0.00  0.00 0.16 0.00  0.84 1.00 2.00  0.00 0.00 1.74  0.26
Final Sat.:     0    0     0  268    0  1403 1805 3610     0    0 3085   456
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00 0.24 0.00  0.24 0.13 0.31  0.00 0.00 0.37  0.37
Crit Moves:                  ****            ****                  ****
Green/Cycle: 0.00 0.00  0.00 0.32 0.00  0.32 0.18 0.68  0.00 0.00 0.50  0.50
Volume/Cap:  0.00 0.00  0.00 0.74 0.00  0.74 0.74 0.46  0.00 0.00 0.74  0.74
Uniform Del:  0.0  0.0   0.0 30.3  0.0  30.3 39.1  7.4   0.0  0.0 19.6  19.6
IncremntDel:  0.0  0.0   0.0  5.5  0.0   5.5  9.0  0.1   0.0  0.0  1.7   1.7
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   0.00 0.00  0.00 1.00 0.00  1.00 1.00 1.00  0.00 0.00 1.00  1.00
Delay/Veh:    0.0  0.0   0.0 35.8  0.0  35.8 48.1  7.5   0.0  0.0 21.3  21.3
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 35.8  0.0  35.8 48.1  7.5   0.0  0.0 21.3  21.3
HCM2kAvg:       0    0     0   12    0    12    9    8     0    0   17    17
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Raley Blvd. & Bell Ave.
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.968
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       45.9
Optimal Cycle:      180               Level Of Service:                 D
********************************************************************************
Street Name:             Raley Blvd.                        Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     318  654   140    25  400    34    39  153   262   242  126    48
Growth Adj:  1.63 1.63  1.63  1.63 1.63  1.63  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:  518 1066   228    41  652    55    66  260   445   411  214    82
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   518 1066   228    41  652    55    66  260   445   411  214    82
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  518 1066   228    41  652    55    66  260   445   411  214    82
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   518 1066   228    41  652    55    66  260   445   411  214    82
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.86  0.86  0.95 0.91  0.91
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 1.45  0.55
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 1634  1634  1805 2507   955
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.29 0.30  0.14  0.02 0.18  0.03  0.04 0.16  0.27  0.23 0.09  0.09
Crit Moves:  ****                   ****                   ****  ****
Green/Cycle: 0.30 0.45  0.45  0.03 0.19  0.19  0.16 0.28  0.28  0.24 0.36  0.36
Volume/Cap:  0.97 0.66  0.31  0.66 0.97  0.18  0.24 0.57  0.97  0.97 0.24  0.24
Uniform Del: 34.7 21.6  17.7  47.7 40.4  34.3  37.0 30.7  35.5  37.9 22.3  22.3
IncremntDel: 30.9  1.0   0.3  23.0 26.9   0.3   0.4  0.6  25.6  35.3  0.1   0.1
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   65.6 22.6  17.9  70.7 67.3  34.6  37.5 31.3  61.1  73.2 22.4  22.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  65.6 22.6  17.9  70.7 67.3  34.6  37.5 31.3  61.1  73.2 22.4  22.4
HCM2kAvg:      22   13     5     2   15     2     2    7    19    18    3     3
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 Pinell St. & Bell Ave.
*******************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.219
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):         8.4
Optimal Cycle:       29                 Level Of Service:                  A
*******************************************************************************
Street Name:              Pinell St.                          Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0    0    0    0    0    0    0    0    0    0    0
Lanes:        0  0  1! 0  0   0  0  1! 0  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27    0     8     1    0     1     2  284    32     6  237     1
Growth Adj:  3.17 3.17  3.17  1.00 1.00  1.00  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:   86    0    25     1    0     1     3  483    54    10  403     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    86    0    25     1    0     1     3  483    54    10  403     2
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   86    0    25     1    0     1     3  483    54    10  403     2
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    86    0    25     1    0     1     3  483    54    10  403     2
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.93 1.00  0.93  0.91 1.00  0.91  0.95 0.94  0.94  0.95 0.95  0.95
Lanes:       0.77 0.00  0.23  0.50 0.00  0.50  1.00 1.80  0.20  1.00 1.99  0.01
Final Sat.:  1368    0   405   865    0   865  1805 3196   360  1805 3591    15
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.00  0.06  0.00 0.00  0.00  0.00 0.15  0.15  0.01 0.11  0.11
Crit Moves:  ****                   ****              ****        ****
Green/Cycle: 0.29 0.00  0.28  0.01 0.00  0.01  0.01 0.69  0.69  0.03 0.70  0.70
Volume/Cap:  0.22 0.00  0.22  0.22 0.00  0.22  0.16 0.22  0.22  0.22 0.16  0.16
Uniform Del: 27.2  0.0  27.6  49.5  0.0  49.5  48.9  5.7   5.7  47.7  5.0   5.0
IncremntDel:  0.2  0.0   0.2  12.3  0.0  12.3   3.5  0.0   0.0   2.4  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  1.00 0.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   27.5  0.0  27.9  61.8  0.0  61.8  52.4  5.7   5.7  50.1  5.0   5.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  27.5  0.0  27.9  61.8  0.0  61.8  52.4  5.7   5.7  50.1  5.0   5.0
HCM2kAvg:       3    0     3     0    0     0     0    3     3     1    2     2
*******************************************************************************
```

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Winters St. & Bell Ave.

Cycle (sec):	100	Critical Vol./Cap. (X):	0.485
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	23.9
Optimal Cycle:	44	Level Of Service:	C

Street Name:	Winters St.						Bell Ave.					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0	0 2	0 0	0	0 0	0 0	1	1 0	1 0	2	0 0
Volume Module:												
Base Vol:	64	0	122	0	0	0	0	171	133	170	142	0
Growth Adj:	4.00	4.00	4.00	1.00	1.00	1.00	1.70	1.70	1.70	1.70	1.70	1.70
Initial Bse:	256	0	488	0	0	0	0	291	226	289	241	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	256	0	488	0	0	0	0	291	226	289	241	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	256	0	488	0	0	0	0	291	226	289	241	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	256	0	488	0	0	0	0	291	226	289	241	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.75	1.00	1.00	1.00	1.00	0.89	0.89	0.95	0.95	1.00
Lanes:	1.00	0.00	2.00	0.00	0.00	0.00	0.00	1.12	0.88	1.00	2.00	0.00
Final Sat.:	1805	0	2842	0	0	0	0	1897	1475	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.14	0.00	0.17	0.00	0.00	0.00	0.00	0.15	0.15	0.16	0.07	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.35	0.00	0.35	0.00	0.00	0.00	0.00	0.32	0.32	0.33	0.65	0.00
Volume/Cap:	0.40	0.00	0.49	0.00	0.00	0.00	0.00	0.49	0.49	0.49	0.10	0.00
Uniform Del:	24.3	0.0	25.2	0.0	0.0	0.0	0.0	27.6	27.6	26.7	6.7	0.0
IncremntDel:	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.3	0.3	0.6	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	24.7	0.0	25.6	0.0	0.0	0.0	0.0	28.0	28.0	27.3	6.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.7	0.0	25.6	0.0	0.0	0.0	0.0	28.0	28.0	27.3	6.7	0.0
HCM2kAvg:	6	0	6	0	0	0	0	7	7	8	1	0

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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        1.039
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        49.4
Optimal Cycle:       180                Level Of Service:                  D
********************************************************************************
Street Name:              Winters St.                          I-80 WB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  0    0  0  1  1  0    0  0  0  0  0    0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      37  112     0     0  341   154     0    0     0    98    0   129
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:  148  448     0     0 1364   616     0    0     0   392    0   516
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   148  448     0     0 1364   616     0    0     0   392    0   516
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  148  448     0     0 1364   616     0    0     0   392    0   516
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   148  448     0     0 1364   616     0    0     0   392    0   516
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.91  0.91  1.00 1.00  1.00  0.90 1.00  0.90
Lanes:       1.00 2.00  0.00  0.00 1.38  0.62  0.00 0.00  0.00  0.60 0.00  1.40
Final Sat.:  1805 3610     0     0 2370  1070     0    0     0  1026    0  2378
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.12  0.00  0.00 0.58  0.58  0.00 0.00  0.00  0.38 0.00  0.22
Crit Moves:  ****                 ****                          ****
Green/Cycle: 0.08 0.63  0.00  0.00 0.55  0.55  0.00 0.00  0.00  0.37 0.00  0.37
Volume/Cap:  1.04 0.20  0.00  0.00 1.04  1.04  0.00 0.00  0.00  1.04 0.00  0.59
Uniform Del: 46.1  7.7   0.0   0.0 22.3  22.3   0.0  0.0   0.0  31.6  0.0  25.6
IncremntDel: 86.3  0.0   0.0   0.0 31.7  31.7   0.0  0.0   0.0  41.2  0.0   0.6
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Delay/Veh:  132.3  7.7   0.0   0.0 54.0  54.0   0.0  0.0   0.0  72.8  0.0  26.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 132.3  7.7   0.0   0.0 54.0  54.0   0.0  0.0   0.0  72.8  0.0  26.2
HCM2kAvg:       9    3     0     0   41    41     0    0     0    29    0    10
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Winters St. & I-80 EB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.905
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        29.6
Optimal Cycle:      180                Level Of Service:                  C
********************************************************************************
Street Name:           Winters St.                         I-80 EB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1  1  0   2  0  2  0  0   1  0  1! 0  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   97   176  261  176     0   49    1    46    0    0     0
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:    0  388   704 1044  704     0  196    4   184    0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  388   704 1044  704     0  196    4   184    0    0     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0  388   704 1044  704     0  196    4   184    0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  388   704 1044  704     0  196    4   184    0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.86  0.86  0.92 0.95  1.00  0.86 0.86  0.86  1.00 1.00  1.00
Lanes:       0.00 1.00  1.00  2.00 2.00  0.00  1.35 0.01  0.64  0.00 0.00  0.00
Final Sat.:     0 1630  1630  3502 3610     0  2197   23  1053     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.24  0.43  0.30 0.20  0.00  0.09 0.17  0.17  0.00 0.00  0.00
Crit Moves:             ****  ****                  ****
Green/Cycle: 0.00 0.48  0.48  0.33 0.81  0.00  0.19 0.19  0.19  0.00 0.00  0.00
Volume/Cap:  0.00 0.50  0.90  0.90 0.24  0.00  0.46 0.90  0.90  0.00 0.00  0.00
Uniform Del:  0.0 17.9  24.0  32.0  2.3   0.0  35.7 39.4  39.4   0.0  0.0   0.0
IncremntDel:  0.0  0.2   9.8  10.2  0.0   0.0   0.4 22.4  22.4   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Delay/Veh:    0.0 18.1  33.8  42.2  2.4   0.0  36.1 61.9  61.9   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 18.1  33.8  42.2  2.4   0.0  36.1 61.9  61.9   0.0  0.0   0.0
HCM2kAvg:       0    8    24   20    3     0    5   13    13    0    0     0
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.750
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        21.0
Optimal Cycle:       91                Level Of Service:                  C
********************************************************************************
Street Name:         Marysville Blvd.                     North Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  978    32    24  719    73    87   16    38    31   12    52
Growth Adj:  1.63 1.63  1.63  1.63 1.63  1.63  2.42 2.42  2.42  2.42 2.42  2.42
Initial Bse:   44 1594    52    39 1172   119   211   39    92    75   29   126
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    44 1594    52    39 1172   119   211   39    92    75   29   126
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   44 1594    52    39 1172   119   211   39    92    75   29   126
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    44 1594    52    39 1172   119   211   39    92    75   29   126
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.95  0.95 0.94  0.94  0.94 0.94  0.94  0.97 0.97  0.85
Lanes:       1.00 1.94  0.06  1.00 1.82  0.18  0.62 0.11  0.27  0.72 0.28  1.00
Final Sat.:  1805 3478   114  1805 3231   328  1096  202   479  1322  512  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.46  0.46  0.02 0.36  0.36  0.19 0.19  0.19  0.06 0.06  0.08
Crit Moves:       ****        ****             ****                         ****
Green/Cycle: 0.04 0.61  0.61  0.03 0.60  0.60  0.26 0.28  0.28  0.08 0.10  0.10
Volume/Cap:  0.60 0.75  0.75  0.75 0.60  0.60  0.75 0.69  0.69  0.69 0.55  0.75
Uniform Del: 47.2 14.0  14.0  48.2 12.6  12.6  34.2 32.3  32.3  44.7 42.6  43.5
IncremntDel: 13.6  1.5   1.5  45.1  0.5   0.5   6.8  4.2   4.2  12.9  3.3  17.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   60.8 15.4  15.4  93.3 13.1  13.1  41.1 36.4  36.4  57.5 45.9  60.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  60.8 15.4  15.4  93.3 13.1  13.1  41.1 36.4  36.4  57.5 45.9  60.6
HCM2kAvg:       2   19    19     3   13    13    12   11    11     5    4     6
********************************************************************************
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Raley Blvd. & I-80 WB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.983
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        28.2
Optimal Cycle:      180                Level Of Service:                  C
********************************************************************************
Street Name:           Raley Blvd.                          I-80 WB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore          Include           Ignore
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  2  0  1   0  0  2  0  1   0  0  0  0  0   1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  894     0    0  701     0    0    0     0  225    0     0
Growth Adj:  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64
Initial Bse:   0 2361     0    0 1851     0    0    0     0  594    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
PHF Volume:    0 2361     0    0 1851     0    0    0     0  594    0     0
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   0 2361     0    0 1851     0    0    0     0  594    0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00  1.00 1.00  0.00
Final Vol.:    0 2361     0    0 1851     0    0    0     0  594    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  0.95 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:    0 3610  1900    0 3610  1900    0    0     0 1805    0  1900
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.65  0.00  0.00 0.51  0.00  0.00 0.00  0.00  0.33 0.00  0.00
Crit Moves:       ****        ****                                ****
Green/Cycle: 0.00 0.67  0.00  0.00 0.67  0.00  0.00 0.00  0.00  0.33 0.00  0.00
Volume/Cap:  0.00 0.98  0.00  0.00 0.77  0.00  0.00 0.00  0.00  0.98 0.00  0.00
Uniform Del:  0.0 16.2   0.0   0.0 11.5   0.0   0.0  0.0   0.0  33.0  0.0   0.0
IncremntDel:  0.0 14.6   0.0   0.0  1.6   0.0   0.0  0.0   0.0  32.2  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Delay/Veh:    0.0 30.8   0.0   0.0 13.1   0.0   0.0  0.0   0.0  65.2  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 30.8   0.0   0.0 13.1   0.0   0.0  0.0   0.0  65.2  0.0   0.0
HCM2kAvg:      0   43     0    0   21     0    0    0     0   25    0     0
********************************************************************************
```

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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.821
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        11.0
Optimal Cycle:      127                Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                     I-80 EB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore           Ignore           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    0  0  2  0  1    2  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  902     0     0  651     0   214    0     0     0    0     0
Growth Adj:  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64
Initial Bse:    0 2382     0     0 1719     0   565    0     0     0    0     0
User Adj:    1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0 2382     0     0 1719     0   565    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 2382     0     0 1719     0   565    0     0     0    0     0
PCE Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0 2382     0     0 1719     0   565    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  1.00  1.00 0.95  1.00  0.92 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  2.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  1900     0 3610  1900  3502    0  1900     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.66  0.00  0.00 0.48  0.00  0.16 0.00  0.00  0.00 0.00  0.00
Crit Moves:       ****        ****             ****
Green/Cycle: 0.00 0.80  0.00  0.00 0.80  0.00  0.20 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.82  0.00  0.00 0.59  0.00  0.82 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0  5.7   0.0   0.0  3.7   0.0  38.5  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  2.0   0.0   0.0  0.3   0.0   7.8  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  7.7   0.0   0.0  4.0   0.0  46.3  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  7.7   0.0   0.0  4.0   0.0  46.3  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:      0   23     0     0   10     0    11    0     0     0    0     0
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #11 Beloit Dr. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.317
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        18.2
Optimal Cycle:       33                Level Of Service:                  B
********************************************************************************
Street Name:           Beloit Dr.                        Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  0  0  0   0  0  1! 0  0   1  0  2  0  0   0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   35    0   116   41  283     0    0  253    13
Growth Adj:  1.00 1.00  1.00  1.70 1.70  1.70  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:    0    0     0   60    0   197   70  481     0    0  430    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   60    0   197   70  481     0    0  430    22
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0    0     0   60    0   197   70  481     0    0  430    22
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0    0     0   60    0   197   70  481     0    0  430    22
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.89 1.00  0.89  0.95 0.95  1.00  1.00 0.94  0.94
Lanes:       0.00 0.00  0.00  0.23 0.00  0.77  1.00 2.00  0.00  0.00 1.90  0.10
Final Sat.:     0    0     0   390    0  1293  1805 3610     0     0 3410   175
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.15 0.00  0.15  0.04 0.13  0.00  0.00 0.13  0.13
Crit Moves:                   ****             ****                  ****
Green/Cycle: 0.00 0.00  0.00  0.48 0.00  0.48  0.12 0.52  0.00  0.00 0.40  0.40
Volume/Cap:  0.00 0.00  0.00  0.32 0.00  0.32  0.32 0.26  0.00  0.00 0.32  0.32
Uniform Del:  0.0  0.0   0.0  15.9  0.0  15.9  40.1 13.3   0.0   0.0 20.8  20.8
IncremntDel:  0.0  0.0   0.0   0.2  0.0   0.2   0.8  0.1   0.0   0.0  0.1   0.1
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 0.00  0.00  1.00 0.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00
Delay/Veh:    0.0  0.0   0.0  16.1  0.0  16.1  41.0 13.4   0.0   0.0 20.9  20.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  16.1  0.0  16.1  41.0 13.4   0.0   0.0 20.9  20.9
HCM2kAvg:       0    0     0    5    0     5    2    4     0     0    5     5
********************************************************************************
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Appendix 4.12-F

Analysis Worksheets for Cumulative plus Proposed Project Conditions

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Raley Blvd. & Bell Ave.
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.925
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        39.0
Optimal Cycle:      180                 Level Of Service:                  D
********************************************************************************
Street Name:           Raley Blvd.                          Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1   1  0  2  0  1   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     152  364   264    32  670    22    40  198   466   229  186    46
Growth Adj:  1.63 1.63  0.00  0.00 1.63  1.63  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:  248  593   430    52 1092    36    68  337   792   389  316    78
Added Vol:    -53  -28  -320   -48  -85     0     0  -96  -169  -117  129    66
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  195  565     0     0 1007    36    68  241   623   272  445   144
User Adj:    1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   195  565     0     0 1007    36    68  241   623   272  445   144
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  195  565     0     0 1007    36    68  241   623   272  445   144
PCE Adj:     1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   195  565     0     0 1007    36    68  241   623   272  445   144
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.95  0.85  0.95 0.85  0.85  0.95 0.91  0.91
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 1.51  0.49
Final Sat.:  1805 3610  1900  1900 3610  1615  1805 1610  1610  1805 2626   851
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.16  0.00  0.00 0.28  0.02  0.04 0.15  0.39  0.15 0.17  0.17
Crit Moves:  ****                  ****                    ****  ****
Green/Cycle: 0.12 0.42  0.00  0.00 0.30  0.30  0.11 0.42  0.42  0.16 0.48  0.48
Volume/Cap:  0.92 0.37  0.00  0.00 0.92  0.07  0.36 0.36  0.92  0.92 0.36  0.36
Uniform Del: 43.7 20.1   0.0   0.0 33.8  24.9  41.5 19.9  27.6  41.2 16.5  16.5
IncremntDel: 41.5  0.2   0.0   0.0 12.9   0.1   1.1  0.1  14.6  33.3  0.1   0.1
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   85.3 20.2   0.0   0.0 46.8  25.0  42.7 20.0  42.2  74.6 16.7  16.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  85.3 20.2   0.0   0.0 46.8  25.0  42.7 20.0  42.2  74.6 16.7  16.7
HCM2kAvg:      10    6     0     0   19     1     2    5    23    13    6     6
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
*********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.513
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.4
Optimal Cycle:       47                 Level Of Service:                 C
*********************************************************************************
Street Name:           Pinell St.                           Bell Ave.
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1! 0  0   0  1  0  0  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     129    2    27     2    1     0     1  236   170    35  327     0
Growth Adj:  3.17 1.00  3.17  1.00 1.00  0.00  0.00 1.70  1.70  1.70 1.70  1.70
Initial Bse:  409    2    86     2    1     0     2  401   289    60  556     0
Added Vol:    -16    1     3     1    0   -14    -5   -2    -2     5  132     7
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  393    3    89     3    1     0     0  399   287    65  688     7
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   393    3    89     3    1     0     0  399   287    65  688     7
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  393    3    89     3    1     0     0  399   287    65  688     7
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   393    3    89     3    1     0     0  399   287    65  688     7
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.94 0.94  0.94  0.96 0.96  1.00  1.00 0.89  0.89  0.95 0.95  0.95
Lanes:       0.81 0.01  0.18  0.75 0.25  0.00  1.00 1.16  0.84  1.00 1.98  0.02
Final Sat.:  1444   11   326  1374  458     0  1900 1968  1415  1805 3570    36
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.27 0.27  0.27  0.00 0.00  0.00  0.00 0.20  0.20  0.04 0.19  0.19
Crit Moves:  ****                    ****             ****        ****
Green/Cycle: 0.53 0.53  0.53  0.00 0.00  0.00  0.00 0.40  0.40  0.07 0.47  0.47
Volume/Cap:  0.51 0.51  0.51  0.51 0.51  0.00  0.00 0.51  0.51  0.51 0.41  0.41
Uniform Del: 15.1 15.1  15.1  49.7 49.7   0.0   0.0 22.9  22.9  44.9 17.7  17.7
IncremntDel:  0.5  0.5   0.5  48.0 48.0   0.0   0.0  0.3   0.3   3.6  0.2   0.2
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   15.6 15.6  15.6  97.7 97.7   0.0   0.0 23.3  23.3  48.5 17.9  17.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.6 15.6  15.6  97.7 97.7   0.0   0.0 23.3  23.3  48.5 17.9  17.9
HCM2kAvg:      10   10    10     1    1     0     0    8     8     3    7     7
*********************************************************************************
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #3 Winters St. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.783
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        20.6
Optimal Cycle:      105                Level Of Service:                  C
********************************************************************************
Street Name:             Winters St.                          Bell Ave.
Approach:      North Bound      South Bound      East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Protected
Rights:           Include          Include          Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  2    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     200    0   157     0    0     0     0   98    68    97  185     0
Growth Adj:  4.00 4.00  4.00  1.00 1.00  1.00  1.70 1.70  1.70  1.70 1.70  1.70
Initial Bse:  800    0   628     0    0     0     0  167   116   165  315     0
Added Vol:    187    0    25     0    0     0     0   -7   124    -2  -65     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  987    0   653     0    0     0     0  160   240   163  250     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   987    0   653     0    0     0     0  160   240   163  250     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  987    0   653     0    0     0     0  160   240   163  250     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   987    0   653     0    0     0     0  160   240   163  250     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.75  1.00 1.00  1.00  1.00 0.86  0.86  0.95 0.95  1.00
Lanes:       1.00 0.00  2.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 2.00  0.00
Final Sat.:  1805    0  2842     0    0     0     0 1643  1643  1805 3610     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.55 0.00  0.23  0.00 0.00  0.00  0.00 0.10  0.15  0.09 0.07  0.00
Crit Moves:  ****                                         ****  ****
Green/Cycle: 0.70 0.00  0.70  0.00 0.00  0.00  0.00 0.19  0.19  0.12 0.30  0.00
Volume/Cap:  0.78 0.00  0.33  0.00 0.00  0.00  0.00 0.52  0.78  0.78 0.23  0.00
Uniform Del: 10.0  0.0   5.9   0.0  0.0   0.0   0.0 36.7  38.8  43.0 26.2   0.0
IncremntDel:  3.3  0.0   0.1   0.0  0.0   0.0   0.0  0.7   7.7  17.4  0.1   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   13.3  0.0   6.0   0.0  0.0   0.0   0.0 37.3  46.5  60.4 26.3   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  13.3  0.0   6.0   0.0  0.0   0.0   0.0 37.3  46.5  60.4 26.3   0.0
HCM2kAvg:      23    0     4     0    0     0     0    5     9     7    3     0
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        1.144
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):      68.5
Optimal Cycle:      180              Level Of Service:                  E
********************************************************************************
Street Name:           Winters St.                          I-80 WB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  0   0  0  1  1  0   1  0  0  0  0   0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24  194     0     0  214    54     0    0     0   112   47   234
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:   96  776     0     0  856   216     0    0     0   448  188   936
Added Vol:      0   -3     0     0  214   206    23    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   96  773     0     0 1070   422    23    0     0   448  188   936
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    96  773     0     0 1070   422    23    0     0   448  188   936
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   96  773     0     0 1070   422    23    0     0   448  188   936
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    96  773     0     0 1070   422    23    0     0   448  188   936
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.91  0.91  0.95 1.00  1.00  0.90 0.90  0.90
Lanes:       1.00 2.00  0.00  0.00 1.43  0.57  1.00 0.00  0.00  0.41 0.17  1.42
Final Sat.:  1805 3610     0     0 2480   978  1805    0     0   693  291  2430
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.21  0.00  0.00 0.43  0.43  0.01 0.00  0.00  0.65 0.65  0.39
Crit Moves:  ****                  ****        ****                   ****
Green/Cycle: 0.05 0.42  0.00  0.00 0.38  0.38  0.01 0.00  0.00  0.58 0.57  0.57
Volume/Cap:  1.14 0.51  0.00  0.00 1.14  1.14  1.14 0.00  0.00  1.12 1.14  0.68
Uniform Del: 47.7 21.1   0.0   0.0 31.1  31.1  49.4  0.0   0.0  21.2 21.7  15.4
IncremntDel:142.4  0.3   0.0   0.0 74.4  74.4 249.6  0.0   0.0  64.9 74.0   0.8
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  0.00  1.00 1.00  1.00
Delay/Veh:  190.1 21.4   0.0   0.0  106 105.6 299.1  0.0   0.0  86.1 95.7  16.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 190.1 21.4   0.0   0.0  106 105.6 299.1  0.0   0.0  86.1 95.7  16.2
HCM2kAvg:       7    9     0     0   38    38     3    0     0    53   55    15
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #6 Winters St. & I-80 EB
*******************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.779
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        27.2
Optimal Cycle:      103                Level Of Service:                  C
*******************************************************************************
Street Name:               Winters St.                         I-80 EB
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  1  1  0    2  0  2  0  0    1  0  1! 0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   92   113   158  161     0   133    4    47     0    0     0
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:    0  368   452   632  644     0   532   16   188     0    0     0
Added Vol:      0  -27     0   206    8     0     0    0     0     0    0    23
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  341   452   838  652     0   532   16   188     0    0    23
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  341   452   838  652     0   532   16   188     0    0    23
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  341   452   838  652     0   532   16   188     0    0    23
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  341   452   838  652     0   532   16   188     0    0    23
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.87  0.87  0.92 0.95  1.00  0.93 0.93  0.93  1.00 1.00  0.87
Lanes:       0.00 1.00  1.00  2.00 2.00  0.00  1.57 0.03  0.40  0.00 0.00  1.00
Final Sat.:     0 1652  1652  3502 3610     0  2762   60   706     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.21  0.27  0.24 0.18  0.00  0.19 0.27  0.27  0.00 0.00  0.01
Crit Moves:             ****  ****                  ****        ****
Green/Cycle: 0.00 0.35  0.35  0.31 0.66  0.00  0.32 0.34  0.34  0.00 0.00  0.02
Volume/Cap:  0.00 0.59  0.78  0.78 0.27  0.00  0.60 0.78  0.78  0.00 0.00  0.60
Uniform Del:  0.0 26.5  29.0  31.6  7.1   0.0  28.7 29.5  29.5   0.0  0.0  48.4
IncremntDel:  0.0  0.7   3.9   3.7  0.1   0.0   0.9  4.2   4.2   0.0  0.0  24.6
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Delay/Veh:    0.0 27.2  32.9  35.3  7.2   0.0  29.6 33.7  33.7   0.0  0.0  73.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 27.2  32.9  35.3  7.2   0.0  29.6 33.7  33.7   0.0  0.0  73.0
HCM2kAvg:       0    9    14    14    4     0    10   15    15     0    0     2
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                  Level Of Service Computation Report
          2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #8 Marysville Blvd. & North Ave.
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.701
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        16.7
Optimal Cycle:       76               Level Of Service:                  B
********************************************************************************
Street Name:          Marysville Blvd.                      North Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  1  0   1  0  1  1  0   0  0  1! 0  0   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12  602    22   35  977    50   52   20    30   34   16    48
Growth Adj:  1.63 1.63  1.63 1.63 1.63  1.63 2.42 2.42  2.42 2.42 2.42  0.00
Initial Bse:   20  981    36   57 1593    82  126   48    73   82   39   116
Added Vol:      0  -83     4  -27  -21     0    0    0     0   44    0   -88
PasserByVol:    0    0     0    0    0     0    0    0     0    0    0     0
Initial Fut:   20  898    40   30 1572    82  126   48    73  126   39     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  0.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  0.00
PHF Volume:    20  898    40   30 1572    82  126   48    73  126   39     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   20  898    40   30 1572    82  126   48    73  126   39     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  0.00
Final Vol.:    20  898    40   30 1572    82  126   48    73  126   39     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 0.94  0.94 0.95 0.94  0.94 0.94 0.94  0.94 0.96 0.96  1.00
Lanes:       1.00 1.92  0.08 1.00 1.90  0.10 0.51 0.20  0.29 0.77 0.23  1.00
Final Sat.:  1805 3436   152 1805 3408   177  907  349   523 1400  429  1900
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.26 0.02 0.46  0.46 0.14 0.14  0.14 0.09 0.09  0.00
Crit Moves:  ****                 ****       ****                   ****
Green/Cycle: 0.02 0.63  0.63 0.04 0.66  0.66 0.20 0.20  0.20 0.13 0.13  0.00
Volume/Cap:  0.70 0.41  0.41 0.41 0.70  0.70 0.70 0.70  0.70 0.70 0.70  0.00
Uniform Del: 49.0  9.1   9.1 46.8 10.9  10.9 37.3 37.3  37.3 41.7 41.7   0.0
IncremntDel: 57.4  0.1   0.1  3.8  1.0   1.0  6.2  6.2   6.2  9.1  9.1   0.0
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  0.00
Delay/Veh:  106.4  9.2   9.2 50.6 11.8  11.8 43.5 43.5  43.5 50.8 50.8   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh: 106.4  9.2   9.2 50.6 11.8  11.8 43.5 43.5  43.5 50.8 50.8   0.0
HCM2kAvg:       2    7     7    1   17    17    9    9     9    6    6     0
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Raley Blvd. & I-80 WB
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.543
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        9.2
Optimal Cycle:       50               Level Of Service:                A
********************************************************************************
Street Name:                Raley Blvd.                         I-80 WB
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Ignore           Ignore          Include           Ignore
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  1  0  1   0  0  2  0  1   0  0  0  0  0   1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  593   157     0 1003   352     0    0     0   168    0   185
Growth Adj:  0.00 1.63  1.63  1.63 1.63  1.63  0.00 1.63  0.00  1.63 1.63  1.63
Initial Bse:    0  967   256     0 1635   574     0    0     0   274    0   302
Added Vol:    -28 -393     0     0 -221   -84  -269    0   -86     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  574   256     0 1414   490     0    0     0   274    0   302
User Adj:    0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
PHF Adj:     0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
PHF Volume:     0  574     0     0 1414     0     0    0     0   274    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  574     0     0 1414     0     0    0     0   274    0     0
PCE Adj:     0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
MLF Adj:     0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
Final Vol.:     0  574     0     0 1414     0     0    0     0   274    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  0.95 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1900     0 3610  1900     0    0     0  1805    0  1900
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.16  0.00  0.00 0.39  0.00  0.00 0.00  0.00  0.15 0.00  0.00
Crit Moves:  ****                  ****                          ****
Green/Cycle: 0.00 0.72  0.00  0.00 0.72  0.00  0.00 0.00  0.00  0.28 0.00  0.00
Volume/Cap:  0.00 0.22  0.00  0.00 0.54  0.00  0.00 0.00  0.00  0.54 0.00  0.00
Uniform Del:  0.0  4.6   0.0   0.0  6.4   0.0   0.0  0.0   0.0  30.6  0.0   0.0
IncremntDel:  0.0  0.0   0.0   0.0  0.2   0.0   0.0  0.0   0.0   1.2  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Delay/Veh:    0.0  4.7   0.0   0.0  6.6   0.0   0.0  0.0   0.0  31.8  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  4.7   0.0   0.0  6.6   0.0   0.0  0.0   0.0  31.8  0.0   0.0
HCM2kAvg:       0    3     0     0   10     0     0    0     0     8    0     0
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.688
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):         9.1
Optimal Cycle:       73                Level Of Service:                  A
********************************************************************************
Street Name:         Marysville Blvd.                     I-80 EB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Ignore           Ignore           Ignore          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  1  0  1   0  0  2  0  1   2  0  0  0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  468   234    0  840   331   282    0   218    0    0     0
Growth Adj:  0.00 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64  2.64 2.64  2.64
Initial Bse:   0 1236   618    0 2218   874   745    0   576    0    0     0
Added Vol:   -28 -153     0    0 -223   -84  -269    0   -86    0    0     0
PasserByVol:   0    0     0    0    0     0     0    0     0    0    0     0
Initial Fut:   0 1083   618    0 1995   790   476    0   490    0    0     0
User Adj:    0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:    0 1083     0    0 1995     0   476    0     0    0    0     0
Reduct Vol:    0    0     0    0    0     0     0    0     0    0    0     0
Reduced Vol:   0 1083     0    0 1995     0   476    0     0    0    0     0
PCE Adj:     0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:    0 1083     0    0 1995     0   476    0     0    0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.95  1.00  0.92 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  2.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:    0 3610  1900    0 3610  1900  3502    0  1900    0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.30  0.00  0.00 0.55  0.00  0.14 0.00  0.00  0.00 0.00  0.00
Crit Moves:  ****                  ****        ****
Green/Cycle: 0.00 0.80  0.00  0.00 0.80  0.00  0.20 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.37  0.00  0.00 0.69  0.00  0.69 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0  2.8   0.0   0.0  4.4   0.0  37.3  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  0.1   0.0   0.0  0.7   0.0   2.9  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  2.9   0.0   0.0  5.1   0.0  40.2  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  2.9   0.0   0.0  5.1   0.0  40.2  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:      0    5     0    0   14     0     8    0     0    0    0     0
********************************************************************************
```

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Beloit Dr. & Bell Ave.

Cycle (sec):	100	Critical Vol./Cap. (X):	0.757
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	27.0
Optimal Cycle:	94	Level Of Service:	C

Street Name:	Beloit Dr.						Bell Ave.					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 2 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	22	0	115	81	387	0	0	399	59
Growth Adj:	1.70	1.70	1.70	2.89	1.70	2.89	2.89	0.00	2.89	2.89	2.89	2.89
Initial Bse:	0	0	0	64	0	332	234	1118	0	0	1153	171
Added Vol:	0	0	0	-4	0	-9	-4	-451	0	0	87	7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	60	0	323	230	0	0	0	1240	178
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	60	0	323	230	0	0	0	1240	178
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	60	0	323	230	0	0	0	1240	178
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	60	0	323	230	0	0	0	1240	178
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	1.00	0.88	0.95	0.95	1.00	1.00	0.93	0.93
Lanes:	0.00	0.00	0.00	0.16	0.00	0.84	1.00	2.00	0.00	0.00	1.75	0.25
Final Sat.:	0	0	0	260	0	1410	1805	3610	0	0	3098	443
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.23	0.00	0.23	0.13	0.00	0.00	0.00	0.40	0.40
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.30	0.00	0.30	0.17	0.00	0.00	0.00	0.53	0.53
Volume/Cap:	0.00	0.00	0.00	0.76	0.00	0.76	0.76	0.00	0.00	0.00	0.76	0.76
Uniform Del:	0.0	0.0	0.0	31.5	0.0	31.5	39.6	0.0	0.0	0.0	18.5	18.5
IncremntDel:	0.0	0.0	0.0	6.5	0.0	6.5	10.4	0.0	0.0	0.0	1.8	1.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Delay/Veh:	0.0	0.0	0.0	38.0	0.0	38.0	50.1	0.0	0.0	0.0	20.3	20.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	38.0	0.0	38.0	50.1	0.0	0.0	0.0	20.3	20.3
HCM2kAvg:	0	0	0	12	0	12	9	0	0	0	18	18

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Raley Blvd. & Bell Ave.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap. (X):        0.621
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        25.1
Optimal Cycle:       60                Level Of Service:                  C
********************************************************************************
Street Name:             Raley Blvd.                         Bell Ave.
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     318  654   140    25  400    34    39  153   262   242  126    48
Growth Adj:  1.63 1.63  1.63  1.63 1.63  1.63  1.70 1.70  1.70  0.00 1.70  1.70
Initial Bse:  518 1066   228    41  652    55    66  260   445   411  214    82
Added Vol:   -116  -58  -136    45  -34     0     0   90   -68  -258  -37   -19
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  402 1008    92    86  618    55    66  350   377     0  177    63
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.00 1.00  1.00
PHF Volume:   402 1008    92    86  618    55    66  350   377     0  177    63
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  402 1008    92    86  618    55    66  350   377     0  177    63
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.00 1.00  1.00
Final Vol.:   402 1008    92    86  618    55    66  350   377     0  177    63
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.88  0.88  1.00 0.91  0.91
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.00  1.00  1.00 1.48  0.52
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 1664  1664  1900 2564   906
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.22 0.28  0.06  0.05 0.17  0.03  0.04 0.21  0.23  0.00 0.07  0.07
Crit Moves:  ****                   ****                   ****  ****
Green/Cycle: 0.36 0.54  0.54  0.09 0.28  0.28  0.13 0.37  0.37  0.00 0.24  0.24
Volume/Cap:  0.62 0.51  0.11  0.51 0.62  0.12  0.29 0.58  0.62  0.00 0.29  0.29
Uniform Del: 26.4 14.5  11.1  43.3 31.6  27.2  39.6 25.5  26.1   0.0 31.1  31.1
IncremntDel:  1.9  0.2   0.1   2.8  1.2   0.1   0.7  0.7   1.0   0.0  0.2   0.2
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.00 1.00  1.00
Delay/Veh:   28.3 14.8  11.2  46.0 32.9  27.3  40.3 26.2  27.1   0.0 31.3  31.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  28.3 14.8  11.2  46.0 32.9  27.3  40.3 26.2  27.1   0.0 31.3  31.3
HCM2kAvg:      11   10     1     3    9     1     2    9    10     0    3     3
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Pinell St. & Bell Ave.
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        0.248
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        7.3
Optimal Cycle:       30               Level Of Service:                 A
********************************************************************************
Street Name:            Pinell St.                          Bell Ave.
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0   1  0  0  0  0   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27    0     8     1    0     1     2  284    32     6  237     1
Growth Adj:  3.17 3.17  3.17  1.00 1.00  0.00  0.00 1.70  1.70  1.70 1.70  1.70
Initial Bse:   86    0    25     1    0     1     3  483    54    10  403     2
Added Vol:     -6    0     3     7    0    -6   -11  121   -14     2   44     4
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   80    0    28     8    0     0     0  604    40    12  447     6
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    80    0    28     8    0     0     0  604    40    12  447     6
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   80    0    28     8    0     0     0  604    40    12  447     6
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    80    0    28     8    0     0     0  604    40    12  447     6
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.93 1.00  0.93  0.95 1.00  1.00  1.00 0.94  0.94  0.95 0.95  0.95
Lanes:       0.74 0.00  0.26  1.00 0.00  0.00  1.00 1.87  0.13  1.00 1.97  0.03
Final Sat.:  1302    0   464  1805    0     0  1900 3353   224  1805 3557    45
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.00  0.06  0.00 0.00  0.00  0.00 0.18  0.18  0.01 0.13  0.13
Crit Moves:  ****                    ****              ****        ****
Green/Cycle: 0.25 0.00  0.23  0.02 0.00  0.00  0.00 0.73  0.73  0.03 0.75  0.75
Volume/Cap:  0.25 0.00  0.27  0.27 0.00  0.00  0.00 0.25  0.25  0.25 0.17  0.17
Uniform Del: 30.2  0.0  31.6  48.6  0.0   0.0   0.0  4.6   4.6  47.6  3.5   3.5
IncremntDel:  0.3  0.0   0.4   4.7  0.0   0.0   0.0  0.1   0.1   2.6  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  1.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   30.5  0.0  31.9  53.3  0.0   0.0   0.0  4.6   4.6  50.3  3.5   3.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  30.5  0.0  31.9  53.3  0.0   0.0   0.0  4.6   4.6  50.3  3.5   3.5
HCM2kAvg:       3    0     3     1    0     0     0    3     3     1    2     2
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Winters St. & Bell Ave.

Cycle (sec):	100	Critical Vol./Cap. (X):	0.630
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	25.6
Optimal Cycle:	62	Level Of Service:	C

Street Name:	Winters St.						Bell Ave.					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0	0 2	0 0	0	0 0	0 0	1	1 0	1 0	2	0 0
Volume Module:												
Base Vol:	64	0	122	0	0	0	0	171	133	170	142	0
Growth Adj:	4.00	4.00	4.00	1.00	1.00	1.00	1.70	1.70	1.70	1.70	1.70	1.70
Initial Bse:	256	0	488	0	0	0	0	291	226	289	241	0
Added Vol:	141	0	10	0	0	0	0	-48	162	23	-17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	397	0	498	0	0	0	0	243	388	312	224	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	397	0	498	0	0	0	0	243	388	312	224	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	397	0	498	0	0	0	0	243	388	312	224	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	397	0	498	0	0	0	0	243	388	312	224	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.75	1.00	1.00	1.00	1.00	0.86	0.86	0.95	0.95	1.00
Lanes:	1.00	0.00	2.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	2842	0	0	0	0	1639	1639	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.22	0.00	0.18	0.00	0.00	0.00	0.00	0.15	0.24	0.17	0.06	0.00
Crit Moves:	****								****	****		
Green/Cycle:	0.35	0.00	0.35	0.00	0.00	0.00	0.00	0.38	0.38	0.27	0.65	0.00
Volume/Cap:	0.63	0.00	0.50	0.00	0.00	0.00	0.00	0.39	0.63	0.63	0.10	0.00
Uniform Del:	27.1	0.0	25.7	0.0	0.0	0.0	0.0	22.8	25.5	31.8	6.5	0.0
IncremntDel:	2.0	0.0	0.4	0.0	0.0	0.0	0.0	0.2	1.3	2.6	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	29.2	0.0	26.1	0.0	0.0	0.0	0.0	23.0	26.8	34.4	6.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	29.2	0.0	26.1	0.0	0.0	0.0	0.0	23.0	26.8	34.4	6.5	0.0
HCM2kAvg:	11	0	6	0	0	0	0	6	10	10	1	0

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap. (X):        1.085
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):       61.9
Optimal Cycle:      180               Level Of Service:                 E
********************************************************************************
Street Name:               Winters St.                        I-80 WB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  0   0  0  1  1  0   1  0  0  0  0   0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      37  112     0     0  341   154    0    0     0   98    0   129
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:  148  448     0     0 1364   616    0    0     0  392    0   516
Added Vol:      0  183     0     0   68    83  181    0     0    0    0     0
PasserByVol:    0    0     0     0    0     0    0    0     0    0    0     0
Initial Fut:  148  631     0     0 1432   699  181    0     0  392    0   516
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   148  631     0     0 1432   699  181    0     0  392    0   516
Reduct Vol:     0    0     0     0    0     0    0    0     0    0    0     0
Reduced Vol:  148  631     0     0 1432   699  181    0     0  392    0   516
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   148  631     0     0 1432   699  181    0     0  392    0   516
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.90  0.90  0.95 1.00  1.00  0.90 1.00  0.90
Lanes:       1.00 2.00  0.00  0.00 1.34  0.66  1.00 0.00  0.00  0.60 0.00  1.40
Final Sat.:  1805 3610     0     0 2307  1126  1805    0     0 1026    0  2378
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.17  0.00  0.00 0.62  0.62  0.10 0.00  0.00  0.38 0.00  0.22
Crit Moves:  ****                  ****                 ****        ****
Green/Cycle: 0.08 0.65  0.00  0.00 0.57  0.57  0.11 0.00  0.00  0.35 0.00  0.24
Volume/Cap:  1.08 0.27  0.00  0.00 1.08  1.08  0.90 0.00  0.00  1.08 0.00  0.90
Uniform Del: 46.2  7.5   0.0   0.0 21.4  21.4  43.9  0.0   0.0  32.4  0.0  36.8
IncremntDel:101.5  0.1   0.0   0.0 47.5  47.5  37.4  0.0   0.0  56.6  0.0  11.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  1.00 0.00  0.00  1.00 0.00  1.00
Delay/Veh:  147.7  7.6   0.0   0.0 68.9  68.9  81.3  0.0   0.0  89.0  0.0  47.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 147.7  7.6   0.0   0.0 68.9  68.9  81.3  0.0   0.0  89.0  0.0  47.8
HCM2kAvg:      10    4     0     0   47    47     9    0     0   31    0    15
********************************************************************************
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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Winters St. & I-80 EB
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap. (X):        0.949
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):      38.5
Optimal Cycle:      180              Level Of Service:                 D
********************************************************************************
Street Name:             Winters St.                          I-80 EB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Lanes:        0  0  1  1  0   2  0  2  0  0   1  0  1! 0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0   97   176   261  176     0    49    1    46     0    0     0
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:    0  388   704  1044  704     0   196    4   184     0    0     0
Added Vol:      0    2     0    83  -15     0     0    0     0     0    0   181
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  390   704  1127  689     0   196    4   184     0    0   181
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  390   704  1127  689     0   196    4   184     0    0   181
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  390   704  1127  689     0   196    4   184     0    0   181
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0  390   704  1127  689     0   196    4   184     0    0   181
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.86  0.86  0.92 0.95  1.00  0.90 0.90  0.90  1.00 1.00  0.87
Lanes:       0.00 1.00  1.00  2.00 2.00  0.00  1.35 0.01  0.64  0.00 0.00  1.00
Final Sat.:     0 1630  1630  3502 3610     0  2308   24  1106     0    0  1644
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.24  0.43  0.32 0.19  0.00  0.08 0.17  0.17  0.00 0.00  0.11
Crit Moves:             ****  ****             ****                         ****
Green/Cycle: 0.00 0.46  0.46  0.34 0.79  0.00  0.09 0.21  0.21  0.00 0.00  0.12
Volume/Cap:  0.00 0.53  0.95  0.95 0.24  0.00  0.95 0.81  0.81  0.00 0.00  0.95
Uniform Del:  0.0 19.5  26.1  32.2  2.6   0.0  45.3 37.9  37.9   0.0  0.0  43.9
IncremntDel:  0.0  0.2  15.8  15.4  0.0   0.0  31.8 10.0  10.0   0.0  0.0  50.4
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  1.00
Delay/Veh:    0.0 19.8  41.9  47.6  2.7   0.0  77.1 47.9  47.9   0.0  0.0  94.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 19.8  41.9  47.6  2.7   0.0  77.1 47.9  47.9   0.0  0.0  94.3
HCM2kAvg:       0    9    26    23    3     0     8   11    11     0    0     9
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 Marysville Blvd. & North Ave.

Cycle (sec):	100	Critical Vol./Cap. (X):	0.718
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	17.6
Optimal Cycle:	81	Level Of Service:	B

Street Name:		Marysville Blvd.							North Ave.			
Approach:		North Bound			South Bound			East Bound			West Bound	
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Protected			Protected			Protected			Protected	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	0 0	1! 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	27	978	32	24	719	73	87	16	38	31	12	52
Growth Adj:	1.63	1.63	1.63	0.00	1.63	1.63	2.42	2.42	2.42	2.42	2.42	0.00
Initial Bse:	44	1594	52	39	1172	119	211	39	92	75	29	126
Added Vol:	0	-28	35	-107	-60	0	0	0	0	14	0	-74
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	44	1566	87	0	1112	119	211	39	92	89	29	0
User Adj:	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	44	1566	87	0	1112	119	211	39	92	89	29	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	1566	87	0	1112	119	211	39	92	89	29	0
PCE Adj:	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	44	1566	87	0	1112	119	211	39	92	89	29	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	1.00	0.94	0.94	0.94	0.94	0.94	0.96	0.96	1.00
Lanes:	1.00	1.89	0.11	1.00	1.81	0.19	0.62	0.11	0.27	0.75	0.25	1.00
Final Sat.:	1805	3392	189	1900	3212	344	1096	202	479	1381	451	1900
Capacity Analysis Module:												
Vol/Sat:	0.02	0.46	0.46	0.00	0.35	0.35	0.19	0.19	0.19	0.06	0.06	0.00
Crit Moves:		****		****			****				****	
Green/Cycle:	0.04	0.64	0.64	0.00	0.60	0.60	0.27	0.27	0.27	0.09	0.09	0.00
Volume/Cap:	0.58	0.72	0.72	0.00	0.58	0.58	0.72	0.72	0.72	0.72	0.72	0.00
Uniform Del:	47.0	11.8	11.8	0.0	12.2	12.2	33.2	33.2	33.2	44.3	44.3	0.0
IncremntDel:	10.4	1.1	1.1	0.0	0.4	0.4	5.2	5.2	5.2	14.2	14.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	57.4	13.0	13.0	0.0	12.6	12.6	38.5	38.5	38.5	58.5	58.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	57.4	13.0	13.0	0.0	12.6	12.6	38.5	38.5	38.5	58.5	58.5	0.0
HCM2kAvg:	2	18	18	0	12	12	11	11	11	5	5	0

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                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Raley Blvd. & I-80 WB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.923
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        22.4
Optimal Cycle:      180                 Level Of Service:                  C
********************************************************************************
Street Name:               Raley Blvd.                        I-80 WB
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Ignore           Ignore          Include           Ignore
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:         0  1  1  0  1    0  0  2  0  1    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0  894     0     0  701     0     0    0     0   225    0     0
Growth Adj:   0.00 2.64  2.64  2.64 2.64  0.00  0.00 2.64  0.00  2.64 2.64  2.64
Initial Bse:     0 2361     0     0 1851     0     0    0     0   594    0     0
Added Vol:     -70 -218     0     0 -304  -203  -107    0   -46     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0 2143     0     0 1547     0     0    0     0   594    0     0
User Adj:     0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
PHF Adj:      0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
PHF Volume:      0 2143     0     0 1547     0     0    0     0   594    0     0
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:     0 2143     0     0 1547     0     0    0     0   594    0     0
PCE Adj:      0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
MLF Adj:      0.00 1.00  0.00  1.00 1.00  0.00  0.00 1.00  0.00  1.00 1.00  0.00
Final Vol.:      0 2143     0     0 1547     0     0    0     0   594    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:     1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:   0.95 0.95  1.00  1.00 0.95  1.00  1.00 1.00  1.00  0.95 1.00  1.00
Lanes:        0.00 2.00  1.00  0.00 2.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:      0 3610  1900     0 3610  1900     0    0     0  1805    0  1900
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.00 0.59  0.00  0.00 0.43  0.00  0.00 0.00  0.00  0.33 0.00  0.00
Crit Moves:        ****        ****                               ****
Green/Cycle:  0.00 0.64  0.00  0.00 0.64  0.00  0.00 0.00  0.00  0.36 0.00  0.00
Volume/Cap:   0.00 0.92  0.00  0.00 0.67  0.00  0.00 0.00  0.00  0.92 0.00  0.00
Uniform Del:   0.0 15.7   0.0   0.0 11.1   0.0   0.0  0.0   0.0  30.8  0.0   0.0
IncremntDel:   0.0  6.8   0.0   0.0  0.7   0.0   0.0  0.0   0.0  18.9  0.0   0.0
InitQueuDel:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:    0.00 1.00  0.00  0.00 1.00  0.00  0.00 0.00  0.00  1.00 0.00  0.00
Delay/Veh:     0.0 22.4   0.0   0.0 11.9   0.0   0.0  0.0   0.0  49.8  0.0   0.0
User DelAdj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:    0.0 22.4   0.0   0.0 11.9   0.0   0.0  0.0   0.0  49.8  0.0   0.0
HCM2kAvg:        0   33     0     0   15     0     0    0     0    23    0     0
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                     Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #10 Marysville Blvd. & I-80 EB
*******************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.740
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):         8.4
Optimal Cycle:       88                 Level Of Service:                 A
*******************************************************************************
Street Name:         Marysville Blvd.                       I-80 EB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Ignore           Ignore           Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Lanes:        0  1  1  0  1   0  0  2  0  1   2  0  0  0  1   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  902    0     0  651    0   214    0    0     0    0    0
Growth Adj:  0.00 2.64  2.64  2.64 2.64  0.00  2.64 2.64  0.00  2.64 2.64  2.64
Initial Bse:    0 2382    0     0 1719    0   565    0    0     0    0    0
Added Vol:    -70 -182    0     0 -148  -203  -107    0  -46     0    0    0
PasserByVol:    0    0    0     0    0    0     0    0    0     0    0    0
Initial Fut:    0 2200    0     0 1571    0   458    0    0     0    0    0
User Adj:    0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0 2200    0     0 1571    0   458    0    0     0    0    0
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:    0 2200    0     0 1571    0   458    0    0     0    0    0
PCE Adj:     0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     0.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0 2200    0     0 1571    0   458    0    0     0    0    0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.95  1.00  0.92 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  2.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:     0 3610  1900     0 3610  1900  3502    0  1900     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.61  0.00  0.00 0.44  0.00  0.13 0.00  0.00  0.00 0.00  0.00
Crit Moves:       ****        ****             ****
Green/Cycle: 0.00 0.82  0.00  0.00 0.82  0.00  0.18 0.00  0.00  0.00 0.00  0.00
Volume/Cap:  0.00 0.74  0.00  0.00 0.53  0.00  0.74 0.00  0.00  0.00 0.00  0.00
Uniform Del:  0.0  4.0   0.0   0.0  2.8   0.0  39.0  0.0   0.0   0.0  0.0   0.0
IncremntDel:  0.0  1.0   0.0   0.0  0.2   0.0   4.7  0.0   0.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  0.00  0.00 1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  5.0   0.0   0.0  2.9   0.0  43.7  0.0   0.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  5.0   0.0   0.0  2.9   0.0  43.7  0.0   0.0   0.0  0.0   0.0
HCM2kAvg:       0   17    0     0    8    0     9    0    0     0    0    0
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Beloit Dr. & Bell Ave.

Cycle (sec):	100	Critical Vol./Cap. (X):	0.289
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	16.4
Optimal Cycle:	32	Level Of Service:	B

Street Name:	Beloit Dr.						Bell Ave.					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 2 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	35	0	116	41	283	0	0	253	13
Growth Adj:	1.00	1.00	1.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	0.00	1.70
Initial Bse:	0	0	0	60	0	197	70	481	0	0	430	22
Added Vol:	0	0	0	6	0	-5	-7	9	0	0	-309	-1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	66	0	192	63	490	0	0	0	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
PHF Volume:	0	0	0	66	0	192	63	490	0	0	0	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	66	0	192	63	490	0	0	0	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Final Vol.:	0	0	0	66	0	192	63	490	0	0	0	21
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.89	1.00	0.89	0.95	0.95	1.00	1.00	0.95	0.81
Lanes:	0.00	0.00	0.00	0.25	0.00	0.75	1.00	2.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	429	0	1257	1805	3610	0	0	1805	1534
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.15	0.00	0.15	0.03	0.14	0.00	0.00	0.00	0.01
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.53	0.00	0.53	0.34	0.47	0.00	0.00	0.00	0.13
Volume/Cap:	0.00	0.00	0.00	0.29	0.00	0.29	0.10	0.29	0.00	0.00	0.00	0.10
Uniform Del:	0.0	0.0	0.0	13.1	0.0	13.1	22.8	16.2	0.0	0.0	0.0	38.1
IncremntDel:	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Delay/Veh:	0.0	0.0	0.0	13.2	0.0	13.2	22.8	16.3	0.0	0.0	0.0	38.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	13.2	0.0	13.2	22.8	16.3	0.0	0.0	0.0	38.3
HCM2kAvg:	0	0	0	4	0	4	1	5	0	0	0	1

Appendix 4.12-G

Analysis Worksheets for Cumulative plus Proposed Project Conditions With Mitigation

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        1.050
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        48.4
Optimal Cycle:      180                 Level Of Service:                 D
********************************************************************************
Street Name:           Winters St.                         I-80 WB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        1  0  2  0  0    0  0  2  0  1    1  0  0  0  0    0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      24   194     0     0   214    54     0     0     0   112    47   234
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:   96   776     0     0   856   216     0     0     0   448   188   936
Added Vol:      0    -3     0     0   214   206    23     0     0     0     0     0
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:   96   773     0     0  1070   422    23     0     0   448   188   936
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    96   773     0     0  1070   422    23     0     0   448   188   936
Reduct Vol:     0     0     0     0     0     0    23     0     0     0     0     0
Reduced Vol:   96   773     0     0  1070   422     0     0     0   448   188   936
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:    96   773     0     0  1070   422     0     0     0   448   188   936
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.83 0.83  0.83
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  1.00 0.00  0.00  0.41 0.17  1.42
Final Sat.:  1805 3610     0     0 3610  1615  1900     0     0   640   269  2245
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.21  0.00  0.00 0.30  0.26  0.00 0.00  0.00  0.70 0.70  0.42
Crit Moves:  ****                  ****                          ****
Green/Cycle: 0.05 0.33  0.00  0.00 0.28  0.28  0.00 0.00  0.00  0.67 0.67  0.67
Volume/Cap:  1.05 0.64  0.00  0.00 1.05  0.93  0.00 0.00  0.00  1.05 1.05  0.63
Uniform Del: 47.5 28.3   0.0   0.0 35.9  34.9   0.0  0.0   0.0  16.7 16.7   9.5
IncremntDel:108.3  1.2   0.0   0.0 42.2  24.8   0.0  0.0   0.0  37.5 37.5   0.5
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 1.00  1.00
Delay/Veh:  155.7 29.5   0.0   0.0 78.0  59.7   0.0  0.0   0.0  54.2 54.2  10.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 155.7 29.5   0.0   0.0 78.0  59.7   0.0  0.0   0.0  54.2 54.2  10.0
HCM2kAvg:       7   11     0     0   25    17     0    0     0    50   50    13
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Winters St. & I-80 EB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.786
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        26.6
Optimal Cycle:      107                 Level Of Service:                 C
********************************************************************************
Street Name:              Winters St.                        I-80 EB
Approach:      North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Protected         Protected         Protected
Rights:           Include           Include           Include           Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  2  0  1    2  0  2  0  0    1  0  1! 0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    92   113   158   161     0   133     4    47     0     0     0
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:    0   368   452   632   644     0   532    16   188     0     0     0
Added Vol:      0   -27     0   206     8     0     0     0     0     0     0    23
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:    0   341   452   838   652     0   532    16   188     0     0    23
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0   341   452   838   652     0   532    16   188     0     0    23
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0    23
Reduced Vol:    0   341   452   838   652     0   532    16   188     0     0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0   341   452   838   652     0   532    16   188     0     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.92 0.95  1.00  0.93 0.93  0.93  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  2.00 2.00  0.00  1.57 0.03  0.40  0.00 0.00  1.00
Final Sat.:     0 3610  1615  3502 3610     0  2753   60   703     0     0  1900
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.09  0.28  0.24 0.18  0.00  0.19 0.27  0.27  0.00 0.00  0.00
Crit Moves:             ****  ****                   ****
Green/Cycle: 0.00 0.36  0.36  0.30 0.66  0.00  0.34 0.34  0.34  0.00 0.00  0.00
Volume/Cap:  0.00 0.27  0.79  0.79 0.27  0.00  0.57 0.79  0.79  0.00 0.00  0.00
Uniform Del:  0.0 22.9  28.8  31.8  7.0   0.0  27.0 29.7  29.7   0.0  0.0   0.0
IncremntDel:  0.0  0.1   7.1   4.0  0.1   0.0   0.6  4.5   4.5   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Delay/Veh:    0.0 23.0  35.9  35.8  7.1   0.0  27.6 34.2  34.2   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 23.0  35.9  35.8  7.1   0.0  27.6 34.2  34.2   0.0  0.0   0.0
HCM2kAvg:       0    4    14    14    4     0     9   15    15     0    0     0
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Winters St. & I-80 WB
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap. (X):        0.897
Loss Time (sec):       0 (Y+R =  4 sec) Average Delay (sec/veh):        28.1
Optimal Cycle:       180                Level Of Service:                  C
********************************************************************************
Street Name:            Winters St.                        I-80 WB
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  0   0  0  2  0  1   1  0  0  0  0   0  0  1! 0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      37  112     0     0  341   154     0    0     0    98    0   129
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:  148  448     0     0 1364   616     0    0     0   392    0   516
Added Vol:      0  183     0     0   68    83   181    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  148  631     0     0 1432   699   181    0     0   392    0   516
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   148  631     0     0 1432   699   181    0     0   392    0   516
Reduct Vol:     0    0     0     0    0     0   181    0     0     0    0     0
Reduced Vol:  148  631     0     0 1432   699     0    0     0   392    0   516
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:   148  631     0     0 1432   699     0    0     0   392    0   516
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  1.00  1.00 0.95  0.85  1.00 1.00  1.00  0.90 1.00  0.90
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  1.00 0.00  0.00  0.60 0.00  1.40
Final Sat.:  1805 3610     0     0 3610  1615  1900    0     0  1026    0  2378
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.17  0.00  0.00 0.40  0.43  0.00 0.00  0.00  0.38 0.00  0.22
Crit Moves:  ****                        ****                   ****
Green/Cycle: 0.09 0.57  0.00  0.00 0.48  0.48  0.00 0.00  0.00  0.43 0.00  0.43
Volume/Cap:  0.90 0.30  0.00  0.00 0.82  0.90  0.00 0.00  0.00  0.90 0.00  0.51
Uniform Del: 45.0 11.0   0.0   0.0 22.2  23.6   0.0  0.0   0.0  26.7  0.0  21.0
IncremntDel: 41.7  0.1   0.0   0.0  3.3  13.1   0.0  0.0   0.0  10.5  0.0   0.2
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  0.00  0.00 1.00  1.00  0.00 0.00  0.00  1.00 0.00  1.00
Delay/Veh:   86.6 11.1   0.0   0.0 25.5  36.7   0.0  0.0   0.0  37.2  0.0  21.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  86.6 11.1   0.0   0.0 25.5  36.7   0.0  0.0   0.0  37.2  0.0  21.3
HCM2kAvg:       8    5     0     0   21    23     0    0     0    23    0     9
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #6 Winters St. & I-80 EB
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap. (X):        0.933
Loss Time (sec):      0 (Y+R =  4 sec) Average Delay (sec/veh):        32.9
Optimal Cycle:      180                 Level Of Service:                  C
********************************************************************************
Street Name:           Winters St.                          I-80 EB
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  2  0  1    2  0  2  0  0    1  0  1! 0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    97   176   261   176     0    49     1    46     0     0     0
Growth Adj:  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00  4.00 4.00  4.00
Initial Bse:    0   388   704  1044   704     0   196     4   184     0     0     0
Added Vol:      0     2     0    83   -15     0     0     0     0     0     0   181
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:    0   390   704  1127   689     0   196     4   184     0     0   181
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0   390   704  1127   689     0   196     4   184     0     0   181
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0   181
Reduced Vol:    0   390   704  1127   689     0   196     4   184     0     0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Vol.:     0   390   704  1127   689     0   196     4   184     0     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.92 0.95  1.00  0.86 0.86  0.86  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  2.00 2.00  0.00  1.35 0.01  0.64  0.00 0.00  1.00
Final Sat.:     0 3610  1615  3502 3610     0  2197   23  1053     0     0  1900
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.11  0.44  0.32 0.19  0.00  0.09 0.17  0.17  0.00 0.00  0.00
Crit Moves:             ****  ****                   ****
Green/Cycle: 0.00 0.47  0.47  0.35 0.81  0.00  0.19 0.19  0.19  0.00 0.00  0.00
Volume/Cap:  0.00 0.23  0.93  0.93 0.23  0.00  0.48 0.93  0.93  0.00 0.00  0.00
Uniform Del:  0.0 15.9  25.1  31.6  2.2   0.0  36.2 40.0  40.0   0.0  0.0   0.0
IncremntDel:  0.0  0.1  18.3  12.9  0.0   0.0   0.4 28.0  28.0   0.0  0.0   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   0.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00  0.00 0.00  0.00
Delay/Veh:    0.0 16.0  43.5  44.5  2.2   0.0  36.7 68.0  68.0   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 16.0  43.5  44.5  2.2   0.0  36.7 68.0  68.0   0.0  0.0   0.0
HCM2kAvg:       0    4    25    22    3     0     5   13    13     0    0     0
********************************************************************************
```

Appendix 4.12-H

Trip Generation Calculations For the Project Alternatives

Trip Generation Comparison of Project Alternatives to the Proposed Project

	Daily Trips	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	Total	IN	OUT	Total
Alternative 1	28,578	870	1,491	2,360	1,589	1,265	2,854
Change from Proposed Project	-3,833	139	-217	-78	-189	-29	-218
Alterntive 2	33,678	725	1,480	2,206	1,783	1,412	3,195
Change from Proposed Project	1,266	-5	-227	-233	5	118	123

TRIP GENERATION FOR ALTERNATIVE 1

TRIP GENERATION (ALTERNATIVE 1)												
CITY LAND USE DESIGNATION	Area (Acres)[1]	Land Use Density or Intensity[2]	ITE LAND USE CODE	ITE LAND USE DESCRIPTION[3,4]	SIZE (UNITS)[4]	Daily Trips	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
							IN	OUT	Total	IN	OUT	Total
R1A	**217.10**	**10.00**	210	Single Family, D.U.	2,171	17,647	382	1,147	1,529	1,078	633	1,711
RMX (Housing)	**24.20**	**25.00**	220	Apartment, D.U.	605	3,786	60	240	300	228	122	350
RMX (Retail)	**24.20**	**See Below**	820	Shopping Center, ksf	89.60	6,323	89	58	147	279	303	582
C-2	**19.70**	**0.35**	820	Shopping Center, ksf	300.35	13,880	185	118	303	621	673	1,294
M-1	**45.00**	**0.25**	140	Light Industrial, ksf	490.05	1,881	296	88	384	133	236	369
Total area:	**306.00**			*Subtotal Raw Trip Generation*		*43,517*	*1,012*	*1,650*	*2,662*	*2,339*	*1,967*	*4,306*
ITE Int Red: Non-RMX Zones[5]:	Daily:	11%		PM:	12%	-3,675	0	0	0	-220	-185	-405
Internal Trip Reduction: RMX[6]:	AM:	12%		PM & Daily:	25%	-2,527	-18	-36	-54	-127	-106	-233
				Alternate Modes: Residential[6]	4%	-857	-18	-55	-73	-52	-30	-82
				Alternate Modes: Commercial[6]	4%	-808	-11	-7	-18	-36	-39	-75
				Pass-by trips (Commercial Uses)[5]	35%	-7,071	-96	-61	-157	-315	-342	-657
				Subtotal of Reductions		*-14,939*	*-142*	*-160*	*-302*	*-750*	*-702*	*-1,452*
					TOTAL TRIPS	**28,578**	**870**	**1,491**	**2,360**	**1,589**	**1,265**	**2,854**

Notes
1. Per Design, Community and Environment
2. Dwelling units per acre for residential and Floor Area Ratio of non-residential
3. Per *Trip Generation* ,Seventh Edition, ITE.
4. D.U. - Dwelling Unit, ksf - Thousand Square Feet of gross leasable area.
5. Per *Trip Generation Handbook* , ITE.
6. Per *Trip Generation for New Urbanist Developments* , Final Report. Florida Department of Transportation, 2004.

Commercial Areas in RMX Zone				
Gross Acres	Buildable Area	Net Acres Acres	FAR	Building Area, sf
24.20	85%	20.57	0.1	89,603

TRIP GENERATION FOR ALTERNATIVE 2

TRIP GENERATION (ALTERNATIVE 2)												
CITY LAND USE DESIGNATION	Area (Acres)[1]	Land Use Density or Intensity[2]	ITE LAND USE CODE	ITE LAND USE DESCRIPTION[3,4]	SIZE (UNITS)[4]	Daily Trips	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
							IN	OUT	Total	IN	OUT	Total
R1A	**217.10**	**10.00**	210	Single Family, D.U.	2,171	17,647	382	1,147	1,529	1,078	633	1,711
RMX (Housing)	**24.20**	**25.00**	220	Apartment, D.U.	605	3,786	60	240	300	228	122	350
RMX (Retail)	**24.20**	**See Below**	820	Shopping Center, ksf	89.60	6,323	89	58	147	279	303	582
C-1/2	**53.70**	**0.35**	820	Shopping Center, ksf	818.71	26,636	337	216	553	1,204	1,304	2,508
M-1	**11.00**	**0.25**	140	Light Industrial, ksf	119.79	444	59	18	77	29	52	81
Total area:	**306.00**				*Subtotal Raw Trip Generation*	*54,837*	*927*	*1,678*	*2,605*	*2,818*	*2,414*	*5,232*
ITE Int Red: Non-RMX Zones[5]:		Daily:	11%	PM:	12%	-4,920	0	0	0	-277	-239	-516
Internal Trip Reduction: RMX[6]:		AM:	12%	PM & Daily:	25%	-2,527	-18	-36	-54	-127	-106	-233
				Alternate Modes: Residential[6]	4%	-857	-18	-55	-73	-52	-30	-82
				Alternate Modes: Commercial[6]	4%	-1,318	-17	-11	-28	-59	-64	-124
				Pass-by trips (Commercial Uses)[5]	35%	-11,536	-149	-96	-245	-519	-562	-1,081
					Subtotal of Reductions	*-21,159*	*-202*	*-198*	*-399*	*-1,035*	*-1,002*	*-2,037*
					TOTAL TRIPS	**33,678**	**725**	**1,480**	**2,206**	**1,783**	**1,412**	**3,195**

Notes
1. Per Design, Community and Environment
2. Dwelling units per acre for residential and Floor Area Ratio of non-residential
3. Per *Trip Generation* ,Seventh Edition, ITE.
4. D.U. - Dwelling Unit, ksf - Thousand Square Feet of gross leasable area.
5. Per *Trip Generation Handbook* , ITE.
6. Per *Trip Generation fo r New Urbanist Developments* , Final Report. Florida Department of Transportation, 2004.

Commercial Areas in RMX Zone				
Gross Acres	Buildable Area	Net Acres Acres	FAR	Building Area, sf
24.20	85%	20.57	0.1	89,603