

Volume I
Greenbriar Development Project
Sacramento, California

Draft Environmental Impact Report



State Clearinghouse Number 2005062144

Prepared for:

City of Sacramento
Environmental Planning Services

and

Sacramento Local Agency Formation Commission

July 2006

EDAW

Draft Environmental Impact Report



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1 INTRODUCTION

1.1 INTRODUCTION TO THE DEIR

This draft environmental impact report (DEIR) evaluates the environmental impacts of the proposed Greenbriar project. The project site is located west of the City of Sacramento's (City) North Natomas community within the Natomas Basin. The project site consists of approximately 577 acres of fallow agricultural land (at the time the Notice of Preparation (NOP) for the project was circulated) bounded by Interstate 5 (I-5) to the south, State Route 70 and 99 (SR 70/99) to the east, Elkhorn Boulevard to the north, and Lone Tree Canal to the west. The site, although fallowed at the time of the NOP, has routinely been rotated from active to fallowed conditions to maintain productive cropping patterns. Crops previously and routinely cultivated at the site include rice and wheat. The project is located adjacent to existing agricultural uses (some fallow and some active) to the north and west. A residential development project (approximately 128 acres in size) is currently under construction east of the site across SR 70/99 within the North Natomas community. The project site is immediately adjacent and west of the City's North Natomas Community Plan (NNCP) area and the City's jurisdictional boundary and sphere of influence (SOI). The recently approved Metro Air Park Special Planning Area (SPA) is located adjacent and west of the project site. An industrial business park would be developed within this area.

The proposed project is a mixed-use development project that includes: (1) 3,473 low, medium, and high density residential units, (2) 48.4 acres (net) of commercial development, (3) a 10-acre (net) elementary school site, (4) 48.4 acres (net) of neighborhood parks, and (5) a 39-acre (net) lake/detention basin that encircles the central portion of the project site. The project also includes the construction of a new east-west roadway, Meister Way, through the center of the site. A new light rail station and rail alignment is proposed to be constructed by Sacramento Regional Transit (RT) along this roadway near the center of the site. The rail alignment would connect the project site to the Metro Airpark development to the west and the North Natomas Community to the east across SR 70/99 via a new proposed overpass at SR 70/99. Higher density (than other parts of the project), mixed-use development (residential and retail/office land uses on same parcel) is proposed along Meister Way near the proposed light rail station. The project also includes a linear open space/buffer area that extends along the western boundary of the site, adjacent to Lone Tree Canal, proposed to protect potentially sensitive biological habitat.

Because the project site is located outside the City's limits and its SOI, the project applicant would need to seek approval from the Sacramento Local Agency Formation Commission (LAFCo) for amendment of its SOI and annexation of the site into the City. In addition, the project includes a request for service from the Sacramento Regional County Sanitation District (SRCSD) (wastewater) and County Sanitation District 1 (CSD-1) (sewer). Currently the project site is located outside SRCSD's SOI. As such, approval from LAFCo for amendment of SRCSD's SOI to encompass the project site would also be required.

1.2 CHANGES TO THE PROJECT SINCE PUBLICATION OF THE NOTICE OF PREPARATION

The City of Sacramento circulated a NOP of a DEIR for the Greenbriar Project on June 28, 2005 and July 13, 2005 for a 30-day review period. The NOP described the elements of the project, requested entitlement actions, and described the environmental issue areas to be evaluated in the DEIR. One element of the project described in the NOP was the amendment of the North Natomas Community Plan (NNCP) to incorporate the project. Since publication of the NOP, the applicant in consultation with the City decided to pursue amendment of the boundaries of the NNCP to incorporate the project site and create a special planning area (SPA) within the NNCP area. As a SPA, the project would prepare separate Planned Unit Development (PUD) Guidelines and Finance Plan, which would be designed guide development at the project site consistent with the existing City of Sacramento General Plan and the Vision and Guiding Principals of the Sacramento General Plan Update (2005).

As a result, the project would not be subject to the policies of the NNCP. This change does not represent a substantial change to the overall project.

1.3 INTENDED USES OF THIS DEIR

An environmental impact report (EIR) analyzes the environmental effects of a project, indicates ways to reduce or avoid potential environmental effects resulting from the project (i.e., mitigation measures), and identifies alternatives to the project that are also capable of avoiding or reducing project-related impacts. An EIR must also disclose significant environmental effects that cannot be avoided, growth-inducing effects, significant cumulative impacts, and effects found not to be significant. The purpose of an EIR is not to recommend approval or denial of the project, but to provide information to aid the public and decision makers/permitting agencies in the decision-making process.

1.4 LEAD AND RESPONSIBLE AGENCIES

The City of Sacramento and LAFCo are the CEQA co-lead agencies for the proposed project. In conformance with Sections 15050 and 15367 of the State CEQA Guidelines, the lead agency is the “public agency which has the principal responsibility for carrying out or disapproving a project.” The City is responsible for approving the project and its associated entitlements (e.g., pre-zoning, General Plan amendment, planned unit development, finance plan, amendment of NNCP boundaries, tentative large lot map, and tentative subdivision map), while LAFCo is responsible for approving SOI amendment as the lead agency including the approval of SOI amendment for SRCSD’s service area and annexations of the project site to the City as a responsible agency. As such, the City and LAFCo would use this EIR in evaluating the environmental impacts associated with each of their respective actions. Contacts for each agency are identified below:

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In addition to the lead agency, other governmental agencies could be involved in approving elements of the proposed project. These “responsible agencies” could include, but may not necessarily be limited to, the following:

- ▶ Regional Water Quality Control Board (RWQCB) (Section 401 of Clean Water Act certification, National Pollutant Discharge Elimination System [NPDES] permit)
- ▶ California Department of Fish and Game (CDFG) (Section 1600 of California Fish and Game Code, Streambed Alteration Agreement)

- ▶ Sacramento Metropolitan Air Quality Management District (SMAQMD) (authority to construct permit)
- ▶ California Department of Transportation (Caltrans) (encroachment permit)
- ▶ Sacramento County Airport System (avigation easement)
- ▶ City of Sacramento (encroachment permit)
- ▶ County of Sacramento (encroachment permit)
- ▶ Sacramento Regional Transit District (approval of lightrail alignment)

In addition to these agencies, the following federal agencies may use environmental information in this EIR for permitting decision:

- ▶ U.S. Army Corps of Engineers (USACE) (Section 404 of the Clean Water Act Permit)
- ▶ U.S. Fish and Wildlife Service (USFWS) (Section 7 of Endangered Species Act consultation or Section 10a Habitat Conservation Plan/Section 9 Incidental Take Permit)

Other agencies that may review this DEIR include:

- ▶ Sacramento County Airport Land Use Commission (consistency within Comprehensive Land Use Plan)
- ▶ Environmental Protection Agency (review of hazardous material handling)

1.5 ENVIRONMENTAL PROCEDURES

This EIR has been prepared in accordance with the California Environmental Quality Act of 1970 (CEQA), as amended (Public Resources Code, Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulations, Section 15000, et seq.). This report also complies with the City’s and LAFCo’s rules, regulations, and procedures for implementation of CEQA.

The State CEQA Guidelines require that each EIR contain areas of description and analysis. The following table (Table 1-1) identifies the required elements of an EIR (with CEQA Guidelines sections referenced) and the corresponding chapters where each element is discussed in this document:

| Table 1-1 CEQA Guidelines Required Analyses | |
|--------------------------------------------------------------------------------|-------------|
| Required Description and Analysis | EIR Chapter |
| Summary (Section 15123) | 2 |
| Description of the Project (Section 15124) | 3 |
| Alternatives to the Proposed Project (Section 15126.6) | 4 and 8 |
| Description of the Existing Setting (Section 15125) | 5 and 6 |
| Environmental Impacts (Sections 15126 and 15143) | 6 |
| Growth Inducing Impacts (Section 15126[d]) | 7.1 |
| Cumulative Impacts (Section 15355) | 7.2 |
| Significant Environmental Effects Which Cannot be Avoided (Section 15126.2[b]) | 7.4 |
| Irreversible Environmental Effects (Section 15126.2[c]) | 7.5 |

1.6 EIR TYPE, USE, AND PROCESS

The EIR for the proposed project is a Project EIR prepared pursuant to Section 15161 of the State CEQA Guidelines. The discussion in this EIR is intended to provide environmental clearance by local and state agencies for the project.

Initially, this DEIR will be published and will be subject to review and comment by the public and by responsible, trustee, and other interested jurisdictions, agencies, and organizations during a 45-day public review period. Written responses to comments received on the DEIR, with respect to significant environmental issues, will be prepared. The responses may specify changes to the DEIR or to the proposed project or may explain why the comment does not raise substantive issues that would require such changes. The responses to comments and any changes to the DEIR and/or project description therein specified will, along with the DEIR, become the final EIR (FEIR). The FEIR will be presented to the Sacramento City Council and the LAFCo Commission for certification as to its adequacy under CEQA in addressing environmental effects associated with each agency's actions being considered at that time (i.e., City of Sacramento's pre-zoning, approval of project, and associated entitlements, LAFCo's approval of SOI expansion initially and after City pre-zoning, approval of the annexation of the project site to the City and amendment of SRCSD's SOI).

Once the FEIR is certified, the City and LAFCo will consider whether to approve the project in accordance with the Memorandum of Understanding as co-lead agencies. If they decide to approve the project, the City and LAFCo will need to determine either (1) that adopted mitigation measures would reduce, to a level of insignificance, any significant impacts; or (2) if, after further consideration, one or more of the mitigation measures prove to be infeasible or they determine that the mitigation measures will not reduce the significant impacts to less-than-significant levels, the City and LAFCo will have to consider whether to proceed with the project despite its significant effects. If they decide to proceed with approval of the project, the City and LAFCo would need to prepare a Statement of Overriding Considerations, in accordance with Section 15093 of the CEQA Guidelines, stating the reasons why they are proceeding with the project despite remaining significant and unavoidable impacts.

In addition, the City and LAFCo would need to make findings in response to each significant effect identified in the EIR if they decide to approve the project. Information contained in an EIR does not control the lead agency's ultimate decision on a project. However, the lead agency must respond to each significant impact identified in the EIR by making findings in accordance with Section 15091(a) of the CEQA Guidelines which states,

No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:

- (1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
- (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
- (3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

As part of making findings, the lead agency is also required to adopt a program for reporting on or monitoring mitigation measures required as part of project approval and that must be implemented to lessen significant impacts to the environment (CEQA Guidelines Section 15091[d]).

1.7 SCOPE OF THIS DEIR

The scope of the analysis in this DEIR is focused on the environmental issues that were determined to have potential for significant impacts based on the Notice of Preparation (NOP) for the proposed project (Appendix A) and the environmental scoping process. An NOP for the Greenbriar project was first released on June 28, 2005. A second NOP, indicating that the City and LAFCo would be co-lead agencies was reissued on August 16, 2005. In addition, a public scoping meeting was held on July 13, 2005 to receive oral and written comments on the proposed scope and content of the EIR. The EIR addresses the following environmental issues:

1. Transportation and Circulation
2. Air Quality
3. Noise
4. Utilities
5. Public Services
6. Parks and Open Space
7. Aesthetics
8. Public Health and Hazards
9. Geology and Soils
10. Hydrology and Water Quality
11. Agriculture
12. Biological Resources
13. Cultural Resources

1.8 EFFECTS FOUND NOT TO BE SIGNIFICANT

This section contains a discussion of the environmental Effects Found Not to be Significant pursuant to the State CEQA Guidelines Section 15128 that states “[a]n EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR.” The following effects were found not to be significant and are not included in the analysis of potential project impacts: landslides, incapability of soils to support the use of septic tanks or alternative wastewater disposal systems, seich, tsunami, and mudflow impacts. A summary of the reasons for excluding these issues from further consideration is provided below.

LANDSLIDES

The project site is generally flat and does not contain any steep slopes; therefore, it is not anticipated to be subject to landsliding. This issue is not discussed further in this EIR.

SUBSTANTIAL DEPLETION OF GROUNDWATER RESOURCES

Agricultural operations would cease if the project were approved, and as a result the applicant would properly remove all agricultural wells from the project site. The project would be served by the City for potable water. The project would construct two groundwater wells: two wells adjacent to the on-site lake/detention basin. These wells would be used on a periodic (i.e., summer months) basis to maintain adequate flows within the lake/detention basin. Because the project site has previously been used for water intensive land uses (i.e., farming rice fields), the project would remove all agricultural wells from the project site, and only two groundwater wells would be used periodically, the project would not result in the substantial depletion of groundwater resources.

INCAPABILITY OF SOILS TO SUPPORT THE USE OF SEPTIC TANKS OR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS

The project would connect to existing nearby sewer connections. Neither septic tanks nor alternative wastewater disposal systems would be necessary and are not proposed. Therefore, this issue is not discussed further.

INUNDATION BY SEICHE, TSUNAMI, OR MUDFLOW

Because the project site is located approximately 90 miles inland from the ocean, and does not contain and is not located adjacent to a water body that is large enough to be subject to a seiche-generating wave, the project site would not be subject to inundation as a result of seiche or tsunami. Further, the project site is relatively flat and is not surrounded by any hillside areas. Therefore, the project site would not be subject to inundation by mudflow. These issues are not discussed further in this EIR.

1.9 PROJECT APPLICANT

Riverwest Investments is the applicant for the Greenbriar project and the City of Sacramento is the applicant for the Greenbriar SOI and annexation. The project applicant contact information is provided below:

Riverwest Investments
7700 Collegetown Drive, #215
Sacramento, CA 95826
Phone: (916) 379-0955
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Sacramento, CA 95814
Phone: (916) 808-7931
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2 SUMMARY

2.1 INTRODUCTION

This summary provides an overview of the Greenbriar project, which is described in detail in Chapter 3, “Project Description.” This summary also identifies the alternatives to the project, which are described in detail in Chapter 4, “Alternatives to the Proposed Project.” Table 2-1, at the end of this chapter, summarizes the environmental impacts identified for the project in each of the environmental issue sections of this draft environmental impact report (DEIR) (Chapter 6, “Environmental Analysis”). The table consists of environmental impacts, the significance without mitigation, proposed mitigation measure(s), and the significance of the impact if the mitigation measures are implemented.

This summary also provides a description of those areas of the document that are of most concern to LAFCo. This description is provided in Section 2.4, “Summary of LAFCo Issues of Concern.”

2.2 SUMMARY OF THE PROJECT DESCRIPTION

The 577-acre project site is located in unincorporated Sacramento County, just west of the City of Sacramento. The site is immediately north of Interstate 5 (I-5) and west of State Route 70 and 99 (SR 70/99). The site is adjacent to existing agricultural uses to the north and west and residential land uses to the east and south, which are part of the North Natomas Community Plan (NNCP) area. Land to the west of the project site has been approved by Sacramento County for commercial and industrial development as part of the Metro Airpark Development (MAP) project. The project site primarily consists of undeveloped, agricultural land that has been historically rotated between rice, alfalfa, wheat, and row crops. A portion of the site supports remnants of former agricultural buildings and a former racetrack for horses.

The project would result in the development of a total 3,473 residential units: 671 low-density, 2,215 medium-density; and 587 high-density residential units, approximately 27.5 (net) acres of commercial land uses, an approximate 39-acre (net) lake/detention basin, a 10-acre (net) elementary school, approximately 49 (net) acres of parks and open space, and a 250-foot linear open space/buffer along the property’s western boundary that would be managed as habitat for the giant garter snake. Chapter 3, “Project Description” provides a more detailed description of the project.

2.3 SUMMARY OF PROJECT ALTERNATIVES

Project alternatives are intended to be developed to reduce or eliminate the potentially significant adverse environmental effects of the project while attempting to meet the project objectives. An EIR is required to contain a discussion of a reasonable range of alternatives to the proposed project that could feasibly attain the basic objectives of the project (California Environmental Quality Act (CEQA) Guidelines, Section 15126.6[a]).

The following sections summarize the alternatives to the Greenbriar project that are addressed in this DEIR. Chapter 4, “Alternatives to the Project” provides a more detailed description of these alternatives as well as other alternatives that were considered but rejected for reasons of infeasibility.

2.3.1 OFF-SITE ALTERNATIVE

In many EIRs, an off-site alternative is evaluated to provide a greater range of possible alternatives to consider in the decision-making process. The key question is whether an off-site alternative is available that would feasibly attain most of the basic objectives of the project, and would also avoid or substantially lessen any of the environmental effects of the project (CEQA Guidelines Section 15126.6[a]). The basic objectives of the

Greenbriar project include creating a residential development located near downtown Sacramento and Metro Air Park, as well as creating a single-family residential neighborhood that meets the growth principles established by the Sacramento Area Council of Government's (SACOG) Blueprint plan. In addition, the Greenbriar project would provide light rail transit opportunities on-site. The project site is located immediately adjacent to the North Natomas community and the project would be located in the NNCP area with a boundary line adjustment. The project would be a special planning area (SPA) and would implement its own planned unit development (PUD) guidelines.

Development in the North Natomas area has occurred fairly rapidly since adoption of the NNCP in 1994 and of the properties that are currently designated for residential land uses, there is not a known site that could accommodate a development similar to the Greenbriar project (in size) that is not already being pursued for development by other property owners. Further, there are not sufficient properties available that when combined could provide sufficient area for the proposed land uses. Areas that are currently being actively pursued by other developers include the area to the south of the project site, the Panhandle area (in the eastern portion of North Natomas, north and south of Del Paso Road), the area just west of Natomas Crossing, and the area to the southeast of the junction of State Route 70/99 (SR 70/99) and Elkhorn Boulevard. These vacant properties are either currently under City review for development, or homebuilders (other than the Greenbriar property owner) are actively assembling land in anticipation of submitting a development application.

None of the undeveloped residential properties within the NNCP area are currently owned by the Greenbriar property owner. Although it may be possible for the applicant to acquire a property of a similar size or acquire an aggregate of properties that could accommodate the proposed land use within the North Natomas area, given the timing of the application and the status of development in the North Natomas area, it is not reasonable to consider that the applicant would be successful in obtaining such a property. Further, while other property may be available outside the City limits, it would be more distant from the City and would "leapfrog" undeveloped area, leading to undesirable land use patterns and substantial growth inducement potential and it likely would not be located along the Downtown-Natomas-Airport lightrail line. For this reason, a specific off-site alternative has not been selected for analysis. However, to consider the relative environmental impacts of an alternative in one of the undeveloped areas of the NNCP currently designated for residential development, Chapter 8, "Comparative Merits of the Alternatives," provides a comparative analysis of this off-site alternative. Through this analysis, this DEIR considers whether an off-site alternative would reduce or substantially lessen any of the significant impacts identified in Chapter 6, "Environmental Analysis."

2.3.2 DISPERSED DEVELOPMENT ALTERNATIVE

Among the findings to be considered in deliberations over the project, LAFCo will need to determine whether expansion of the City's SOI will be needed to provide adequate housing within its jurisdiction to meet projected housing demands. There are several properties designated for residential land uses within the City that are either undeveloped or under utilized such that they could be developed (or re-developed) with new residential land uses that could help the City meet its long-term housing demands.

According to the City's General Plan, as of September 2005 there were approximately 14,000 acres of low and medium density parcels of vacant land available. However, this number is likely less than this total, because there continues to be urban development in the North Natomas area, where the majority of this land is concentrated. For example, projects considered in a cumulative context include the Westborough, Cambay West, Natomas Crossing, Natomas Town Center, Natomas Creek and Panhandle projects (Exhibit 6-1), each of which are in the North Natomas area. In the south Sacramento area, SunCal Companies has announced they intend to develop on one of the last remaining large blocks of land in the City, the 800-acre Delta Shores site (SunCal press announcement, November 8, 2005). Vacant industrial sites at the downtown Sacramento and Curtis Park railyards are being actively pursued for development, with applications submitted on both. As this shows, the North Natomas area continues to be actively developed, and other large, vacant, or undeveloped parcels are being actively pursued. Further, much of the land is tied up by other landowners interested in development. None of the undeveloped low

or medium density residential or residential /mixed-use properties within the NNCP area or in other large, undeveloped areas of the City are currently owned by the Greenbriar property owner.

The purpose of this alternative is to consider whether existing properties within the City’s SOI could support the project’s proposed land uses, while at the same eliminating some of the project’s significant and significant and unavoidable environmental impacts. As described above, sufficient holding capacity is available within the City’s SOI to accommodate the project’s proposed residential development. In spite of the fact that the City may currently have holding capacity for the project, this is not expected to be the case in the foreseeable future. According to Sacramento City staff (McDonald, pers. comm., June 19, 2006), the Technical Background report for the City of Sacramento General Plan Update shows the following:

| | |
|------------------------------------------------|---------|
| Current (2005) population: | 450,000 |
| Proposed General Plan Holding Capacity (2030): | 564,000 |
| Anticipated City population (2030): | 650,000 |

Over the next 25 years, the City is expected to grow by 200,000 people. However, the current General Plan, including the current SOI, would accommodate an additional estimated 114,000 people. Additional land would be needed if the City intends to accommodate the 86,000 people above the General Plan’s holding capacity that are anticipated to live in the City.

The proposed project would also provide for employment through commercial/retail uses, although these uses would primarily serve residential uses on and near the project site. Projections for employment uses in the City are as follows:

| | |
|------------------------------------------------|---------|
| Current (2005) employment: | 181,000 |
| Proposed General Plan Holding Capacity (2030): | 445,000 |
| Anticipated City employment (2030): | 321,000 |

Unlike housing, the City has ample holding capacity for employment uses. As mentioned above, commercial/retail uses on the project site are intended to be local serving, and they would reduce the need for driving trips outside the project site. So, while they could be provided elsewhere within the City, they would frustrate project objectives for a mixed use development.

2.3.3 No PROJECT ALTERNATIVE (NP) – CONTINUATION OF EXISTING LAND USES

Under the No Project Alternative (NP), development would not occur and the project site would remain designated for agricultural use. Production of agricultural crops (e.g., rice, wheat) would continue at the project site and no new facilities would be constructed. The project site would not be annexed into the City of Sacramento; and it would remain in the unincorporated area of the County of Sacramento. The project site’s current General Plan land use and zoning designations identified by the County of Sacramento would remain in effect. The Sacramento County General Plan designates the site for Agriculture, and it is zoned by the Sacramento County Zoning Code as Agricultural (AG 80). The no project alternative would be consistent with the designated land uses for the project site but would not meet the project objectives.

2.3.4 REDUCED SIZE ALTERNATIVE

The Reduced Size Alternative is designed to reduce the development footprint of the project to avoid one or more of the project’s significant and significant and unavoidable impacts. The project would result in significant impacts in the areas of conversion of prime farmland and open space resources, visual character of the project site, transportation impacts on local roadways and intersections, operational air emissions, biological habitat and species, aircraft hazards, and noise. This alternative would constrain development at the project site to a development level that may be financially infeasible to implement but would achieve most if not all of the

project's objectives including providing sufficient development densities to support a light rail station and would continue to be consistent with SACOGS's Blueprint. Development of this alternative would be approximately 80% of proposed project levels (20% reduction in proposed development at the site). Therefore, this alternative would result in the development of 2,995 residential units and approximately 25 acres of commercial development. The remainder of the site would be undeveloped and would continue in its existing state. To reduce potential impacts to agricultural resources, sensitive biological species and habitats, and to minimize the development area that falls within the Sacramento International Airport's safety zone, development of this alternative would need to be concentrated in the eastern portion of the project site. However, mobile source air emissions and noise impacts from I-5 and SR 70/99 result in the need to locate sensitive receptors including the elementary school at a greater distance from these sources. Therefore, this alternative would need to be designed in such a way as to provide a buffer on the eastern and southern boundaries of the site. In general, this alternative would consist of a development project that would concentrate land uses in the north central portion of the site. An approximate 200–400 foot-wide buffer/open space/fallowed land area would be provided on the western, eastern, and southern boundaries of the project site (Exhibit 4-1).

2.3.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that an “environmentally superior” alternative among the alternatives considered be selected and the reasons for such selection disclosed. In general, the environmentally superior alternative is the alternative that would generate the fewest or least severe adverse impacts. In the case of the project, the no project alternative is the environmentally superior alternative because it would not create any new site-specific adverse environmental impacts. However, CEQA requires the identification of another environmentally superior alternative when the “no project” alternative is identified as environmentally superior (State CEQA Guidelines Section 15126[e][2]).

The reduced size alternative would be environmentally superior to the project because it would substantially reduce the project's traffic, air, noise, farmland, and biological resources impacts. Further, it would meet most project objectives including supporting light rail and creating a development consistent with SACOG's Blueprint.

An off-site alternative within the existing boundaries of the NNCP would be environmentally superior to the project and to the reduced size alternative. This alternative is the overall superior alternative because it would avoid the project's significant aircraft safety hazard impact associated with compatibility with CLUP standards and it would substantially reduce traffic, farmland, biological, air quality, and noise impacts. Further, it would meet most if not all project objectives. However, a site within the NNCP is not currently owned by the project applicant and all land in the NNCP area is currently proposed for development. Therefore, it is not known whether the off-site alternative considered in this analysis is feasible. Further, this alternative would not meet the key project objective of providing development along the DNA line.

The dispersed development alternative would be environmentally superior to the project. While the project would avoid the project's significant aircraft safety hazard impact associated with compatibility with CLUP standards and it would substantially reduce traffic, farmland, biological, air quality, and noise impacts, depending on localized conditions, it could result in greater transportation impacts compared to the project. Further, multiple sites within the city limits or SOI are not currently owned by the project applicant and most land in the NNCP area and other areas of the City are currently proposed for development. Therefore, it is not known whether this theoretical off-site alternative considered in this analysis is feasible. Further, development of an alternative in a dispersed nature would not achieve key project objectives related to providing residential development that would support development of a light rail station along the DNA line.

2.4 SUMMARY OF LAFCo ISSUES OF INTEREST AND LEVEL OF IMPACT

LAFCo is a co-lead agency for the project and is responsible as lead agency for considering the proposed City of Sacramento Sphere of Influence Amendment (SOIA) for the project site, the SOIA for Sacramento Regional County Sanitation District (SRCSD), and LAFCo is responsible as a responsible agency for considering the

reorganization (annexation to the City of Sacramento and related detachments) of the project. LAFCo is the agency charged by the State Legislature through the Cortese-Knox Hertzberg Local Government Reorganization Act (Act) of 2000 (Government Code Section 5600, et. seq.) with ensuring the timely and orderly formation of local government agencies and boundaries, to preserve prime agricultural and open space resources, and to discourage urban sprawl. Pursuant to the Act, LAFCo is responsible for reviewing logical and timely changes in local government boundaries, including reorganizations such as the proposed Greenbriar annexation. One essential element of the Act that provides for orderly growth is the annexation of land within an adopted SOI. The SOI is a policy tool used to provide guidance for consideration of annexation proposals and is intended to encourage efficient provision of municipal services and discourage duplication of service delivery. Land must be within a city's SOI to be annexed. The project site is located adjacent to the City of Sacramento's SOI on the south and east and the project applicant is requesting an amendment of the City's SOI to incorporate the project site. The SOI expansion and annexation request would be considered by LAFCo in a 2-step process: first, consideration of the SOIA amendment; second, if the SOIA is approved, consideration of reorganization for the project.

As a co-lead agency under CEQA, LAFCo must ensure that the environmental document prepared for the project adequately addresses LAFCo matters in addition to addressing City of Sacramento matters. As such, the following discussion briefly describes issues that are of primary importance to LAFCo and where detailed discussions of these issues can be found within this DEIR. The following issues are of primary interest to LAFCo:

- ▶ Utilities (Section 6.5): Issues related to the project's impacts to local and regional water and wastewater treatment and conveyance, storm drainage, and electrical and natural gas facilities are discussed in this section.
- ▶ Public Services (Section 6.6): Issues related to the project's impacts to police, fire, emergency, solid waste, school, and library services within the City are discussed in this section. Appendix K presents the City's Water Supply Assessment for the Greenbriar project.
- ▶ Parks and Open Space (Section 6.7): Issues related to the project's provision and preservation of park and open space areas including the project's impacts to existing City and County park and open space resources are discussed in this section.
- ▶ Agriculture (Section 6.12): Issues related to the project's impacts to existing agricultural resources, Williamson Act contracts, and adjacent agricultural operations are discussed in this section.
- ▶ Alternatives (Chapter 8): Issues related to its SOI amendment to accommodate projected residential development are evaluated in this section.

2.5 SUMMARY OF KNOWN CONTROVERSIAL ISSUES

The CEQA Guidelines require that the summary of an EIR include a synopsis of known issues of controversy that have been raised by agencies and the public (CEQA Guidelines Section 15123). A Notice of Preparation (NOP) for the Greenbriar project was first released on June 28, 2005. In August 2005, Sacramento LAFCo and the City initiated a Memorandum of Understanding agreeing to act as co-lead agencies for CEQA review. The City re-circulated the NOP to indicate that LAFCo would be a co-Lead Agency for the project on August 16, 2005. An agency and public scoping session was held on July 13, 2005 to receive oral comments on the scope and content of the EIR. The following is a summary of the most controversial issues that were received during the NOP comment periods:

- ▶ loss of open space/prime farmland/habitat;
- ▶ suitability of proposed recreation facilities;
- ▶ construction and operational air quality;

- ▶ endangered species issues;
- ▶ noise and hazards from airport operations;
- ▶ traffic operations along I-5, SR 70/99, and local roadways; and
- ▶ loss of on-site wetlands.

A copy of the NOPs and a complete listing of the letters received during the comment periods including a transcript from the public scoping meeting are provided in Appendix A.

2.6 ISSUES TO BE RESOLVED

One issue to be resolved surrounding the project is whether the project site is an appropriate site for urban expansion. Because the property is not currently within the City’s SOI or city limits, several agencies (e.g., City of Sacramento and LAFCo) would need to make the findings that support urban expansion to this site.

A second issue to be resolved is the determination of the specific permit requirements that would be imposed by the U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS) including preparation of a habitat conservation plan (HCP). This issue can only be resolved subsequent to the initiation of the Section 404 permit process and submittal of a draft HCP to the USFWS, which would occur with the submission of a permit application to the permitting agencies. The project applicant has submitted a 404 permit application and biological assessment to the USACE and will initiate consultation with USFWS.

A third issue to be resolved is consideration of the appropriate mix of land uses for the Greenbriar site. The respective adopted City and County of Sacramento general plans envision agriculture land uses for the project site. Both jurisdictions are currently undertaking general plan updates. The Sacramento Area Council of Governments (SACOG) recently prepared the Blueprint which presents a vision for future development of land uses in the six-county Sacramento region. The Blueprint envisions development of higher density mixed residential land uses on the Greenbriar site and areas north of the project site. The Greenbriar project has been designed to be consistent with the Smart Growth Principles outlined in SACOG’s adopted Blueprint, as well as those adopted by the City. Before adoption of SACOG’s Blueprint, the City and County of Sacramento entered into a Natomas Joint Vision Memorandum of Understanding which defines a set of guiding principles for future development in the unincorporated Natomas area. The Blueprint is consistent with the guiding principles adopted by the City and County. The project site is located within the Natomas Joint Vision (Joint Vision) area and land uses identified for the project site are consistent with the general land uses proposed by SACOG’s Blueprint.

A fourth issue to be resolved involves the extension of light rail services. The City of Sacramento General Plan Land Use Map identifies the City’s vision for future light rail stations. The majority of new light rail stations are envisioned for the North Natomas Transportation Corridor (NNTC) area extending from downtown Sacramento north and veering to the west for a destination at the Sacramento International Airport. The General Plan Land Use Map does not identify a specific future light rail station at the Greenbriar site, but it does identify a proposed light rail line extending through the site at a similar location as proposed in the project. Whether the project meets the objectives of the City for extension of light rail services to the airport will need to be decided by the City of Sacramento and Regional Transit District decision-makers.

2.7 SUMMARY TABLE

Information in Table 2-1, “Summary of Environmental Impacts and Mitigation Measures,” has been organized to correspond with the environmental issues discussed in Chapter 6, “Environmental Analysis,” of this document. The summary table is arranged in four columns: environmental impacts; level of significance without mitigation; recommended mitigation measures; and level of significance with implementation of mitigation measures.

A series of mitigation measures are noted when more than one mitigation measure is required to reduce an impact to a less-than-significant level.

2.8 SUMMARY OF CUMULATIVE IMPACTS

The following provides a summary of the project's cumulative environmental impacts. A detailed discussion of the project cumulative impacts is provided in Section 7.2, "Cumulative Impacts," of this EIR.

2.8.1 TRAFFIC AND CIRCULATION

Under cumulative (2025) plus project conditions, the following 14 intersections would operate unacceptably:

- ▶ SR 70/99 Southbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ Elkhorn Boulevard and Lone Tree Road (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ SR 70/99 Southbound Ramps and Elkhorn Boulevard (LOS E during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elkhorn Boulevard (LOS F during the a.m. peak)
- ▶ Metro Air Parkway and I-5 Northbound Ramps (LOS F during the a.m. and p.m. peaks)
- ▶ Elverta Road and Lone Tree Road (LOS E and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and Metro Air Parkway (LOS E and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and Lone Tree Road (LOS D and LOS F during both the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and E. Commerce Way (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Metro Air Parkway and Bayou Road (LOS F during the a.m. and p.m. peaks)
- ▶ Elkhorn Boulevard and Project Street 1 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Elkhorn Boulevard and Project Street 2 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Elkhorn Boulevard and Project Street 3 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)

The following three roadway segments are expected to operate unacceptably under cumulative plus project conditions:

- ▶ Elkhorn Boulevard west of SR 70/99 Interchange – LOS F
- ▶ Metro Air Parkway north of I-5 Interchange – LOS F
- ▶ Meister Way west of SR 70/99 – LOS E

The following six freeway ramps are expected to operate unacceptably under cumulative plus project conditions:

- ▶ SR 70/99 northbound to Elkhorn Boulevard off-ramp – LOS F during the a.m. peak hour
- ▶ Elkhorn Boulevard to SR 70/99 southbound slip on ramp – LOS E during the p.m. peak hour
- ▶ I-5 northbound to SR 70/99 northbound off-ramp – LOS E during the a.m. peak hour
- ▶ I-5 northbound to Metro Air Parkway off-ramp - LOS F during the a.m. peak hour
- ▶ I-5 southbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ Metro Air Parkway to I-5 southbound loop on-ramp – LOS F during the p.m. peak hour

The following three freeway segments are expected to operate unacceptably under cumulative plus project conditions:

- ▶ I-5 East of Powerline Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of Del Paso Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour

As shown, the project would contribute considerably to cumulative traffic impacts, increasing the number of intersections, roadway segments, and freeway ramps that operate unacceptably, and exacerbating adverse operating conditions on 3 freeway segments that would already operate poorly.

The ability to mitigate these impacts is tied to fair share contributions to regional transportation funds, but these programs are not currently available. Further, in some instances, freeway widening would be required, and this is likely not financially feasible or would require right-of-way acquisition that is not available. Please see Section 6.1, “Transportation and Circulation.” Therefore, these impacts would be *significant and unavoidable*.

2.8.2 AIR QUALITY

The proposed project would result in significant and unavoidable construction-related air quality impacts associated with generation of NO_x and PM₁₀, even with implementation of mitigation measures identified in section 6.2, “Air Quality.” Further, given the large scale of development that would occur with the cumulative projects and accounting for the nonattainment status of the SVAB for ozone and PM₁₀ and other development that would occur in the SVAB, the project would result in a significant and unavoidable cumulative construction-related air quality impact and would also be expected to contribute considerably to the *significant and unavoidable* cumulative air quality impact.

Long-term emissions from related projects, considered in light of the non-attainment status of the air basin, would also be cumulatively significant. Related projects would similarly contribute to this impact. Thus, the proposed project would contribute to a *significant and unavoidable* cumulative air quality impact and the project’s contribution would be considerable.

Given that compliance with applicable rules and regulations would be required for the control of stationary source TAC emissions, both on-site and off-site, the project’s contribution to long-term cumulative increases in stationary source TAC concentrations would be considered minor and *less-than-significant*.

As described in Section 6.2, “Air Quality,” implementation of the proposed project would result in less-than-significant local mobile source CO-related air quality impacts and cumulative CO emissions are not anticipated to exceed established significance criteria. Consequently, the cumulative impact of the project’s contribution to traffic volumes on the local roadway network relative to CO concentrations is considered *less than significant*.

2.8.3 NOISE

Because the proposed project would comply with the noise ordinance and because it is not anticipated that the proposed project would combine with any other cumulative projects to produce construction noise at sensitive receptors, it would not contribute to any significant cumulative noise impacts. This would be a *less-than-significant* cumulative impact

Likewise, stationary noise (i.e., noise generated by stationary on site uses), would be localized to those areas of the site where the noise would be detectable, and would not combine with other projects in the region to produce cumulative noise. This would be a *less-than-significant* cumulative impact.

As described in Section 6.3, “Noise,” implementation of the proposed project would result in significant long-term traffic-generated noise impacts under existing plus project conditions, with several homes being exposed to substantial increases in noise. Given the relative size of related projects and the fact that they would use the same roadways as the project, it is likely that cumulative development would likewise result in similar significant impacts at these sensitive receptors. The project’s contribution to the noise levels at these areas would be considerable and, as described in Section 6.3, “Noise,” mitigation is not feasible. Therefore the project would contribute considerably to this *significant and unavoidable* cumulative impact.

Further, buildout of the area would result in a noticeable increase in traffic noise on major roadways. This is considered a significant cumulative traffic noise impact, and the project would contribute considerably to it. Because cumulative noise would be generated by several projects, it may require a regional program to sufficiently fund sound walls, berms, etc. It is not known if such a program would be feasible to implement. Because mitigation to sufficiently reduce noise at every existing and proposed sensitive receptor may be infeasible, this cumulative traffic noise impact is considered **significant and unavoidable** and the project's contribution to this impact would be considerable.

2.8.4 UTILITIES

No additional water treatment or conveyance facilities would be needed to serve the project. The project would result in a **less-than-significant** cumulative water supply impact.

The proposed project would contribute considerably to the need to expand the Sacramento Regional Wastewater Treatment Plant, and the expansion would result in significant air quality impacts from ozone precursors during construction. No other unmitigated significant impacts from plant expansion were identified in the EIR prepared for the plant expansion. However, the project would contribute considerably to a **significant and unavoidable** cumulative impact.

With implementation of the project, no increase in the discharge rate of stormwater runoff from the site from the project would be expected, so the project would not contribute cumulatively to any stormwater runoff impacts from related development. This would be a **less-than-significant** cumulative impact.

On a cumulative basis, adequate electrical and natural gas facilities and services are available to meet project demands. No expansion of existing facilities would be required for the project. As a result, the project would not contribute to a significant cumulative electricity and natural gas impact. This would be a **less-than-significant** cumulative impact.

2.8.5 PUBLIC SERVICES

The proposed project would fully provide for its increment of necessary public services and would not result in a contribution to any cumulative impacts. This would be a **less-than-significant** cumulative impact.

2.8.6 PARKS

The proposed project would not result in significant impacts on parks and open space because the project would provide sufficient park facilities to meet Quimby Act requirements. Similarly, development of the cumulative projects would not be expected to result in impacts related to parks and open space. This would be a **less-than-significant** cumulative impact.

However, conversion of the project site from predominantly agricultural and open space uses to urban development would result in a significant open space impact for which no feasible mitigation is available to reduce this impact. As a result, the project would result in a considerable contribution to a **significant and unavoidable** cumulative open space impact.

2.8.7 AESTHETICS

Implementation of the proposed project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses, resulting in a significant aesthetic impact related to degradation of visual character. Therefore, the proposed project would contribute to a significant cumulative impact on aesthetics, and this impact would be **significant and unavoidable**.

2.8.8 PUBLIC HEALTH

Development of cumulative projects would not be expected to result in impacts related to public health and hazards that could not be addressed by standard mitigation and remediation measures (City of Sacramento 1993). This would be a *less-than-significant* cumulative impact.

Implementation of the project would place residents within the Sacramento International Airport's overflight safety zone and would be inconsistent with the safety standards in the comprehensive Land Use Plan (CLUP) related to the proposed parks, commercial uses, and lightrail station that fall within the overflight safety zone. Location of these facilities in the Airport's overflight safety zone would increase safety risks associated with aircraft operations. Given that the overflight zone defines the maximum extent of defined significant safety risk, the fact that no other projects are within the overflight zone suggests that there are no other projects that contribute to this cumulative impact. The project's potential safety hazard impact would be reduced to a less-than-significant level with implementation of recommended mitigation. Therefore, this would be a *less-than-significant* cumulative impact.

2.8.9 GEOLOGY

The proposed project would result in potentially significant impacts related to exposure of people and structures to seismic hazards, including ground shaking and liquefaction; subsidence or compression of unstable soils; and damage associated with expansive soils. However, these impacts would be reduced to a less-than-significant level with implementation of recommendations included in the preliminary geotechnical report and a comprehensive site-specific geotechnical report for the proposed project. Thus, the proposed project would not contribute to a significant cumulative geology and soils impact. Therefore, this would be a *less-than-significant* cumulative impact.

2.8.10 HYDROLOGY, DRAINAGE, AND WATER QUALITY

The proposed project would not result in significant impacts related to hydrology, drainage, and water quality. Therefore, this would be a *less-than-significant* cumulative impact.

2.8.11 AGRICULTURE

The proposed project would convert 518 additional acres of Important agricultural land (329 acres of Prime Farmland) to urban land uses. While the EIR includes mitigation aimed at reducing the potential to cause adjacent land to convert from Important agriculture land to urban uses, the impact of the conversion of 518 acres of on-site agricultural land is a significant and unavoidable impact. In combination, the proposed project would add to the cumulative loss of farmlands associated with other development. This is considered a significant cumulative impact to which the project would have a considerable contribution. Therefore, this would be a *significant and unavoidable* cumulative impact.

2.8.12 BIOLOGY

Similar to the proposed project, additional development as proposed within the North Natomas community would result in impacts to Swainson's hawk, giant garter snake, riparian/wetland habitat, and agricultural lands/rice fields. The project would contribute to this decline. This is a considerable contribution to this significant cumulative impact. The project would be required to comply with the federal Endangered Species Act and be California Endangered Species Act. Both of these acts require that impacts to endangered species are minimized and fully mitigated. As described in Section 6.12, "Biological Resources," extensive mitigation is proposed, including the purchase and enhancement of two mitigation sites (Natomas 130 and Spangler), purchase of additional easements for Swainson's hawk habitat; along with establishment of a 250-foot linear open

space/buffer along the western edge of the Greenbriar site. Additionally, the project applicant will consult with the US Fish and Wildlife Service and the California Department of Fish and Game on this mitigation plan, and would incorporate additional mitigation that arises through the consultation regarding the habitat conservation planning process. Taken together, it is expected that this mitigation would lessen the impact of the proposed project on biological resources, to the extent that they are not considerable. The project, therefore, would not contribute considerably to a cumulatively significant impact on these biological resources. This would be a *less-than-significant* cumulative impact of the project.

2.8.13 CULTURAL

Development of the cumulative projects have the potential to result in the discovery of undocumented subsurface cultural resources or unmarked historic-era and prehistoric Native American burials. However, these potential impacts would not increase in severity in consideration of cumulative projects. In addition, the incorporation of standard measures addressing the response when undocumented resources are discovered would address this potential impact. For these reasons, the proposed project would not contribute to a significant cumulative impact on cultural resources. This would be a *less-than-significant* cumulative impact of the project.

**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 6.1 Transportation and Circulation | | | |
| <p>6.1-1: Impacts to Study Intersections. Traffic volumes associated with the project would cause several study area intersections (i.e., Elverta Road and SR 70/99, Elkhorn Boulevard and Lone Tree Road, SR 70/99 NB Ramps and Elkhorn Boulevard, Elkhorn Boulevard and East Commerce Way, Elkhorn Boulevard and Project Street 1, Elkhorn Boulevard and Project Street 1, and Elkhorn Boulevard and Project Street 1) to operate unacceptably and exceed City and County thresholds of significance for intersection operations. Because study area intersections would operate unacceptably as a result of the project, this would be a significant impact.</p> | S | <p>6.1-1a: Develop a Financial Plan (City of Sacramento and LAFCo)</p> <p>The applicant shall be required to develop the Greenbriar Finance Plan for review and approval by the City prior to annexation. The plan shall identify the financing mechanisms for all feasible transportation improvements defined as mitigation measures, including but not limited to, new roadways, roadways widening, traffic signals, and public transit. The project applicant shall coordinate the preparation of the finance plan with the City of Sacramento, Sacramento County, and the Metro Air Park Public Facilities Financing Plan. All mitigation measures with “fair share” contributions would be implemented through the proposed financing mechanism(s) indicated in the finance plan or by some other mechanism as determined by the City of Sacramento in consultation with the Sacramento County. The Greenbriar Finance Plan shall be adopted by the City at the time the project is considered for approval. A copy of the Draft Greenbriar Finance Plan is included in Appendix C of this EIR.</p> | See MM 6.1-1b through i |
| | | <p>6.1-1b: Meister Way Overpass (City of Sacramento)</p> <p>The project applicant in coordination with the City shall ensure that the Meister Way overpass is constructed and in operation on or before 65% buildout of the project based on total project trips. With implementation of this improvement, operating conditions at study area intersections would substantially improve as shown in Table 6.1-30 below. Exhibit 6.1-16 shows the Baseline plus Project peak-hour turning movement volumes with the Meister Way overpass and Exhibit 6.1-17 shows the Baseline plus Project lane configurations with Meister Way overpass.</p> <p>Table 6.1-30 compares the peak-hour intersection operating conditions for Baseline No Project conditions with that of</p> | See MM 6.1-1c through i |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>Baseline plus Project conditions with the Meister Way – SR 70/99 overpass.</p> <p>Construction of this improvement would primarily occur on the project site; therefore, site specific environmental impacts have been evaluated throughout this DEIR. However, this improvement would also extend east of SR 70/99 to East Commerce Way. Areas east of the project site are developed or are currently developing with urban land uses. The City has recently purchased the right-of-way for this improvement. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, and traffic impacts and operational traffic impacts (e.g., re-distribution of local traffic trips). Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. Operational impacts associated with this improvement have been evaluated and are described in Table 6.1-30 and throughout this EIR (i.e., air, noise, and biological resources). Because land for this improvement has been secured by the City, a financing mechanism would be established to ensure the funding (see Mitigation Measure 6.1-1a), and construction of this improvement, and no new significant environmental impacts not already identified or evaluated in this DEIR would occur, this improvement would be considered feasible.</p> <p>Although this improvement would substantially reduce the project’s impacts to study area intersections, some intersections would continue to operate unacceptably and additional mitigation would be required to improve these intersections to an acceptable operation level. Further, other traffic improvements are necessary to ensure the safe operation of the local roadway network. As described in Table 6.1-30, with implementation of this recommended measure, the intersection</p> | |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | of SR 70/99 southbound ramps and Elkhorn Boulevard would improve to LOS D during the p.m. peak hour and the intersection of Elkhorn Boulevard and Project Street 2 would improve to LOS D during the a.m. peak hour. The following mitigation measures would further reduce impacts to remaining study area intersections. | |
| | | <p>6.1-1c: Elverta Road and SR 70/99 (City of Sacramento, Caltrans, County)</p> <p>Before issuance of the first occupancy permit, the project applicant shall restripe the westbound Elverta Road approach to provide two left turn lanes, and a shared through-right turn lane (currently, a left turn lane, a shared left turn-through lane, and a right turn lane). Available right-of way currently exists at this intersection to implement this mitigation measure. Construction outside existing right-of-way would not be required. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, operation of this intersection would improve to LOS D, which is acceptable based on Caltrans and County standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |
| | | <p>6.1-1d: Elkhorn Boulevard and Lone Tree Road (City of Sacramento and County)</p> <p>On or before 50% buildout of the project based on total project trip generation, the project applicant shall construct a traffic signal at the Elkhorn Boulevard and Lone Tree Road intersection. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this intersection would improve to LOS B under Baseline plus Project conditions, which is acceptable based on City and County standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | |
| | | <p>6.1-1e: SR 70/99 Northbound Ramps and Elkhorn Boulevard (City of Sacramento and Caltrans)</p> <p>Prior to project approval, the project applicant in coordination with the City, prepare a City Council-approved Finance Plan to fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the installation of a traffic signal at the SR 70/99 Northbound Ramps and Elkhorn Boulevard intersection and shall install the traffic signal before recordation of the first map. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement including funds collected through the Metro Air Park Finance Plan and the North Natomas Public Facilities Finance Plan. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>this mitigation measure, the operation of this intersection would improve to LOS D under Baseline plus Project conditions, which is acceptable based on City and County standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | |
| | | <p>6.1-1f: Elkhorn Boulevard and E. Commerce Way (City of Sacramento)</p> <p>Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the installation of a traffic signal at the Elkhorn Boulevard/East Commerce Way intersection. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to implement this improvement. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this intersection would improve to LOS C under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>6.1-1g: Elkhorn Boulevard and Project Street 1 (City of Sacramento)</p> <p>On or before the issuance of the first occupancy permit, the project applicant shall install a traffic signal at the Elkhorn Boulevard/Project Street 1 intersection. With implementation of this mitigation measure the operation of this intersection would improve to LOS A under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |
| | | <p>6.1-1h: Elkhorn Boulevard and Project Street 2 (City of Sacramento)</p> <p>On or before the issuance of the first occupancy permit, the project applicant shall install a traffic signal at the Elkhorn Boulevard/Project Street 2 intersection. With implementation of this mitigation measure the operation of this intersection would improve to LOS A under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |
| | | <p>6.1-i: Elkhorn Boulevard and Project Street 3 (City of Sacramento)</p> <p>On or before issuance of the first occupancy permit, the project applicant shall make revisions to the project plans so that this intersection will be restricted to right in/ right out access only. With implementation of this mitigation measure the operation of this intersection would improve to LOS B under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <p>6.1-2: Impacts to Study Area Roadway Segments. The proposed project would increase traffic volumes on study area roadway segments (i.e., Elkhorn Boulevard west of SR 70/99 Interchange and Meister Way west of SR 70/99) and would cause these segments to degrade from an acceptable operating condition (i.e., LOS A) to an unacceptable operating condition (i.e., LOS F). Because study area roadway segments would operate unacceptably as a result of the project, this would be a significant impact.</p> | S | <p>6.1-2a: Meister Way Overpass (City of Sacramento) The project applicant shall implement Mitigation Measure 6.1-1b above (i.e., construct Meister Way overpass). Table 6.1-32 summarizes the roadway segment operation conditions for Baseline No Project conditions and Baseline plus Project conditions with the Meister way overpass. As shown in the table, even with implementation of the Meister Way overpass, two of the project’s study roadway segments (i.e., Elkhorn Boulevard west of SR 70/99 Interchange and Meister Way west of SR 70/99) would continue to operate unacceptably under Baseline plus Project conditions. Therefore, additional measures are required for these intersections.</p> | See MM 6.1-2b through c |
| | | <p>6.1-2b: Elkhorn Boulevard west of SR 70/99 Interchange (City of Sacramento and County) On or before 60% total buildout of the project based on trip generation, the project applicant shall widen Elkhorn Boulevard west of SR 70/99 interchange to Lone Tree road to provide two travel lanes in each direction. Right-of-way for the recommended widening is currently available and has been secured by the City. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With the implementation of this mitigation measure, this roadway segment would improve to LOS A under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>6.1-2c: Meister Way west of SR 70/99 (City of Sacramento) On or before 66% total buildout of the project based on trip generation, the project applicant shall widen Meister Way west of SR 70/99 to provide two travel lanes in each direction from the first street intersection of SR70/99 west to Lone Tree Road. Right-of-way for the recommended widening is currently available on-site. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this roadway segment would improve to LOS D under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a less-than-significant level.</p> | LTS |
| <p>6.1-3: Impacts to the Freeway Ramps. The proposed project would increase traffic volumes on the freeway system and would cause three study freeway ramps (i.e., SR 70/99 NB/Elkhorn Boulevard off-ramp, SR 70/99 SB/I-5 SB off-ramp, and I-5 NB/SR 70/99 NB off-ramp) to operate unacceptably under Baseline plus Project conditions. This would be a significant impact.</p> | S | <p>6.1-3a: Meister Way Overpass (City of Sacramento) The project applicant shall implement Mitigation Measure 6.1-1b above (i.e., construct the Meister Way overpass). Table 6.1-34 summarizes the peak-hour operating conditions for the study ramps under Baseline No Project conditions and Baseline plus Project conditions with the Meister Way overpass. As shown in the table, even with implementation of the Meister Way overpass, all three study freeway ramps (i.e., SR 70/99 NB/Elkhorn Boulevard off-ramp, SR 70/99 SB/I-5 SB off-ramp, and I-5 NB/SR 70/99 NB off-ramp) would continue to operate unacceptably under Baseline plus Project conditions. Therefore, additional measures are required for these ramps.</p> | See MM 6.1-3b through d |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>6.1-3b: SR 70/99 Northbound to Elkhorn Boulevard off-ramp (City of Sacramento)</p> <p>a. The project applicant shall implement mitigation measure 6.1-1e, which would require the installation of a traffic signal at the SR 70/99 Northbound Ramps and Elkhorn Boulevard intersection.</p> <p>b. Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City and Caltrans) toward the widening the off-ramp from one lane to two lanes. The Draft Greenbriar Finance Plan identifies 100% of funding needed to construct this improvement. This improvement is included in the Metro Air Park Financing Plan (MAPFP) and the North Natomas Public Facilities Finance Plan. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur.</p> <p>Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this freeway ramp would improve to LOS C under Baseline plus Project conditions, which is acceptable based on Caltrans standards. Therefore, impacts to this ramp would be reduced to a less-than-significant level.</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>6.1-3c: SR 70/99 Southbound to I-5 Southbound on-ramp (City of Sacramento and Caltrans)</p> <p>Widening SR 70/99 Southbound to I-5 Southbound on-ramp to provide an additional lane is required to mitigate this impact. With implementation of this mitigation measure, this freeway ramp would operate at LOS C. Caltrans District 3 Draft District System Management Plan (DSMP) includes adding a lane to the existing two-lane on-ramp for SR 70/99 southbound to I-5 southbound by the year 2010. However, to implement this mitigation measure, additional right-of-way would be required and is not currently available. Additionally, this improvement is not included in any of Caltrans' funding mechanisms. Because this mitigation measure is beyond the control of the project applicant, outside the jurisdiction of the City, and there is no established funding mechanism available for contribution, this mitigation measure is considered infeasible and the impact is considered significant and unavoidable.</p> | SU |
| | | <p>6.1-3d: I-5 Northbound to SR 70/99 Northbound off-ramp (City of Sacramento and Caltrans)</p> <p>Widening I-5 Northbound to SR 70/99 Northbound off-ramp to provide an additional lane is required to mitigate this impact. With implementation of this mitigation measure, this freeway ramp would operate at LOS C. Caltrans District 3 Draft DSMP does not include adding a lane to the existing two-lane on-ramp for SR 70/99 southbound to I-5 southbound by the year 2010. To implement this mitigation measure, additional right-of-way would be required and is not currently available. Additionally, this improvement is not included in any of Caltrans' funding mechanisms. Because this mitigation measure is beyond the control of the project applicant, outside the jurisdiction of the City, and there is no established funding mechanism available for contribution, this mitigation measure is considered infeasible and the impact is considered significant and unavoidable.</p> | SU |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <p>6.1-4: Freeway Mainline Segment Impacts. The proposed project would increase traffic volumes on the freeway system and would cause four study freeway mainline segments (i.e., I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard, SR 70-99 between Elverta Road and Elkhorn Boulevard, and SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 interchange) to operate unacceptably under Baseline plus Project Conditions. This would be a significant impact.</p> | S | <p>6.1-4a: Meister Way Overpass (City of Sacramento) The project applicant shall implement Mitigation Measure 6.1-1b above (i.e., construct the Meister Way overpass). Table 6.1-36 summarizes the peak-hour operating conditions for the study mainline segments under Baseline No Project conditions and Baseline plus Project conditions with the Meister way overpass. As shown in the table, even with implementation of the Meister Way overpass, all four study mainline segments (i.e., I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard, SR 70/99 between Elverta Road and Elkhorn Boulevard, and SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 interchange) would continue to operate unacceptably under Baseline plus Project conditions. Therefore, additional measures are required for these mainline segments.</p> | See MM 6.1-4b through e |
| | | <p>6.1-4b: I-5 North of Del Paso Road (City of Sacramento and Caltrans) Because this mainline segment of I-5 currently operates unacceptably, the only mitigation that could improve the operating conditions of this segment during peak conditions would be the widening of this segment of I-5 mainline to eight lanes (currently six lanes). While widening of I-5 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of I-5 beyond its current capacity nor are any funding mechanisms established to collect monies to fund improvements such as this. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain significant and unavoidable.</p> | SU |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>6.1-4c: I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit (City of Sacramento and Caltrans)</p> <p>Because this mainline segment of I-5 currently operates unacceptably, the only mitigation that could improve the operating conditions of this segment during peak conditions would be the widening of this segment of I-5 mainline to eight lanes (currently six lanes). While widening of I-5 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of I-5 beyond its current capacity nor are any funding mechanisms established to collect monies to fund improvements such as this. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain significant and unavoidable.</p> | SU |
| | | <p>6.1-4d: SR 70/99 Southbound between Elverta Road and Elkhorn Boulevard (City of Sacramento)</p> <p>Because this mainline segment of SR 70/99 currently operates unacceptably, widening this segment of SR 70/99 mainline to 3 lanes (currently 2 lanes) between Elkhorn Boulevard and Elverta Road would improve the operating conditions of this segment during peak conditions to an acceptable LOS. Widening of the segment is not included in Caltrans' DSMP. While widening of SR 70/99 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of SR 70/99 beyond its current capacity nor are any funding mechanisms established to fund improvements such as this. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain significant and unavoidable.</p> | SU |

NI = No Impact LTS = Less than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable MM = Mitigation Measure

**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>6.1-4e: SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange (City of Sacramento)</p> <p>Because this mainline segment of SR 70/99 currently operates unacceptably, the only mitigation that could improve the operating conditions of this segment during peak conditions would be the widening this segment of SR 70/99 mainline to six lanes (currently 4 lanes) between Elkhorn Boulevard and Elverta Road. While widening of SR 70/99 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of SR 70/99 beyond its current capacity nor are any funding mechanisms established to collect monies to fund improvements such as this. Because no feasible mitigation is available to reduce the project’s impacts to this mainline segment, this impact would remain significant and unavoidable.</p> | SU |
| <p>6.1-5. Cumulative Traffic Impacts to Study Area Intersections. Traffic volumes associated with the project in combination with other reasonably foreseeable cumulative projects would cause several study area intersections to operate unacceptably and exceed City County, and Caltrans thresholds of significance for intersection operations. This would be a significant cumulative impact and the project’s contribution to this impact would be cumulatively considerable.</p> | S | <p>6.1-5a: Elkhorn Boulevard and Lone Tree Road (City of Sacramento and County)</p> <p>The project applicant shall provide an expanded intersection with a right turn pocket length of 200 feet for vehicles turning right onto northbound Lone Tree Road from the westbound Elkhorn Boulevard approach. With implementation of this mitigation measure, the project would increase the average delay at this intersection by only 2.8 seconds, which is below City standards (i.e., 5 seconds). Construction associated with this mitigation measure would require the acquisition of additional right-of-way. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site and therefore no new environmental impacts would occur. The applicant in consultation with the City shall coordinate with County to secure additional right-of-way for this improvement. However, because this intersection is located within the County and is not subject to the City’s jurisdiction, implementation of this measure can not be guaranteed.</p> | SU |

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Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | Therefore, this impact would be considered significant and unavoidable. | |
| | | <p>6.1-5b: SR 70/99 Southbound Ramps and Elkhorn Boulevard (City of Sacramento and Caltrans)</p> <p>Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City and Caltrans) toward the restriping of the SR 70/99 southbound off-ramp approach to provide a left-turn lane, a shared left turn-right turn lane, and two right-turn lanes (cumulative base lane geometry assumes two left turn and two right turn lanes). The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way would be available with the future intersection configuration to accommodate these improvements without resulting in substantial alteration or expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this intersection would operate at LOS D and this impact would be reduced to a less-than-significant level.</p> | LTS |
| | | <p>6.1-5c: SR 70/99 Northbound Ramps and Elkhorn Boulevard (City of Sacramento and Caltrans)</p> <p>Before project approval, the project applicant shall coordination with the City, prepare a City Council-approved Finance Plan to</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the restriping of the SR 70/99 northbound off-ramp approach to provide two left-turn lanes, a shared left turn-right turn lane, and a right-turn lane (cumulative base lane geometry assumes two left turn and two right turn lanes). The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way would be available with the future intersection lane configuration to accommodate these improvements without resulting in substantial alteration or expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this intersection would operate at LOS E in the a.m. peak hour and this impact would be reduced to a less-than-significant level.</p> | |
| | | <p>6.1-5d: Metro Air Parkway and I-5 Northbound Ramps (City of Sacramento and Caltrans)</p> <p>Before project approval, the project applicant shall coordinate with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the restriping of the I-5 northbound off-ramp approach to provide a left-turn lane, a shared left turn-right turn lane and two right-turn lanes</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | (cumulative base lane geometry assumes two left turn and two right turn lanes). The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. This improvement would not require any additional right-of-way and would not in substantial alteration or expansion of this intersection. With implementation of this mitigation measure, this intersection would operate at LOS F in the a.m. and LOS E in the p.m. peak hour and this impact would be reduced to a less-than-significant level. | |
| | | 6.1-5e: Meister Way and Metro Air Parkway (City of Sacramento) Adding a left-turn lane and restriping the westbound Meister Way approach to provide two left-turn lanes and a shared, through right-turn lane (cumulative base lane geometry assumes a left turn lane, a through lane, and a right turn lane) would mitigate this impact to a less-than-significant level. However, construction of this mitigation measure would require the acquisition of additional right-of-way which is not controlled by the applicant. Although implementation of this measure would reduce the project's cumulative impacts to this intersection to a less-than-significant level, it is unknown whether additional right-of-way could be secured and whether this measure would be implemented. Therefore, for purposes of CEQA this impact is considered significant and unavoidable. | SU |
| | | 6.1-5f: Meister Way and Lone Tree Road (City of Sacramento) Adding a left-turn lane for the eastbound and westbound Meister Way approaches, and southbound Lone Tree Road approach would improve the operations of this intersection to LOS C and would reduce this impact to a less-than-significant level. Sufficient right-of-way could be secured by the applicant for the westbound approach; however, right-of-way along eastbound and southbound approach is controlled by the County and not | SU |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | within the City’s jurisdiction. Although implementation of this measure would reduce the project’s cumulative impacts to this intersection to a less-than-significant level, it is unknown whether additional right-of-way could be secured and whether this measure would be implemented. Therefore, for purposes of CEQA, this impact is considered significant and unavoidable. | |
| | | <p>6.1-5g: Meister Way and E. Commerce Way (City of Sacramento)</p> <p>On or before 65% buildout of the project based on the project’s total trips, the project applicant shall revise the improvement plan to provide a left-turn lane for the northbound East Commerce Way approach, an additional lane for the eastbound Meister Way approach, and restripe the eastbound Meister Way approach to provide a left-turn lane and a right-turn lane (base cumulative lane geometry assumed to have a shared left turn-right turn lane for the eastbound approach). Sufficient right-of-way is currently available to accommodate these improvements without resulting in substantial alteration or expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this intersection would operate at LOS C and this impact would be reduced to a less-than-significant level.</p> | LTS |
| | | <p>6.1-5h: Elkhorn Boulevard and Project Street 1 (City of Sacramento)</p> <p>Construction of an additional through lane for the eastbound and westbound Elkhorn Boulevard approaches (cumulative base lane geometry assumes three through lanes in each direction on</p> | SU |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | Elkhorn Boulevard) would reduce this impact to a less-than-significant level. However, this measure would require the acquisition of additional right-of-way beyond the maximum right-of-way proposed by the City/County for this roadway. No other feasible measures are available to reduce this impact because of limited right-of-way. Therefore, this impact is considered significant and unavoidable. | |
| | | <p>6.1-5i: Elkhorn Boulevard and Project Street 2 (City of Sacramento)</p> <p>Construction of an additional through lane for the eastbound and westbound Elkhorn Boulevard approaches (cumulative base lane geometry assumes three through lanes in each direction on Elkhorn Boulevard) would reduce this impact to a less-than-significant level. However, this measure would require the acquisition of additional right-of-way beyond the maximum right-of-way proposed by the City/ County for this roadway. No other feasible measures are available to reduce this impact because of limited right-of-way. Therefore, this impact is considered significant and unavoidable.</p> | SU |
| | | <p>6.1-5j: Elkhorn Boulevard and Project Street 3 (City of Sacramento)</p> <p>Construction of an additional through lane for the eastbound and westbound Elkhorn Boulevard approaches (cumulative base lane geometry assumes three through lanes in each direction on Elkhorn Boulevard) would reduce this impact to a less-than-significant level. However, this measure would require the acquisition of additional right-of-way beyond the ultimate right-of-way proposed by the City for this roadway. To improve the operations of this intersection under cumulative conditions, before buildout of the project, the project applicant shall restrict the left turn in/out movement at this intersection so that it will be right in/ right out movement only with a stop sign control on the side street. Although the operation of this intersection would</p> | SU |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
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| | | improve, it would not cause this intersection to operate at an acceptable level (e.g., LOS D or better). No other mitigation is available to reduce this impact. As a result, this impact would remain significant and unavoidable. | |
| <p>6.1-6: Cumulative Impacts to Study Area Roadway Segments. The proposed project in combination with cumulative projects would increase traffic volumes on study area roadway segments and would cause these segments (i.e., Elkhorn Boulevard west of SR 70/99 Interchange, Metro Air Parkway north of I-5 Interchange, and Meister Way west of SR 70/99) to degrade from an acceptable operating condition (i.e., LOS A) to an unacceptable operating condition (i.e., LOS F). Because study area roadway segments would operate unacceptably as a result of the project, this would be a significant impact.</p> | S | <p>6.1-6a: Elkhorn Boulevard west of SR 70/99 Interchange (City of Sacramento) Widening Elkhorn Boulevard to eight lanes (4 in each direction) would reduce this impact to a less-than-significant level. The City includes widening of Elkhorn Boulevard to six lanes within its General Plan; widening to eight lanes is not feasible nor planned by the City. Therefore, before project approval, the project applicant shall, in coordination with the City, establish a funding mechanism to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs towards widening Elkhorn Boulevard to six lanes west of the SR 70/99 Interchange (the number of lanes planned by the City of Sacramento). The City and developers of the MAP project have identified 100% of the funding necessary to widen the Elkhorn Boulevard/SR 70/99 overpass to six lanes. No other feasible mitigation is available to reduce this impact. Therefore, while reduced, this impact would remain significant and unavoidable.</p> | SU |
| | | <p>6.1-6b: Meister Way west of SR 70/99(City of Sacramento) The project applicant shall implement Mitigation measure 6.1-2c. With implementation of this mitigation measure, this segment would operate at LOS B and this impact would be reduced to a less-than-significant level.</p> | LTS |
| <p>6.1-7: Cumulative Impacts to Study Area Freeway Ramps. The proposed project in combination with cumulative projects would increase traffic volumes on the freeway system and would cause six study freeway ramps (i.e., SR 70/99</p> | S | <p>6.1-7a: SR 70/99 Northbound to Elkhorn Boulevard off-ramp (City of Sacramento and Caltrans) The project applicant shall implement mitigation measure 6.1-5c, which requires a funding mechanism for the re-striping the</p> | SU |

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Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
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| <p>Northbound to Elkhorn Boulevard off ramp, Elkhorn Boulevard to SR 70/99 Southbound slip on ramp, I-5 Northbound to SR 70/99 Northbound off ramp, I-5 Northbound to Metro Air Parkway off-ramp, I-5 Southbound to Metro Air Parkway off ramp, and Metro Air Parkway to I-5 Southbound loop on ramp) to operate unacceptably under Cumulative plus Project conditions and exceed Caltrans thresholds of significance for freeway ramp operations. This would be a significant cumulative impact and the project's contribution to this impact would be cumulatively considerable.</p> | | <p>SR 70/99 northbound off-ramp approach to provide two left-turn lanes, a shared left turn-right turn lane and a right-turn lane (cumulative base lane geometry assumes two left turn and two right turn lanes). With implementation of this mitigation measure and widening this ramp from one lane to two lanes, this ramp would operate at LOS C and this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered significant and unavoidable.</p> | |
| | | <p>6.1-7b: Elkhorn Boulevard to SR 70/99 Southbound diagonal on-ramp (City of Sacramento and Caltrans) Widening the on-ramp to provide an additional lane would reduce the impact of the project to a less-than-significant level and the on-ramp would operate at LOS C. However, widening of the on-ramp is not included in Caltrans' DSMP and Caltrans does not have any funding mechanisms to implement this improvement. Therefore, this mitigation measure is considered infeasible and the impact would remain significant and unavoidable.</p> | SU |
| | | <p>6.1-7c: I-5 Northbound to SR 70/99 Northbound off-ramp (City of Sacramento and Caltrans) Widening the on-ramp to provide an additional lane would improve the operating condition on this off-ramp to LOS C. The project would contribute approximately 4% of the total a.m. peak-hour trips at this off-ramp and would be required to pay a 4% fairshare contribution toward implementing a feasible mitigation measure, if available. Widening of the off-ramp is not</p> | SU |

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Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | included in Caltrans' DSMP and Caltrans does not have any funding mechanisms to implement this improvement. Furthermore, widening the off-ramp would require additional right-of-way which is not controlled by the project applicant and is not within the jurisdiction of the City. Therefore, this mitigation measure is considered infeasible and the impact would remain significant and unavoidable. | |
| | | <p>6.1-7d: I-5 Northbound to Metro Air Parkway off-ramp (City of Sacramento and Caltrans)</p> <p>The project applicant shall implement mitigation measure 6.1-5d, which requires the establishment of a funding mechanism for restriping the I-5 northbound off-ramp approach to provide a left turn lane, a shared left turn-right turn lane and two right turn lanes (cumulative base lane geometry assumes two left turn and two right turn lanes). With implementation of this mitigation measure, this ramp would operate at LOS D and this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered significant and unavoidable.</p> | SU |
| | | <p>6.1-7e: I-5 Southbound to Metro Air Parkway off-ramp (City of Sacramento and Caltrans)</p> <p>Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding</p> | SU |

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| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | <p>mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the re-striping the I-5 southbound off-ramp approach to provide two left-turn lanes, a shared left turn-right turn lane and a right-turn lane (cumulative base lane geometry assumes two left turn and two right turn lanes). The Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way is currently available to accommodate these improvements without resulting in expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. The project would contribute approximately 3% of the total a.m. peak-hour trips at this off-ramp and as a result shall contribute 3% to construction of this improvement. Caltrans would be the agency responsible for implementation of this measure and as a result the City would be required to coordinate with Caltrans on the funding of this improvement. Caltrans’ District 3 DSMP includes the I-5/Metro Air Parkway Interchange, but does not identify specific improvements or project construction date. Construction of I-5 Southbound to Metro Air Park off-ramp is included in Metro Air Park Finance Plan, so the applicant would be required to pay its fair share contribution in conjunction with Metro Air Park finance plan toward the construction of this improvement. With implementation of this mitigation measure, this freeway ramp would operate at LOS C; therefore, this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures</p> | |

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| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered significant and unavoidable. | |
| | | <p>6.1-7f: Metro Air Parkway to I-5 Southbound loop on-ramp (City of Sacramento and Caltrans)</p> <p>Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City and Caltrans) toward the widening of the on-ramp to provide an additional lane. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way is currently available to accommodate these improvements without resulting in expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. The project would contribute approximately 1% of the total p.m. peak-hour trips at this off-ramp and as a result shall contribute 1% to construction of this improvement. Caltrans would be the agency responsible for implementation of this measure and as a result the project applicant would be required to coordinate with Caltrans on the funding of this improvement. Caltrans’ District 3 DSMP includes the I-5/Metro Air Parkway Interchange, but does not</p> | SU |

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| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
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| | | <p>identify specific improvements or project construction date. Additionally, the construction of Metro Air Parkway to I-5 southbound loop on-ramp is included in the Metro Air Park Finance Plan, so the applicant would be required to pay its fair share contribution in conjunction with Metro Air Park finance plan toward the construction of this improvement. With implementation of this mitigation measure, this freeway ramp would operate at LOS D; therefore, this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered significant and unavoidable.</p> | |
| <p>6.1-8: Cumulative Freeway Mainline Segment Impacts. The proposed project in combination with cumulative projects would increase traffic volumes on the freeway system and would cause three study freeway mainline segments (i.e., I-5 east of Powerline Road, I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard) to operate unacceptably under Cumulative plus Project Conditions. These intersections would operate unacceptably under Cumulative no Project conditions; however, the project would contribute additional trips to these intersections, which is unacceptable based on Caltrans standards. This would be a cumulatively significant impact.</p> | S | <p>6.1-8a: I-5 east of Powerline Road to the MAP Interchange (City of Sacramento and Caltrans) Because this mainline segment of I-5 would operate unacceptably under Cumulative No Project conditions, widening this segment to eight lanes (currently four lanes) would improve the operating conditions of this segment during peak conditions to an acceptable LOS. The Caltrans’ District 3 DSMP includes adding an HOV lane to I-5 by the year 2020 and according to Metro Air Park Finance Plan, this segment of I-5 would be upgraded to six lanes with buildout of the Metro Air Park project. Therefore, prior to recordation of the first map, the project applicant shall, in coordination with the City, prepare a City Council-approved Finance Plan. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs,</p> | SU |

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| | | <p>determined in consultation with the City and in coordination with the Metro Air Park Finance Plan, toward the widening of I-5 to six lanes. No other right-of-way is available to widen this segment to eight lanes. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Additional right-of-way to accommodate the expansion of this freeway segment beyond six lanes is not available because of the developing nature of properties to the east and west of I-5. While expansion of this freeway segment would reduce the project's cumulative traffic impacts to this freeway segment, it would not reduce the project's cumulative impact to a less-than-significant level because widening to eight lanes is not feasible. No other feasible mitigation is available to reduce this impact. Therefore, while reduced, this impact would remain significant and unavoidable.</p> | |
| | | <p>6.1-8b: I-5 north of Del Paso Road (City of Sacramento and Caltrans) Widening this segment of I-5 mainline to 10 lanes (currently six lanes) would improve the operating conditions of this segment during peak conditions to an acceptable LOS. The Caltrans District 3 DSMP includes adding an HOV lane to I-5 by the year 2020 but no funding mechanism for this project is defined. No other freeway expansion projects are planned for this segment of I-5. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain significant and unavoidable.</p> | SU |

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| | | <p>6.1-8c: I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit (City of Sacramento and Caltrans)</p> <p>Because this mainline segment of I-5 would operate unacceptably under Cumulative No Project conditions, widening this segment of I-5 mainline to 12 lanes (currently six lanes) would improve the operating conditions of this segment during peak conditions to an acceptable LOS. The Caltrans District 3 DSMP includes adding an HOV lane to I-5 by the year 2020 but no funding mechanism for this project is available. No other freeway expansion projects are planned for this segment of I-5. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project’s impacts to this mainline segment, this impact would remain significant and unavoidable.</p> | SU |
| <p>6.1-9: Pedestrian and Bicycle Circulation Impacts. The project would add pedestrian demands within the project site and to and from proposed commercial, retail, and light-rail land uses. Specific information on improvements to on and off-site bicycle and pedestrian facilities is not available at this time. Because the project would add demand for pedestrians and bicycle facilities for which facilities may not be available. This would be a potentially significant bicycle and pedestrian circulation impact.</p> | PS | <p>6.1-9: Bicycle and Pedestrian Facilities (City of Sacramento)</p> <p>a. Prior to recordation of the first map, the project applicant shall coordinate with the City of Sacramento Development Engineering and Finance Division to identify the necessary on- and off-site pedestrian and bicycle facilities to serve the proposed development. These facilities shall be incorporated into the project and could include: sidewalks, stop signs, in-pavement lighted crosswalks, standard pedestrian and school crossing warning signs, lane striping to provide a bicycle lane, bicycle parking, signs to identify pedestrian and bicycle paths, marked and raised crosswalks, and pedestrian signal heads.</p> <p>b. Circulation and access to all proposed parks and public spaces shall include sidewalks that meet American with Disability Act Standards.</p> | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
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| | | <ul style="list-style-type: none"> c. The project applicant shall dedicate a buffer along the edges of the project site (south, east, and west) to the City of Sacramento. This buffer shall be landscaped by the project applicant and shall provide space for future 10-foot off-street bikeways that would connect residents and employees to the NNCP area and other Class I bike facilities. The buffer on the western edge of the project site shall not encroach on the 250-foot linear open space/buffer proposed for giant garter snake habitat. d. The project applicant shall provide on-street bicycle lanes 5-6-feet wide within the community. Details on the design and siting of these bike lanes shall be done in consultation with the City of Sacramento Development Engineering and Finance Division. e. Bicycle parking shall conform to City standards and shall be located in high visibility areas to encourage bicycle travel. Class I (i.e., bicycle lockers) and Class II (i.e., racks) bicycle facilities shall be provided throughout the commercial areas of the project, at a ratio of 1 bicycle storage space for every 20 off-street vehicle parking spaces required. Fifty percent of the storage spaces shall be Class I facilities and the remaining 50% shall be Class II facilities. f. The project applicant shall provide residents, tenants, and employees of the project site with information regarding the Sacramento Area Council of Government's (SACOG) Rideshare bicycle commuting program. | |
| <p>6.1-10: Demand for Public Transportation. Public transit is not currently provided to the project site. At the time the project application was submitted to the City, no plans for the provision of public transit services were proposed. The project would increase demands for public transit facilities, none of which are proposed to be provided to the project site.</p> | S | <p>6.1-10: (City of Sacramento)</p> <ul style="list-style-type: none"> a. Prior to the construction and operation of RT's proposed LRT station along Meister Way, the project applicant shall fund and operate an interim shuttle/bus transportation service for residents and patrons of the project site. The project applicant shall develop this interim transit service in consultation with the City of Sacramento and the RT. The | LTS |

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| <p>Therefore, the project would result in a significant public transportation impact.</p> | | <p>interim transit service shall provide transit services for peak commute periods. To promote the use of public transit services, the project applicant at the sale of proposed residences shall promote the availability of transit services. Once demand for public transit services reaches 50 service requests, the project applicant shall begin to provide transit services and shall increase those services in proportion to the development levels and increased rider ship levels occurring on the project site.</p> <p>b. The transit service shall take residents to the Central Business District (CBD) (i.e., downtown Sacramento) where they can transfer to light rail, bus, or train and connect to anywhere in greater Sacramento region and to the Bay Area. The transit service shall connect residents to the following transit services: Sacramento Regional Transit, El Dorado Transit, Yuba-Sutter Transit, Yolo Bus, Placer County Transit, San Joaquin Transit, Fairfield/Suisun Transit, Amador Transit, Roseville Transit, ETRAN (Elk Grove), and the Capitol Corridor/Amtrak. Midday service shall also be considered as development and rider ship demands increase.</p> <p>c. Final design and operation of the transit service will be subject to the approval of the City and other proposed operating agencies (e.g., RT).</p> | |
| <p>6.1-11: Construction-Related Impacts. Construction activities for the project would result in the generation of 50 one-way truck trips per day associated with construction activities and 500 one-way vehicle trips (250 construction workers on-site on a worst-case basis) associated with construction personnel. All construction personnel and vehicles would access the project site from Elkhorn Boulevard and would park in designated areas on the project site. No on-street parking would occur. Although the construction trips</p> | <p align="center">PS</p> | <p>6.1-11: (City of Sacramento)</p> <p>a. Prior to issuance of grading permits for the project site, the project applicant shall prepare a detailed Traffic Management Plan that will be subject to review and approval by the City Department of Transportation, Caltrans, Sacramento County, and local emergency services providers including the City of Sacramento fire and police departments. The plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are</p> | <p align="center">LTS</p> |

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| <p>would be temporary, because of the size of this project and the large number of personnel required on a daily basis, the project's construction trips could substantially increase local roadway volumes and interfere with the safe and efficient operation of these roadways. This would be a potentially significant impact.</p> | | <p>maintained. At a minimum, the plan shall include:</p> <ul style="list-style-type: none"> • the number of truck trips, time an day of street closures, • time of day of arrival and departure of trucks, • limitations on the size and type of trucks, provision of a truck staging area with a limitation on the number of trucks that can be waiting, • provision of a truck circulation pattern, • provision of driveway access plan along Elkhorn Boulevard so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas), • maintain safe and efficient access routes for emergency vehicles, • manual traffic control when necessary, • proper advance warning and posted signage concerning street closures, and • provisions for pedestrian safety. <p>b. A copy of the construction traffic management plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct local roadways.</p> | |
| <p>6.1-12. Conformity with City Parking Requirements. A detailed parking plan has not been submitted by the project applicant. As a result, it is unknown whether adequate parking would be provided on the project site for residential, commercial, and retail land uses. Therefore, this would be a potentially significant impact.</p> | PS | <p>6.1-12: (City of Sacramento)</p> <p>The project applicant shall submit a detailed parking plan for each proposed land use at the time development entitlements (e.g., building permits or special permits) are sought. The parking plan shall ensure that parking provided on the project site would meet the City's most current parking standards for the proposed land use and it shall identify the number and location of proposed parking spaces including proposed handicap</p> | LTS |

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| | | parking spaces. If a light rail station is constructed within project site, then a park and ride lot or park and ride spaces shall be allocated in the retail zoned area in the vicinity of the proposed LRT station. The parking plan shall be subject to the review and approval by the City Development Engineering and Finance Division. | |
| <p>6.1-13. Project Site Access Impacts. The project would construct 5 new access points to the project site along Elkhorn Boulevard and Lone Tree Road and 3 access points along Meister Way. With implementation of the project and recommended traffic improvements, access from Elkhorn Boulevard and Lone Tree Road would be adequate. However, access points along Meister Way would be uncontrolled and with project build out could result in unsafe site access conditions (e.g., long queues of vehicles, left-turns across free flow traffic). Therefore, this would be a potentially significant site access impact.</p> | PS | <p>6.1-13: (City of Sacramento)</p> <ul style="list-style-type: none"> a. Prior to 40% buildout of the project site based on total project trips, an exclusive left turn lane and a shared through-right turn lane for the project side streets with stop control shall be provided at the three four legged project intersections along Meister Way. b. An exclusive left turn lane for vehicles turning left from the eastbound and westbound Meister Way approaches shall be provided at these intersections. Exhibit 6.1-18 shows the proposed traffic controls throughout the project site. c. Final design and siting of these improvements shall be subject to the approval of the City Development Engineering and Finance Division, Development Services Department. | LTS |
| <p>6.1-14. Impacts to Internal Circulation. Some elements of the internal roadway network (e.g., long, straight streets) could encourage vehicle speeding, which could lead to vehicle safety impact. This would be a potentially significant internal circulation impact.</p> | PS | <p>6.1-14: Traffic Calming Measures (City of Sacramento)</p> <p>During review of the project’s tentative map and project entitlements, the project applicant shall coordinate with the City to identify roadways where traffic calming measures including but not limited to narrow travel lanes, speed bumps, round-a-bouts, raised intersections, and stop controls are needed to ensure the orderly, efficient, and safe flow of traffic. Design and siting of these facilities would be subject to approval by the City Development Engineering and Finance Division, Development Services Department.</p> | LTS |

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| <p>6.1-15: Impacts to Emergency Vehicle Access. The project would provide adequate emergency access to the project site. However, construction vehicles could temporarily obstruct local roadways, which could impair the ability of local agencies to respond to an emergency in the project area. This would be a potentially significant impact.</p> | PS | <p>6.1-15: Emergency Access (City of Sacramento)</p> <p>a. During review of the project’s tentative map and project entitlements, the project applicant shall coordinate with the City Development Engineering and Finance Division, Development Services Department, Fire Department, and Police Department staff to ensure that the roadways provide adequate access for emergency vehicles (i.e., turning radii, lane width).</p> <p>b. The project applicant shall implement mitigation measure 6.1-12 (Construction Traffic Management Plan).</p> | LTS |
| 6.2 Air Quality | | | |
| <p>6.2-1: Short Term Construction-Generated Emissions. Construction-generated emissions of NO_x would exceed SMAQMD’s significance threshold of 85 lb/day, and because of the project’s size, PM₁₀ emissions would result in or substantially contribute to emission concentrations that exceed the CAAQS. In addition, because Sacramento County is currently designated as a nonattainment area for both ozone and PM₁₀, construction-generated emissions could further contribute to pollutant concentrations that exceed the CAAQS. This impact would be significant.</p> | S | <p>6.2-1: (City of Sacramento and LAFCo)</p> <p>In accordance with the recommendations of the SMAQMD, the project applicant shall implement the following measures to reduce temporary construction emissions.</p> <p>a. The project applicant shall implement the following measures to reduce NO_x and visible emissions from heavy-duty diesel equipment.</p> <p>i. Before issuance of a grading permit, the project applicant shall provide a plan for approval by the lead agency, in consultation with 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% NO_x reduction and 45% particulate reduction compared to the most recent ARB fleet average at the time of construction. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, particulate matter traps, engine retrofit technology, after-treatment products, and/or such other options as become available.</p> | SU |

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| | | <p>ii. Before issuance of a grading permit, the project applicant shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 hp, that will be used an aggregate of 40 or more hours during any portion of project construction. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction operations occur. At least 48 hours before heavy-duty off-road equipment is used, the project applicant shall provide the SMAQMD with the anticipated construction timeline including start date, and the name and phone number of the project manager and on-site foreman.</p> <p>iii. Before issuance of a grading permit, the project applicant shall ensure that emissions from off-road, diesel-powered equipment used on the project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (for white smoke) or Ringlemann 2.0 (for black smoke) shall be repaired immediately, and the SMAQMD shall be notified of non-compliant equipment within 48 hours of identification. A visual survey of all in-operation equipment shall be made at least weekly by the construction contractor, and the contractor shall submit a monthly summary of visual survey results throughout the duration of the construction project, except that the monthly summary shall not be required for any 30-day period in which no construction operations occur. 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.</p> | |

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| | | <ul style="list-style-type: none"> b. As recommended by the SMAQMD, the project applicant shall reduce fugitive dust emissions by implementing the measures listed below during construction. <ul style="list-style-type: none"> i. All disturbed areas, including storage piles that are not being actively used for construction purposes, shall be effectively stabilized of dust emissions using water, a chemical stabilizer or suppressant, or vegetative ground cover. Soil shall be kept moist at all times. ii. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or a chemical stabilizer or suppressant. iii. When materials are transported off-site (e.g., trees, plantings), all material shall be covered, effectively wetted to limit visible dust emissions, or maintained with at least 2 feet of freeboard space from the top of the container. iv. All operations shall limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. v. After materials are added to or removed from the surfaces of outdoor storage piles, the storage piles shall be effectively stabilized of fugitive dust emissions using sufficient water or a chemical stabilizer or suppressant. vi. Onsite vehicle speeds on unpaved roads shall be limited to 15 mph. vii. Wheel washers shall be installed for all trucks and equipment exiting unpaved areas, or wheels shall be washed to remove accumulated dirt before such vehicles leave the site. viii. Sandbags or straw waddles shall be installed to prevent silt runoff to public roadways from adjacent project areas | |

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| | | <p>with a slope greater than 1%.</p> <ul style="list-style-type: none"> ix. Excavation and grading activities shall be suspended when winds exceed 20 mph. x. The extent of areas simultaneously subject to excavation and grading shall be limited, wherever possible, to the minimum area feasible. xi. Emulsified diesel, diesel catalysts, or SMAQMD-approved equal, shall be used on applicable heavy-duty construction equipment that can be operated effectively and safely with the alternative fuel type. <p>c. The applicant shall pay \$1,525,537 into SMAQMD's off-site construction mitigation fund to further mitigate construction-generated emissions of NO_x that exceed SMAQMD's daily emission threshold of 85 lb/day. The calculation of daily NO_x emissions is based on the current cost of \$14,300 to reduce a ton of NO_x. The determination of the final mitigation fee shall be conducted in coordination with SMAQMD. The fee shall be paid to the SMAQMD prior to any ground disturbance in total or on an acre bases (\$5,959.13/acre) as development occurs and permits are sought. (See Appendix D for calculation worksheet.)</p> <p>d. In addition to the measures identified above, construction operations are required to comply with all applicable SMAQMD rules and regulations.</p> <p>Implementation of these measures would substantially reduce construction emissions; however, project emissions would still exceed SMAQMD's significance thresholds. Therefore, this would be a significant and unavoidable impact.</p> | |
| <p>6.2-2: Generation of Long-Term Operational (Regional) Emissions ROG, NO_x, and PM₁₀. Long-term operation of the proposed project would result in emissions of ozone-precursor pollutants that would exceed SMAQMD's threshold.</p> | S | <p>6.2-2: (City of Sacramento and LAFCo)</p> <p>When a proposed project's operational emissions are estimated to exceed SMAQMD's threshold of significance of 65 lb/day for ROG or NO_x, an Air Quality Mitigation Plan (Appendix E) to</p> | SU |

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| <p>Furthermore, the project’s operational emissions would potentially conflict with or obstruct implementation of applicable air quality plans. As a result, this impact would be considered significant.</p> | | <p>reduce operational emissions by a minimum of 15% shall be submitted to the SMAQMD for approval. The following mitigation has been chosen from SMAQMD’s most current recommended land use reduction measure and shall be incorporated to achieve a 15% reduction.</p> <ul style="list-style-type: none"> a. Non-residential land uses shall provide bicycle lockers and/or racks (commercial). b. Nonresidential land uses shall provide personal showers and lockers for employees (commercial). c. Bicycle storage (Class I) shall be provided at apartment complexes or condos without garages (residential). d. Entire project shall be located within 1/2 mile of a Class I or Class II bike lane and provide a comparable bikeway connection to that existing facility (residential, commercial, mixed). e. The project shall provide for pedestrian facilities and improvements such as overpasses and wider sidewalks (e.g., 5-foot) (residential, commercial, mixed). f. Preferential parking shall be provided for carpools/vanpools (commercial). g. High density residential, mixed, or retail/commercial uses shall be within 1/4 mile of planned light rail, linking with activity centers and other planned infrastructure (residential, commercial, mixed). h. Parking lot design shall include clearly marked and shaded pedestrian pathways between transit facilities and building entrances (commercial). i. Setback distance shall be minimized between development and planned transit, bicycle, or pedestrian corridor (commercial, mixed). | |

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| | | <ul style="list-style-type: none"> j. Neighborhood shall serve as focal point with parks, school and civic uses within 1/4 mile (residential, mixed). k. Separate, safe, and convenient bicycle and pedestrian paths shall connect residential, commercial, and office uses (residential, commercial, mixed). l. The project shall provide a development pattern that eliminates physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that impede bicycle or pedestrian circulation (commercial, mixed). m. Wood-burning fireplaces shall be prohibited, and if natural gas fireplaces are installed they shall be the lowest emitting commercially available (residential). n. The lowest emitting commercially available furnaces shall be installed (residential, commercial, mixed). o. Ozone destruction catalyst shall be installed on air conditioning systems in consultation with SMAQMD (residential, commercial, mixed). p. Loading and unloading facilities shall be provided for transit and carpool/vanpool users (commercial). q. Average residential density shall be seven dwelling units per acre or greater (residential). r. The project shall be mixed-use and consist of at least three of the following on-site and/or within 1/4 mile; residential development, retail development, personal services, open space, and, office space (mixed). <p>Although the above mitigation measures would substantially reduce the project's operational emissions, they would not reduce the project's operational emissions below SMAQMD's significance thresholds (refer to Table 6.2-4). As a result, this impact would be significant and unavoidable.</p> | |

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| <p>6.2-3: Generation of Local Mobile-Source CO Emissions. Implementation of the proposed project would not contribute to localized mobile-source CO concentrations that exceed the 1-hour or 8-hour CAAQS of 20 ppm and 9.0 ppm, respectively. Therefore, this impact would be less than significant.</p> | LTS | No mitigation measures are required. | LTS |
| <p>6.2-4: Exposure of Sensitive Receptors to Toxic Air Contaminant Emissions. Implementation of the proposed project could result in the exposure of existing sensitive receptors to minor increases in short-term construction emissions and future residents closest to I-5 and SR 70/99 to mobile source TAC emissions that elevate their health risks compared to other areas on the site and in the Sacramento region in general. There are no accepted or prescribed thresholds for exposure to the impacts of TAC emissions from mobile sources. Consequently, although there is a potential that exposure to mobile sources along the margins of the site closest to the freeways would result in elevated health risk compared with other areas of the site, an accurate quantifiable risk is not possible. Further, in view of the on-going state and federal regulatory programs which have demonstrated significant reductions in health risks from toxic air contaminants in the Sacramento area (as well as throughout the state), and forecasted future improvements as a result of continued implementation of these existing regulatory programs, this impact would be less than significant.</p> | S | <p>6.2-4: (City of Sacramento and LAFCo) Offsite Mobile Sources. The following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> a. Proposed facilities that would require the long-term use of diesel equipment and heavy-duty trucks shall develop and implement a plan to reduce emissions, which may include such measures as scheduling such activities when the residential uses are the least occupied, and requiring such equipment to be shut off when not in use and prohibiting heavy-trucks from idling. The plan shall be submitted to and approved by the City before loading dock activities begin. Copies of the plan shall be provided to all residential dwellings located within 1,000 feet of loading dock areas. b. Proposed commercial/convenience land uses (e.g., loading docks) that have the potential to emit toxic air emissions shall be located as far away as feasibly possible from existing and proposed sensitive receptors. <p>Although above mitigation would reduce health-related risks associated with on-site mobile-source TACs, they would not reduce impacts to less-than-significant levels. Therefore, this would be a significant and unavoidable impact.</p> | SU |
| <p>6.2-5: Exposure to Odor Emissions. Operation of the proposed project could result in the frequent exposure of on-site receptors to substantial objectionable odor emissions. As a result, this impact would be considered significant.</p> | S | <p>6.2-5: (City of Sacramento and LAFCo)</p> <p>The following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> a. To the extent feasible, proposed commercial/convenience land uses that have the potential to emit objectionable odor | LTS |

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| | | emissions shall be located as far away as possible from existing and proposed receptors. b. When permitting the facility that would occupy the proposed commercial/convenience space, the City shall take into consideration its odor-producing potential. c. If an odor-emitting facility is to occupy space in the commercial/convenience area, the City shall require odor control devices (e.g., wet chemical scrubbers, activated carbon scrubbers, biologically-active filters, enclosures) to be installed to reduce the exposure of receptors to objectionable odor emissions. | |
| 6.3 Noise | | | |
| 6.3-1: Short-term Construction Noise. Short-term construction-generated noise levels could exceed City of Sacramento Noise Code standards (Table 6.3-9) or result in a noticeable increase in ambient noise levels at existing nearby off-site sensitive land uses as well as on-site residences that are constructed and inhabited before other portions of the project are complete. This would be a potentially significant impact. | PS | 6.3-1: (City of Sacramento and LAFCo) Construction operations shall be limited to the hours between 7 a.m. to 6 p.m. Monday through Saturday, and 9 a.m. to 6 p.m. on Sunday. | LTS |
| 6.3-2: Long-Term Operational Traffic Noise. Implementation of the proposed project would result in increases in traffic noise levels greater than 4 dBA and cause traffic noise levels to exceed the County's 60 dBA L _{dn} /CNEL exterior noise standard at sensitive receptors in unincorporated Sacramento County. This would be a significant impact. | S | 6.3-2: (City of Sacramento and LAFCo) The project applicant shall implement the following measures to reduce the exposure of existing sensitive receptors to project-generated traffic noise levels. a. As individual facilities and elements of the proposed project are permitted by the City, the City shall evaluate each for compliance with the County's exterior noise standard and the substantial increase threshold [i.e., relative to existing levels attributed to existing year 2005 traffic volumes (Section 6.1, "Transportation and Circulation")] for transportation noise sources at the existing residences in unincorporated Sacramento County located along Lone Tree Road south of | SU |

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| | | <p>Elkhorn Boulevard (house is 50 feet west of centerline of Lone Tree Road), Power Line Road between Elkhorn Boulevard and Del Paso Road (house is located 80 feet east of centerline of Power Line Road), and Elkhorn Boulevard between Power Line Road and Lone Tree Road (houses are located 575 feet south of centerline of Elkhorn Boulevard and 175 feet south of centerline of Elkhorn Road). Where traffic noise levels generated by individual projects do not clearly comply with the County’s exterior noise standards or result in a substantial increase in ambient noise levels at these locations, the City shall offer the owners of the affected residences the installation of solid barriers (e.g., berms, wall, and/or fences) along their affected property line. Actual installation of the barriers/fences would either be funded by, or completed by the project applicant. The barriers/fences must be constructed of solid material (e.g., wood, brick, or adobe) and be of sufficient density and height to minimize exterior noise levels. The barriers/fences shall blend into the overall landscape and have an aesthetically pleasing appearance that agrees with the color and character of nearby residences, and not become the dominant visual element of the community. Where there is a question regarding premitigation or postmitigation noise levels in a particular area, site-specific noise studies/modeling may be conducted to determine compliance or noncompliance with standards. Funding for the installation of this mitigation measure shall be provided by the project applicant.</p> <p>The County allows for an exterior noise level of up to 65 dBA CNEL/L_{dn} provided that practical exterior noise level reduction measures are implemented. The installation of noise barriers/fences could achieve an approximate 5 dB noise level reduction where the line-of-sight from the nearby roadways to the existing residences would be broken and 1.5 dB of additional noise level reduction for each meter of barrier height beyond the</p> | |

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| | | line-of-sight. Thus, a 5 to 10 dB noise reduction could be achieved, resulting in the reduction of traffic-generated noise levels at existing sensitive receptors to levels less than the 65 dBA standard. However, the placement of barriers/fences could be considered infeasible due to their effect on the aesthetic character of these roadways, the spacing between the existing residences and nearby roadways, and the presence of driveways which would prohibit a continuous structure. In addition, even with implementation of the above measure and the reduction of noise levels to below the standard, a substantial increase could still result along Elkhorn Boulevard, where project implementation would result in an approximate 13.5 dB increase. As a result, this impact would remain significant and unavoidable. | |
| 6.3-3: Stationary and Area-Source Noise. Noise levels generated by stationary- and area-noise sources on the project site would not exceed the Noise Control Standards of the City of Sacramento and County of Sacramento Code at existing nearby noise-sensitive land uses. This would be a less-than-significant impact of the proposed project. | LTS | No mitigation measures are required. | LTS |
| 6.3-4: Land Use Compatibility of Proposed Residential and School Uses with On-site Daily and Hourly Average (L_{dn}/CNEL and L_{eq}) Noise Levels. With implementation of the proposed project, residential land uses (sensitive receptors) proposed on the project site would be exposed to future noise levels generated by area traffic that exceed applicable noise standards. Traffic noise along the bordering segments of I-5, SR 70/99, Elkhorn Boulevard, Lone Tree Road, and on-site Meister Way is estimated to exceed the City's 60 dBA L_{dn} /CNEL exterior noise standard in backyards of single-family homes proposed by the project. Also, the interiors of residential land uses located along these transportation routes would be exposed to interior noise levels that exceed applicable maximum interior noise level standards established | S | 6.3-4: (City of Sacramento and LAFCo) The project shall implement the following measures before the occupancy of any proposed uses in the related impact areas, to reduce the exposure of sensitive receptors to significant noise associated with surface transportation (Bollard Acoustical Consultants, Inc. 2006): a. For noise impact/mitigation area A (see Exhibit 6.3-6), a solid (e.g., earth, concrete, masonry, wood, and other materials) noise barrier shall be constructed of 10 feet in height relative to backyard elevation at the residences located nearest to the southern boundary, stepping down linearly to 6 feet at its northwestern terminus. The wrapped portion of the | LTS |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
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| <p>by the City of Sacramento General Plan. Therefore, exposure of proposed residential land uses to noise generated by traffic would be a significant impact.</p> | | <p>barrier along the southeast corner shall also step down to 6 feet in height at its terminus.</p> <p>b. For noise impact/mitigation area B (see Exhibit 6.3-6), the drainage opening shall be shifted to the north by two lots to close the acoustic opening.</p> <p>c. For noise impact/mitigation area C (see Exhibit 6.3-6), the spaces between the residences shall be bridged with solid noise barriers (e.g., earth, concrete, masonry, wood, and other materials) of 6 feet in height, rather than conventional wood privacy fences. Gates constructed for access into the rear yard spaces shall be constructed so as not to create appreciable acoustic leaks (e.g., constructed of solid wood, sealed to prevent sound and be continuous in length and height with minimal gap at the ground).</p> <p>d. For noise impact/mitigation area D (see Exhibit 6.3-6), all identified side-on residences shall be reoriented so that they face the roadways and the backyard spaces would be shielded by the residences. Following the reorienting of the side-on residences, the side space adjacent to the residences shall be bridged in same manner as specified above under c. Furthermore, the side yard privacy fences at end lots shall be replaced with solid noise barriers (e.g., earth, concrete, masonry, wood, and other materials) 7 feet in height to adequately shield backyard spaces.</p> <p>e. For noise impact/mitigation area E (see Exhibit 6.3-6), it would not be feasible to utilize the types of noise mitigation described above (e.g., walls between individual units), to achieve satisfaction with City noise standards due to the orientation and shape of the residences. As a result, a solid barrier (e.g., earth, concrete, masonry, wood, and other materials) consisting of a berm, a wall, or combination thereof, shall be constructed at the approximate location</p> | |

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| | | <p>shown in Exhibit 6.3-6. The barrier shall be 10 feet in height relative to pad elevations of the residences behind the barrier.</p> <p>f. For noise impact/mitigation area F (see Exhibit 6.3-6), a solid noise barrier of 8 feet in height shall be constructed to adequately shield Meister Way traffic noise. In addition, because no discrete outdoor activity areas are identified with the higher density residential developments on the north and south sides of Meister Way near the eastern portion of the site, a solid barrier shall be constructed along both sides of Meister Way at these locations (see exhibit 6.3-6). Where Meister Way becomes elevated at the portion heading east over Highway 99, the barrier shall extend along the top of the cut (at the roadway elevation), to provide efficient shielding to the residences below.</p> <p>g. For noise impact/mitigation area H (see Exhibit 6.3-6), a solid noise barrier or berm/wall combination of 12 feet in height shall be constructed along Elkhorn Boulevard to adequately shield residences which back up to this roadway. In addition, because no discrete outdoor activity areas are identified with the higher density residential developments on the south side of Elkhorn at the northeast corner of the project site, a solid noise barrier or berm/wall combination of 12 feet in height shall be constructed along Elkhorn boulevard at these locations (see Exhibit 6.3-6). The barriers shall be extended inward along the project site access roads.</p> <p>h. For noise impact/mitigation area I (see Exhibit 6.3-6), a solid noise barrier of 6 feet in height shall be constructed along Lone Tree Road to adequately shield residences which back up to the canal east of and adjacent to this roadway.</p> <p>i. Prior to issuance of any building permits, site-specific acoustical analyses shall be conducted once construction plans are available for residential developments located with the 60 dBA L_{dn} contours (see Exhibit 6.3-5) to ensure</p> | |

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| | | <p>satisfaction with the City of Sacramento interior noise level standards. The acoustical analyses shall evaluate exposure of proposed noise-sensitive receptors to noise generated by surface transportation sources, in accordance with adopted City of Sacramento interior noise standards (Table 6.3-8). These site-specific acoustical analyses shall also include site-specific design requirements to reduce noise exposure of proposed on-site receptors and all feasible design requirements shall be implemented into the final site design. Noise reduction measures and design features may include, but are not limited to the use of increased noise-attenuation measures in building construction (e.g., dual-pane, sound-rated windows; mechanical air systems; and exterior wall insulation). Given the predicted future traffic noise environment at the exterior facades of the residences nearest to Highway 99 and Interstate5, upgrades to windows will likely be required at many residences, as well as the use of stucco siding or the acoustic equivalent. Implementation of these design measures would ensure interior noise levels meet the City’s noise standards.</p> | |
| <p>6.3-5: Land Use Compatibility of Proposed Residences and School with On-site Aircraft SENL Noise Levels. Exposure of the project site to SENLs generated by aircraft overflights could result in substantial annoyance to on-site sensitive receptors in the forms of speech interference and sleep disruption. Sleep disruption would be infrequent, and an overflight easement disclosing that the project would be subject to sleep and speech disruption would be required. This is a less-than-significant impact. However, students could be exposed to noise generated by aircraft overflights that would result in speech and classroom disruption; this would be a significant impact.</p> | PS | <p>6.3-5. (City of Sacramento and LAFCo)</p> <p>a. Prior to issuance of any building permits, site-specific acoustical analyses shall be conducted once construction plans are available for the proposed school to ensure satisfaction with the City of Sacramento interior noise level standards. This site-specific acoustical analyses shall include site-specific design requirements to reduce noise exposure of proposed on-site receptors and all feasible design requirements shall be implemented into the final site design. Noise reduction measures and design features may include, but are not limited to the use of increased noise-attenuation measures in building construction (e.g., dual-pane, sound-rated windows; mechanical air systems; and exterior wall</p> | LTS |

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| | | insulation). Implementation of these design measures would ensure interior noise levels meet the City’s noise standards and ANSI standard. | |
| 6.4 Utilities | | | |
| <p>6.4-1: Increased Demand for Water Supply and Facilities. Water demands for the project would be met by the City of Sacramento through existing water supply entitlements available from the American River, Sacramento River, and the City’s local groundwater well system. The City has sufficient water supplies to meet their existing and projected future demands in addition to the proposed project through 2030 under all water year types (e.g., normal, single-dry, and multiple-dry years). Further, other than construction of the necessary infrastructure to connect the project site to the City’s existing water system, no additional water supply facilities would be needed to serve the project. Therefore, this would be a less-than-significant impact related to water supply.</p> | LTS | No mitigation measures are required. | LTS |
| <p>6.4-2: Increased Demand for Water Conveyance. Water supply infrastructure is not currently available on the project site; therefore, water line extensions would be required to deliver water to the project site. Proposed water supply facilities would be sized to accommodate the project’s water distribution and fire flow needs. Further, sufficient capacity is available within the city’s off-site water distribution facilities to serve the project site. For these reasons, the provision of water to the project would result in less-than-significant water conveyance impacts.</p> | LTS | No mitigation measures are required. | LTS |
| <p>6.4-3: Increased Demand for Wastewater Collection and Conveyance. Sufficient capacity within the SRCSD interceptor system would be available to accommodate the project’s wastewater demand. This would be a less-than-significant impact.</p> | LTS | No mitigation measures are required. | LTS |

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| <p>6.4-4: Environmental Impacts Associated with SRWTP Expansion. The SRWTP would provide wastewater treatment services for the project. The SRWTP is currently undergoing expansion to accommodate wastewater treatment demands for future growth and development. As a result, the project would contribute to the need to expand the SRWTP. According to the EIR prepared for the SRWTP 2020 Master Plan Expansion, construction and operation of facility improvements could contribute to significant and unavoidable impacts related to construction-related air quality. Because the project would contribute to the need for expanding the SRWTP, and would contribute to the impacts assessed in the EIR for the SRWTP 2020 Master Plan Expansion would be a significant impact to wastewater facilities.</p> | S | <p>6.4-4: (City of Sacramento) The environmental impacts of expanding the SRWTP were appropriately evaluated in the EIR for the SRWTP 2020 Master Plan Expansion Project. All available mitigation was recommended to reduce the environmental impacts of this project where feasible. However, the EIR concluded that even with recommended mitigation, the project would result in a significant and unavoidable impact related to construction-related air quality, the cumulative effects of which are discussed in Section 7.2, “Cumulative Impacts,” of this Draft EIR. As such, the project would contribute to this significant and unavoidable impact.</p> | SU |
| <p>6.4-5: Increased Demand for Storm Drainage. The project would increase the volume of stormwater generated at the project site. However, RD 1000’s plant #3 does not have sufficient pumping capacity to pump stormwater generated from the project site. Therefore, development of the project would result in significant impact related to storm drainage.</p> | S | <p>6.4-5: (City of Sacramento and LAFCo) The project applicant shall fully fund the installation of a new pump that would increase pumping capacity at the RD 1000’s plant #3 by 75 cubic feet per second.</p> | LTS |
| <p>6.4-6: Increased Demand for Electric and Natural Gas Services. The project area would be supplied with energy services by PG&E (i.e., natural gas) and SMUD (i.e., electricity). Energy services are currently being provided adjacent to the project site to the east and south and extension of these services to the site would not cause any physical disturbances beyond that already anticipated at the project site. For these reasons, the provision of energy services to the project site would result in less-than-significant impacts.</p> | LTS | No mitigation measures are required. | LTS |

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| 6.5 Public Services | | | |
| <p>6.5-1: Increased Demand for Fire and Emergency Medical Services. Although SFD is planning to construct a new fire station near the project site and with this facility SFD would provide services to the project site within acceptable standards, the timing of the construction of this facility is currently unknown. Because it is unknown whether adequate fire protection facilities would be in place at the time the first occupancy permit is issued, the project could result in residents living in an area where inadequate fire and emergency response services are provided. This would be a potentially significant impact.</p> | PS | <p>6.5-1: (City of Sacramento and LAFCo)</p> <p>a. The project applicant shall coordinate with the City of Sacramento and SFD to determine the timing of construction of a new fire station that would serve the proposed project. The project applicant shall enter into an agreement with SFD to ensure that adequate fire protection services would be in place before the issuance of the project’s first occupancy permit. Potential options for adequate services could include construction of a new fire station or an agreement for temporary dedicated services to serve the project site.</p> <p>b. The project’s Finance Plan shall identify necessary public facility improvements needed to serve the project, 100% of the costs required, and all the project’s fair-share costs associated with provision of these facilities and services. The project applicant shall pay into a fee program, as established by the Greenbriar Finance Plan that identifies the funding necessary to construct needed public facilities (e.g., police, fire, water, wastewater, library, and schools). The Draft Greenbriar Finance Plan is provided in Appendix C. The Finance Plan would be structured to ensure that adequate public facilities are in place as development occurs.</p> <p>This mitigation would reduce the project’s fire service impacts to a less-than-significant level; however, construction of anew fire station could result significant and unavoidable construction and operation impacts for which no feasible mitigation is available. As such, the project would result in a significant and unavoidable impact.</p> | SU |

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| <p>6.5-2: Increased Demand for Law Enforcement Services. Although the project would increase demand for police personnel, the SPD has indicated that it could serve the project site, without the need to construct any new law enforcement facilities (McCray, pers. comm., 2005). Therefore, the project would have a less-than-significant impact on police services.</p> | LTS | No mitigation measures are required. | LTS |
| <p>6.5-3: Increased Demand for Solid Waste Disposal Services. Additional solid waste facilities would not be required with development of the proposed project. Therefore, there are no impacts related to provision of adequate solid waste collection and disposal services.</p> | NI | No mitigation measures are required. | NI |
| <p>6.5-4: Increased Demand for School Services. School facilities currently serving the Natomas area, including the proposed elementary school site at the project site, would provide adequate school services to the project site. No additional facilities would be required. In addition, the project applicant would be required to pay development impact fees to Grant Union and Rio Linda Union school districts equal to \$2.24 per square foot for residential development and \$0.36 per square foot for commercial development. (Pollock, pers. comm., 2005) Payment of the development impact fees would provide the legally maximum required level of funding under State law, and would fully mitigate project-related school impacts. As a result, the project would result in less-than-significant impacts to school services.</p> | LTS | No mitigation measures are required. | LTS |
| <p>6.5-5: Increased Demand for Library Services. The existing library located at 2500 New Market Drive would provide library services to the project. In addition, a new library is planned to be built next to Inderkum High School when funding is available. The project applicant would pay into a fee program that would contribute to the funding of this facility. No additional library facilities would be required to serve the project. Therefore, no impacts related to library services would occur.</p> | NI | No mitigation measures are required. | NI |

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| 6.6 Parks and Open Space | | | |
| <p>6.6-1: Increased Demand for City Neighborhood and Community Parks. A prescribed formula in the City’s Quimby Act land dedication ordinance is used to determine how much parkland must be provided by proposed developments to meet demand generated by new residents. Based on application of this formula, residential development under the proposed project would require 48.2 net acres of parks. The proposed project would provide approximately 48.4 net acres of neighborhood and community parks. Therefore, the proposed project would provide sufficient parkland to meet the City’s standards for parkland dedication, and thus would provide sufficient park facilities to meet demand. This impact would be less than significant.</p> | LTS | No mitigation measures are required. | LTS |
| <p>6.6-2: Substantial Loss of Open Space Resources. The proposed project would result in the conversion of approximately 577 acres of agricultural land to nonagricultural use in an area that already is experiencing substantial development and loss of open space. The conversion of agricultural land to urban development would result in the permanent loss of open space resources. This impact would be significant.</p> | S | <p>6.6-2: (City of Sacramento and LAFCo)</p> <p>a. Consistent with the principles of the City/County Joint Vision Plan, the project applicant shall coordinate with the City to identify appropriate lands to be set aside in a permanent conservation easements at a ratio of one open space acre converted to urban land uses to one-half open space acre preserved and at a ratio of one habitat acre converted to urban land uses to one-half habitat acre preserved. The total acres of land conserved shall be based on final site maps indicating the total on-site open space and habitat converted. Conserved open space and habitat areas could include areas on the project site, lands secured for permanent habitat enhancement (e.g., giant garter snake, Swainson’s hawk habitat), or additional land identified by applicant in consultation with the City. All conserved open space and habitat land shall be located in the NNJV area. Should the City and County change adopted mitigation ratios</p> | SU |

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| | | before issuance of any grading permits, the project applicant shall comply with the revised policy. LAFCo Prior to annexation, the city shall implement mitigation measure 6.6-2. Implementation of the above mitigation would substantially lessen the projects open space resources impacts; however, this mitigation would only partially offset the project’s impacts. No other feasible mitigation is available. Therefore, this would be a significant and unavoidable impact. | |
| 6.7 Aesthetics | | | |
| 6.7-1: Impacts on Scenic Vistas. Views on or near the project site are not considered scenic vistas. Therefore, development of the project site would not alter or obscure a scenic vista. This impact would be less than significant. | LTS | No mitigation measures are required. | LTS |
| 6.7-2: Damage to Scenic Resources within a State Scenic Highway. The project site is not visible from a state scenic highway and would not damage scenic resources. The project would result in no impacts to scenic resources within a scenic highway. | NI | No mitigation measures are required. | NI |
| 6.7-3: Degradation of Visual Character. The visual character of the Natomas Basin has been gradually changing from agricultural to suburban development as development proceeds north in Sacramento. The project would convert a large area of land from visual open space to suburban development. This is a significant impact to the visual character of the area. | S | 6.7-3: (City of Sacramento) Because of the scale and location of the project, there is no feasible mitigation available to address aesthetic resource impacts associated with the conversion of agricultural land to urban development. Although design, architectural, development, and landscaping standards through the proposed Planned Unit Development (PUD) Guidelines would provide an urban development on the project site that remains within certain aesthetic guidelines, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to urban development. Impacts related to the degradation of the local viewshed through | SU |

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| | | conversion of agricultural lands to urban development are considered significant and unavoidable. | |
| <p>6.7-4: Impacts from Lighting and Reflective Surfaces. The project would require lighting of new development and could construct facilities with reflective surfaces that could inadvertently cause light and glare for motorists on I-5 and SR 70/99 under day and nighttime conditions. In addition, the degree of darkness in the City of Sacramento and on the project site would diminish as a result of development. This impact would be significant.</p> | S | <p>6.7-4: (City of Sacramento and LAFCo)</p> <p>a. The project applicant shall install light fixtures that have light sources aimed downwards and install shielded lighting outside to prevent glare or reflection or any nuisance, inconvenience, and hazardous interference of any kind on adjoining streets or property.</p> <p>b. The project applicant shall adhere to all requirements of the City of Sacramento design guidelines regarding appropriate building materials, lighting, and signage in the office/commercial areas to prevent light and glare from adversely affecting motorists and adjacent land uses. All proposed development plans shall be approved by the City.</p> | LTS |
| 6.8 Public Health and Hazards | | | |
| <p>6.8-1: Potential for Health Hazards Caused by Contaminated Soil. Although the project site has historically been used for agricultural purposes and there is the potential that soil on the site has been contaminated by the on-site use of agricultural pesticides, chemicals used on the project site are not considered to be persistent in the soil, and no evidence of high concentrations of pesticides in on-site soils was found. The potential for health hazards associated with past use of pesticides at the project site would be less than significant.</p> | LTS | No mitigation is required. | LTS |
| <p>6.8-2: Potential for Health Hazards from Soils Contaminated by Previously Unknown USTs or by Other Sources at Former Two Jakes Park Site. According to the Phase 1 ESA performed for the project site, there are no registered USTs, ASTs, or records of hazardous materials on-site, and no evidence of soil contamination was found at the horse training facility, Two Jakes Park. However, unknown USTs could be discovered during construction, potentially</p> | PS | <p>6.8-2: (City of Sacramento)</p> <p>In the event of discovery of an undocumented or unknown UST or residual soil contamination (e.g., stained or odiferous soil) on the project site, construction activities adjacent to the UST or in the area of the soil contamination shall cease and the County EMD shall be contacted immediately. Any USTs discovered during construction shall be removed and any contaminated soils shall be excavated and treated according to County EMD</p> | LTS |

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| <p>resulting in exposure to contaminated soils. While no soil contamination was immediately evident during a June 2005 site visit, the scope of the examination was limited. Search of an EPA database by EDAW revealed no contamination, but it is possible that some residual soil contamination could be present on the former site of Two Jakes Park, resulting in the potential for exposure of construction workers to associated health hazards. For these reasons, this impact would be potentially significant.</p> | | <p>procedures before the resumption of construction.</p> | |
| <p>6.8-3: Potential for Safety Hazards from Proximity of Airport to Proposed Land Uses. The project’s residential land uses would be compatible with safety standards outlined in the Sacramento International Airport CLUP. However, the proposed parks and light rail station located within the overflight zone (a safety zone of the Sacramento International Airport) could result in densities that exceed 50 persons per acre at any one time, which would exceed density standards allowed by CLUP. Therefore, this impact would be considered significant.</p> | <p align="center">S</p> | <p>6.8-3: (City of Sacramento and LAFCo)</p> <p>a. Prior to City pre-zoning and prior to annexation, the City shall request a consistency determination of proposed land use with the CLUP from Sacramento County ALUC. The consistency determination shall describe the specific land uses that would be allowable and consistent with the CLUP in accordance with ALUC standards.</p> <p>b. Prior to City pre-zoning and prior to annexation, if the consistency determination by ALUC comes to the conclusion that certain proposed land uses would be inconsistent with the CLUP the City shall review the decision of the ALUC and determine whether to override the ALUC’s decision. The City shall submit its notice to override the consistency to the ALUC for review before approving the override.</p> <p>There is no other feasible mitigation to bring the project in compliance with CLUP standards. Therefore, this impact would remain significant and unavoidable.</p> | <p align="center">SU</p> |
| <p>6.8-4: Potential for Airspace Safety Hazards Associated with Project Water Feature. The proposed project would include an on-site lake/detention basin, which could attract large numbers of birds, thereby potentially creating a flyway between the site and the Sacramento River and interfering with existing aircraft flight routes. Birds are recognized by the Sacramento International Airport CLUP as a potential hazard</p> | <p align="center">S</p> | <p>6.8-4: (City of Sacramento and LAFCo)</p> <p>a. To ensure that the final location and design of the lake/detention basin is consistent with the recommendations of the ALUC regarding wildlife hazards to aviation, the project applicant shall prepare a design and management plan for this proposed water feature. This plan shall be prepared in coordination with the Sacramento International Airport</p> | <p align="center">LTS</p> |

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| <p>to aircraft because of the remote potential for high-speed collisions with birds, as well as the ingestion of birds into aircraft engines. This impact would be significant.</p> | | <p>Operations Manager before commencement of construction. The plan shall determine an appropriate size for the lake/detention basin and incorporate specific design measures deemed sufficient by SCAS and the ALUC to minimize bird strikes and other wildlife-related airspace safety hazards in the vicinity of the project area. The plan shall include information sufficient to satisfy requirements for preparation of a Wildlife Hazard Management Plan and shall be prepared by a qualified wildlife hazard damage biologist. The project applicant shall submit a detailed design drawing of the proposed lake/detention basin to SCAS for review.</p> <p>b. To reduce bird attractants associated with the lake/detention basin, the Wildlife Hazards Management Plan for the lake/detention basin and surrounding landscape shall include the following:</p> <ul style="list-style-type: none"> i. To minimize growth of aquatic vegetation that attracts waterfowl, the lake shall be sufficiently deep to prevent growth of cattails and other aquatic plants. Lake edges shall be lined and maintained to prevent vegetation growth; ii. Concrete bulkheads approximately 1 to 2 feet high shall be constructed along the lake's perimeter. A detailed description of the design of the bank edge shall be submitted to SCAS for review; iii. Any vegetation planted in the vicinity of the lake shall consist of plant species that do not provide birds with opportunities for cover, nesting, perching, or feeding. A detailed design plan for landscaping surrounding the lake/detention basin shall be submitted to SCAS for review; iv. Barriers (e.g., walls, fences) shall be constructed a minimum of 48 inches high and be located between the lake and nearby grassy areas to dissuade geese or other | |

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| | | <p>waterfowl from walking to the lake.</p> <p>v. Signs shall be placed at regular intervals around the perimeter of the lake prohibiting the public from feeding birds. The project proponent shall maintain such signs in good order and replace such signs as necessary. This responsibility shall transfer to the Homeowner’s Association (HOA) and shall be articulated in the covenants, conditions, and restrictions (CC&Rs).</p> <p>vi. Trash receptacles with covers shall be placed at regular intervals around the lake and be designed to prevent access to refuse by birds. The CC&Rs shall specify that the project proponent and HOA shall be responsible for ensuring trash receptacles with covers are provided and properly emptied on a regular basis and replaced as necessary.</p> <p>vii. Installation of structures near the lake that could serve as perches for gulls and other birds shall be minimized. The CC&Rs shall prohibit the future installation of such structures.</p> <p>viii. The project applicant shall prohibit all activities and uses that could conflict with implementation of the wildlife hazard management program.</p> <p>c. An Adaptive Management Plan shall be prepared and incorporated into the Wildlife Hazard Management Plan. The Adaptive Management Plan shall provide for the long-term management of nuisance birds around the lake. The management plan shall involve perpetual monitoring and employment of various techniques for controlling birds using adaptive information and bird control products. The Homeowner’s Association shall be responsible for ensuring the implementation and continued enforcement of the Adaptive Management Plan and provision of adequate funding. This requirement shall be specified in the CC&Rs.</p> | |

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| | | <p>The Adaptive Management Plan shall include the following components:</p> <ul style="list-style-type: none"> i. Bird control program that involves use of the most efficient and effective bird control techniques available that are practicable and compatible with surrounding land uses and recreational uses of the lake, ii. Monitoring program that involves patrolling of the lake and assessment of the effectiveness of bird control measures, the presence of potential bird attractants, and the need for modifying or increasing bird control measures, iii. Funding mechanism such as use of an endowment fund or assessment district to fund the long-term monitoring and adaptive management program. iv. Any use of the lake that conflicts with the wildlife control program shall be prohibited. d. The Adaptive Management Plan shall include the best available information on various bird control techniques, an explanation of the situations in which various techniques are best employed, and instructions for implementing such techniques. The entity responsible for implementing the management plan shall employ a qualified and experienced Wildlife Damage Biologist/Manager (Manager) who shall be responsible for determining which bird control techniques to implement based on information provided in the management plan and the best scientific and commercial information available. The Manager shall be trained in bird control techniques by the U.S. Department of Agriculture-Wildlife Services (USDA). The initial cost of such training shall be borne by the project proponent. The cost of subsequent training shall be borne by the HOA. The Manager shall have the discretion to use new technologies or information regarding bird control provided they are practicable and | |

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| | | <p>within the management budget, and do not conflict with surrounding land uses or the recreational and flood control functions of the lake.</p> <p>e. The monitoring and maintenance portion of the Adaptive Management Plan shall include the following:</p> <ul style="list-style-type: none"> i. patrol to ensure the lake area is kept clean and free of refuse and other such material that may attract birds; ii. patrol to ensure the public is abiding by rules prohibiting feeding of birds; iii. control of vegetative growth around the lake to minimize any vegetation that would attract birds for purpose of cover, nesting, perching, or food; iv. remove all nesting material prior to completion of nest if any birds attempt to nest in areas surrounding the lake. All nest removal activities must comply with provisions of the Migratory Bird Treaty Act, the California Endangered Species Act, and the federal Endangered Species Act; v. inspect the lake area to determine whether additional measures are needed to reduce bird use of the lake; and vi. aggressively haze wildlife to discourage use of the lake. <p>f. If monitoring efforts reveal that additional control efforts are necessary, the Bird Control Program Manager may implement one or more control techniques outlined in the Adaptive Management Plan, or other techniques based on best available scientific and commercial information. Bird control techniques currently being used at airports, on agricultural lands, and in other areas where birds pose a hazard or nuisance shall be described in the Adaptive Management Plan. The Bird Control Program Manager shall have discretion of using any one or more of the techniques based on the need, practicability, and land use compatibility. These techniques may include, but are not limited to:</p> | |

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| | | <ul style="list-style-type: none"> i. Allowing grass to grow over 20 centimeters in height (currently being employed at some airports). g. In addition to these control techniques, the Adaptive Management Plan shall outline an education program for the Homeowner’s Association to implement ensuring that the public is aware of the importance of eliminating bird attractants from the area around the lake. The public shall be prohibitive from feeding birds around the lake and engaging in any other activities within the boundaries of the development project which may attract wildlife hazards to aircraft operations. The public shall be made aware of the purpose and importance of various bird control measures being implemented by the Bird Control Program Manager. h. Prohibited Uses of Lake: all activities and uses of the lake/detention basin that may conflict with the wildlife control program shall be expressly prohibited. i. Post signs prohibiting swimming in the lake/detention basin. j. Review by Sacramento County Airport System: If the SCAS determines that conditions in the Greenbriar/ Arbor Landing Development are not consistent with the above listed Management Program, SCAS may take the following actions: <ul style="list-style-type: none"> i. notify the property owner that the wildlife control measures are out of compliance; ii. that the County Airport System may, at its option, initiate control measures at the site, with the costs of such measures billed to the owner; and iii. in the event of an immediate threat to aircraft safety, County Airport System personnel can take immediate action to remedy the air hazard emergency. k. To reduce attractants for Canada geese, American coots, or gulls associated with the lake/detention basin and | |

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| | | surrounding landscape the Management Plan shall include the following: <ul style="list-style-type: none"> i. Signs shall be posted and identify that feeding birds is prohibited. ii. A 30-foot barrier strip of tall grass (6 inches or more) adjacent to the lakeshore; or a fence or other barrier (e.g., dense hedges) shall be constructed between the lakeshore and surrounding grasslands. iii. Any nest building activity associated with birds shall be removed including all nesting materials. l. To prevent the establishment of resident populations of Canada geese on the project site, the Bird Control Program Manager shall take the following, but not limited to, actions: <ul style="list-style-type: none"> i. Chase birds from site, ii. Use of noise generators (e.g., pyrotechnic devices, blank cartridges), iii. Use of visual devices (e.g., flags, scarecrows, water sprays) iv. Use of chase dogs, v. Live trapping or netting, and/or vi. Use of chemical repellants. | |
| 6.8-5: Interference with an Adopted Emergency Response or Emergency Evacuation Plan. Development of the proposed project would not interfere with emergency plans. Sufficient ingress and egress routes would be provided to ensure public safety in the event of an emergency. Moreover, residential areas for the proposed project would be designed in a grid street pattern, which would reduce the potential for adverse effects on access to the site by emergency service vehicles. This impact would be less than significant. | LTS | No mitigation is required. | LTS |

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| <p>6.8-6: Potential for Public Health Hazards from Mosquitoes Associated with Project Water Feature. The proposed project would include an on-site lake/detention basin, which could attract mosquitoes and other water-borne vectors, thereby potentially creating a public health hazard. This impact would be potentially significant.</p> | PS | <p>6.8-6 (City of Sacramento)</p> <p>a. To ensure that operation and design of the lake/detention basin is consistent with the recommendations of the MVCD regarding mosquito control, the project applicant shall prepare a Vector Control Plan. This plan shall be prepared in coordination with the MVCD and shall be submitted to the MVCD for approval before issuance of the grading permit for the lake/detention basin. The plan shall incorporate specific measures deemed sufficient by MVCD to minimize public health risks from mosquitoes. The plan shall include the following:</p> <ol style="list-style-type: none"> 1. Description of the project 2. Description of lake/detention basin and all facilities that would control on-site water levels 3. Goals of the plan 4. Description of the water management elements and features that would be implemented: <ol style="list-style-type: none"> a. Best management practices that would implemented on-site b. Public education and awareness c. Sanitary methods used (e.g., disposal of garbage) d. Mosquito control methods used (e.g., fluctuating water levels, biological agents, pesticides, larvacides, circulating water) e. Stormwater management (consistent with Stormwater Management Plan) 5. Long-term maintenance of the lake/detention basin and all related facilities (e.g., specific ongoing enforceable conditions or maintenance by a homeowner’s association) <p>b. To reduce the potential for mosquitoes to reproduce in the lake/detention basin, the project applicant shall coordinate</p> | LTS |

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| | | with the MVCD to identify and implement BMPs based on their potential effectiveness for project site conditions. Potential BMPs that the applicant could implement include, but not limited to, the following: <ul style="list-style-type: none"> ▶ Stock the lake/detention basin with mosquito fish, guppies, backswimmers, flatworms, and/or other invertebrate predators. ▶ Maintain a stable water level the lake/detention basin to reduce water level fluctuation resulting from evaporation, transpiration, outflow, and seepage. | |
| 6.9 Geology and Soils | | | |
| <p>6.9-1: Risks to People and Structures Caused by Seismic Hazards, Including Strong Ground Shaking and Liquefaction. The project site is not located within an earthquake fault zone. Surface rupture from faulting is therefore not expected to occur on the project site. However, the project site is located in an area considered by the California Geological Survey to be a relatively moderate ground shaking zone. Ground shaking, as a result of seismic activity from nearby or distant earthquake faults, could cause seismic-related ground failure. The water-saturated alluvial soils occurring on the project site are considered to possess low strength and could potentially liquefy during a seismic event. Thus, development of the project site with homes and other structures has the potential to expose people to substantial adverse effects from seismic hazards, including ground shaking and liquefaction. This impact would be potentially significant.</p> | PS | <p>6.9-1: (City of Sacramento)</p> <ol style="list-style-type: none"> a. Before issuance of a grading permit, a geotechnical report shall be prepared by a qualified geotechnical engineer. This report shall be completed to assess the extent to which the recommendations are appropriate and sufficient for construction of the buildings described in the final project design plans. The geotechnical engineer shall prepare a comprehensive site-specific geotechnical report with specific design recommendations sufficient to ensure the safety of soil conditions (e.g., percent subsidence/expansive soils impacts), project structures, and site occupants. b. All water supply and wastewater pipelines shall be designed per City standards to minimize the potential for damage in the event of strong ground shaking and potential liquefaction. c. During project design and construction, all measures outlined in the preliminary geotechnical report for the project (Wallace Kuhl & Associates 2002) as well as specific design measures included in the geotechnical report shall be implemented, at the direction of the City engineer, to prevent significant impacts associated with seismic | LTS |

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| | | activity. A geotechnical engineer shall be present on-site during earthmoving activities to ensure that requirements outlined in the geotechnical reports are adhered to for proper fill and compaction of soils. d. Should the construction schedule require continued work during the wet weather months (e.g., October through April), the project applicant shall consult with a qualified civil engineer and implement any additional recommendations provided, as conditions warrant. These recommendations would include but not be limited to (1) allowing a prolonged drying period before attempting grading operations at any time after the onset of winter rains; and (2) implementing aeration or lime treatment, to allow any low-permeability surface clay soils intended for use as engineered fill to reach a moisture content that would permit the specified degree of compaction to be achieved (Wallace Kuhl & Associates 2002; Perry, pers. comm., 2005). | |
| <p>6.9-2: Construction-Related Erosion Hazards. Excavation and grading of soil could result in localized erosion during project construction. Further, dewatering may be required during some excavation activities as a result of high groundwater levels, which could increase the potential for construction-related erosion. This would be a potentially significant impact.</p> | PS | <p>6.9-2: (City of Sacramento)</p> <p>a. A grading and erosion control plan shall be prepared by a California Registered Civil Engineer and submitted to the City of Sacramento Department of Public Works for approval prior to issuance of the first building permits. The plan shall be consistent with the California Building Standards Code grading requirements and shall identify the site-specific grading to be used for new development. All grading shall be balanced on-site, where feasible.</p> <p>b. To ensure soils do not directly or indirectly discharge sediments into surface waters as a result of construction activities, the project applicant shall develop a Stormwater Pollution Prevention Plan (SWPPP) as discussed in Section 6.10, "Hydrology, Drainage, and Water Quality." The SWPPP shall identify Best Management Practices that</p> | LTS |

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| | | would be used to protect stormwater runoff and minimize erosion during construction. The project applicant shall prepare plans to control erosion and sediment, shall prepare preliminary and final grading plans, and shall prepare plans to control urban runoff from the project site during construction, in compliance with the City of Sacramento Grading, Erosion, and Sediment Control Ordinance. | |
| 6.9-3: Potential for Subsidence or Compression of Unstable Soils. Although the project site is not located in a known subsidence area as denoted by the County General Plan, it is located on soils that exhibit the potential to subside because of their high shrink-swell potential and low strength. This impact would be potentially significant. | PS | 6.9-3: (City of Sacramento) The project applicant shall implement Mitigation Measure 6.9-1, described above, to reduce the risks to people and structures from subsidence or compression of unstable soils at the project site. | LTS |
| 6.9-4: Potential for Damage Associated with Expansive Soils. Soils on portions of the project site are moderately susceptible to expansive soil behavior. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to overlying structures. In addition, the groundwater table is shallow, which enhances the potential for shrink and swell. This impact would be potentially significant. | PS | 6.9-4: (City of Sacramento) The project applicant shall implement Mitigation Measure 6.9-1, described above, to reduce the potential for damage associated with expansive soils. | LTS |
| 6.10 Hydrology and Water Quality | | | |
| 6.10-1: Construction-related and Operational Water Quality and Erosion Impacts. Operation of the project would not result in any water quality or erosion impacts because the project would implement design features that would be consistent with the City of Sacramento Stormwater Quality Standards for Development Projects. However, project construction activities (grading, excavation, etc.) could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater, which could drain to off-site areas degrading local water quality. Further, on-site earthmoving and soil stockpiling activities could result in sheet | PS | 6.10-1: (City of Sacramento) a. The project applicant shall demonstrate compliance through its grading plans with all requirements of the City’s Grading, Erosion, and Sediment Control Ordinance (Title 15, Chapter 15.88 of the City Code) including preparing erosion, sediment, and pollution control plans for each construction phase and postconstruction, if necessary. The project’s grading plans shall be approved by the City of Sacramento, Department of Utilities. b. The project applicant shall demonstrate compliance through | LTS |

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| <p>erosion during rain events. This would be a potentially significant impact.</p> | | <p>its grading plans with all requirements of the City’s Stormwater Management and Control Code (Chapter 13.16 of the City Code), which regulates stormwater and prohibits nonstormwater discharges except where regulated by an NPDES permit. The project applicant shall implement measures including the use of soil stabilizers, fiber rolls, inlet filters, and gravel bags to prevent pollutants from being carried off-site in stormwater generated on the project site. These measures shall be designed to accommodate stormwater discharges associated with proposed measures that would be implemented to control on-site dust generation (e.g., wheel washing, active watering).</p> <p>c. The project applicant shall consult with the Central Valley RWQCB to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, SWRCB statewide NPDES stormwater permit for general construction activity, Central Valley RWQCB NPDES permit for construction dewatering activity, and any other necessary site-specific waste discharge requirements.</p> <p>d. As required under the NPDES stormwater permit for general construction activity, the project applicant shall prepare and submit the appropriate Notice of Intent and prepare the SWPPP and other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other appropriate plans shall identify and specify the use of erosion sediment control BMPs, means of waste disposal, implementation of approved local plans, nonstormwater management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities. The SWPPP would also specify the pollutants that are likely to be used during construction and that could be present in stormwater drainage and nonstormwater discharges. A sampling and monitoring program shall be included in the SWPPP that meets the</p> | |

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| | | <p>requirements of SWRCB Order 99-08-DWQ to ensure the BMPs are effective.</p> <p>e. Construction techniques shall be identified that would reduce the potential runoff, and the plan shall identify the erosion and sedimentation control measures to be implemented. The SWPPP shall also specify spill prevention and contingency measures, identify the types of materials used for equipment operation, and identify measures to prevent or clean up spills of hazardous materials used for equipment operation and hazardous waste. Emergency procedures for responding to spills shall also be identified. BMPs identified in the SWPPP shall be used in subsequent site development activities. The SWPPP shall identify personnel training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation and performance inspection methods for BMPs specified in SWPPP. The SWPPP shall also identify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP. All construction contractors shall retain a copy of the approved SWPPP on the construction site.</p> <p>f. The project applicant shall prepare and submit a Notice of Intent and acquire authorization for a Central Valley RWQCB NPDES permit for construction dewatering activities that may be necessary for foundation and utility installations within the project site.</p> | |
| <p>6.10-2: Potential Exceedance of Drainage System Capacity. The proposed project includes a lake/detention basin component that has been sized to meet the stormwater drainage needs of the project. Proposed stormwater discharges would exceed the pumping capacity of RD 1000's drainage network. However, improvements to RD 1000's pumping capacity have been required by this DEIR which would</p> | LTS | No mitigation measures are required. | LTS |

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| increase RD 1000's pumping capacity sufficiently to serve project generated stormwater drainage. (See Mitigation Measure 6.5-5) Therefore, this impact would be less than significant. | | | |
| 6.10-3: On-Site Flooding Risk from Potential for Levee or Dam Failure. The project site is not located within a designated 100-year floodplain as currently delineated by FEMA. Because the project site is currently certified for 100-year flood protection, the project would result in less-than-significant flooding impacts. | LTS | 6.10-3: (City of Sacramento and LAFCo) Although the project would result in less-than-significant flooding impacts, the applicant has agreed to implement the following mitigation to further ensure that adequate flood protection would be provided at the project site. a. In the event that levees currently providing adequate flood protection to the project site are decertified and can no longer provide 100-year flood protection as determined by FEMA, the applicant shall implement one of the following mitigation measures. This mitigation measure shall terminate upon the first recertification of the levees by FEMA. b. Raise the building pads of all buildings with the project to a level high enough to remove structures from the 100-year floodplain as identified by FEMA in any such decertification; or c. Participate in a funding mechanism established for the purpose of implementing measures that would provide no less than 100-year flood protection for the project site, or for that portion of the Natomas Basing requiring re-certification for 100-year flood protection including the project site provided that such funding mechanism is (1) based on a nexus study; (2) is regional in nature; and (3) is proportionate, fair, and equitable; and (4) complies with all applicable laws and ordinances. | LTS |
| 6.10-4: Result in an On-site Flooding Hazard. Project implementation would increase the amount of impervious surfaces on-site and would increase surface runoff and the need for discharge to the West Drainage Canal. However, the | LTS | 6.10-4: (City of Sacramento and LAFCo) Although the project would result in less-than-significant flooding impacts, the applicant has agreed to implement the | LTS |

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| <p>proposed project includes a stormwater runoff collection system sufficient to protect the project site during a 24-hour and 10-day 100-year flood event and avoid increases in off-site flooding. Therefore, development of the project site would not result in an on-site flooding hazard. This impact would be less than significant.</p> | | <p>following mitigation to further ensure that adequate flood protection would be provided at the project site.</p> <ul style="list-style-type: none"> a. The project applicant shall submit grading plans to the City Department of Utilities that demonstrate that Elkhorn Boulevard has been sufficiently raised to provide 1 foot of freeboard above Lone Tree Canal during a 100-year storm event. Approximately 1,800 linear feet of Elkhorn Boulevard would need to be raised to provide sufficient localized flood protection. b. The project applicant shall submit drainage and infrastructure plans to the City Department of Utilities that provide for the installation of a 48-inch culvert in Lone Tree Canal at Elkhorn Boulevard. Construction of this improvement could result in impacts to riparian and other native habitat; impacts to biological resources including giant garter snake habitat, and construction-related air quality (NO_x, PM₁₀), noise, transportation, and stormwater quality impacts. These impacts would be mitigated to less-than-significant levels with implementation of mitigation recommended for the project and presented in this Draft EIR. As a result, no new significant environmental impacts would occur with implementation of this improvement. | |
| 6.11 Agriculture | | | |
| <p>6.11-1: Conversion of Important Farmlands. The project would result in the conversion of 518 acres of important farmlands to urban land uses. Conversion of important farmland to nonagricultural use would be a significant impact.</p> | S | <p>6.11-1: (City of Sacramento)</p> <ul style="list-style-type: none"> a. The project applicant shall implement Mitigation Measure 6.6-2. <p>LAFCo</p> <ul style="list-style-type: none"> b. Prior to annexation the applicant shall implement Mitigation Measure 6.6-2. | SU |
| <p>6.11-2: Conflict with Agricultural Zoning and Williamson Act Contracts. The project site is currently not under a Williamson Act contract but the project site is currently zoned</p> | NI | No mitigation measures are required. | LTS |

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| for agricultural land uses. The project would rezone the site from an agriculture designation to residential, commercial, and open space designations. Therefore, development of the project site as proposed would not result in any conflicts with Williamson Act contracts or agricultural zoning designations and no impacts would result. | | | |
| 6.11-3: Conflict with Off-site Agricultural Operations. The project site is located adjacent to agricultural operations to the north and development of the project could result in conflicts between adjacent agricultural activities and proposed residential land uses, which could lead to the abandonment of agricultural operations on lands to the north of the project site and could potentially result in the ultimate conversion of this land to non-agricultural land uses. This would be considered a significant impact. | S | 6.11-3: (City of Sacramento) The project applicant shall notify all prospective residents and tenants located within 500 feet of existing agricultural uses north of Elkhorn Boulevard of the types of existing agricultural operations that could occur within close proximity of their homes or businesses. Notification provided to residents and tenants shall include information on the types of land use conflicts that could occur (e.g., noise, dust) and the appropriate means by which to address these conflicts. The City shall approve the content of this notification and this notification shall be included in all residential deed and tenant agreements at the time of sale or lease. Although this mitigation would notify residents of potential conflicts, it would not remove or reduce potential conflicts. No other feasible mitigation is available. Therefore, this impact would remain significant and unavoidable. | SU |
| 6.12 Biological Resources | | | |
| 6.12-1: Effects to Giant Garter Snake. Implementation of the proposed project would result in impacts to 58.75 acres of potential giant garter snake habitat. This impact would include the permanent loss of 55.56 acres of potential giant garter snake habitat and temporary impacts to 3.31 acres of potential giant garter snake habitat. Direct and indirect impacts could include loss of individuals, effects on connectivity, displacement of snakes currently occupying the site, effects related to increased contaminants, predation by domestic and feral animals, effects related to human encroachment, and road | S | 6.12-1: (City of Sacramento and LAFCo) a. To mitigate impacts to giant garter snake, the project applicant shall prepare an HCP, pursuant to Section 10(a) of ESA, and shall obtain appropriate authorization for incidental take of giant garter snake from USFWS and DFG. (DFG would issue permits through Section 2081 of the Fish and Game Code.) The HCP shall include a comprehensive giant garter snake conservation strategy, developed through consultation with USFWS and DFG. This strategy shall be consistent with the goals of the regional basin-wide | LTS |

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| <p>mortality. These impacts would result in significant adverse effects to giant garter snake.</p> | | <p>conservation program described in the NBHCP, and shall advance the NBHCP’s regional conservation strategy. This conservation strategy shall be designed to include avoidance, minimization and compensation measures that are adequate to assure that the proposed project shall not compromise the effectiveness of the NBHCP.</p> <p>b. The conservation strategy shall include habitat preservation and restoration consistent with the NBHCP’s strategy of establishing an interconnected reserve system composed of marshlands, uplands, and rice fields in the Natomas Basin. Key elements of the giant garter snake conservation shall include on-site/off-site habitat preservation, restoration, and creation, and on-site avoidance and minimization measures. The conservation strategy that would ultimately be implemented as mitigation would be developed through consultation with DFG and USFWS as part of the permitting process. Refinements may occur through the USFWS/DFG consultation process, to the extent that the NBHCP regional conservation strategy is advanced.</p> <p><i>1. Habitat Creation, Preservation, and Management in the Lone Tree Canal Linear Open Space/ Buffer Area</i></p> <p>a. To ensure that the project does not diminish habitat connectivity for giant garter snake between the southwest and northwest zones identified in the NBHCP, approximately 30.6 acres along Lone Tree Canal shall be protected and managed as giant garter snake habitat. This on-site habitat preservation shall protect an approximately 250-foot wide corridor of giant garter snake habitat that includes the canal and approximately 200 feet of adjacent uplands. Uplands within the linear open space/buffer area shall be managed as perennial grassland as described below. Additional aquatic habitat for giant garter snake shall be created along the east bank of Lone Tree Canal by construction and maintenance of a 2.7 acre tule bench. The</p> | |

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| | | <p>habitat shall be managed in perpetuity as high-quality habitat for giant garter snake. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports prepared within six months of completion of monitoring for any given year. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP.</p> <p>b. To ensure that the project does not diminish giant garter snake movement along Lone Tree Canal, all new road crossings of Lone Tree Canal shall be designed to minimize obstacles to giant garter snake movement. The use of culverts under new road crossings on Lone Tree Canal shall be prohibited unless it can be demonstrated that the culverts will not diminish the potential for giant garter snake movement through the section of Lone Tree Canal protected by the setback fence and conservation easement.</p> <p>c. Upland giant garter snake habitat within the Lone Tree Canal linear open space/buffer area shall be created and managed to provide cover, basking areas, and refugia during the winter dormant period. Hibernaculae would be constructed at regular intervals by embedding concrete or coarse rock in the bank or in a berm along the Lone Tree Canal corridor to provide additional winter refugia. Upland habitat with the linear open space/buffer areas shall be converted to native perennial grassland and managed, in perpetuity, as perennial grassland habitat.</p> <p>d. Aquatic habitat shall be maintained throughout the giant garter snake active season in Lone Tree Canal, in perpetuity. This is the legal responsibility and obligation of Metro Air Park property owners (MAP). The MAP HCP includes provisions for maintaining water in the canal such that the basic habitat requirements of the giant garter snake</p> | |

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| | | <p>are met. The MAP HCP also provides a road map, through “Changed Circumstances”, to address procedures to follow if water is not being maintained in the canal to meet these requirements. As described in the MAP HCP, the MAP is legally obligated to assure these requirements are met, and financial and procedural mechanisms are included in the MAP HCP to enforce this. It is, therefore, assumed that MAP will provide water to Lone Tree Canal, as required by the MAP HCP and ITP, in perpetuity. It is also assumed that USFWS will use all reasonable means available to it, to enforce this MAP HCP requirement. If water is not provided to Lone Tree Canal by the MAP to meet the habitat requirements of giant garter snake, as required by the MAP HCP, and USFWS exhausts its enforcement responsibilities, the project applicant shall assume the responsibility of providing suitable giant garter snake aquatic habitat throughout the section of Lone Tree Canal protected by the fence and conservation easement. However, as stated herein, the project applicant shall only assume this responsibility if it has been sufficiently demonstrated to the City that USFWS has exhausted all reasonable means to compel MAP to comply with the relevant conditions of the MAP ITP. Specific requirements related to ensuring suitable aquatic habitat in Lone Tree Canal is present, in perpetuity, throughout the giant garter snake active season shall be developed through consultation with DFG and USFWS, and included in the new or amended HCP for Greenbriar, and may include mechanisms, such as installation of a well, to assure water is provided in the canal to meet habitat requirements.</p> <p>e. A barrier shall be installed between the giant garter snake habitat linear open space/buffer area and the adjacent Greenbriar development to ensure that giant garter snakes do not enter the development area, and to prohibit humans</p> | |

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**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
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| | | <p>and pets from entering the giant garter snake habitat. The design of this barrier shall be subject to USFWS and CDFG review and approval. The entire length of the barrier, which shall be bordered by yards rather than roadways, shall be maintained on the preserve side by a nonprofit land trust to ensure that vegetation or debris does not accumulate near the barrier and provide opportunities for wildlife and pets to climb over the barrier. On the development side, Covenants, Codes and Restrictions (CCRs) shall prohibit accumulation of vegetation or debris adjacent to the barrier. Chain link fencing shall be placed at both ends of the corridor, with locked gates permitting entry only by RD 1000 and NMWD for channel maintenance, and by the preserve manager for habitat monitoring and maintenance purposes.</p> <p>f. Specific requirements associated with the barrier shall be developed through consultation with USFWS and DFG, and may include the following and/or other specifications that DFG and USFWS consider to be equally or more effective:</p> <ul style="list-style-type: none"> ▶ Adequate height and below-ground depth to prevent snakes or burrowing mammals from providing a through-route for snakes by establishing burrows from one side to the other crossing; ▶ Constructed using extruded concrete or block construction extending a minimum of 36-inches above ground level; ▶ Maintenance to repair the barrier and to prevent the establishment of vegetation or collection of debris that could provide snakes with a climbing surface allowing them to breach the barrier; ▶ A cap or lip extending at least two-inches beyond the barrier’s vertical edge to prevent snakes from gaining | |

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| | | <p>access along the barrier’s top edge; and</p> <ul style="list-style-type: none"> ▶ Signage to discourage humans and their pets from entering the area. <p>g. The Lone Tree Canal linear open space/buffer area shall be protected in perpetuity under a conservation easement and managed to sustain the value of this area for giant garter snake habitat connectivity. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports prepared. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP or following procedures developed in formal consultation with USFWS and DFG and contained in an ESA Incidental Take Permit for the Greenbriar project.</p> <p>2. Off-site Habitat Preservation, Restoration, and Creation</p> <p>a. The project applicant shall preserve, restore, and manage giant garter snake habitat at two off-site locations identified as having high regional conservation value, and contributing to an interconnected regional reserve system as envisioned in the NBHCP. Off-site habitat preservation, restoration, and creation shall be implemented on the Sacramento County portion of the Spangler property (“Spangler Site”) and the Natomas 130 parcel (“Natomas 130 Site”) to ensure that implementation of the proposed project would result in no net loss of overall giant garter snake habitat value. The habitat shall be managed in perpetuity as high-quality habitat for giant garter snake. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports prepared. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP.</p> <p>The Spangler Site is located in northern Sacramento County along the Sutter County line, northeast of the</p> | |

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| | | <p>Sacramento Airport and west of SR 70/99 (Exhibit 6.12-4). This site is currently in irrigated rice. It is surrounded by agriculture (primarily rice) on all sides. Existing water channels provide potential habitat connectivity for giant garter snake between the Spangler Site and Lone Tree Canal. A minimum of 190 acres of managed marsh, including 55.2 acres of upland habitat, shall be created and preserved for giant garter snake on the Spangler Site. The 55.2 acres of upland habitat shall also serve as mitigation for impacts to Swainson’s hawk described under Impact 6.12-2. To further reduce impacts to Swainson’s hawk, a minimum 45.4 acres of high-quality Swainson’s hawk foraging habitat (e.g., alfalfa) shall be created and managed on the Spangler Site, as further discussed below.</p> <p>The North Natomas 130 Site is adjacent to the Natomas Basin Conservancy’s Cummings preserve to the south, Fisherman’s Lake to the east, rice land to the north, and the Sacramento River to the west. Because it is surrounded by compatible land uses and habitat expected to persist in the future, this site has long-term conservation value. The Natomas 130 Site provides potential habitat connectivity for giant garter snake to existing preserves and Lone Tree Canal via a series of water drainage and delivery channels. A minimum of 14.2 acres of managed marsh, including 4.3 acres of upland habitat, shall be created and preserved for giant garter snake on the North Natomas 130 Site. The 4.3 acres of upland habitat shall also serve as mitigation for impacts to Swainson’s hawk described under Impact 6.12-2. To further reduce impacts to Swainson’s hawk, 14.2 acres of high-quality foraging habitat shall be managed to provide Swainson’s hawk foraging habitat on the North Natomas 130 Site. Habitat created and preserved on the North Natomas 130 Site shall also include 1.9 acres of riparian, which could provide potential nesting sites for</p> | |

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| | | <p>Swainson’s hawk.</p> <p>b. The off-site conservation lands shall be restored with giant garter snake habitat consisting of a mosaic of habitat types with variations in topography and an abundance of edges within and between habitat types. The managed marsh shall consist of seasonal marsh with shallow and deep water configurations, permanent marsh, and upland habitats in the form of buffers, islands, and other high-ground habitats scattered throughout the marsh’s wetland component. A significant portion of the upland component shall be above winter flood levels to protect giant garter snakes in their winter retreats. Vegetation shall be natural marsh vegetation such as cattails, spike rush, tule clumps, and thimbleberry, placed to maximize protected resting and basking sites and escape cover for the snakes.</p> <p>3. On-site Avoidance and Minimization Measures</p> <p>The measures described below shall be incorporated into the giant garter snake conservation strategy to avoid and minimize take of giant garter snakes during construction activities, including construction of managed marsh habitat:</p> <p>a. All grading activity within giant garter snake habitat (aquatic habitat and uplands within 200 feet of aquatic habitat) shall be restricted to a period between May 1 and October 1. Because this is during the snakes’ active stage, it would allow snakes to actively move away from danger and thereby reduce chances of snake mortality. Additionally, this restriction is timed to avoid grading during the snakes’ breeding, dispersal, fall foraging and over-wintering periods, when they are most vulnerable to disturbance. If grading cannot be scheduled between May 1 and October 1, the Applicant shall contact the USFWS to determine whether additional measures are necessary to avoid and/or minimize take of giant garter snake. Grading</p> | |

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| | | <p>shall only occur during the period between October 2 and April 30 upon written USFWS approval.</p> <p>b. A qualified biologist with experience identifying giant garter snakes shall survey the construction area for giant garter snakes no more than 24 hours prior to the start of construction activities. If construction activities stop on the project site for a period of two weeks or more, a new giant garter snake survey shall be completed no more than 24 hours prior to the re-start of construction activities.</p> <p>c. Between April 15 and September 30, all irrigation ditches, canals, or other aquatic habitat within the construction area shall be completely dewatered, with no ponded water remaining, for at least 15 consecutive days prior to the excavation or filling in of the dewatered habitat. The purpose of dewatering the aquatic habitat prior to filling is to compel giant garter snakes to leave the area on their own. A qualified biological monitor shall ensure that dewatered habitat does not continue to support giant garter snake prey, which could attract snakes into the area. Netting and salvage of prey may be necessary if a site cannot be completely dewatered.</p> <p>d. Construction activity shall be avoided within the approximately 250-foot Lone Tree Canal linear open space/buffer area, except for the purpose of habitat restoration activities carried out under the direction of a qualified biological monitor with experience identifying giant garter snakes. To minimize habitat disturbance during construction of the urban development, the approximate 250-foot wide corridor shall be bordered on the outer edge with exclusionary fencing that shall prevent giant garter snakes from entering the construction area, but shall allow any giant garter snakes within the construction area, that may have otherwise been trapped, to cross into</p> | |

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| | | <p>the canal corridor. Movement of heavy equipment associated with construction of the urban development shall be restricted to the construction area outside the corridor, except for approved restoration activity within the corridor.</p> <p>e. Clearing and grading shall be confined to the minimum area necessary to facilitate construction activities as determined by a qualified biologist. Habitat that will be avoided shall be cordoned off, clearly flagged, and designated as an “Environmentally Sensitive Area” by a qualified biologist. An exclusion fence shall be erected between the development area and the Lone Tree Canal linear open space/buffer area prior to and during construction to prevent giant garter snake entry into the construction zone. The fence shall be erected prior to the onset of the dormant season preceding construction when giant garter snakes are less likely to occupy upland retreats on the project site. The interior or project side of the exclusion fence shall be routinely monitored for giant garter snakes stranded by the fence. Snakes encountered should be relocated to the nearest suitable habitat off-site by a qualified biologist.</p> <p>f. All construction personnel shall receive worker environmental awareness training from a USFWS-approved biologist prior to commencing any construction-related activities on the project site. This training shall instruct workers on how to identify the giant garter snake and its habitat, and what to do if a giant garter snake is encountered during construction activities.</p> <p>g. A USFWS-approved biological monitor shall be present during grading activities within 200 feet of aquatic giant garter snake habitat to ensure that construction activities do not encroach into unauthorized areas. If a live giant</p> | |

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| | | <p>garter snake is found during construction activities, the biological monitor shall immediately notify USFWS. The biological monitor shall have the authority to stop construction in the vicinity of the snake. The snake shall be monitored and given a chance to leave the area on its own. If the snake does not show signs of leaving, then the biological monitor shall slowly move toward the snake to flush it toward adjacent habitat away from the construction area. Potential escape routes for giant garter snakes shall be determined in advance of construction. If the garter snake does not leave on its own within 1 working day, the biological monitor shall consult with the USFWS to determine necessary additional measures. Any giant garter snake mortality shall also be reported by the biological monitor within 1 working day to USFWS. Any project-related activity that results in giant garter snake mortality shall cease so that this activity can be modified to the extent practicable to avoid future mortality.</p> <p>h. Upon completion of construction activities, construction debris shall be completely removed from the site. If this material is situated near existing giant garter snake aquatic habitat, it shall be inspected by a qualified biologist prior to removal to assure that giant garter snakes are not using it for hibernaculae or temporary refuge.</p> <p>i. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes shall be placed on a project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutions include coconut coir matting, tactified hydroseeding compounds, or other material approved by DFG and USFWS.</p> | |
| <p>6.12-2: Effects to Swainson’s Hawk. Implementation of the proposed project would directly and permanently affect 512 acres of potential Swainson’s hawk foraging habitat and could</p> | <p align="center">S</p> | <p>6.12-2: (City of Sacramento and LAFCo)</p> <p>a. The project applicant shall implement Mitigation Measure 6.12-1. The project shall include a conservation strategy</p> | <p align="center">LTS</p> |

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| <p>affect nesting in the vicinity of the project site. This impact would be considered significant.</p> | | <p>which shall be designed to include avoidance, minimization and compensation measures that are adequate to assure that the proposed project shall not compromise the effectiveness of the NBHCP. Implementation of this mitigation measure would require preservation of 27.9 acres of on-site managed grassland within the Lone Tree Canal linear open space/buffer area, which would provide low-quality Swainson’s hawk foraging habitat, and would require off-site habitat at several locations Off-site mitigation for impacts to Swainson’s hawk foraging habitat on the Spangler Site would include creation and management of 55.2 acres of upland habitat that would provide moderate-quality foraging habitat, and creation and management of 45.4 acres of high-quality foraging habitat. Off-site mitigation on the North Natomas 130 Site would include creation and preservation of 4.3 acres of moderate-quality foraging habitat and 14.2 acres of high-quality foraging habitat. Off-site mitigation at the North Natomas 130 site also includes creation and preservation of 1.9 acres of riparian habitat that could provide potential nesting sites for Swainson’s hawks.</p> <p>In addition to creation and management of foraging habitat provided by Mitigation Measure 6.12-1, the project applicant shall acquire a minimum of 49 acres of land enhanced and managed to provide high-quality foraging habitat so that the cumulative value of on-site and off-site habitat is of equal or greater value to Swainson’s hawk than that lost through project development. Swainson’s hawk habitat acquired off-site shall either be located within 1 mile of the Swainson’s hawk zone or an existing TNBC reserve, or, with USFWS and DFG concurrence, within two miles of more than one active Swainson’s hawk nests.</p> <p>Thus, in total, 27.9 acres of low-quality, 59.5 acres of moderate-quality, 108.6 acres (including the additional 49 acres referenced above) of high-quality, and 1.9 acres of</p> | |

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| | | <p>potential nesting habitat would be provided as mitigation for the loss of approximately 546 acres of low- and moderate-quality foraging habitat.</p> <p>The totals described above represent the acreage, of the quality described, likely to mitigate the loss of habitat value associated with the proposed project. This represents potential acreage within a range that could be used to mitigate loss of habitat value. Acquired and preserved acreage could range up to a replacement of 1:1 (or higher) ratio, if needed to replace lost habitat value. Alternatively, a lesser acreage that is enhanced and managed as high-quality foraging habitat (e.g., alfalfa) for Swainson’s hawk in perpetuity, as proposed herein, would be acceptable provided that USFWS and DFG concur that, with the replacement habitat, the project would provide equal or greater value to the species than would the foraging habitat present at the project site. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports shall be prepared. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP.</p> <p>b. In addition, the following avoidance and minimization measures shall be implemented:</p> <ol style="list-style-type: none"> 1. Pre-construction surveys shall be conducted for Swainson’s hawk and other raptors no more than 14 days and no less than 7 days prior to the beginning of any construction activity between March 15 and August 15. The survey area shall include all potential nesting sites located within ½ mile of the project and mitigation-sites 2. Should nesting be discovered within the survey area, a qualified biologist shall notify DFG and no new disturbance shall occur within ½ mile of the nest until the nest is no longer active or appropriate avoidance measures are approved by DFG to ensure that the nest is adequately | |

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| | | protected. Potential mitigation measures may include visual screening and timing restrictions for construction activity. Monitoring (funded by the project applicant) of active nests by a DFG-approved raptor biologist shall be required to determine if project construction is disturbing Swainson’s hawks at the nest site. Exact implementation of this measure shall be based on specific information at the project site. | |
| <p>6.12-3: Loss and Degradation of Wetlands and Waters of the United States. Implementation of the proposed project would result in fill of jurisdictional waters of the United States, including wetlands subject to USACE jurisdiction under the federal Clean Water Act, and the potential loss and degradation of isolated wetland habitats protected under state regulations. Placement of fill in these waters would require a Section 404 permit from USACE and compliance with Porter-Cologne and Section 401 of the Clean Water Act, and Section 1600 of the California Fish and Game Code. This impact would be significant.</p> | S | <p>6.12-3: (City of Sacramento and LAFCo)</p> <ul style="list-style-type: none"> a. The project applicant shall implement Mitigation Measure 6.12-1 to avoid impacts to waters of the United States and wetlands associated with Lone Tree Canal. b. Prior to project approval, the project applicant shall obtain a verified wetland delineation from USACE. Based on the results of the verified delineation, the project applicant shall commit to replace, restore, or enhance on a “no net loss” basis, in accordance with USACE and the Central Valley RWQCB, as appropriate for each agency’s jurisdiction, the acreage of all waters of the United States and wetland habitats, including isolated wetlands that would be removed with implementation of the project. Wetland restoration, enhancement, and/or replacement shall be at a location and by methods acceptable to the USACE, DFG, and Central Valley RWQCB, as determined during the Section 404, Section 1600, and Section 401 permitting processes. c. In conjunction with preparation and implementation of the giant garter snake mitigation described under Mitigation Measure 6.12-1, the project applicant shall prepare and submit a habitat mitigation and monitoring plan to USACE for the creation of jurisdictional waters at a mitigation ratio no less than 1:1 acres of created water of the United States, including wetlands, to each acre filled. The mitigation plans shall demonstrate how the USACE criteria for jurisdictional | LTS |

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| | | <p>waters will be met through implementation. Wetland mitigation achieved through implementation of Mitigation Measure 6.12-1 can satisfy this mitigation measure if conducted in such a way that it meets both habitat function and the USACE criteria for creation of waters of the United States. The wetland creation section of the habitat mitigation and monitoring plan shall include the following:</p> <ul style="list-style-type: none"> ▶ target areas for creation, ▶ a complete biological assessment of the existing resources on the target areas, ▶ specific creation and restoration plans for each target area, ▶ performance standards for success that will illustrate that the compensation ratios are met, and ▶ a monitoring plan including schedule and annual report format. <p>d. The project applicant shall secure the following permits and regulatory approvals, as necessary, and implement all permit conditions before implementation of any construction activities associated with the proposed project:</p> <ol style="list-style-type: none"> 1. Authorization for the fill of jurisdictional waters of the United States shall be secured prior to placing any fill in jurisdictional wetlands from the USACE through the CWA Section 404 permitting process. Timing for compliance with the specific conditions of the 404 permit shall be per conditions specified by the USACE as part of permit issuance. It is expected that the project would require an individual permit because wetland impacts would total more than 0.5 acre. In its final stage and once approved by the USACE, this mitigation plan is expected to detail proposed wetland restoration, enhancement, and/or replacement activities that would ensure no net loss of jurisdictional wetlands function and values in the project | |

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| | | <p>vicinity. As required by Section 404, approval and implementation of the wetland mitigation and monitoring plan shall ensure no net loss of jurisdictional waters of the United States, including jurisdictional wetlands. Mitigation for impacts to isolated wetlands shall be included in the same mitigation plan. All mitigation requirements identified through this process shall be implemented before construction begins in any areas containing wetland features.</p> <ol style="list-style-type: none"> 2. Prior to construction in any areas containing wetland features, the project applicant shall obtain water quality certification pursuant to Section 401 of the Clean Water Act for the project. Any measures required as part of the issuance of water quality certification shall be implemented. 3. The project applicant shall obtain a Streambed Alteration Agreement under Section 1600 et seq. of the California Fish & Game Code for impacts to Waters of the State as defined under Section 1602 of the California Fish & Game Code. 4. The project applicant shall file a report of waste discharge with the Central Valley RWQCB for activities affecting waters of the state. For other mitigation measures aimed at maintaining water quality, including obtaining National Pollutant Discharge Elimination System (NPDES) permits, see Mitigation Measure 6.10-1 in "Hydrology, Drainage and Water Quality." | |
| <p>6.12-4: Disturbance or Removal of Special-status Plant Species. Implementation of the proposed project could result in the disturbance or loss of Delta tule pea and Sanford's arrowhead. Delta tule-pea and Sanford's arrowhead could be present in the freshwater marsh habitat within the wetland habitats on the project site. The potential loss of a special-</p> | PS | <p>6.12-4: (City of Sacramento and LAFCo)</p> <ol style="list-style-type: none"> a. Before the initiation of any ground-disturbing or vegetation-clearing activities, the project applicant shall retain a qualified botanist to conduct focused surveys in the project area for Delta tule pea and Sanford's arrowhead. The botanist shall conduct surveys for these special-status plant species at | LTS |

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| <p>status plant population would be considered a potentially significant impact.</p> | | <p>the appropriate time of year when the target species would be in flower, and therefore, clearly identifiable Surveys shall be conducted following the approved DFG protocol for surveying for special-status plant species.</p> <p>b. If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter report to USFWS, DFG, and CNPS and no further mitigation shall be required.</p> <p>c. If special-status plant populations are found, the project applicant shall consult with the DFG to determine the appropriate mitigation measures for any population that may be affected by the project. Mitigation measures may include creation of off-site populations on project mitigation sites, through seed collection or transplanting, preserving and enhancing existing populations, or restoring or creating suitable habitat in sufficient quantities to compensate for the impact.</p> | |
| <p>6.12-5: Modifications to Burrowing Owl Habitat. Implementation of the proposed project could result in the loss of burrowing owl habitat or active burrows. This would be a potentially significant impact.</p> | <p align="center">PS</p> | <p>6.12-5: (City of Sacramento and LAFCo)</p> <p>a. No more than 30 days and no less than 14 day prior to project site grading, a qualified biologist shall conduct focused surveys for burrowing owls in areas of suitable habitat on and within 300 feet of the project site. Surveys shall be conducted in accordance with DFG protocol (DFG 1995).</p> <p>b. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to DFG, and no further mitigation is necessary.</p> <p>c. If occupied burrows are found in the survey area, impacts shall be avoided by establishing a buffer of 165 feet during the non-breeding season (September 1 through January 31) or 300 feet during the breeding season (February 1 through August 31). The size of the buffer area may be adjusted if a qualified biologist and DFG determine it would not be likely to have adverse effects. No project activity shall commence</p> | <p align="center">LTS</p> |

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| | | <p>within the buffer area until a qualified biologist confirms that the burrow is no longer occupied. If the burrow is occupied by a nesting pair, a minimum of 6.5 acres of foraging habitat contiguous to the burrow shall be preserved until the breeding season is over.</p> <p>d. If impacts to occupied burrows are unavoidable, on-site passive relocation techniques may be used if approved by DFG to encourage owls to move to alternative burrows outside of the impact area. However, no occupied burrows shall be disturbed during the nesting season unless a qualified biologist verifies through non-invasive methods that the burrow is no longer occupied. Foraging habitat for relocated pairs shall be provided in accordance with guidelines provided by DFG (1995). DFG guidelines recommend a minimum of 6.5 acres of foraging habitat per pair or unpaired resident bird, be acquired and permanently protected.</p> <p>e. If relocation of the owls is approved for the site by DFG, the developer shall hire a qualified biologist to prepare a plan for relocating the owls to a suitable site. The relocation plan must include: (a) the location of the nest and owls proposed for relocation; (b) the location of the proposed relocation-site; (c) the number of owls involved and the time of year when the relocation is proposed to take place; (d) the name and credentials of the biologist who will be retained to supervise the relocation; (e) the proposed method of capture and transport for the owls to the new site; (f) a description of the site preparations at the relocation-site (e.g., enhancement of existing burrows, creation of artificial burrows, one-time or long-term vegetation control, etc.); and (g) a description of efforts and funding support proposed to monitor the relocation. Relocation options may include passive relocation to another area of the site not subject to disturbance through one way doors on burrow openings, or construction of</p> | |

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| | | artificial burrows in accordance DFG guidelines. f. The project applicant shall implement Mitigation Measure 6.12-2 to mitigate for the loss of burrowing owl foraging habitat. | |
| <p>6.12-6: Effects to Northwestern Pond Turtle. Uplands and aquatic habitat on the project site suitable for giant garter snake is also considered potential habitat for northwestern pond turtle. Therefore, 55.56 acres of potential upland and aquatic habitat for western pond turtle would be permanently lost, 3.31 acres of upland and aquatic northwestern pond turtle habitat would be temporarily affected. The value of all northwestern pond turtle habitat on the project site is considered low because of insufficient water and the lack of emergent marsh vegetation in the excavated channels on the project site. However, Lone Tree canal and other areas that have the potential to support surface water of sufficient depths provide suitable habitat for this species. This impact would be potentially significant.</p> | PS | <p>6.12-6: (City of Sacramento and LAFCo)</p> a. The project applicant shall implement Mitigation Measure 6.12-1. b. Construction personnel shall participate in a worker environmental awareness program. Under this program, workers shall be informed about the potential presence of western pond turtles in the construction area, and shall be provided guidance on appropriate steps to take if a pond turtle is encountered during project construction. c. Within 24 hours prior to commencement of construction activities, the site shall be inspected for turtles by a qualified biologist. The construction area shall be re-inspected whenever a lapse in construction activity of two weeks or greater has occurred. d. If a turtle is encountered on the project site, any construction activity that could result in harm of the turtle shall immediately cease and shall not resume until the monitoring biologist has determined that the turtle has moved away from the construction-site on their own volition or a qualified biologist has moved the turtle to a safe location. | LTS |
| <p>6.12-7: Local Tree Protection Ordinance. The project would not result in the loss of any protected trees; therefore, no impact would occur.</p> | NI | No mitigation is required | NI |

NI = No Impact LTS = Less than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable MM = Mitigation Measure

**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <p>6.12-8: Potential Loss of Loggerhead Shrike Nests. Shrubs and weedy vegetation on the project site provide potential nesting habitat for the loggerhead shrike. This species has been observed on the project site. The loss of an active loggerhead shrike nest would be a potentially significant impact.</p> | PS | <p>6.12-8: (City of Sacramento and LAFCo) If initiation of site grading is proposed during the loggerhead shrike nesting season (March 1 to July 31), a qualified biologist shall conduct a focused surveys for loggerhead shrikes in areas of suitable habitat on and within 300 feet of the project site. The survey shall be conducted no more than 30 days and no less than 14 days prior to the start of grading. If surveys identify an active loggerhead shrike nest in the survey area, the applicant shall install brightly colored construction fencing that establishes a boundary 100 feet from the active nest. No disturbance associated with the proposed project shall occur within the 100-foot fenced area during the nesting season of March 1 through July 31 or until a qualified biologist has determine that the young have fledged or that the nest is no longer occupied prior to disturbance of the nest site.</p> | LTS |
| <p>6.12-9: Potential to Conflict with the Natomas Basin Habitat Conservation Plan. The project with the proposed mitigation for impacts to giant garter snake and Swainson’s hawk (Mitigation Measures 6.12-1 and 6.12-2) would not reduce the viability of populations of covered species using the Natomas Basin and would not reduce the effectiveness of the conservation strategy of the NBHCP. It also would have only minimal effects on the likelihood of attaining any of the goals and objectives of the NBHCP, and for most of these goals and objectives the overall effect would be neutral or beneficial. Therefore, with proposed mitigation, this impact would be less than significant.</p> | LTS | No mitigation is required. | LTS |
| <p>6.13 Cultural Resources</p> | | | |
| <p>6.13-1: Damage or Destruction of Significant Documented Cultural Resources. No significant cultural resources have been identified within or immediately adjacent to the project site. Therefore, the proposed project would result in no impacts to CRHR-listed or eligible resources.</p> | NI | No mitigation is required. | NI |

NI = No Impact LTS = Less than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable MM = Mitigation Measure

**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <p>6.13-2: Potential Impacts to Undocumented Cultural Resources. There is the possibility that previously undiscovered and undocumented resources could be adversely affected or otherwise altered by ground disturbing activities during construction of the project. Disturbance of undocumented resources would be a potentially significant impact.</p> | PS | <p>6.13-2: (City of Sacramento and LAFCo) If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, charcoal, animal bone, bottle glass, ceramics, burned soil, structure/building remains) is made during project-related construction activities, ground disturbances in the area of the find shall be halted and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per CEQA and develop specific measures to ensure preservation of the resource. Specific measures for significant or potentially significant resources could include, but not necessarily be limited to in-field documentation, archival research, subsurface testing, and excavation. The specific type of measure necessary would be determined according to evidence indicating degrees of resource integrity, spatial and temporal extent, and cultural associations and would be conducted in a manner consistent with CEQA and the City’s guidelines for preserving archaeological and cultural artifacts.</p> | LTS |
| <p>6.13-3: Potential to Uncover Human Remains. Subsurface disturbances associated with construction activities at the project site could potentially uncover unmarked historic-era and prehistoric Native American burials, resulting in their alteration or damage. This would be a potentially significant impact.</p> | PS | <p>6.13-3: (City of Sacramento and LAFCo) In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the City or the City’s designated representative shall be notified. The City shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the Agency for acting</p> | LTS |

NI = No Impact LTS = Less than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable MM = Mitigation Measure

**Table 2-1
Summary of Environmental Impacts and Mitigation Measures**

| Impacts | Significance Before Mitigation | Mitigation Measures | Significance After Mitigation |
|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| | | upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The City or their appointed representative and the professional archaeologist shall consult with a Most Likely Descendant (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity. | |

NI = No Impact LTS = Less than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable MM = Mitigation Measure

3 PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The project site encompasses approximately 577 acres located northwest of the intersection of State Route 70/99 (SR 70/99) and Interstate 5 (I-5) in Sacramento County. The project site is located in the unincorporated portion of Sacramento County, adjacent to and west of the City of Sacramento and outside the City of Sacramento's (City) existing Sphere of Influence (SOI).

The project site is bordered by agricultural and rural residential land uses to the west and north, I-5 and agricultural lands to the south, as well as SR 70/99 and a new residential community currently under development within North Natomas to the east and south. Regional access to the project site is provided from SR 70/99 and I-5 (Exhibit 3-1). Local access to the project site is provided by Elkhorn Boulevard (Exhibit 3-2).

3.2 EXISTING SETTING

The project site consists of 12 parcels of land that have been in agricultural production and agricultural support uses. As of the publication of the Notice of Preparation (NOP) for the DEIR, the project site was fallow; however, the site has historically been rotated from fallow to active crop cultivation conditions. The majority of the site consists of former rice fields and associated water canals. Other crops that have been cultivated on-site include alfalfa and hay. A racehorse training facility was located in the northwest corner of the project site but it has since been demolished and only some remnant building foundations and the dirt racetrack remain. Other buildings that were present on the project site include agricultural outbuildings, greenhouses, and other support structures (e.g., wells) (Exhibit 3-3). All on-site buildings have been demolished and removed from the site.

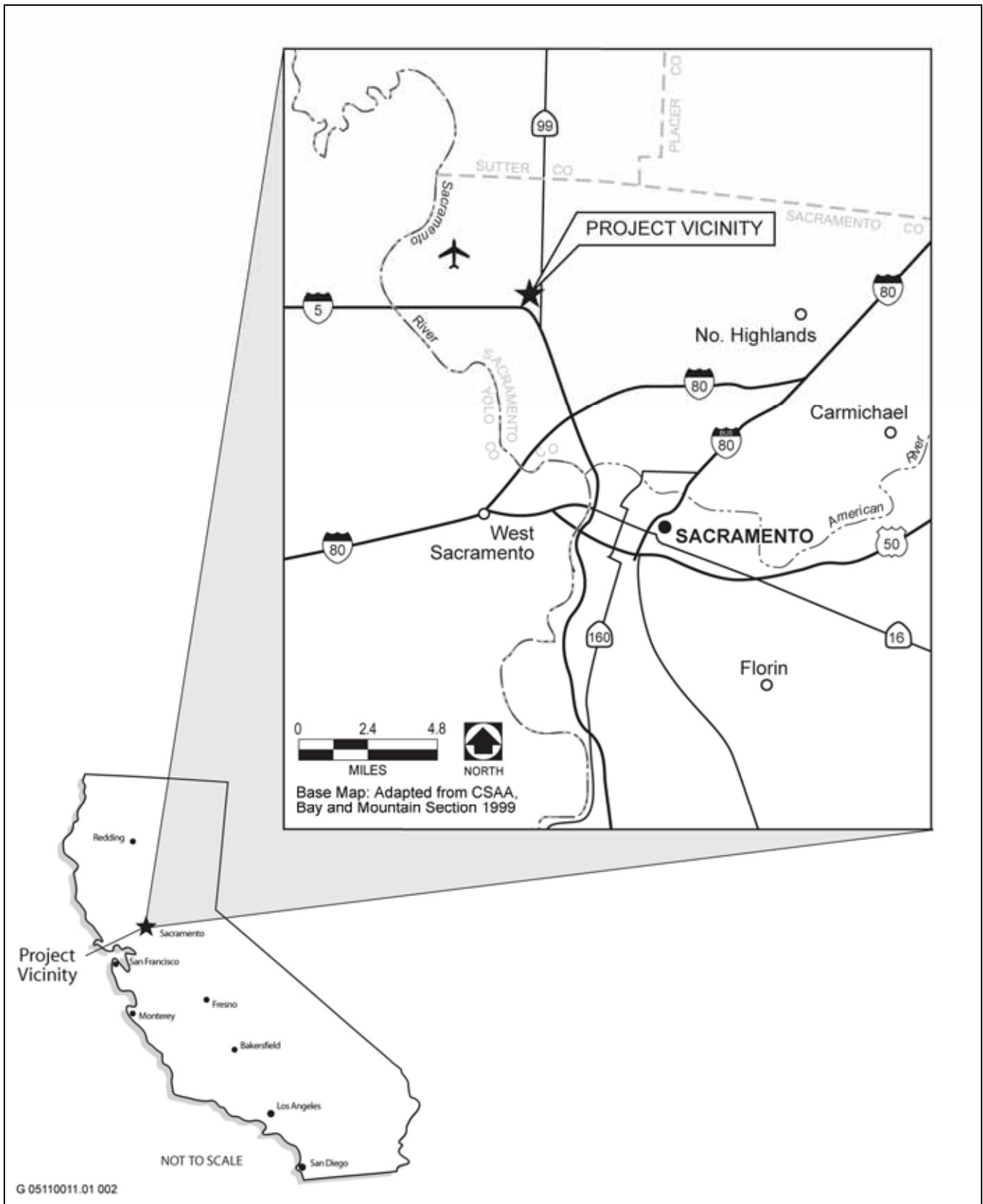
Surrounding land uses include agricultural land uses to the north and south, new residential development in the North Natomas community to the east and south, and the recently approved Metro Air Park development project to the west. The Metro Air Park development consists of proposed commercial, hotel, and recreational (i.e., golf course) land uses. The North Natomas Community Plan (NNCP) area is located adjacent to the eastern boundary of the project site across SR 70/99. Future development in the North Natomas area includes residential and commercial land uses.

The project site is located approximately 1 mile east of the Sacramento International Airport. The western two-thirds of the project site is located within the airport overflight safety zone. The airport overflight safety zone defines the area in which airplanes taking-off or landing have the greatest opportunity to fly directly over the project site.

3.3 PROJECT PURPOSE

The proposed plan, land uses, zoning, and public improvements for the project site would create a residential development that provides access to alternative modes of transportation (e.g., light rail, bicycle, walking) to on-site commercial and retail centers and to off-site employment centers. The project would provide a variety of housing types at an intensified density along with mixed-use development to promote use of alternative modes of transportation. The project's use of a grid street pattern would provide multiple access routes to destinations on-site and off-site and allow for narrower streets within residential neighborhoods.

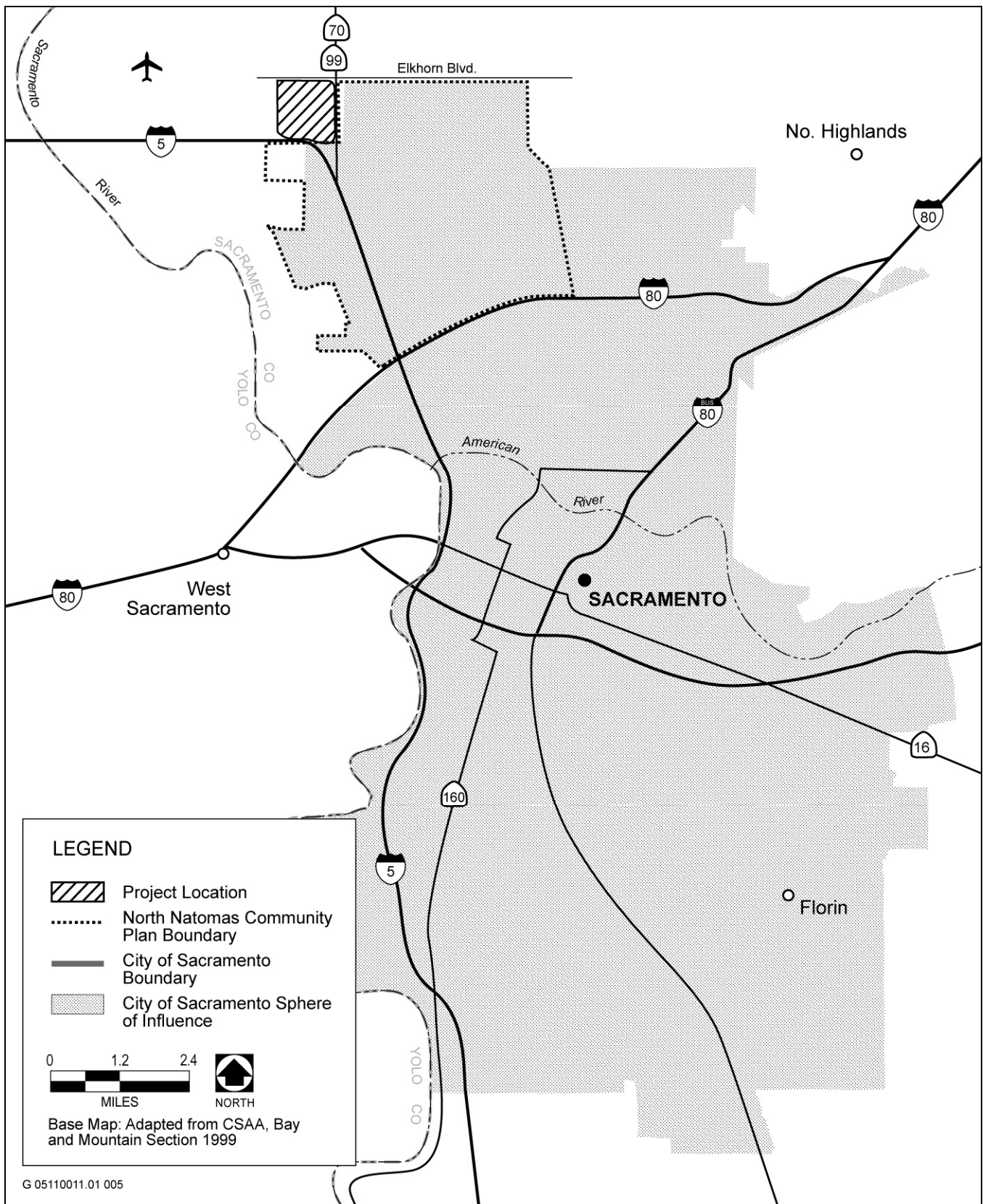
The purpose of the project is to create a mixed-use neighborhood through the development of retail and commercial uses, multi-family attached homes, and high density single-family detached homes. In addition, the project would allow for future on-site retail and commercial development in support of surrounding housing. The project also promotes the use of public transportation by incorporating a light rail station at the core of development.



Source: EDAW 2005

Project Vicinity Map

Exhibit 3-1



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Source: EDAW 2005

Project Location Map

Exhibit 3-2



Source: EDAW 2005

Aerial Map of the Project Site

Exhibit 3-3

3.4 PROJECT OBJECTIVES

The project has the following project objectives:

- ▶ create a quality residential development near the major employment centers of downtown Sacramento and Metro Air Park,
- ▶ create a transit-oriented, pedestrian-friendly development,
- ▶ provide development and land for construction of a light rail stop along the proposed Downtown-Natomas-Airport light rail line with densities that would support the feasibility of a light rail line,
- ▶ develop the project site in a manner consistent with and supportive of Sacramento Area Council of Government's (SACOG's) Blueprint plan,
- ▶ develop a project that is consistent with the Sacramento International Airport Comprehensive Land Use Plan (CLUP) to the degree feasible,
- ▶ design a project that promotes using various modes of transportation by locating high-density residential development within a quarter-mile of the proposed light rail station,
- ▶ provide vertically and horizontally mixed-use neighborhoods,
- ▶ provide neighborhood and community retail near residential development to shorten or reduce the number of vehicle trips,
- ▶ incorporate parks and open space into the project design in a manner that provides community connectivity,
- ▶ create a residential development with a variety of housing types,
- ▶ provide park and recreation opportunities within walking distance of residents,
- ▶ provide an elementary school site to serve the project's student demands,
- ▶ encourage walking and bicycle use by designing residential areas in a grid street pattern,
- ▶ make efficient use of development opportunity as the project site is bordered on three sides by existing or planned urban development,
- ▶ satisfy the requirements of the City of Sacramento's Inclusionary Housing Ordinance in part by providing an age-restricted facility (senior housing, retirement community) located near transit and other services that are affordable to very low- and low-income households, and
- ▶ ensure adequate, timely, and cost effective public services for the project
- ▶ develop and implement the project consistent with the General Plan Update Vision and Guiding Principles adopted by the City of Sacramento.

3.5 PROJECT CHARACTERISTICS

3.5.1 LAND USES

The project includes the construction of a range of housing types (e.g., high, medium, low density) that would be located within close proximity to public transportation systems (Exhibit 3-4). The proposed land use plan is a predominantly residential development centered on a common lake/detention basin (approximately 39 acres). A total of 3,473 housing units and approximately 27.5 net acres of retail and commercial space would be provided on-site. A 10-acre (net) elementary school would be provided in the southeastern portion of the project site and would meet the school demands of the project site. A total of eight neighborhood parks (48.5 net acres) would be provided throughout the community and would be connected by the central lake/detention and pedestrian paths and trails. Along with this, the project incorporates a 250-foot linear open space/buffer along the western edge of the site adjacent to Lone Tree Canal (measured from the center of the canal) for the protection of giant garter snake habitat. This area is proposed to be preserved as natural habitat and would only undergo periodic maintenance activities to ensure that the primary objective of providing quality giant garter snake habitat is preserved. No facilities (e.g., trails, paths) or other activities would occur within this corridor. Two other groundwater wells would be constructed near the lake/detention basin and would be periodically used (if at all) to maintain adequate water levels in the lake/detention basin. The project applicant would also grant an avigation easement over the project site to the Sacramento International Airport. This easement would require title notification to future residents of the project site that aircraft operations occur less than 1-mile east of the site and those occupants could be subject to increased noise levels associated with aircraft overflights.

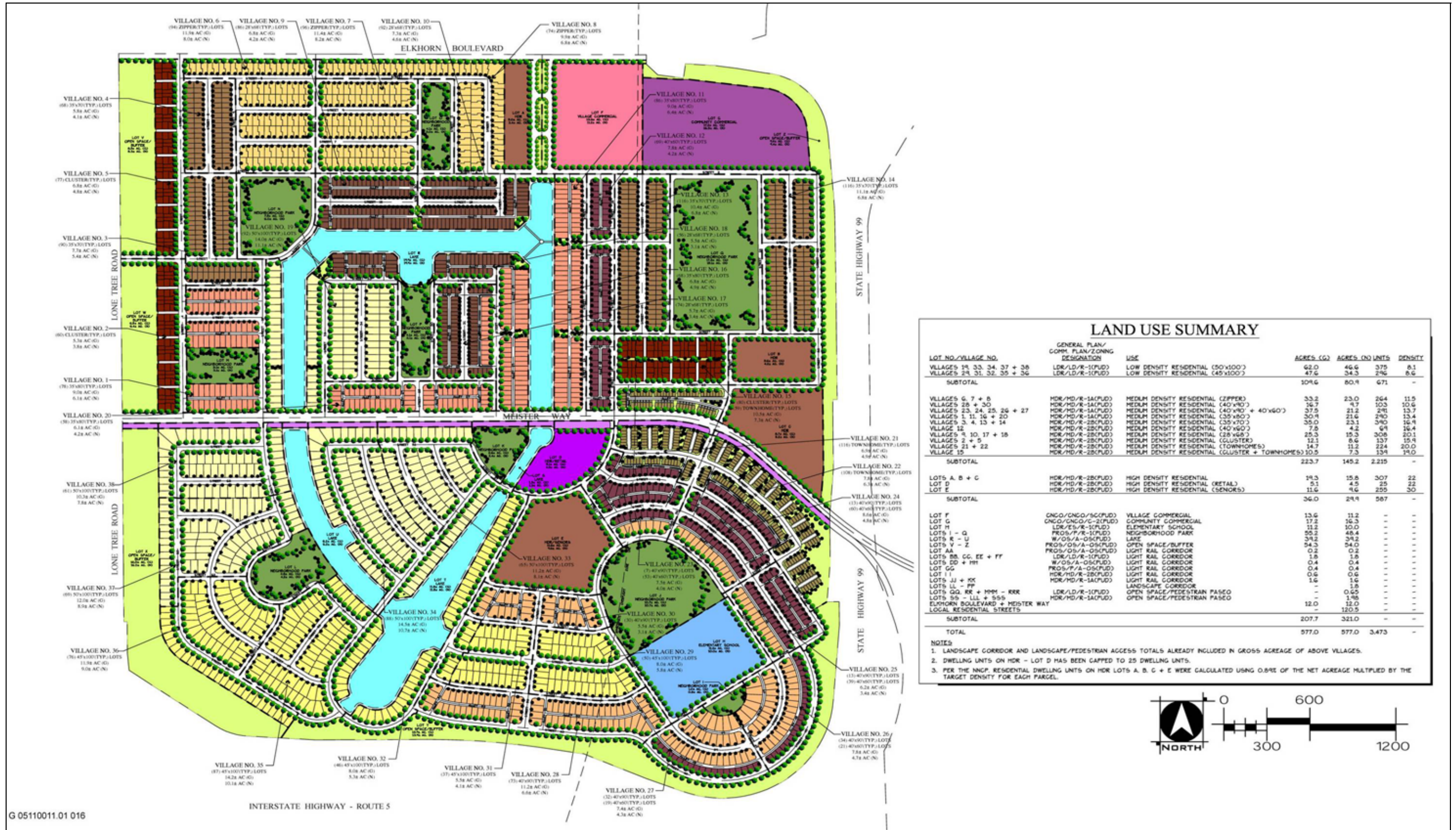
The project would also provide an age-restricted facility that provides housing for seniors and retirees to satisfy the requirements of the City's Inclusionary Housing Ordinance (Section 17.190 of City of Sacramento Zoning Code). The Inclusionary Housing Ordinance requires that 10% of housing units in new developments be affordable to very low income households and 5% of housing units affordable to low income households. Development of senior housing would create a retirement community that would serve very low and low income households and would increase the mixture of housing types within the project. The total number of housing units proposed to be developed as part of the project is shown in Table 3-1 below.

Medium and high density housing and retail land uses would be located in the center of the project site along a new arterial (Meister Way) that connects the project site to the North Natomas Community to the east via a new overpass over SR 70/99 and Metro Air Park to the west. Easements would be provided for a new light rail station to be constructed along this new roadway arterial by Sacramento Regional Transit (RT) and RT intends to provide a new light rail stop along RT's proposed Downtown-Natomas-Airport light rail line. Commercial development would be primarily located in the northeastern portion of the project site along Elkhorn Boulevard. The project includes the construction of 155,000 square feet of large-format retail uses (including a 10,000-square-foot garden center), 67,000 square feet of grocery uses, and 66,000 square feet of retail shops on the village and community commercial designated parcels (Exhibit 3-4) for a total of 288,000 square feet of commercial services.

3.5.2 ANNEXATION AND SPHERE OF INFLUENCE EXPANSION

The project site is currently located in the County of Sacramento, adjacent to and west of the corporate limits and SOI of the City of Sacramento, and outside the City of Sacramento's SOI. The applicant requests approval by the Sacramento Local Agency Formation Commission (LAFCo) for amendment of the City's SOI and annexation of the project site into the City consistent with the Memorandum of Understanding.

A variety of public services would be provided to the project site by the City and other local/regional service agencies including the Sacramento Regional County Sanitation District (SRCSD) (wastewater), City of Sacramento (water, parks and recreation, fire, and police), Reclamation District Number 1000 (RD 1000) (stormwater), Rio Linda Union School District and Grant Joint Union High School District (schools), Sacramento Police Department, and Sacramento Fire Department.



Source: Wood Rogers September 2005

Project Site Plan

Exhibit 3-4

**Table 3-1
Proposed Housing Types and Number of Units**

| Housing Type | Number of Housing Units |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Low Density | |
| 50 x 100-foot lots | 375 |
| 45 x 100-foot lots | 296 |
| Subtotal | 671 |
| Medium Density | |
| Zipper lots ^a | 264 |
| 45 x 90-foot lots | 103 |
| 40 x 90-foot + 40 x 60-foot lots | 291 |
| 35 x 80-foot lots | 290 |
| 35 x 70-foot lots | 390 |
| 40 x 60-foot lots | 69 |
| 28 x 68-foot lots | 308 |
| 10-unit Cluster | 217 |
| Townhomes | 283 |
| Subtotal | 2,215 |
| High Density | |
| Apartments | 307 |
| Senior housing | 255 |
| Mixed-use housing | 25 |
| Subtotal | 587 |
| Total Housing Units | 3,473 |
| ^a Lot design in which rear lot line moves back and forth to vary the depth of the rear yard and concentrate open space on the side of lot. Source: Data compiled by EDAW 2005 | |

The project site lies within the service area of these service providers with the exception of the SRCSD and Sacramento Police Department. The project site is adjacent to and east of the SRCSD's SOI. As such, before SRCSD can provide service to the project site, the project would require approval from LAFCo for the amendment of SRCSD's SOI to include the project site. The City would be responsible for providing law enforcement services after annexation of the project site into the city.

3.5.3 GENERAL PLAN AMENDMENT, GENERAL PLAN UPDATE, AND SACOG BLUEPRINT

The project would require the amendment of the City's existing general plan land use designations on the project site from AG-80 (agricultural cropland uses/80 acre minimum lot size) to land use designations that would be consistent with proposed land uses as described in Table 3-2. The project would also amend the boundaries of the

NNCP. The project includes the adoption of Planned Unit Development (PUD) Guidelines and the Greenbriar Finance Plan, which would guide development of the project.

| Table 3-2 Proposed City Land Use Designations and Acreages (Net) for the Project Site | | |
|--------------------------------------------------------------------------------------------------|-------------------------------------------|--------------|
| Designation | General Plan Land Use | Acres |
| LDR | Low density residential (4–15 du/ac) | 80.9 |
| MDR | Medium density residential (16–29 du /ac) | 145.2 |
| HDR | High density residential (30+ du/ac) | 29.9 |
| PROS | Neighborhood park/Open space/Buffer | 105 |
| W | Water | 39.2 |
| LDR | Elementary school | 10.0 |
| CNCO | Community/Village commercial | 27.5 |
| -- | Major and secondary roads | 12.0 |
| -- | Local Residential Streets | 120.4 |
| -- | Light Rail Corridor | 5.0 |
| -- | Landscape Corridor | 1.8 |
| Total | | 576.9 |

The project would generally be consistent with the City of Sacramento General Plan Update Vision and Guiding Principles document adopted in November 2005, and SACOG’s Seven Principles of Smart Growth used to develop the regional blueprint. The project’s compliance with these two sets of broad policy directives will be described in the Planned Unit Development Design Guidelines prepared for the project. The City will consider adoption of the Planned Unit Development Design Guidelines as one of several discretionary actions necessary to approve the project as described in Section 3.6, “Required Discretionary Actions.”

3.5.4 ZONING AMENDMENT

The project would also require a zoning amendment to change the City’s existing zoning designations for the project site from the current designation of AG-80 (agricultural cropland uses / 80 acre minimum lot size) to zoning designations that are consistent with proposed land uses as described in Table 3-3.

3.5.5 PARKS AND OPEN SPACE

The project includes several park and open space features including, greenbelt areas along I-5, SR 70/99, and Elkhorn Boulevard, a 250-foot linear open space/buffer along Lone Tree Canal (measured from the center of the canal), (western edge of the project site) for the protection of giant garter snake habitat, bike and pedestrian trails located throughout the proposed community, and 48.4 net acres of parks. A 10-acre neighborhood park would be located adjacent to the proposed elementary school in the southeast portion of the site. A total of six smaller park sites (i.e., park sites ranging from 2 to 6 acres) would be located in the eastern half of the project site north and south of Meister Way. A 23-acre community park site would be located in the northeast quadrant of the project site. Exhibit 3-4 presents the general location of the proposed park facilities; however, since preparation of this site plan, the applicant in coordination with the City of Sacramento has made minor adjustments to the park

acreages to better reflect the City’s goal for park development within the project site. These changes have been described above.

| Table 3-3 Proposed Zoning Designations and Acreages for the Project Site | | |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Designation | Land Use | Acres |
| R-1 (PUD) | <i>Low density residential/Elementary School:</i> Allows residential land uses with densities from 4–15 dwelling units per acre. Typical development will include single family detached units, duplexes, halfplexes, townhomes, condominiums, zero lot line units, and cluster units (City of Sacramento 1988). | 90.9 |
| R-1A (PUD) | <i>Medium density residential:</i> Allows multiple family dwellings with densities ranging from 16–29 dwelling units per acre. Typical development will include condominiums, garden apartments, and light density apartment uses (City of Sacramento 1988). | 86.7 |
| R-2B (PUD) | <i>High density residential:</i> Allows a mixture of residential densities along with limited commercial or office use with densities from 30 to 156 units per net acre (City of Sacramento 1988). | 88.4 |
| A-OS (PUD) | <i>Neighborhood park/Open space/Buffer/Water:</i> Allows development of neighborhood parks and open space areas consistent with the General Plan’s definition for such uses. The buffer designation allows an enhanced movement corridor for giant garter snake. The water features allow development of a lake/detention basin that would detain water on a year-round basis. | 146.0 |
| SC (PUD) | <i>Village commercial:</i> Allows development of commercial centers that are intended to serve as the focal point for two to four neighborhoods. The anchor tenant would be a grocery store and/or drug store. | 11.2 |
| C-2 (PUD) | <i>Community commercial:</i> Allows development of commercial centers that offer comparison shopping as well as convenience items. The anchor tenant would be a junior department store, large variety, or discount store. Other tenants may include specialty clothing stores, furniture or appliance stores, jewelry stores, and entertainment services. | 16.3 |
| -- | Major and secondary roads | 132.4 |
| -- | Light rail corridor | 5.0 |
| Total | | 576.9 |

3.5.6 TRANSPORTATION FACILITIES AND CIRCULATION

The project includes the construction of the Meister Way overpass over SR 70/99. This overpass would generally be located near the center of the project site and would connect the project site to the North Natomas Community east of the project site. In addition, Meister Way would be extended west of the project site once the Metro Air Park project is constructed (discussed further in Section 3.7, “Related Projects”). The proposed overpass would consist of two lanes (one lane in each direction) and pedestrian sidewalks on either side of the roadway. The overpass would extend from East Commerce Way east of the site to its first intersection within the project site. The project applicant would contribute its fair share to funding this improvement, which would ultimately be constructed under the direction of the City. Timing of construction of this improvement is linked to an increase in project trips as described in Section 4.1, “Transportation and Circulation.”

Other proposed transportation improvements would include the widening of Elkhorn Boulevard to provide adequate ingress and egress at the project site (e.g., turning lanes) and construction of an internal roadway circulation network. The project would provide automobile access to off-site locations via Elkhorn Boulevard at the northern project boundary, Lone Tree Road at the western project boundary, SR 70/99 at the eastern boundary, and Meister Way which passes through the center of the project site in an east-west direction (Exhibit 3-4). Meister Way would connect to areas east of the project site via a new roadway overpass over

SR 70/99. The overpass is an element of the proposed project and would extend from East Commerce Way east of the project site to its first intersection within the project site.

The project site is located along the proposed Downtown-Natomas-Airport light rail line and includes dedication of a corridor that could accommodate a future transit stop and light rail alignment located near the center of the project site along the proposed Meister Way roadway. The light rail station would provide public transportation access to downtown Sacramento, Sacramento Airport, and Metro Air Park.

On-site vehicle circulation would be provided by local residential streets and collector streets through each neighborhood. All roadways except for local residential neighborhood streets, including the Meister Way overpass, would include a separate bike lane (Class II). Sidewalks and green spaces would be located throughout residential neighborhoods to allow pedestrian access throughout the development and to surrounding areas. Approximately 3.9 acres of pedestrian trails would be provided around the on-site lake/detention basin.

Using Meister Way as an east-west dividing line through the project site, vehicle circulation in the northern portion of the project site is focused along a grid-pattern (no use of cul-de-sacs) of streets extending through residential neighborhoods and neighborhood parks. The northern portion has four access points along Elkhorn Boulevard and eight access points from Meister Way. The southern portion of the project site also includes a grid-pattern with streets extending through residential neighborhoods and neighborhood parks in a curvilinear form. The southern portion has three access points from Meister Way. These three access points also extend north across Meister Way to provide a connection to the northern and southern parts of the project site. The use of a grid-pattern for streets throughout the project site provides multiple access points and routes to on- and off-site areas.

3.5.7 INFRASTRUCTURE PLANS

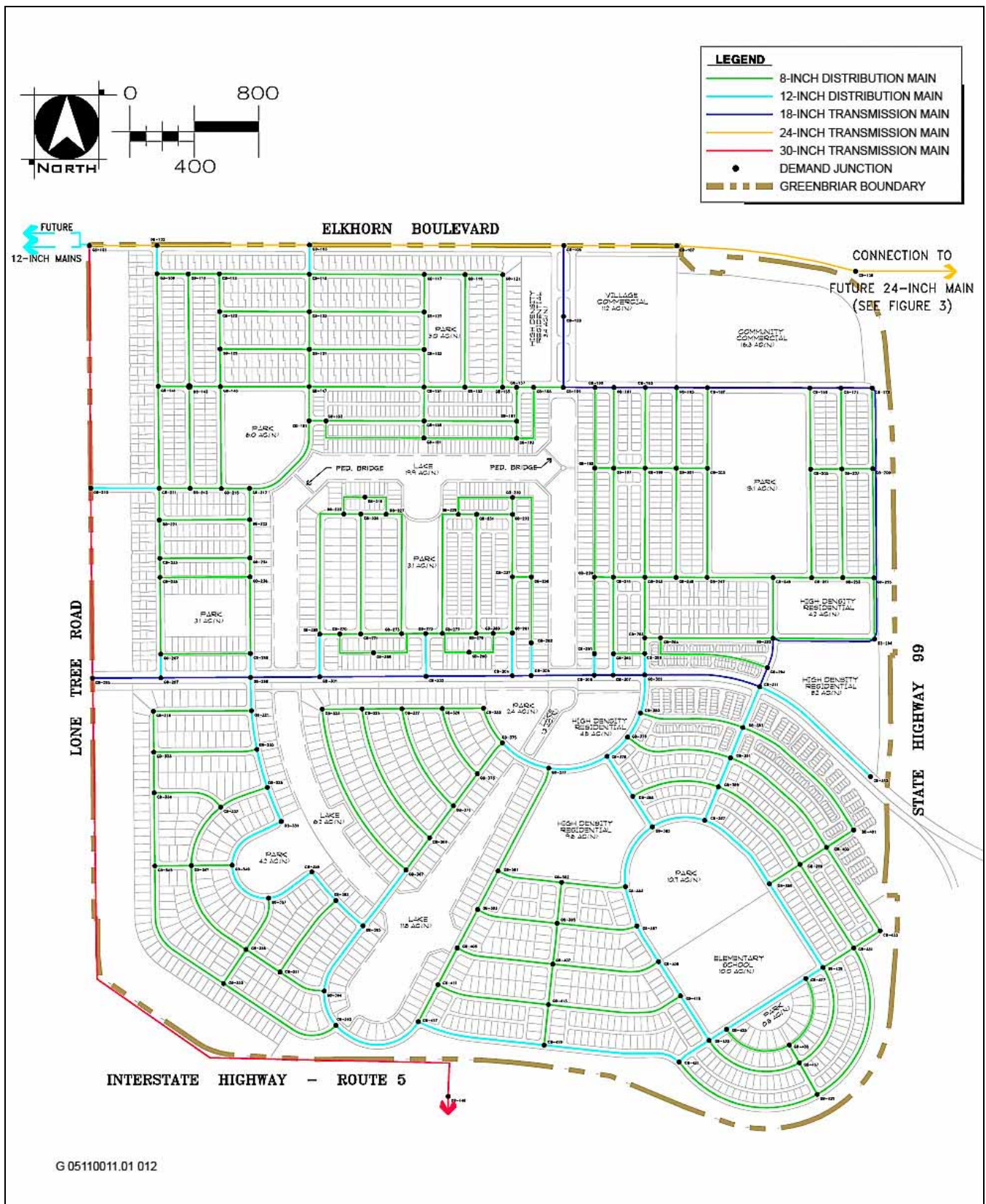
The project would include phased expansion and extension of public utility infrastructure from adjacent areas (e.g., NNCP area) to the project site. Infrastructure plans would specify the size and locations of pipelines necessary to convey potable water, wastewater (including pump and lift stations if necessary), and storm water drainage to and from the project site. In addition, locations for placing electrical infrastructure and natural gas lines would also be identified on the plans.

Water Facilities

The main water supply for the project site would be a 30-inch transmission line that would be extended from South Bayou Road (south of the project site) under I-5 (via a jack and box construction method) (Exhibit 3-5) to Elkhorn Boulevard. Additional reliability and redundancy in the water distribution system would be provided through a 24-inch transmission line that would be constructed from Natomas Boulevard and Elkhorn Boulevard (east of the project site) to the intersection of Lone Tree Road and Elkhorn Boulevard where it would connect to on-site distribution facilities. The proposed water distribution system would consist of a grid of 8-inch and 12-inch distribution mains throughout areas designated for residential land uses. An 18-inch transmission main would run under Meister Way from the western edge of the project site to the east; it would then run north between two parcels designated for high density residential land uses (near the eastern boundary), east along the boundary of the site, and would terminate at a 24-inch transmission main located in Elkhorn Boulevard. Three groundwater wells would be constructed on-site; one to periodically maintain flow in Lone Tree Canal; and two to maintain (if needed) flows within the on-site lake detention basin.

Wastewater Facilities

The project includes the construction of a gravity flow and force main wastewater collection system. Approximately one-quarter of the site would be served by a gravity flow system that would connect to the existing 33-inch North Natomas interceptor located at the terminus of Greg Thatch Circle (immediately east of the



Source: Wood Rodgers 2005

Water Distribution System

Exhibit 3-5

project site) (Exhibit 3-6). The remaining portions of the project site would be served by gravity flow to a centrally located lift station. Flows from the lift station would be conveyed by a 16-inch sewer force main that would ultimately connect to the 33-inch North Natomas Interceptor along the northwestern boundary of the property.

STORM DRAINAGE FACILITIES

The project includes the construction of an approximate 39-acre lake/detention basin. The project site would be graded to create building pads and streets that would direct drainage to the lake/detention basin. Storm drainage trunk lines within the project site would be sized from 24 to 54 inches and would convey on-site stormwater to the lake/detention basin, which would use a gravity outfall to discharge flows into the West Drainage Canal through two 78-inch reinforced concrete pipes and three 8-foot by 5-foot box culverts at the I-5 undercrossing located in the southwestern portion of the project site.

3.5.8 CONSTRUCTION PLANS

Construction activities associated with project development would include grubbing/clearing of on-site areas, excavation and relocation of soil on the site (i.e., balanced grading), backfilling and compaction of soils, construction of utilities (i.e., potable water conveyance, wastewater conveyance, storm water drainage facilities, underground electrical and natural gas facilities), and construction of proposed buildings associated with residential and commercial land uses. With the exception of proposed infrastructure connections, all construction activities would occur within the 577-acre site. Off-site infrastructure (e.g., water and sewer pipelines) construction would generally occur within existing roadways and would encompass an approximate 50-foot corridor. The Meister Way overpass and Elkhorn Boulevard improvements would also occur in existing roadway alignments. Construction equipment would vary day-to-day depending on activities occurring, but would involve operation of scrapers/earthmovers, wheeled dozers, water trucks, fork-lift, wheeled loaders, and a motor grader. A maximum of 250 workers would commute to the project site on a daily basis. Construction workers would access the site via Elkhorn Boulevard and SR 70/99. The project would be developed in two phases with Phase 1 developing land north of Meister Way and Phase 2 developing land south of Meister Way. Following initial site preparation (grubbing, clearing, grading) phase, building construction would commence. Construction of the project is anticipated to begin in spring/summer of 2007 and would last approximately 5–10 years.

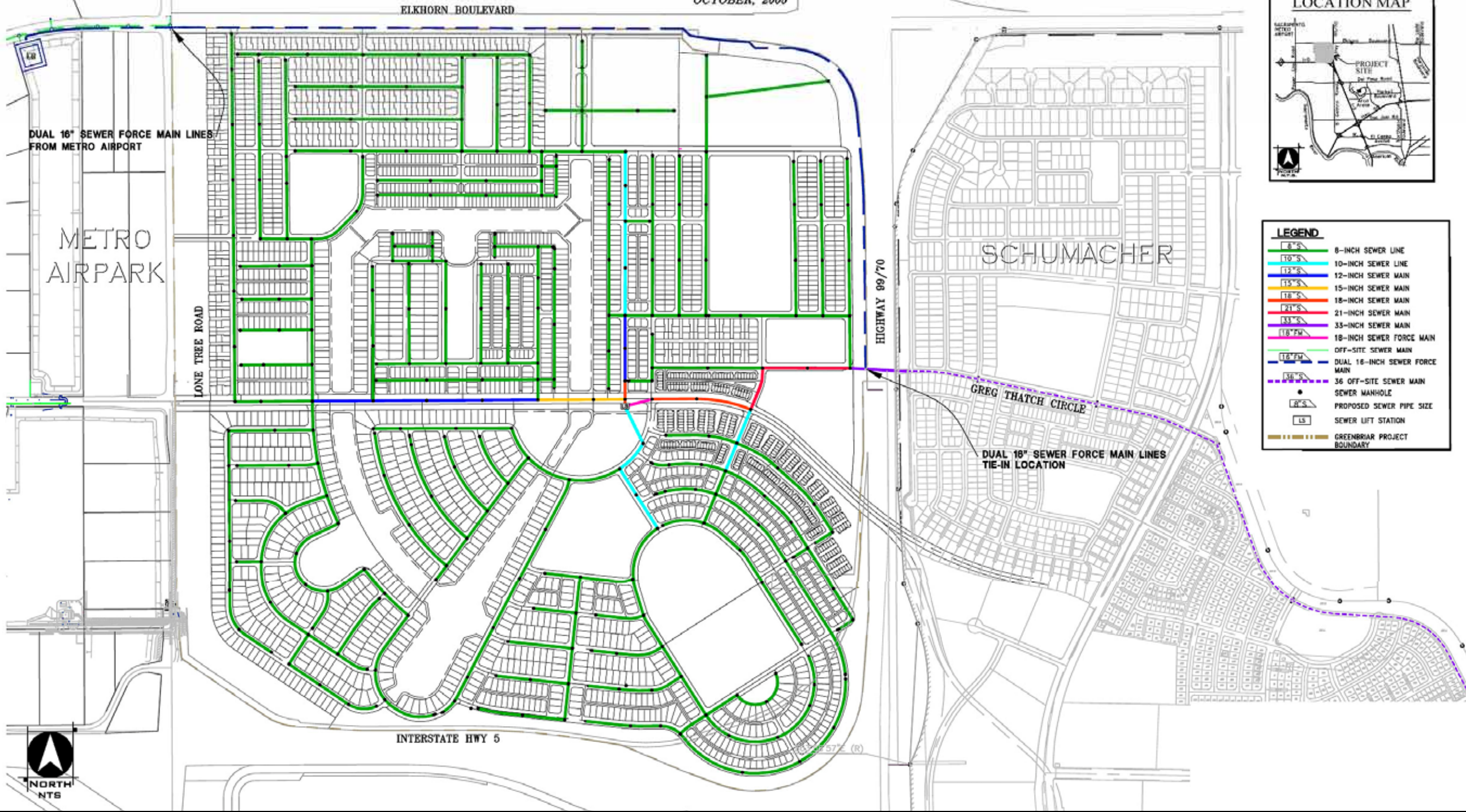
Timing of construction of the proposed Meister Way overpass would be determined based on project transportation impacts identified in Section 4.1, “Transportation and Circulation,” and through the financing plan prepared for this project, which would be prepared in consultation with the City of Sacramento. Timing for the extension of light rail service and construction of a light rail station would depend on Sacramento Regional Transit’s schedule for implementation, which is currently unknown at this time.

3.6 REQUIRED DISCRETIONARY ACTIONS

Project approval requires the lead agencies (and responsible agencies) to approve the project or project components, issue required permits, or affirm compliance with agency requirements. The Sacramento LAFCo and City of Sacramento are the co-lead agencies for the Greenbriar project. A lead agency, as defined in Section 15367 of the State CEQA Guidelines, is “the public agency that has the principal responsibility for carrying out or approving a project.” Described below is the environmental review process for the project and the discretionary actions sought by the project applicant for the Greenbriar project that the City and LAFCo will consider during its review. The City is the project applicant for LAFCo proceedings (i.e., SOIA and reorganization).

- ▶ The DEIR will be circulated for public review and comment, as described in Chapter 1, “Introduction.”
- ▶ The City will refer the project to the Sacramento County Airport Land Use Commission (ALUC) for a review of the project’s consistency with the Comprehensive Land Use Plan (CLUP).

**SEWER SYSTEM LAYOUT FOR
GREENBRIAR
CITY OF SACRAMENTO**
SACRAMENTO, CALIFORNIA
OCTOBER, 2005



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Source: Wood Rogers 2005

Wastewater Conveyance System

Exhibit 3-6

- ▶ The Sacramento LAFCo will hold a public hearing during the public review period at which time individuals and public agencies may comment on the adequacy of the DEIR.
- ▶ The ALUC will issue a consistency determination for the project.
 - If the ALUC determines that the project is inconsistent with the CLUP, the City will review ALUC's decision and will determine whether to issue a Statement of Override for ALUC's decision.
 - If a Statement of Override is issued by the City, the City will forward a notice of its decision to ALUC 45 days before the City taking action to override ALUC's decision.
 - Within 30 days of receiving the City's notice to override its consistency determination, ALUC will submit its findings to the City.
- ▶ After the close of the public review period for the DEIR, the Final EIR, consisting of all comments received on the DEIR together with responses to those comments and necessary changes to the EIR text, will be prepared and circulated to public agencies for a 10-day review period.
- ▶ After the close of the 10-day review period, LAFCo will hold a public hearing at which it will consider the adequacy of the Final EIR regarding the SOIA only, including review of written comments on the adequacy of the Final EIR response to comments on the DEIR.
- ▶ After certification of the Final EIR by LAFCo, the Commission will then consider the merits of the project as it relates to the issues of growth projections, rate of buildout, municipal service provision, and open space and prime agricultural resources in a public hearing at which time the public can comment on the merits of the SOI amendment application before LAFCo.
- ▶ Applications that LAFCo would consider for approval, conditional approval, or denial include whether to:
 - accept the Municipal Services Review for the project;
 - approve amendment of the City's Sphere of Influence (SOI) to incorporate the project site; and
 - approve amendment of the Sacramento Regional County Sanitation District's SOI to incorporate the project site.
- ▶ After LAFCo considers the SOIA and if recommendations for approval or conditional approval are made, the City of Sacramento Planning Commission will hold a public meeting at which it will consider the adequacy of the Final EIR for pre-zoning, amendment of the NNCP boundaries, and land use entitlements (e.g., general plan amendments, maps, PUD guidelines, and finance plan).
- ▶ When the Planning Commission is satisfied that the Final EIR is complete, it will recommend that the City Council certify the Final EIR as being adequate according to CEQA requirements.
- ▶ Following the Planning Commission recommendation to the City Council, the Planning Commission will then consider the merits of the project. This consideration could occur during the same meeting at which it considers the adequacy of the Final EIR. The Planning Commission will hold a public hearing at which individuals and public agencies can comment on the merits of the project, after which the Planning Commission will recommend approval, conditional approval, or denial of project applications.

- ▶ Entitlement actions under consideration by the Planning Commission during its review of the project merits will include whether to:
 - recommend approval of a pre-zone of the project site to zoning designations consistent with the proposed development plan and the City’s zoning categories;
 - recommend approval of a General Plan Amendment to amend the City land use designation of AG-80 to low-density residential, medium-density residential, high-density residential, neighborhood park/open space/buffer, water, community/village commercial;
 - recommend approval for review of project to the Sacramento LAFCo to consider approval of reorganization of the project site, annexation into the City of Sacramento, and SRCSD and detachment from Natomas FPD;
 - recommend approval for referring the project to the Sacramento City Council to consider approval of the Greenbriar Planned Unit Development Design Guidelines;
 - recommend approval of the project’s financing plan (Greenbriar Finance Plan);
 - recommend approval of the project’s SB 610 Water Supply Assessment;
 - recommend approval of large lot tentative subdivision map;
 - recommend that the City Council repeal Resolution No. 2001-518, which was adopted by the City of Sacramento on July 24, 2001 pursuant to the Agreement to Settle Litigation in the National Wildlife Federation v. Bruce Babbitt, Secretary of Interior case;
 - recommend approval of the ALUC override (if an override is determined to be necessary);
 - recommend approval of an Inclusionary Housing Plan;
 - recommend approval of small lot tentative subdivision maps; and
 - recommend approval of a development agreement for the project.
- ▶ After the Planning Commission considers the project and if recommendations for approval or conditional approval are made, the City Council would then hold a public meeting at which time it will decide whether to certify the Final EIR.
- ▶ After certification of the Final EIR, the City Council will then consider the merits of the project in a public hearing at which time the public can comment on the merits of the project and applications for project approval. The City Council will approve, give conditional approval, or deny the Greenbriar project. After approval or conditional approval of the project by the City Council, the City will adopt a Resolution to initiate the reorganization (annexation and detachment).
- ▶ After approval or conditional approval of the project by the City Council, LAFCo will hold a public meeting to consider whether to approve, conditionally approve, or deny the reorganization (annexation and detachment) of the project site to the City of Sacramento and SRCSD.
- ▶ Once all project entitlements are obtained from the City of Sacramento and LAFCo, other responsible agencies would consider the project and associated entitlements when considering permitting or other related actions. Examples of potential responsible agency actions that could be required for this project are provided in Section 1.3, “Lead and Responsible Agencies.”

3.7 RELATED PROJECTS

CEQA Guidelines Section 15130, "Discussion of Cumulative Impacts," requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. A cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The following sections discuss projects that are approved or proposed and would potentially result in environmental impacts that would contribute to cumulative conditions. See Section 7.2, "Cumulative Impacts, for Additional Analysis."

3.7.1 NORTH NATOMAS COMMUNITY PLAN

The project site is located adjacent to the North Natomas Community Plan (NNCP) area, a developing area in the northern portion of the City of Sacramento. The community plan area consists of approximately 9,000 acres. Within this area the City of Sacramento envisions the development of urban land uses consisting of residential, employment, commercial, and civic land uses that would be interdependent on local transit service and transit routes, including light rail. According to the City of Sacramento, development within the NNCP area as of September 14, 2005 includes approval of 12,162 lots for development of residential, commercial, industrial land uses; approval of 10,801 building permits; approval of 11,599 single family residential special permits; and approval of 6,003 multi-family residential special permits.

3.7.2 NORTH NATOMAS JOINT VISION AREA

The project site is located within the North Natomas Joint Vision (Joint Vision) area which is a collaborative effort between the City and County of Sacramento to develop a vision for the area of the County between the northern city limits and Sutter County. Greenbriar is located within this area. In December 2002, the City Council and County Board of Supervisors entered into a Memorandum of Understanding (MOU), which defined a set of guiding principles for the implementation of the following goals:

- ▶ proactively guide future urban growth for more efficient use of the land, while securing permanent preservation of open space/farmland at a mitigation ratio of at least one-to-one;
- ▶ improve future air quality through efficient land use, which reduces automobile travel by accommodating future growth according to Smart Growth principles adopted by City Council (Smart Growth Principles/Resolution);
- ▶ provide for revenue sharing between the City and County to prevent competition for tax revenues and promote balanced regional planning; and
- ▶ protect future airport operations.

The land use plan has not been developed, but general concepts have been considered. In general, the preferred land use scenario for the Joint Vision area consists of a mixture of residential densities, an industrial park adjacent to the eastern edge of the Sacramento International Airport, and open spaces in the northern extent separating development from the Sutter County boundary. The Joint Vision area's preferred land use scenario specifically for the project site includes the development of high density mixed residential and single-family small lot land uses. The proposed project has been designed to be consistent with this preferred land use scenario.

The Joint Vision area includes approximately 10,000 acres, including the Greenbriar project site and is located outside the City of Sacramento's SOI as established by the LAFCo Commission. The City, consistent with its planning efforts for the Joint Vision area, is reviewing the possibility of applying for LAFCo approval of an amendment to the City's SOI boundary to include the Joint Vision area. LAFCo approval of annexation of any such land areas to the City would also require LAFCo approval.

3.7.3 SACRAMENTO REGION BLUEPRINT

The Sacramento Area Council of Governments (SACOG) recently prepared the Sacramento Region Blueprint: Transportation/Land Use Study (Blueprint) (December 2004) that describes how and where the greater Sacramento region should grow, how Sacramento area residents should travel, and how growth within Sacramento affects the environment. The Blueprint process involved consideration of land use patterns throughout the six-county SACOG region (i.e., Sacramento, Placer, Yolo, Yuba, Sutter, El Dorado) and how these patterns could develop over the next 50 years if land use patterns continue along their recent historical course. The intent of the Blueprint is to support an alternative course of development throughout the region that would serve to reduce potential conversion of farmland, open space, and habitat, and provide for a more effective regional transportation system. The Blueprint provides an opportunity for the entire Sacramento region to develop detailed technical data for use by local elected leaders in making their land use decisions. SACOG will also use the Blueprint to decide what transportation projects would best serve the greater Sacramento region as it grows. Although the Blueprint suggests how land uses should develop throughout the region, it is not an adopted land use plan by any land use agencies. Further, it provides guidance to local land use agencies, including the City and County of Sacramento, for how land uses could develop in an orderly and efficient manner while meeting economic, transportation, and environmental objectives.

The Blueprint developed Preferred Scenario Maps that depict an option for how the region should grow through the year 2050 in a manner generally consistent with the Blueprint growth principles. These growth principles generally consist of providing a variety of transportation choices, offering housing choices and opportunities, taking advantage of compact development, using existing infrastructure assets, conserving natural resources, and encouraging distinctive and attractive communities with quality design.

3.7.4 CITY OF SACRAMENTO SPHERE OF INFLUENCE EXPANSION

The City of Sacramento is considering an expansion of its SOI boundary. The proposed SOI expansion would encompass approximately 10,000 acres to the north and west of the current city boundaries. This expansion would generally accommodate the boundaries of the Joint Vision areas as described above in Section 3.7.3, “North Natomas Joint Vision Area.”

3.7.5 CITY OF SACRAMENTO GENERAL PLAN UPDATE

The City of Sacramento recently initiated a comprehensive update of its General Plan. The General Plan provides guidance to City decision-makers when making determinations about the allocation of resources and the future physical form and character of development within the city. The General Plan also describes the City’s vision for the extent and types of development needed to achieve the community’s physical, economic, social, and environmental goals.

Sacramento’s existing General Plan was adopted in 1988. Various elements of the General Plan have been updated over time but the overall General Plan has not been comprehensively revised since adoption. Some of the data, analyses, and policies in the existing General Plan do not reflect current conditions in the City. As a result, the City determined that an update of the General Plan is necessary to reflect the current vision for accommodating future growth, as well as what resources to protect and how quality of life is defined, within the City of Sacramento over the next 25 years.

The City of Sacramento recently completed the Technical Background Report for the General Plan Update while the Planning Issues Report, Vision and Guiding Principles, and Land Use Alternatives continue to be drafted. The Technical Background Report is a thorough compilation of existing conditions in the General Plan Study Area including current land uses, transportation systems, environmental factors, and public facilities, and serves as the foundation for determining future land use and infrastructure needs in the City. Preparation of the Draft General

Plan itself has not begun. The Draft General Plan process will include a financing plan, an EIR, and public hearings. The Draft General Plan is scheduled to be completed sometime in late 2006 or early 2007.

3.7.6 METRO AIR PARK

Sacramento County Board of Supervisors approved a Special Planning Area (SPA) Ordinance in 1989 to allow development of Metro Air Park as a high quality, multi-district, industrial business park which follows the general intent and spirit of Metro Air Park Land Use Plan, Summary Report. Land uses allowed in the Metro Air Park include airport related uses, light manufacturing, high tech research and development, professional offices, limited support retail, and recreation. The Metro Air Park development was created to provide a balanced mix of uses that would ensure economic viability while providing an economic business environment which is complementary to the Sacramento International Airport. Metro Air Park is designed to provide a distinctive identity reflecting the relationship between its land uses to the airport, its orientation around an open space/recreation spine that accommodates drainage and wildlife needs, and its landscape and site design considerations as set forth in the Metro Air Park Landscape and Design Guidelines. The project site is located adjacent and east of Metro Air Park.

3.7.7 PANHANDLE

The Panhandle is an area of land located approximately 3 miles east of the project site in the unincorporated area of Sacramento County. The Panhandle site is bounded by Interstate 80 (I-80) to the south; Northgate Boulevard, Sorento Road, and East Levee Road to the east; Elkhorn Boulevard to the north; and Gateway Park Boulevard at the southwest corner. The Panhandle includes vacant land south of Elkhorn Road and north of Del Paso Road (approximately 595 acres) and approximately 853 acres south of Del Paso Road that is substantially built out with light industrial and office land uses. The Panhandle area is currently being considered for annexation.

The City is considering development applications for a mix of residential, commercial, park, open space, and school use on the vacant parcels between Elkhorn Road and Del Paso Road.

3.7.8 NATOMAS BASIN HABITAT CONSERVATION PLAN

The Natomas Basin Habitat Conservation Plan (HCP) was adopted by the Sacramento City Council on August 17, 1997 and updated in 2003 and allows development to continue within the existing permit and while providing for the protection of the giant garter snake and Swainson's hawk and 24 other listed or candidate threatened or endangered species. The HCP covers the entire Natomas Basin area which encompasses a total of 53,537 acres, with 11,387 acres within the City of Sacramento. The project site is located within the boundaries of the study area of the HCP. For additional details, please refer to Section 6.12, "Biological Resources."

4 ALTERNATIVES TO THE PROPOSED PROJECT

4.1 INTRODUCTION

The purpose of this chapter is to identify and describe the alternatives to the project. A summary of the comparative environmental effects of the project and the alternatives is provided in Chapter 8.

Project alternatives are intended to reduce or eliminate the potentially significant adverse environmental effects of the project while attempting to meet the project objectives. An EIR is required to contain a discussion of a reasonable range of alternatives to the project, or to the location of the project, that could feasibly attain the basic objectives of the project (State CEQA Guidelines Section 15126.6[a]). The comparative merits of the alternatives should also be presented. CEQA provides the following guidelines for considering alternatives to the project.

- ▶ The “no project” alternative shall be evaluated. If the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (State CEQA Guidelines Section 15126.6[e]).
- ▶ The discussion of alternatives shall focus on alternatives to the project or its location which are capable of eliminating significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would partially impede the attainment of the proposed objectives, or would be more costly (State CEQA Guidelines Section 15126.6[b]).
- ▶ If an alternative would cause one or more significant environmental effects in addition to those that would be caused by the project, the significant effects of the alternatives shall be discussed, but in less detail than the significant effects of the project (State CEQA Guideline Section 15126.6[d]).
- ▶ The range of alternatives required by an EIR is governed by the “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision-making and informed public participation. An EIR need not consider an alternative whose effect cannot be ascertained and whose implementation is remote and speculative (State CEQA Guidelines Section 15126.6[f]).

4.2 ALTERNATIVES EVALUATED IN THIS EIR

Several alternatives were considered at the outset of the EIR. As the environmental benefits of some of the alternatives became clear (e.g., reduced impacts to giant garter snake habitat, overflight easements), the applicant revised the project to reflect these benefits. This narrowed the number of alternatives available for consideration. Other alternatives were determined to be infeasible. Two alternatives were identified for evaluation in comparison to the project:

- ▶ **The No Project Alternative** – Continuation of Existing Land Uses (NP) assumes that existing conditions at the project site would remain.
- ▶ **The Reduced Size Alternative** – is designed to reduce the area of development on the project to reduce site specific environmental impacts including impact to biological resources, farmland, air quality, and transportation.

Each of these alternatives is described in more detail below.

4.2.1 NO PROJECT ALTERNATIVE (NP) – CONTINUATION OF EXISTING LAND USES

Under the No Project Alternative (NP), development would not occur and the project site would remain designated for agricultural use. Production of agricultural crops would continue at the project site and no new facilities would be constructed. The project site would not be annexed into the City of Sacramento; and it would remain in the unincorporated area of the County of Sacramento. The project site's current General Plan land use and zoning designations identified by the County of Sacramento would remain in effect. The Sacramento County General Plan designates the site for Agriculture, and it is zoned by the Sacramento County Zoning Code as Agricultural (Ag 80). The no project alternative would be consistent with the designated land uses for the project site but would not meet any of the project objectives.

4.2.2 DISPERSED DEVELOPMENT ALTERNATIVE

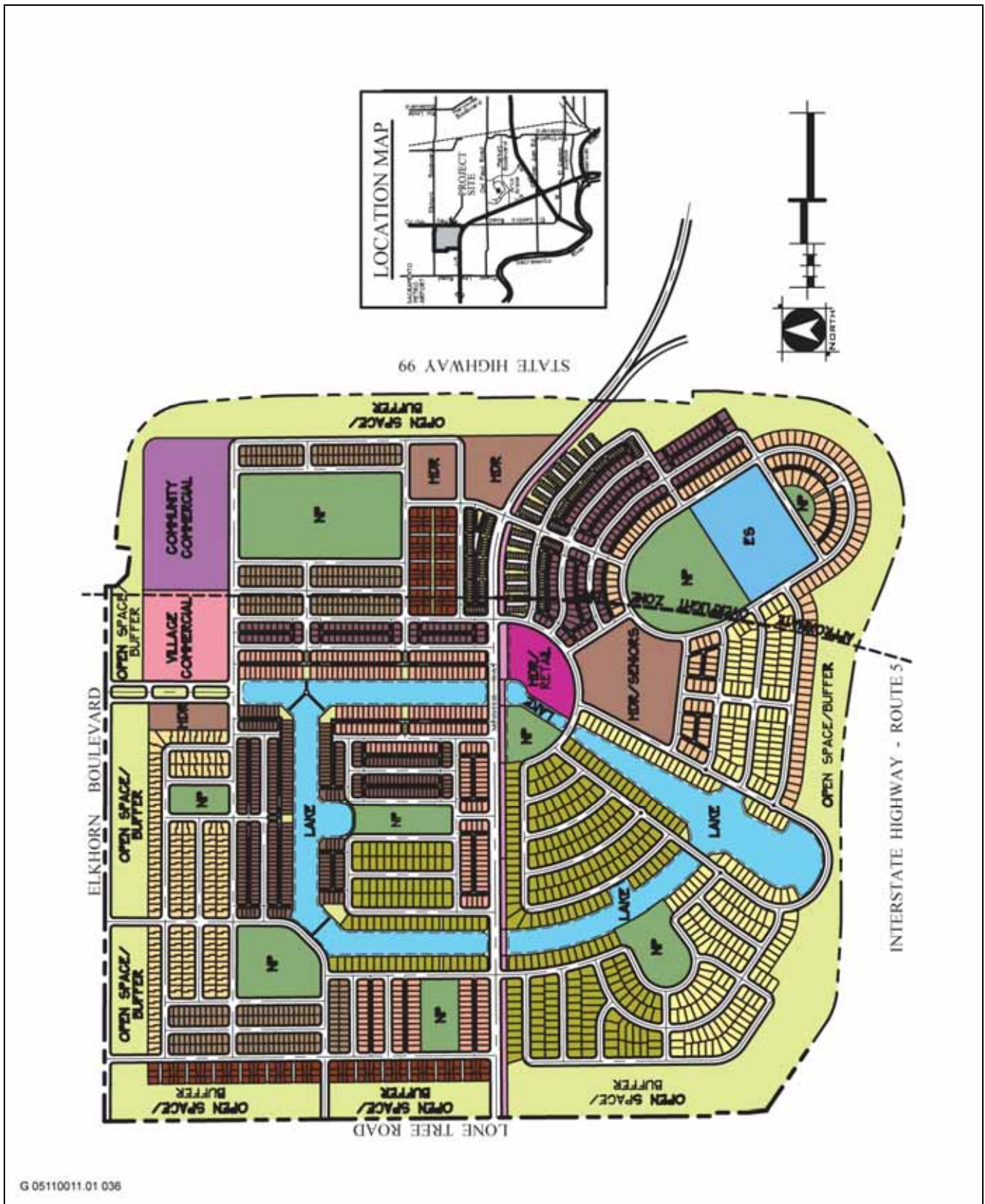
Among the findings to be considered in deliberations over the project, LAFCo will need to determine whether expansion of the City's SOI will be needed to provide adequate housing within its jurisdiction to meet projected housing demands. There are several properties designated for residential land uses within the City that are either undeveloped or under utilized such that they could be developed (or re-developed) with new residential land uses that could help the City meet its long-term housing demands. The purpose of this alternative is to consider whether existing properties within the City's SOI could support the project's proposed land uses, while at the same eliminating some of the project's significant and significant and unavoidable environmental impacts. Therefore, this alternative evaluates the comparative impacts of distributing the project's proposed housing units (i.e., 3,473) and commercial land uses (i.e., 155,000 square feet) in multiple locations on vacant or underdeveloped properties throughout the City's corporate limits and SOI boundary.

4.2.3 REDUCED SIZE ALTERNATIVE

The Reduced Size Alternative is designed to reduce the development footprint of the project to avoid one or more of the project's significant and unavoidable impacts. The project would result in significant impacts in the areas of conversion of prime farmland and open space, visual character of the project site, transportation impacts on local roadways and intersections, operational air emissions, and noise. This alternative would constrain development at the project site to a development level that may be financially infeasible to implement but would achieve most if not all of the project's objectives. Development of this alternative would be approximately 80% of proposed project levels (20% reduction in proposed development at the site). Therefore, this alternative would result in the development of 2,995 residential units and approximately 25 acres of commercial development. The remainder of the site would be undeveloped and would continue in its existing state. To reduce potential impacts to agricultural resources, sensitive biological species and habitats, and to minimize the development area that falls within the Sacramento International Airport's safety zone, development of this alternative would need to be concentrated in the eastern portion of the project site. However, mobile source air emissions and noise impacts from I-5 and SR 70/99 result in the need to locate sensitive receptors including the elementary school at a greater distance from these sources. Therefore, this alternative would need to be designed in such a way as to provided a buffer on the eastern and southern boundaries of the site. In general, this alternative would consist of a development project that would concentrate land uses in the north central portion of the site. An approximate 200–400 foot-wide buffer/open space/fallowed land area would be provided on the western, eastern, and southern boundaries of the project site (Exhibit 4-1).

4.3 ALTERNATIVES CONSIDERED AND INCORPORATED INTO THE PROJECT

During project initiation, some potentially significant environmental issues were raised during the initial scoping process for the DEIR. Other impacts were identified during preparation of the EIR, and they resulted in applicant-initiated changes to the proposed project. These potentially significant environmental issues involved potential



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Source: Wood Rodgers 2005

Reduced Size Alternative

Exhibit 4-1

impacts to giant garter snake habitat and wetland areas and noise compatibility impacts associated with aircraft operations at the Sacramento International Airport, which is located approximately 1 mile west of the project site. In initiating the preparation of the DEIR, two alternatives were considered and were to be evaluated in the DEIR at an equal level of detail as the project.

The first of these alternatives was labeled the “Reduced Impacts to Biological Resources Alternative.” The intent of this alternative was to design the project in such a way as to protect and preserve important giant garter snake habitat located at the project site, primarily along Lone Tree Canal, by developing a 250-foot linear open space/buffer (from the center of Lone Tree Canal) along the western border of the site. In consideration of this design alternative, the project applicant subsequently decided to make this proposed buffer an element of the project, thereby eliminating the need to consider this alternative in the EIR. Therefore, the project, with the proposed 250-foot buffer, has been considered throughout Chapter 6, “Environmental Analysis,” of this EIR and the resulting benefit associated with the proposed buffer was compared to baseline environmental conditions.

The second alternative that was to be considered in the EIR was labeled the “Noise Compatibility Alternative.” The intent of this alternative was to develop land uses at the project site that would be less sensitive to aircraft overflight noise associated with private and military aircraft flights arriving and departing at the Sacramento International Airport. This alternative considered a development pattern at the project site that would concentrate non-residential land uses including employment center, manufacturing, research, and development, and light industrial land uses in the portion of the project site that falls within the airport safety zone and high-density residential, retail and medium density residential land uses in the eastern portion of the project site that falls outside the airport safety zone. Through the scoping process, the Sacramento County Airports System (SCAS) commented that the land uses proposed for the project site are generally compatible with land uses allowed under the Airport Land Use Plan. Further, nuisance-related complaints from single-event noise levels associated with aircraft overflights to proposed residents could be offset through the establishment of an overflight easement over the project site, which requires that new homeowners and tenants/renters be notified through their title documents/leases that aircraft operations occur approximately 1 mile west of the site and that occupants could be subjected to noise associated with aircraft overflights.

The project applicant has agreed to implement the avigation easement and title notification to residents as an element of the project. Because the project has been proposed as a predominantly residential development consistent with objectives for the project, and because of the large area that falls within the airport safety zone (i.e., $\frac{2}{3}$ of the site), it would be infeasible for the project to re-design the plan in such a way that would continue to provide a predominantly residential community outside the airport safety zone. All feasible design and policy measures have been incorporated into the project, thereby eliminating the need to consider the alternative in the EIR.

4.4 OTHER ALTERNATIVES CONSIDERED AND REJECTED

CEQA requires that the lead agency identify any alternatives that were considered but rejected as infeasible during the scoping process, and briefly explain the reasons underlying the infeasibility determination (State CEQA Guidelines, Section 15126.6[c]). Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR is failure to meet most of the basic project objectives, infeasibility, or inability to avoid significant environmental impacts.

4.4.1 OFF-SITE ALTERNATIVE

In many EIRs, an off-site alternative is evaluated to provide a greater range of possible alternatives to consider in the decision-making process. The key question is whether an off-site alternative is available that would feasibly attain most of the basic objectives of the project, and would also avoid or substantially lessen any of the environmental effects of the project (CEQA Guidelines Section 15126.6[a]). The basic objectives of the Greenbriar project include creating a residential development located near downtown Sacramento and Metro Air

Park, as well as creating a single-family residential neighborhood that meets the growth principles established by the Sacramento Area Council of Government's (SACOG) Blueprint plan. The project is the most reasonable location to provide urban development that would support a light rail stop because it surrounds the proposed alignment for the Downtown-Natomas-Airport (DNA) light rail line. The North Natomas community is considered the most reasonable and feasible location for a potential off-site alternative because it is located within close proximity of the proposed DNA line and it is an area that supports new growth and development.

Development in the North Natomas area has occurred fairly rapidly since adoption of the NNCP in 1994 and of the properties that are currently designated for residential land uses, there is not a known site that could accommodate a development similar to the Greenbriar project (in size) that is not already being pursued for development by other property owners. Further, there are not sufficient properties available that when combined could provide sufficient area for the proposed land uses. Areas that are currently being actively pursued by other developers include the area to the south of the project site, the Panhandle area (in the eastern portion of North Natomas, north and south of Del Paso Road), the area just west of Natomas Crossing, and the area to the southeast of the junction of State Route 70/99 (SR 70/99) and Elkhorn Boulevard. These vacant properties are either currently under City review for development, or homebuilders (other than the Greenbriar property owner) are actively assembling land in anticipation of submitting a development application.

None of the undeveloped residential properties within the NNCP area are currently owned by the Greenbriar property owner. Although it may be possible for the applicant to acquire a property of a similar size or acquire an aggregate of properties that could accommodate the proposed land use within the North Natomas area, given the timing of the application and the status of development in the North Natomas area it is not reasonable to consider that the applicant would be successful in obtaining such a property and there is no site available that provides a key transit station. Further, while other property may be available outside the City limits, it would be more distant from the City and would "Leapfrog" undeveloped area, leading to undesirable land use patterns and substantial growth inducement potential. For these reasons, an off-site alternative would not be a feasible project for the applicant to implement and this alternative would create land use patterns that would be inconsistent with this vision of the City's general plan including extension of light rail service. This alternative has been rejected from further consideration.

4.4.2 BLUEPRINT ALTERNATIVE

The Sacramento Area Council of Governments (SACOG) adopted the Sacramento Region Blueprint Transportation and Land Use Study Preferred Blueprint Scenario (Blueprint) in December 2004. The Blueprint is a vision for long-term land uses within the Sacramento region, considering that substantial growth is projected within the region over the next 50 years. The Blueprint promotes compact, mixed use development, over the type of lower density, sprawling land uses that have been typical of the region in the past. The concern is that if development were to proceed along a similar pattern as in the past, it would result in the consumption of substantial open space, agricultural resources, and biological habitat, compared with more compact, land use and transportation-efficient land development. The Blueprint went so far as to suggest land uses (on a gross scale) for various lands within the region.

The Blueprint's preferred land use scenario identifies the Greenbriar site for high density mixed residential and single family small lot land uses. Existing development to the east across SR 70/99 is designated for single-family large lot and single-family small lot, and the area south of I-5 for single-family large lot, single-family small lot, public, and medium-density mixed-use center or corridor land uses. Undeveloped areas to the north are designated for medium-density and high-density mixed residential land uses with the area to the west designated for industrial land uses. The Blueprint's preferred land use scenario is to be used as a concept-level illustration of the Blueprint's growth principles, although it is not necessarily intended to be applied or implemented on a parcel level.

The Blueprint is guided by a series of smart growth principles. The following is a synopsis of these principles:

- ▶ Provide housing choice and diversity.

- ▶ Using existing assets by infilling or intensifying the use of underutilized parcels in urbanized areas.
- ▶ Create compact development.
- ▶ Incorporate public-use open space within development projects (over and above existing regulatory requirements).
- ▶ Design for quality to increase the attractiveness of living in a compact development.
- ▶ Provide mixed use developments, both vertical (mixed in one building) or horizontal (with a combination of uses in close proximity).
- ▶ Provide transportation choices to encourage people to walk, ride bicycles, ride the bus, ride light rail, take the train, or carpool.

The City of Sacramento has discretion to determine how it would implement the Blueprint’s smart growth principles in its long-term planning. For areas considered the Urban Reserve (i.e., areas designated for future urban growth beyond a 20-year planning horizon), the City determined that future growth within the Natomas Area in accordance with SACOG’s Blueprint smart growth principals could result in the development of up to approximately 44,400 housing units, approximately 4 million square feet of commercial space, and 14,600 jobs.

All of the Blueprint’s principles have been applied in the design of the proposed project. The project incorporates diverse housing types (i.e., low density, medium density, high density residential), development would be compact (i.e., maximized use space by providing medium and high density residential land uses on more than half of the site), the area of public open space is greater than required by city regulations (project provides 48.4 acres versus City requirement of 48.2 acres), and mixed uses (i.e., residential and commercial land uses on one parcel) would be accommodated on the site. In addition, the project would provide a variety of transit opportunities including walking and bicycling, and by planning for a future light rail extension and station at the project site.

Because the proposed project incorporates all of the design principles of the Blueprint, a project alternative designed to meet development patterns envisioned in the Blueprint in an alternate pattern is not needed. Based upon the guidance provided by the CEQA Guidelines (Section 15126.6(f)), it was determined that an alternative in addition to the reduced size alternative need not be developed to demonstrate the potential environmental consequences of evaluating an alternative consistent with the Blueprint. For these reasons, it was determined that the analysis of the alternatives described in Section 4.2, “Alternatives Evaluated in this EIR,” provides enough information to permit a reasoned choice between available alternatives and their comparative environmental impacts.

4.4.3 REDUCED TRAFFIC ALTERNATIVE

The reduced traffic alternative would constrain development at the project site to a level that would reduce the project’s significant and unavoidable traffic impacts at study area intersections below the City’s existing thresholds (e.g., level-of-service or delay) for these intersections. The project would result in significant and unavoidable impacts to the intersections of Elkhorn Boulevard/SR 70/99 northbound ramps, SR 70/99 southbound to I-5 southbound on-ramp, I-5 northbound to SR 70/99 northbound off-ramp, Meister Way and Metro Air Parkway, Meister Way and Lone Tree Road, and Elkhorn Boulevard and Project Streets 1, 2, and 3. These intersections will operate well over their design capacity with or without the project in most instances. No additional feasible mitigation is available to reduce impacts to these intersections because all feasible roadway improvements to these intersections were assumed or recommended as mitigation in the analysis. Even with these improvements, these intersections would continue to operate unacceptably under cumulative plus project conditions. Therefore, the only way to eliminate impacts to these intersections would be to reduce the level of development at the site such that the impact does not occur.

As described in Section 6.1, “Transportation and Circulation,” these intersections would require that Elkhorn Boulevard and Meister Way be widened above and beyond what the City has planned for and intends to do or beyond the existing available right-of-way. Development at the project site would need to be constrained to a level under cumulative conditions that would not trigger the widening of these roadways. It has been determined that development at the project site would need to be constrained to 25% of its current development level (or a 75% reduction). A project constrained to this development size (i.e., 890 residential units and 7.5 acres of commercial development) would not achieve any of the project’s objectives including creating a transit-oriented development (i.e., medium and high-density land uses) centered around a light rail station, developing a project consistent with the SACOG Blueprint, providing an elementary school (insufficient demand and funding), and would not meet the City’s goals designed to meet SACOG’s Blueprint growth principles. If development occurs but at a density substantially lower than the Blueprint considers, especially on larger project sites, such as Greenbriar, greater pressure would be exerted on other sites to accommodate future growth, thereby placing greater potential for conversion of more open space to urban uses. Further, because of infrastructure costs spread over too-few houses, a substantially lower density development would not be an economically feasible development. Because this alternative would not be feasible and would not meet the objectives of the project or the City, this alternative was rejected from further consideration.

4.4.4 REDUCED BIOLOGICAL RESOURCES ALTERNATIVE

The reduced biological resources alternative would re-organize/design on-site land uses to locate the lake/detention basin and other open space features (e.g., parks, linear open space/buffer) along the western edge of the project site adjacent to Lone Tree Canal. The purpose of the proposed changes would be to eliminate potential urban encroachment impacts on giant garter snake and its habitat. This alternative would provide a wider buffer between urban land uses and the habitat along Lone Tree Canal. As discussed in Section 6.12, “Biological Resources,” the project’s impacts to giant garter snake and its habitat would be reduced to a less-than-significant level through implementation of a recommended conservation strategy that would maintain a linear open space/buffer (i.e., 250-feet from the center of the canal) along Lone Tree Canal to allow snake passage and would preserve and enhance additional off-site lands in accordance with mitigation ratios established by the North Natomas Habitat Conservation Plan.

Development of this alternative would result in placement of the on-site lake/detention basin closer to the airport runways at the Sacramento International Airport, which could increase the potential hazards associated with aircraft bird strikes compared to the hazards associated with the project because the project could create a flyway for birds that is in closer proximity to the airport. Because no significant and unavoidable biological impacts would occur with the project (as this alternative was designed to reduce potential biological impacts) and this alternative could increase potential hazards associated with aircraft bird strikes, this alternative was rejected from further consideration.

5 PROJECT CONSISTENCY WITH PLANS AND POLICIES

5.1 INTRODUCTION

This chapter provides information on the land use policies and designations applicable to the project. The project would include annexation to the City of Sacramento, expansion of the City of Sacramento's Sphere of Influence (SOI), expansion of the Sacramento Regional County Sanitation District's (SRCSD) SOI, expansion of the Sacramento County Sanitation District 1 (CSD-1) SOI, and amendment of the boundary of the NNCP area. The project would be a special planning area within the NNCP area subject to its own Planned Unit Development (PUD) guidelines. This chapter includes an assessment of the consistency of the Greenbriar project with applicable General Plan policies; the Policies, Standards and Procedures for the Sacramento Local Agency Formation Commission (LAFCo); the City/County Joint Vision (Joint Vision) Plan Memorandum of Understanding (2002); and SACOG's Sacramento Region Blueprint.

Discussion in this chapter differs from the technical issue chapters of the EIR. In this chapter, consistencies and inconsistencies with existing and proposed local land use plans and policies are identified and addressed. This chapter complies with Section 15125(d) of the CEQA Guidelines, which directs all EIRs to discuss any inconsistencies between a proposed project and applicable general plans and regional plans. This chapter does not identify or address environmental impacts or mitigation measures. Physical environmental impacts that could result from the proposed project are addressed in Chapter 6 of this EIR.

5.2 EXISTING LAND USE SETTING

5.2.1 EXISTING PROJECT SITE LAND USES

The 577-acre project site is located in unincorporated Sacramento County adjacent to the western boundary of the City of Sacramento. The site is within the southwestern region of the Natomas Basin. The project site is undeveloped and has recently been under agricultural production. The site is located at the northwest intersection of State Route 70/99 (SR 70/99) and Interstate 5 (I-5) and immediately south of Elkhorn Boulevard. The site is adjacent to existing agricultural uses to the north and west and single-family residential developments to the south across I-5 and to the east across SR 70/99. The site is immediately adjacent to and west of the existing NNCP area and west of the approved Metro Air Parkway development.

5.2.2 LAND USES IN THE NORTH NATOMAS AREA

The North Natomas Community Plan area is located in the northwest portion of the City of Sacramento and is part of the greater Natomas Basin. The North Natomas community is bound by Elkhorn Boulevard on the north, Interstate 80 (I-80) on the south, the Natomas East Main Drain canal on the east and the West Main Drain canal and SR 70/99 on the west. According to the North Natomas Nexus Study Update (City of Sacramento 2002), 4,228 acres have been identified as "developable" in the NNCP area. In 1993, the primary land use in the NNCP area was agriculture. Since that time, the NNCP was adopted in 1994 and land uses have been rapidly converting to urban uses. The project is not within the NNCP but the boundaries will be amended to include the project. The project will not be subject to the NNCP policies but will be designated as a special planning area (SPA).

5.3 ADOPTED PLANS AND APPLICABLE POLICIES

5.3.1 CITY OF SACRAMENTO GENERAL PLAN

The City of Sacramento's General Plan is a 20-year (1986–2006) policy guide for physical, economic, and environmental growth and renewal of the city. The City's General Plan contains goals, policies, programs, and

actions that were based on an assessment of community needs and available resources. The General Plan covers the existing area of Sacramento and nearby portions of Yolo and Sacramento counties. The City is currently in the process of updating the General Plan which includes a reevaluation of land uses within areas of opportunity for reuse and incorporation of the City's community plans, such as the NNCP, as chapters into the General Plan. The project would amend the boundaries of the NNCP; however, policies within the NNCP are not applicable to the project because the project includes planned unit development (PUD) guidelines and a separate finance plan (Appendix C) that would guide development in the project site. The following are the policies in the current City of Sacramento General Plan that are applicable to the Greenbriar project.

CIRCULATION

- ▶ The City of Sacramento specifies Level of Service (LOS) C as the minimum acceptable level of service standard for the intersections that fall under its jurisdiction (Goal D – Streets and Road).
- ▶ Require major employment centers (50 or more total employees) to install showers, lockers, and secure parking areas for bicyclists as part of any entitlement (Goal A, Policy 2 – Bikeways).
- ▶ Promote a well designed and heavily patronized light rail and transit system (Goal A – Transit).
- ▶ Provide transit service in newly developing areas at locations that support its highest usage (Goal A, Policy 1 – Transit).
- ▶ Provide adequate off-street parking for new development and reduce the impact of in-street parking in established areas (Goal A – Parking).
- ▶ Require new subdivisions and planned unit developments to have safe walkways that provide direct links between streets and major destinations such as bus stops, schools, parks, and shopping centers (Goal A, Policy 1 – Pedestrian Ways).

NOISE

- ▶ An acoustical report shall be required for any project which would be exposed to noise levels in excess of those shown as normally acceptable in Figure 3 (Table 6.3-8 of this EIR). The contents of the acoustical report shall be as described in the Noise Assessment Report Guidelines. No acoustical report shall be required where City staff has an existing residential report on file which is applicable (Goal A, Policy 1).
- ▶ Mitigation measures shall be provided to reduce noise exposure to the “Normally Acceptable Levels” in Figure 3 (Table 6.3-8 of this EIR), except where such measures are not feasible (Goal A, Policy 2).
- ▶ Land uses proposed where the exterior noise level would be below the “Normally Acceptable Levels” may be approved without any requirement for interior or exterior mitigation measures (Goal A, Policy 3).
- ▶ Enforce the Sacramento Noise Ordinance [i.e., Noise Control Standards] as the method to control noise from sources other than transportation sources (Goal C, Policy 2).

PUBLIC FACILITIES AND SERVICES

- ▶ Encourage private development of recreational facilities that complement and supplement the public recreational system (Goal A, Policy 1 – Parks and Recreation Services).
- ▶ Encourage joint development of parks with compatible uses such as schools, libraries and detention basins (Goal A, Policy 3 – Parks and Recreation Services).

- ▶ Design parks to enhance and preserve the natural site characteristics and environmental values (Goal A, Policy 5 – Parks and Recreation Services).
- ▶ Locate community and regional parks and linear recreational areas on or adjacent to major thoroughfares (Goal A, Policy 7 – Parks and Recreation Services).
- ▶ Ensure that all drainage facilities are adequately sized and constructed to accommodate the projected increase in stormwater runoff from urbanization (Goal A, Policy 1 – Drainage).
- ▶ Require the private sector to form assessment districts and/or utilize other funding mechanisms to cover the cost of providing drainage facilities (Goal A, Policy 4 – Drainage).
- ▶ Continue to support all efforts directed at providing the best fire protection services at the least cost. (Goal A, Policy 1 – Fire Service)
- ▶ Ensure that adequate water supplies are available for fire-fighting equipment in newly developing areas. (Goal A, Policy 2 – Fire Service).
- ▶ Promote greater coordination of land use development proposals with the Fire Department in order to ensure adequate on-site fire protection provisions. (Goal A, Policy 4 – Fire Service).
- ▶ Continue Police Department participation in the review of subdivision proposals and in assisting the Public Works department with traffic matters. (Goal A, Policy 1 – Police Service).
- ▶ Provide water service meeting or exceeding State and federal regulatory agency requirements (Goal A, Policy 1 – Water).

HEALTH AND SAFETY

- ▶ Prohibit construction of structures for permanent occupancy across faults, should any be designated (Goal A, Policy 1 – Seismic Safety).
- ▶ 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 (Goal A, Policy 2 – Seismic Safety).
- ▶ Continue to implement the Uniform Building Code requirements that recognize State and federal earthquake protection standards in the construction or repair of buildings (Goal A, Policy 3 – Seismic Safety).
- ▶ Cooperate with and encourage the federal, State, and other local jurisdictions to investigate seismic and other hazards and to develop mitigation measures (Goal A, Policy 7 – Seismic Safety).
- ▶ Prohibit development of areas subject to unreasonable risk of flooding unless measures can be implemented to eliminate or reduce the risk of flooding (Goal A, Policy 1 – Flood Hazards).

URBAN GROWTH

- ▶ Approve development in the City’s new growth areas that promotes efficient growth patterns and public service extensions, and is compatible with adjacent developments (Policy 4 – New Growth Areas).
- ▶ Work with LAFCo to adjust the SOI to be in conformity with the City’s adopted annexation policy (Policy 7 – New Growth Areas).

CONSERVATION AND OPEN SPACE

- ▶ Retain land inside the City for agricultural use until need arises for development, and support actions of Sacramento County to similarly conserve its land until needed for urban growth (Goal A).
- ▶ Phase the conversion of agricultural land to urban uses while implementing the policies of the North Natomas Community Plan (Goal, A, Policy 1).
- ▶ Work with Sacramento County to explore the feasibility of an agricultural preservation plan (Goal A, Policy 2).

5.3.2 SACRAMENTO LAFCO POLICIES, STANDARDS, AND PROCEDURES

LAFCo is charged with applying the policies and provisions of the Cortese-Knox-Hertzberg Local Government Reorganization Act (reorganized and amended by Legislation enacted in 2000) to its decisions regarding annexations, incorporations, reorganizations, and other changes in government organization. The Sacramento County LAFCo Policies, Standards and Procedures (LAFCo 1990 and revised 1993) were adopted pursuant to the authority contained in the 1985 Cortese-Knox Act to assist in carrying out its provisions.

LAFCo's are intra-local agencies that were created by State legislation to ensure that changes in governmental organization occur in a manner that provides efficient and quality services and preserves open space land resources. In 1963, the State Legislature established LAFCo's in each county and gave them regulatory authority over local agency boundary changes. In the 1970s, the Legislature recognized the connection between decisions concerning governmental organization and the issues of urban sprawl and loss of prime agricultural land. In response to these concerns, LAFCo's were charged with implementing changes in governmental organization in a manner that preserves agricultural and open space land resources, as well as provides the delivery of services. In 2000, the Cortese-Knox-Hertzberg Act was further amended as a result of Assembly Bill 2838.

The following are the Sacramento County LAFCo standards that are applicable to the Greenbriar project.

SPHERES OF INFLUENCE

- ▶ The Sphere of Influence Master Service Element must be current before additions to a SOI will be approved by LAFCo. Amendment proposals must be consistent with an updated Sphere of Influence Master Services Element (LAFCo Standards, pgs. IV-2 and V-11). The LAFCo standards provide the specific content requirements of a Master Service Element.
- ▶ Amendment proposals involving Sphere expansion that contains prime agricultural land will not be approved by the LAFCo if there is sufficient alternative land available for annexation within the existing SOI (LAFCo Standards, pg. V-12).

CONFORMANCE WITH APPLICABLE GENERAL AND SPECIFIC PLAN

- ▶ LAFCo will approve changes of organization or reorganization only if the proposal is consistent with the General Plan and relevant Specific Plans of the applicable planning jurisdiction. For annexation to a city, the applicable jurisdiction is the city to which annexation is proposed. The governing body of the applicable planning jurisdiction shall recommend by resolution whether the proposal meets all applicable consistency requirements of State law. LAFCo shall retain discretion to determine consistency pursuant to its jurisdiction (LAFCo Standards, pgs. IV-2 and IV-3).

AGRICULTURAL LAND CONSERVATION

- ▶ LAFCo will approve a change of organization or reorganization that will result in the conversion of prime agricultural land in open space use to other uses only if the Commission finds that the proposal will lead to the planned, orderly, and efficient development of an area. For purposes of this standard, a proposal leads to the planned, orderly, and efficient development of an area only if all of the following criteria are met:
 - The land subject to the change of organization or reorganization is contiguous to either lands developed within an urban use or lands that have received all discretionary approvals for urban development.
 - The proposed development of the subject lands is consistent with the Spheres of Influence Plan, including the Master Services Element of the affected agency or agencies.
 - Development of all or a substantial portion of the subject land is likely to occur within 5 years. In the case of very large developments, annexation should be phased wherever feasible. If the Commission finds phasing infeasible for specific reasons, it may approve annexation if all or a substantial portion of the subject land is likely to develop within a reasonable period of time.
 - Insufficient vacant nonprime lands exist within the applicable Spheres of Influence that are planned, accessible, and developable for the same general type of use.
 - The proposal will have no significant adverse effect on the physical and economic integrity of other agricultural lands. In making this determination, LAFCo will consider the following factors: (1) the agricultural significance of the subject and adjacent areas relative to other agricultural lands in the region; (2) the use of the subject and adjacent areas; (3) whether public facilities related to the proposal would be sized or situated so as to facilitate the conversion of adjacent or nearby agricultural land, or will be extended through or adjacent to, any other agricultural lands that lie between the project site and existing facilities; (4) whether natural or human-made barriers serve to buffer adjacent or nearby agricultural land from the effects of the proposed development; (5) applicable provisions of the General Plan open space and land use elements, applicable growth-management policies, or other statutory provisions designated to protect agriculture (LAFCo Standards, pgs. IV-5 and IV-6).

PUBLIC FACILITIES AND SERVICES

- ▶ “The annexation must be consistent with the applicable Master Service Elements. An annexation ... shall be approved only if the services element of the Spheres of Influence Plan of the affected agency or agencies demonstrates that adequate services will be provided within the time frame needed by the inhabitants of the annexed ... area.” Proposed annexations for land areas that lie outside of the current and next five-year increments of projected service delivery in the services element are presumed not to comply with this standard unless the applicant clearly establishes that special and unique circumstances exist which ensure the provision of quality services during the applicable time frame for the affected area consistent with the other standards. (Section I, Standard Number 4).
- ▶ “The annexation must provide the lowest cost and highest quality of urban services for the affected population. LAFCo will approve an annexation ... only if the Commission determines that the annexing agency possesses the capability to provide the most efficient delivery of applicable urban services for the affected population.” (Section I, Standard Number 5).

5.3.3 CITY AND COUNTY OF SACRAMENTO NORTH NATOMAS JOINT VISION PLAN

In the late 1990s, the City and County of Sacramento were each considering projects that would urbanize a substantial portion of the Natomas Basin north of the city limits, including the Greenbriar site. Both jurisdictions

determined that it would be mutually beneficial to plan the area cooperatively. Starting in 2001, City and County staff met to discuss a process for planning the unincorporated Natomas area. This gave rise to the proposal to develop the City/County Joint Vision Plan. The two jurisdictions coordinated and along with input from stakeholders created the basic principles for development in the area. On December 10, 2002, the Sacramento City Council and the County Board of Supervisors approved a Memorandum of Understanding (MOU) that outlined a Joint Vision for land use and revenue sharing principles for Natomas. The MOU recognizes the City as the agent of development and the County as the agent of permanent open space protection, including farmlands and habitat.

The County and City agreed to the following applicable principles through the Memorandum of Understanding (MOU) (City of Sacramento, County of Sacramento 2002). The MOU expresses the County's and City's desires for development within the Natomas Basin, but it does not provide binding land use policies for either agency. Areas for potential development were identified, but land use designations were not adopted.

OPEN SPACE

1. Open space planning will rely on, and coordinate with, existing open space programs and will address linkage issues. Some specific areas will be designated for preservation as permanent open space to provide assurance that community separators are implemented. Other areas, such as west of Sacramento International Airport, may not require active preservation because of specific constraints related to inadequate infrastructure or public ownership.
2. Open space mitigation may be in conjunction with or distinct from any applicable criteria of the Natomas Basin Habitat Conservation Plan (NBHCP) and may, depending upon circumstances, exceed that of the NBHCP. A joint funding mechanism will provide funding for land and easement acquisitions.
3. Land to be preserved as farmland must not be restricted by nearby development and needs to have a secure supply of affordable water. Buffer areas will be derived from developing lands.

FUTURE GROWTH

1. Consideration of new growth should be done in partnership with the preservation of open space. The urban form should include a well-integrated mixture of residential, employment, commercial, and civic uses, interdependent on quality transit service with connections linking activity centers with streets, transit routes, and linear parkways with pedestrian/bike trails.
2. The City is the appropriate agent for planning new growth in Natomas. The County is the appropriate agent for preserving open space, agricultural, and rural land uses.
3. The County will preserve its interest in the planning and development of Sacramento International Airport and Metro Airpark.
4. New growth will be supportive of the City's Infill Strategy. It will contribute to the sustainability of established neighborhoods/commercial corridors/business districts.
5. Development in Natomas will build on the vision of the currently planned growth in North Natomas, including the application of the City Council-adopted (Resolution No. 2001-805) Smart Growth Principles.
6. Future growth areas shall foster development patterns that achieve a whole and complete, mixed-use community.

7. The City, as the agent of development, will apply the adopted Smart Growth Principles to any new development in Natomas. Smart Growth Principles emphasize pedestrian and transit orientation by addressing density, efficient design, and urban open space to provide sustainable, livable communities with fewer impacts than standard development.

The open space principles provide an agreement regarding the size, location, and nature of open space preservation areas within the Natomas area. The future growth principles provide a vision of the location, size, and nature of future growth within the Natomas area. Regarding open space, the City and County have agreed to implement a principle that would require new development to preserve permanent open space in the Natomas area at a mitigation ratio of 1 acre of lost open space to 1 acre of preserved open space.

5.3.4 SACOG BLUEPRINT

As described in Chapter 4, SACOG adopted the Sacramento Region Blueprint Transportation and Land Use Study Preferred Blueprint Scenario (Blueprint) in December 2004. The Blueprint is a vision for growth that promotes compact, mixed-use development and more transit choices as an alternative to low-density development. The essential purpose is to consider how the region will develop over the next 50 years and to promote land use patterns that consume less land, conserving more farmland and habitat (considered on a regional basis), and provide for a more efficient transportation system. It expresses principles for agencies to consider in their planning for long-term development, but does not bind any of the agencies to implement the Blueprint. The Blueprint is guided by a series of smart growth principles which include the following:

- ▶ Provide housing choice and diversity.
- ▶ Use existing assets by infilling or intensifying the use of underutilized parcels in urbanized areas.
- ▶ Create compact development.
- ▶ Incorporate public-use open space within development projects (over and above existing regulatory requirements).
- ▶ Design for quality to increase the attractiveness of living in a compact development.
- ▶ Provide mixed-use developments, both vertical (mixed in one building) or horizontal (with a combination of uses in close proximity).
- ▶ Provide transportation choices to encourage people to walk, ride bicycles, ride the bus, ride light rail, take the train, or carpool.

The Blueprint's preferred land use scenario identifies the Greenbriar project site for high density residential and single family small lot development. Existing development to the east is designated for single family large lot and single family small lot development including a new light-rail stop. The area south of the project site is identified for medium density mixed-use center or corridor, public, single family large lot, and single family small lot development. However, the Blueprint's preferred land use scenario is to be used as a concept-level illustration of the Blueprint's growth principles, although it is not necessarily intended to be applied or implemented on a parcel-level. Such decisions are left to the local planning jurisdiction, in this case the City of Sacramento. However, the more local agencies apply the land use suggestions of the Blueprint, the greater the opportunity for accommodation of population growth pressures while preserving regional assets.

5.4 CONSISTENCY WITH PLANS AND POLICIES

5.4.1 CONSISTENCY WITH THE SACRAMENTO COUNTY GENERAL PLAN

LAND USE

Implementation of the project would require annexation of the project site into the City of Sacramento. For this reason, the majority of Sacramento County General Plan policies would not apply, except for policies associated specifically with the consideration of annexation proposals.

Policy LU-71 of the County's General Plan states that the County would only advocate annexations which, "ensure provisions and demonstrate maintenance for adequate municipal services; are consistent with state law and LAFCo standards and criteria; provide for equitable distribution, based on region-wide analysis, of social services and low income needs; are consistent with General Plan and Community Plan policies; and preserve community identity" (County of Sacramento 1993).

The Greenbriar project includes development of a project-specific PUD guidelines and financing plan. The financing plan would establish the funding mechanisms necessary to fund public facility expansions and/or extensions. Sections 6.4, "Utilities," and 6.5, "Public Services," of this EIR describe specifically how utilities and public services would be provided to the Greenbriar project. As described therein, provisions would be made to ensure adequate funding, installation, and maintenance of utilities and public services to serve the project.

LAFCo would approve changes of organization or reorganization if the proposal is consistent with the applicable plans of the applicable jurisdiction (LAFCo Standards, pgs IV-2 and IV-3). In this case, the project would need to demonstrate consistency with the City of Sacramento General Plan. The project's consistency with the policies associated with this plan is discussed in the following sections.

The project would preserve community identities as identified in the Sacramento County General Plan objectives, which include creating a logical extension of adjacent neighborhoods such as residential development located east and south of the project site and by creating a neighborhood that provides a mix of housing densities and types throughout the NNCP area.

5.4.2 CONSISTENCY WITH THE CITY OF SACRAMENTO GENERAL PLAN

CIRCULATION

The City has adopted the goal of maintaining LOS C as the minimum acceptable level of service standard for intersections that fall within its jurisdiction. Section 6.1, "Transportation and Circulation," provides a detailed analysis of the project's impacts to the local and regional roadway system. As described therein, where the project would result in impacts to the City's intersections, mitigation has been recommended, where feasible, to reduce these impacts. However, several intersections within the City would operate over their design capacity with or without the project. No additional mitigation is available to reduce these impacts. Because these intersections would operate unacceptably without the project, the project would not be the sole cause for these intersections to operate unacceptably. Further, while it is a goal for the City to maintain LOS C at intersections within its jurisdiction, the City does not prohibit any intersection from operating below LOS C. The City in its review of the project will need to determine whether the operation of local roadways near the project site below LOS C is acceptable and consistent with how it intends to implement its policies.

The City promotes the development of well designed and patronized light rail system (Goal A – Transit) and that new developments provide transit service at locations that support its highest usage (Goal A, Policy 1 – Transit). The project includes the dedication of land for a new light rail station and alignment that would be a critical component of the Sacramento Regional Transportation District's (SRTD) Downtown-Natomas-Aiport (DNA)

light rail line. Further, staff of SRTD have indicated (during public testimony at a LAFCo hearing) that the proposed light rail station supported by the proposed land use densities is critical to ensure the success of the light rail station and fund its implementation (Scott 2005). Therefore, the project would be consistent with these policies.

The City requires that adequate off-street parking be provided in new developments (Goal A – Parking). As described in Section 6.1, “Transportation and Circulation,” the project, with mitigation, would provide adequate parking on the project site including adequate off-street parking. Therefore, the project would be consistent with this policy.

The City requires that new subdivisions provide safe walkways that are connected to major destinations. As described in Section 6.1, “Transportation and Circulation,” the project, with mitigation, would provide adequate on-site pedestrian circulation on the project site including access to open space, recreation, retail, light rail, and commercial centers. Therefore, the project would be consistent with this policy.

The City requires major employment centers (e.g., 50 or more employees) to provide adequate bike lockers and parking areas. As described in Section 6.1, “Transportation and Circulation,” mitigation recommended for the project would ensure that adequate bicycle parking facilities are provided at the project site. Therefore, the project would be consistent with this policy.

NOISE

The City requires new development projects to prepare an acoustical report to determine noise levels associated with the project and provide mitigation, where necessary, to reduce noise exposure to normally acceptable levels except where such measures are not feasible (Goal A, Policy 1 and 2). Where noise levels are consistent with the City’s noise ordinance, no further action is required (Goal A, Policy 3). A detailed noise acoustical study was prepared for the project and presented in Section 6.2, “Noise.” As described therein, the project would result in significant long-term operational traffic noise and land use compatibility noise impacts. Mitigation recommended for the project would substantially reduce project-related noise impacts and would include measures (e.g., berms, walls, re-orientation of homes) consistent with the City’s noise ordinances (Goal C, Policy 2) to reduce noise impact to a less-than-significant level. Therefore, the project would be consistent with the City’s noise policies.

PUBLIC FACILITIES AND SERVICES

The City requires that new developments provide adequate public facilities to serve the development including water, wastewater, fire, police, drainage, and parks and recreation. The project includes development of a project-specific community plan, financing plan, and stand-alone PUD guidelines. The financing plan would establish the funding mechanisms necessary to fund public facility expansions and/or extensions. Sections 6.4, “Utilities,” 6.5, “Public Services,” and 6.6, “Parks and Open Spaces,” of this EIR describe specifically how utilities and public services would be provided to the Greenbriar project. As described therein, provisions would be made to ensure adequate funding, installation, and maintenance of utilities and public services to serve the project. The project includes the joint-use of a park site with an elementary school (Goal A, Policy 3 – Parks and Recreation), all on-site drainage facilities are adequately sized (Goal A, Policy 1 – Drainage), and adequate police, fire, and water facilities would be provided (Goal A, Policies 1, 2, and 4 – Fire Service; Goal A, Policy 1 – Police Service; Goal A, Policy 1 – Water). Further, park facilities would be provided on-site in a manner that is consistent with the elements of the City’s Parks and Recreation Master Plan. Amenities planned for on-site parks would be fully described in the PUD guidelines. Therefore, the project would be consistent with the City’s public facilities and services policies.

HEALTH AND SAFETY

The City requires that new developments construct proposed facilities in conformance with the Uniform Building Code, construct facilities outside of flood prone areas or across fault traces, and adequately investigate the potential for geological hazards on-site (e.g., liquefaction, expansive soils). As described in Section 6.8, “Public Health and Hazards,” the project would be located outside the FEMA-designated 100-year flood plain, would construct facilities in accordance with Uniform Building Code standards, and would implement measures to eliminate any potential geologic hazards. Therefore, the project would be consistent with the City’s health and safety policies.

URBAN GROWTH

The City requires new development projects to be compatible with adjacent developments. The Greenbriar project would result in the development of a residential neighborhood incorporating low density, medium density, and high density housing along with parks, commercial uses, and a linear open space/buffer along its western boundary. The project would be compatible with existing residential development located immediately east of the site, proposed residential development to the south, and the Metro Air Parkway development to the west, as this residential development is similar in nature to the proposed project.

It is the policy of the City to work with LAFCo to adjust the LAFCo SOI to be in conformity with the City’s adopted annexation policy. The most relevant adopted policy regarding annexation is the City/County Joint Vision Plan MOU. The consistency of the project with this adopted MOU is examined later in this analysis.

CONSERVATION AND OPEN SPACE

The City of Sacramento promotes retaining land inside its boundaries for agricultural use until the need for development arises, and the support of actions of Sacramento County to similarly conserve its land until needed for urban growth. Development in the North Natomas area has occurred fairly rapidly since adoption of the NNCP in 1994. Of the properties that are currently designated for low-density residential, there is not a known site that could accommodate a development similar to the Greenbriar project (in size) that is not already being pursued for development by other property owners. This rapid development and demand for residential properties demonstrate that there is a need for residential properties, in addition to those within the current city boundaries of the Natomas area. In addition, because the project site is contiguous with the existing NNCP boundaries, and is inline with planned future extension of light rail, the project site provides for the orderly extension of the North Natomas community. For these reasons, the project would be consistent with the City’s policy to conserve agricultural land until it is needed for urban growth and supporting the phasing of the conversion of agricultural land while implementing the policies of the NNCP.

5.4.3 CONSISTENCY WITH THE SACRAMENTO LAFCO POLICIES, STANDARDS, AND PROCEDURES

SPHERES OF INFLUENCE

LAFCo requires the submittal of a current Sphere of Influence Master Service Element before it will approve additions to a SOI. Alternatively, a project specific Municipal Services Review may be considered by LAFCo in lieu of the Master Service Element update. The Municipal Review may be prepared by the City of Sacramento and submitted to LAFCo for consideration (Brundage, pers. comm., 2005). A Municipal Services Review has been prepared for the project (Wood Rodgers 2005). Sections 6.4, “Utilities,” and 6.5, “Public Services,” provide a more detailed analysis of how public services and utilities would be provided to the site. These information sources would be reviewed by LAFCo and could not be approved until it is demonstrated that the project would comply with LAFCo’s requirements related to the provision of public services and utilities.

As described in Chapter 3.0, the project would require an expansion of the City's SOI and city limits. This would take place before the City's initial actions to amend the General Plan to reflect potential residential development at the project site. LAFCo does not typically approve amendment proposals for areas of prime agricultural land if sufficient alternative land is available for annexation within the existing SOI.

The project site consists of 329 acres of Prime Farmland, 68 acres of Farmland of Statewide Importance, 68 acres of Farmland of Local Importance, and 53 acres of Unique Farmland. Conversion of the project site to nonagricultural use would be considered a significant impact, as further described in Section 6.11, "Agriculture."

As previously noted, development in the North Natomas area has occurred fairly rapidly since adoption of the NNCP in 1994. Of the properties that are currently designated for low-density residential, there is not a known site that could accommodate a development similar to the Greenbriar project (in size) that is not already being pursued for development by other property owners. This rapid development and demand for residential properties demonstrate that there is a need for residential properties, in addition to those within the current city boundaries of the North Natomas area. Thus, the proposed project appears to be consistent with the LAFCo requirement that Sphere expansions containing prime agricultural land not be supported unless there is no alternative land available for annexation within the existing SOI.

AGRICULTURAL LAND CONSERVATION

The following provides a summary of the consistency of the proposed project with LAFCo's policies related to agricultural land conversion.

- ▶ The proposed project would be contiguous with the adjacent development to the east, west, and south which consists of lands developed or approved for urban use or lands that have received all discretionary approvals for urban development.
- ▶ The project is not currently consistent with the planned SOI for the City of Sacramento. However, the necessary analysis has been prepared to update the Master Services Element and provide for public services and utilities.
- ▶ Development of a substantial portion of the proposed project would occur within 5 years, consistent with LAFCo policy. Construction of the proposed project is anticipated to begin in the spring of 2007. The development would be expected to be fully built and occupied in the fall of 2012.
- ▶ As previously noted, development in the North Natomas area has occurred fairly rapidly since adoption of the NNCP in 1994. Of the properties currently designated for low-density residential, there is no known site that could accommodate a development similar to the Greenbriar project (in size) that is not already being pursued for development by other property owners. Thus, it can be concluded that insufficient vacant nonprime land exists within the City's SOI. Furthermore, because of its logical connection to the North Natomas community, the project site is highly accessible.

LAFCo requires the determination of whether the project would have a significant adverse effect on the physical and economic integrity of other agricultural lands. Although the project site is in proximity to other agricultural lands, agricultural lands located to the west would be physically separated from the project site through a proposed open space buffer. Irrespective, these lands are in the process of being developed with commercial land uses consistent with the County's recently approved Metro Airpark Development. Because agricultural lands located to the north are envisioned for future urban development under the Joint Vision Plan, a physical separation between the project site and these agricultural lands has been determined unnecessary by the City of Sacramento. In addition, urban land either already exists or is planned to the east and south of the project site. Public facilities for the project would only be sized for the project itself, and the provision of these services to the

site is not expected to induce any additional growth. For these reasons, it is not anticipated that the project would lead to negative effects on nearby agricultural properties.

PUBLIC FACILITIES AND SERVICES

LAFCo requires the determination of whether public services are adequate and available to serve inhabitants living on the project site. Although the project site is not within the sphere of influence for the Sacramento Regional County Sanitation District (SRCSD), the project would amend the SOI's for both SRCSD thereby allowing wastewater collection service be provided to the project as discussed in Section 6.4, "Utilities." All other public services (e.g., police, fire, water supply, solid waste collection) would be provided directly by the City of Sacramento and would be readily available to serve inhabitants of the project at their highest quality as discussed in Sections 6.4, "Utilities" and 6.5, "Public Services." For these reasons, all required public services and facilities would be available to the serve the project at their highest quality and within the specified timeframe needed.

5.4.4 CONSISTENCY WITH CITY/COUNTY NORTH NATOMAS JOINT VISION PLAN MOU

OPEN SPACE

The Greenbriar project has been developed in coordination with existing and planned open space programs. These programs and studies to support these programs are currently on-going. The project includes a 250-foot linear open space/buffer along the western edge of the project site, which is consistent with the open space principles set forth in the City/County Joint Vision Plan MOU. In addition, the project applicant is proposing to dedicate two properties (contiguous with each other and north, but not adjacent to the project site) that total 289 acres as off-site compensation for biological resource effects. The applicant is proposing to implement a restoration plan for this compensation site, which would include components of riparian woodland, perennial marsh, and grassland or alfalfa cropland habitats. For conservation and management, the property would be dedicated to the Natomas Basin Conservancy, which is responsible for implementing the NBHCP and the management of related conservation lands. As described in Section 6.6, "Parks and Open Space," the project would be required to mitigate for its loss of on-site open space and habitat (total of 577 acres) at a 1:1 mitigation ratio (0.5:1.0 open space, 0.5:1.0 habitat) based on the principles agreed to in the City/County Joint Vision Plan MOU. A portion of the mitigation would be provided through on-site open space buffers, corridors, and the lake/detention basin. The remaining portion would be provided at off-site locations (including properties dedicated for off-site biological habitat) determined in consultation with the City. Additionally, in the event that mitigation ratios change as a result of on-going studies in support of the City/County Joint Vision Plan MOU before issuance of grading permits, the project applicant would comply with the revised policy. For these reasons, the proposed project is consistent with the open space principles and mitigation requirements set forth in the City/County Joint Vision Plan MOU.

FUTURE GROWTH

The City and County have acknowledged that the City is the appropriate agent for planning new growth in the North Natomas area. For this reason, the Greenbriar development is being considered by the City of Sacramento, rather than the County. As previously discussed, the Greenbriar project is being proposed as an extension of the NNCP, which provides for a well-integrated mixture of residential, employment, commercial, and civic uses, interdependent on quality transit service with connections linking activity centers with streets, transit routes, and linear parkways with pedestrian/bike trails. The project builds upon the vision of the currently planned growth in North Natomas and is a logical extension of the NNCP. The Greenbriar project would not conflict with the principle of fostering development patterns which achieve a whole and complete, mixed-use community, consistent with adopted smart growth principles. For these reasons, the proposed project is consistent with the future growth principles set forth in the City/County Joint Vision Plan MOU.

5.4.5 CONSISTENCY WITH THE SACOG BLUEPRINT

The SACOG Blueprint is advisory and does not bind agencies within the Blueprint area to action. If a literal interpretation of the Blueprint preferred scenario map was taken, it would likely interpret that the Greenbriar site would continue the development pattern of the surrounding NNCP properties, which would mean that the site would be used for single-family small lot and high-density mixed residential development, as currently proposed. SACOG warns against a literal interpretation of the preferred scenario map, so it is most appropriate to consider whether the project is a logical extension of the NNCP, which generally adheres to the future growth principles set forth by the SACOG Blueprint. The proposed project would include a mixture of residential densities by incorporating medium-density and high-density residential on the project site. Thus, the project site would provide housing diversity and would create a compact development. The majority of the project site is proposed to be developed for medium-density residential. This type of land use is appropriate given its location at the edge of the North Natomas community. In addition, the project would develop commercial land uses on-site providing residents with easy access to neighborhood commercial services.

The project is further consistent with the Blueprint principles because the project would be accessible to several transportation choices, which would allow and encourage people to walk, ride bicycles, ride the bus, and/or use light rail. Specifically, residential uses would be within walking distance of the mixed-use core center and a new light rail station centrally located on the project site. In addition, pedestrian and bicycle pathways extending throughout the project site for providing easy access to all portions of the project site.

5.4.6 CONSISTENCY WITH OTHER RELEVANT PLANS AND POLICIES

The project would be subject to the policies of the Sacramento International Airport's Comprehensive Land Use Plan (CLUP) and The Natomas Basin Habitat Conservation Plan (HCP), as it relates to preparation of an analysis of effects on the HCP. Consistency with these plans are described as impact evaluated in the DEIR. Section 6.8, "Public Health and Hazards," evaluates the project's consistency with the CLUP and Section 6.12, "Biological Resources," evaluates the project's consistency with the HCP.

6 ENVIRONMENTAL ANALYSIS

This EIR evaluates 14 separate environmental issues as listed below:

1. Transportation and Circulation
2. Air Quality
3. Noise
4. Utilities
5. Public Services
6. Parks and Open Space
7. Aesthetics
8. Public Health and Hazards
9. Geology
10. Hydrology and Water Quality
11. Agriculture
12. Biological Resources
13. Cultural Resources

Section 15125(d) of the State CEQA Guidelines requires that an EIR discuss any inconsistencies that could result when the proposed project is compared with adopted land use plans. This consistency discussion is presented in Chapter 5 of this EIR and is not treated as a physical environmental effect. The balance of the environmental issues listed above are evaluated in Sections 6.1 through 6.13 of this chapter.

Chapter 6 is divided into sections that provide the existing setting, thresholds of significance, and impacts and measures to mitigate the significant impacts of the proposed project and project alternatives. The existing setting and thresholds of significance discussions establish the baseline and threshold by which the proposed project and alternatives are measured and evaluated. The setting discussion addresses the conditions that existed within the project area at the time the NOP was circulated. Thresholds of significance are identified for each environmental issue to determine if the development of the proposed project would result in a significant environmental impact when evaluated against the existing setting.

Impacts and feasible mitigation measures are presented, where appropriate, for each environmental issue. The potential impacts of the proposed project and project alternatives are described, and a significance determination is provided at the end of each discussion. Significance is expressed as one of four determinations: (1) “***no impact,***” (2) “***less than significant,***” (3) “***potentially significant,***” and (4) “***significant.***” A significant impact is defined pursuant to CEQA, as a substantial and adverse change to the environment. The significance determinations are bolded and italicized. Where significant impacts are identified, mitigation measures are provided to reduce or avoid the impact. In cases where the impact would not be reduced to less-than-significant levels by the mitigation, the impact is identified as a “***significant unavoidable***” impact.

6.1 TRANSPORTATION AND CIRCULATION

6.1.1 INTRODUCTION

This section of the EIR presents the results of TJKM’s traffic impact analysis of the proposed Greenbriar Development. The analysis includes consideration of automobile traffic impacts on local roadway capacity and capacity on Interstate 5 (I-5) and State Route 70/99 (SR 70/99) and existing and proposed transit, bicycle, and pedestrian facilities.

Quantitative analyses of weekday a.m. and p.m. commuter hour conditions have been conducted for the following five scenarios:

- ▶ Existing Conditions
- ▶ Baseline Conditions
- ▶ Baseline (Existing plus Approved Projects) plus Project Conditions
- ▶ Cumulative (2025) Conditions
- ▶ Cumulative (2025) plus Project Conditions

These scenarios are described in greater detail in Section 6.1.4, “Impacts and Mitigation Measures,” below.

PROPOSED PROJECT

The project would consist of 3,473 residential units (low density: 671; medium density: 2,215; high density: 587), 11.2 acres of village commercial, 16.3 acres of community commercial, a 10.0-acre elementary school, neighborhood parks, a lake/detention basin, and an open space/buffer. The project site is currently vacant and located on the northwestern corner of I-5 and SR 70/99 interchange.

6.1.2 ENVIRONMENTAL SETTING

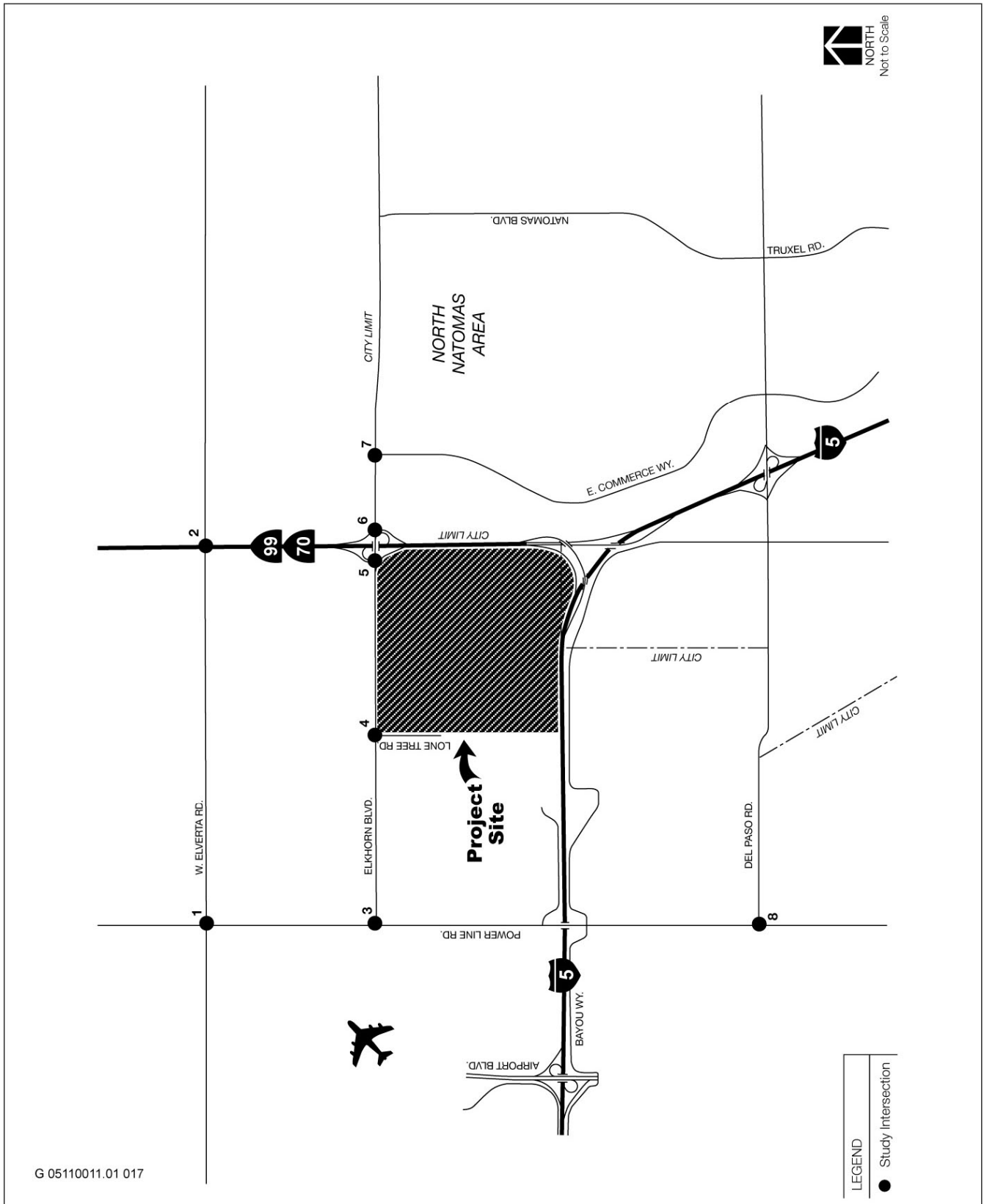
Exhibit 6.1-1 illustrates the roadway system near the project site.

ROADWAY SYSTEM – REGIONAL ACCESS

Regional access to the project site is provided by the freeway system that serves northwest Sacramento including I-5 and SR 70/99.

I-5 is an eight-lane freeway that runs in an east/west direction within the study area. Access to I-5 is currently via State Route 99. I-5 serves as a commute corridor between downtown Sacramento and the northern and southern portions of the City and County. It also provides access to the Sacramento International Airport west of the site and other Central Valley communities (e.g., cities of Woodland and Davis). A future interchange (I-5/ Metro Air Parkway Interchange) is planned approximately one-half mile west of the project site. This interchange would provide direct access to I-5 from the project site through the approved Metro Airpark development (adjacent and west of the project site).

SR 70/99 is a four-lane highway that runs in a north/south direction within the study area. State Route 70/99 serves as a commute corridor between the City of Sacramento and the Yuba City, Marysville, Chico areas and Sutter County to the north of the project site. SR 70/99 provides direct access to the project site via on/off-ramps at Elkhorn Boulevard. North of its interchange with Elkhorn Boulevard, it continues as a divided highway with two travel lanes per direction. It has a grade-level intersection with Elverta Road. North of its interchange with Elkhorn Boulevard, it continues as a divided highway with two travel lanes in each direction. It has a grade-level intersection with Elverta Road.



G 05110011.01 017

Source: TJKM 2005

Roadways within the Project Vicinity

Exhibit 6.1-1

LOCAL ACCESS

Local access to the project site is provided via Elkhorn Boulevard, East Commerce Way, Elverta Road, Powerline Road and Del Paso Road, as described below.

Elkhorn Boulevard is a two-lane road that runs in an east/west direction and serves as the northern boundary to the project site. West of SR 70/99, Elkhorn Boulevard continues to Powerline Road. To the east, it continues to the Rio Linda and North Highlands areas of Sacramento County. Elkhorn Boulevard connects to SR 70/99 at the northeastern corner of the project site via on and off-ramps providing access to northbound and southbound SR 70/99.

East Commerce Way is an existing two-lane roadway that runs in a north/south direction parallel to and about 0.4-mile east of I-5. East Commerce Way is planned to be a six lane arterial. East Commerce Way extends from Elkhorn Boulevard in the north to Del Paso Road to the south. It extends about 0.9-mile south of Del Paso Road where it intersects with Arena Boulevard.

Elverta Road is a two-lane roadway that runs in an east/west direction approximately one mile north of the project site. Elverta Road has a grade-level signalized intersection at State Route 70/99. Elverta Road connects with Powerline Road west of SR 70/99.

Powerline Road is a two-lane roadway that runs in a north/south direction within the project study area. It is located adjacent to the eastern boundary of the Sacramento International Airport approximately one mile west of the project site. Powerline Road extends south of Elverta Road where it crosses I-5 with a two-lane overcrossing and extends south to intersect with Del Paso Road.

Del Paso Road is a two-to-four lane east-west roadway approximately one mile south of the project site that provides access to I-5 via a full interchange. West of I-5, Del Paso Road is a two-lane roadway. Del Paso Road is a six-lane roadway between I-5 and East Commerce Way. East of East Commerce Way, Del Paso Road has three eastbound and two westbound lanes.

PEDESTRIAN AND BICYCLE FACILITIES

Currently, no pedestrian and bicycle facilities exist at the project site or along Powerline Road, Elkhorn Boulevard, or Elverta Road. On street bike lanes exist at several locations along Del Paso Road and six-foot wide bike lanes exist on both sides of East Commerce Way.

TRANSIT SYSTEM

The Sacramento Regional Transit District (RT) operates 80 bus routes and 38 miles of light rail covering a 418 square-mile service area. Buses and light rail run 365 days a year using 97 light rail vehicles, 258 buses powered by compressed natural gas (CNG), and 17 shuttle vans. Buses operate daily from 5:00 a.m. to 11:30 p.m. every 15 to 60 minutes, depending on the route. Light rail trains operate from 4:30 a.m. to 1:00 a.m. daily with service every 15 minutes during the day and every 30 minutes in the evening. No bus or light rail service is currently provided to the project area or between the project site and the Sacramento International Airport. Transit services to the Airport area are provided by Yolo bus, private limousine and taxi services.

EXISTING TRAFFIC CONDITIONS

The following discussion includes a description of the existing conditions of intersections and roadways in the study area.

EVALUATION CRITERIA

Existing Intersection Traffic Volumes

Eight existing study intersections and fourteen future intersections were analyzed. The study area is near the North Natomas area of Sacramento and adjacent and west of the Sacramento International Airport (Exhibit 6.1-1). Two major highways, I-5 and SR 70/99, are within the study area. Specific study intersections, ramps, roadway and freeway segments are listed in Section 6.1.4, "Impacts and Mitigation Measures." A total of four roadway segments, ten existing and twelve future freeway ramps, and five freeway segments were analyzed.

The existing a.m. and p.m. peak-hour traffic volume counts for seven study intersections were conducted in June 2005 by TJKM. The existing peak-hour intersection volumes are shown in Exhibit 6.1-2. The traffic count data are included in Appendix B.

Freeway Mainline Traffic Volumes

The existing a.m. and p.m. peak-hour traffic volume counts for eight study ramps were conducted in June 2005 by TJKM. The freeway mainline counts (2005) used in the analysis were obtained from Caltrans District 3. This traffic data are also included in Appendix B.

Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by TJKM based on field observations. The existing intersection lane configurations are shown in Exhibit 6.1-3.

Definition Level of Service

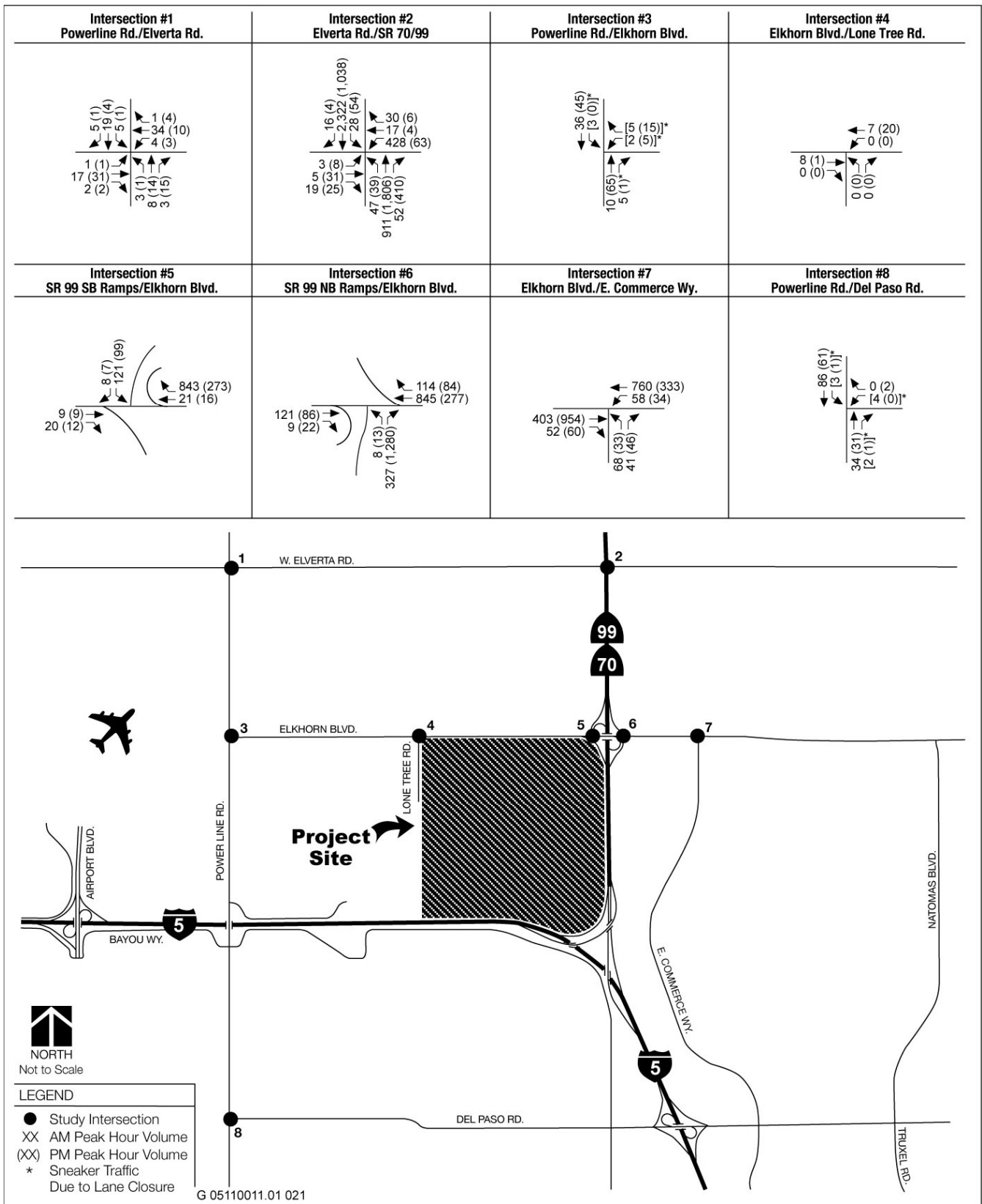
Level of service is a qualitative measure describing operational conditions at an intersection. The level of service generally describes these conditions in terms of average delay per vehicle. Six levels of service are defined and given letter designations from A to F, with Level of Service (LOS) A representing the best operating conditions and LOS F the worst.

Signalized Intersections

The operating conditions at the City study signalized intersections were evaluated using the Highway Capacity Manual (2000 HCM) Operations Method as incorporated into the standard traffic engineering software package SYNCHRO (version 5). Peak-hour intersection conditions are reported as average delay per vehicle with corresponding levels of service for the intersection as a whole and for each approach. The operating conditions at County study signalized intersections were evaluated using volume-to-capacity ratio based on the Intersection Capacity Utilization methodology, which is similar to the Circular 212 methodology. With both methodologies, LOS A indicates free flow conditions with little or no delay, while LOS F indicates jammed conditions with excessive delay and long back-ups. Table 6.1-1 below describes the LOS criteria for signalized intersections.

Unsignalized Intersections

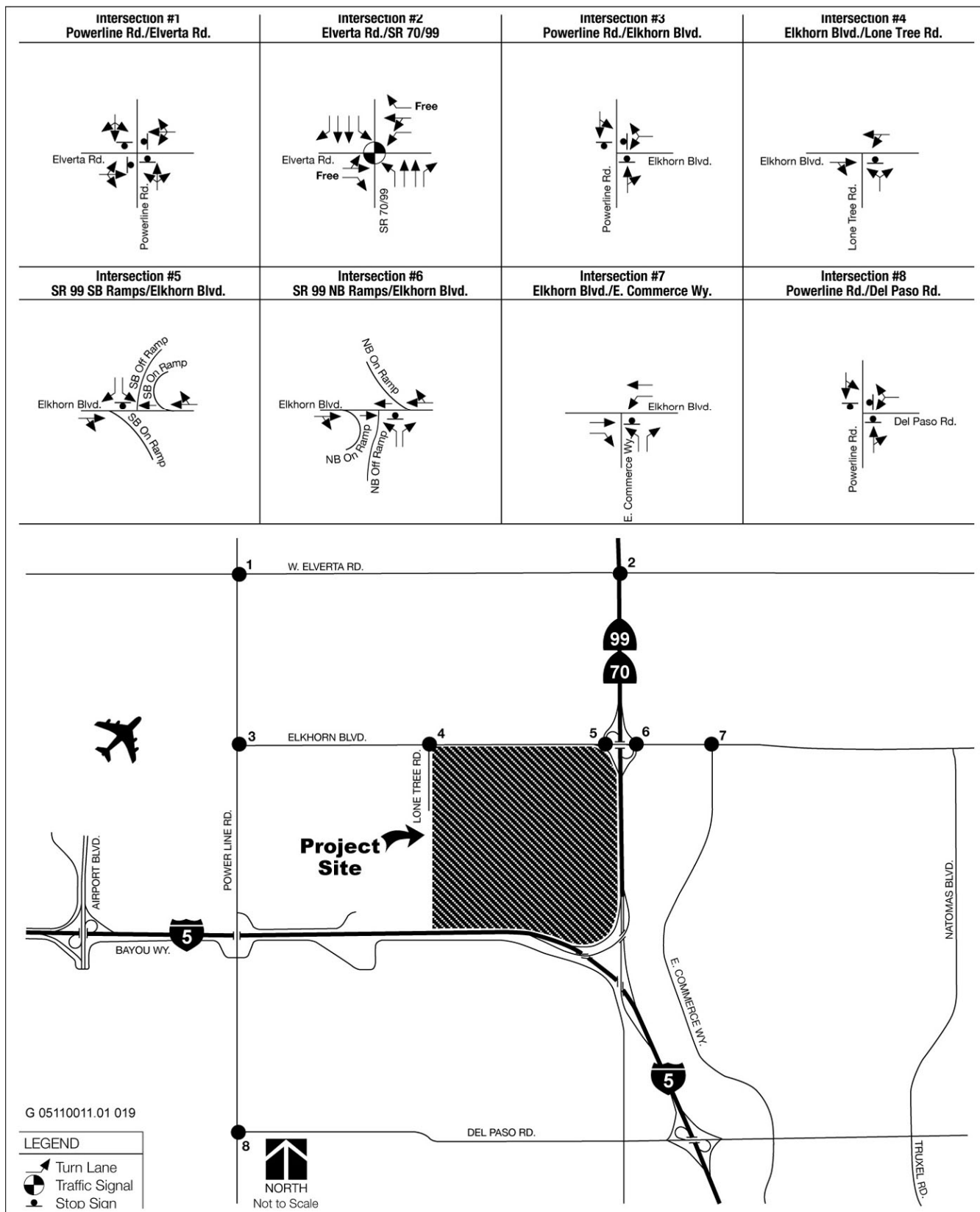
The operating conditions at the stop (i.e., unsignalized) controlled intersections were evaluated using the 2000 HCM methodology for unsignalized intersections. This method also ranks the level of service on an A through F scale, and also uses average delay in seconds as its measure of effectiveness. Peak-hour intersection conditions are reported as delay per vehicle with corresponding LOS for the intersection as a whole and for each approach. Table 6.1-2 below lists the LOS criteria for unsignalized intersections.



Source: TJKM 2005

Existing Peak-Hour Turning Movement Volumes

Exhibit 6.1-2



Source: TJKM 2005

Existing Lane Configurations

Exhibit 6.1-3

| Level of Service | Control Delay per Vehicle (seconds/vehicle) | Sum of Critical Lane Volumes by Signal Phasing (vehicles/critical land/hour) | | |
|------------------|---------------------------------------------|------------------------------------------------------------------------------|-------------|-----------------|
| | | 2-Phase | 3-Phase | 4 or more Phase |
| A | ≤ 10 | 0–990 | 0–930 | 0–900 |
| B | > 10–20 | 991–1,155 | 931–1,085 | 901–1,050 |
| C | > 20–35 | 1,156–1,320 | 1,086–1,240 | 1,051–1,200 |
| D | > 35–55 | 1,321–1,485 | 1,241–1,395 | 1,201–1,350 |
| E | > 55–80 | 1,486–1,650 | 1,396–1,550 | 1,351–1,500 |
| F | > 80 | > 1,650 | > 1,550 | > 1,500 |

Sources: *Highway Capacity Manual*, Transportation Research Board 2000
Traffic Impact Analysis Guidelines, County of Sacramento, July 2004

| Level of Service | Control Delay per Vehicle (seconds/vehicle) |
|------------------|---------------------------------------------|
| A | ≤ 10 |
| B | > 10–15 |
| C | > 15–25 |
| D | > 25–35 |
| E | > 35–50 |
| F | > 50 |

Source: *Highway Capacity Manual*, Transportation Research Board 2000.

Roadway Segments

The arterial level of service analysis was conducted based on the Urban Street LOS methodology described in the 2000 Highway Capacity Manual. The maximum daily volume to achieve LOS E on an arterial with moderate access control (2–4 stops/mile, limited driveways and speeds 35–45 miles per hour) are summarized in Table 6.1-3. These values are from Exhibit A of the City of Sacramento *Traffic Impact Guidelines* (1996) and Table 2 of the County of Sacramento *Traffic Analysis Guidelines* (2004).

| Number of Lanes | Maximum Volume for Given Service Level for an Arterial with moderate access control | | | | |
|-----------------|-------------------------------------------------------------------------------------|--------|--------|--------|--------|
| | LOS A | LOS B | LOS C | LOS D | LOS E |
| 2 | 10,800 | 12,600 | 14,400 | 16,200 | 18,000 |
| 4 | 21,600 | 25,200 | 28,800 | 32,400 | 36,000 |
| 6 | 32,400 | 37,800 | 43,200 | 48,600 | 54,000 |

Sources: *Traffic Impact Guidelines*, City of Sacramento 1996; *Traffic Impact Analysis Guidelines*, County of Sacramento 2004

Freeway Facilities

The operating conditions at the study ramps were evaluated using the 2000 HCM Operations Method as incorporated into the Highway Capacity Software (HCS 2000). Table 6.1-4 lists the freeway ramps merge and diverge LOS criteria. Tables 6.1-5 and 6.1-6 lists the LOS definitions for freeway ramps and mainline segments, respectively.

| Level of Service | Description | Density ¹ |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| A | Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. | ≤ 10 |
| B | Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted. | > 10–20 |
| C | Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. | > 20–28 |
| D | Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort. | > 28–35 |
| E | Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing. | > 35–43 |
| F | Represents a breakdown in flow. | > 43 |

Notes: ¹ Density in passenger cars per mile per lane.
Source: *Highway Capacity Manual*, Transportation Research Board 2000

| Level of Service | Service Flow Rates for Single Lane/Two Lane Ramps Ramp Design Speed (MPH) | | | | | Definition |
|------------------|---------------------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | ≤ 20 | 21–30 | 31–40 | 41–50 | ≥ 51 | |
| A | - | - | - | - | 800/ 1,550 | Conditions of free flow; speed is controlled by driver's desires, speed limits, or physical conditions. |
| B | - | - | - | 1,150/ 2,250 | 1,150/ 2,350 | Conditions of stable flow; operating speeds beginning to be restricted; little or no restriction on maneuverability from other vehicles. |
| C | - | - | 1,400/ 2,600 | 1,600/ 3,100 | 1,700/ 3,350 | Conditions of stable flow; speeds and maneuverability more closely restricted. |
| D | - | 1,550/ 2,900 | 1,700/ 3,200 | 1,950/ 3,850 | 2,050/ 4,150 | Conditions approach unstable flow; tolerable speeds can be maintained, but temporary restrictions may cause extensive delays; little freedom to maneuver; comfort and convenience low. |
| E | 1,800/ 3,200 | 1,900/ 3,500 | 2,000/ 3,800 | 2,100/ 4,100 | 2,200/ 4,400 | Conditions approach capacity; unstable flow with stoppages of momentary duration; maneuverability severely limited. |
| F | Widely Variable | | | | | Forced flow conditions; stoppages for long periods; low operating speeds. |

Notes: - Level of service not attainable due to restricted design speed.
Source: *Highway Capacity Manual*, Transportation Research Board 2000

| Level of Service | Maximum Volume to Capacity Ratio | Maximum Density ¹ |
|------------------|----------------------------------|------------------------------|
| A | 0.29 | 10 |
| B | 0.47 | 16 |
| C | 0.68 | 24 |
| D | 0.85 | 35 |
| E | 1.00 | 45 |
| F | Varies | Varies |

Notes: ¹ Density in passenger cars per mile per lane.
Source: *Highway Capacity Manual*, Transportation Research Board 2000

Study Intersections, Roadway Segments, Freeway Ramps, and Mainline Segments

The study focused on evaluating traffic conditions at eight existing intersections and six future intersections in the project vicinity selected in collaboration with the City of Sacramento staff (see Exhibit 6.1-1). The City/County limit line is essentially the centerline of Lone Tree Road, with the County of Sacramento to the west of the centerline and the City to the east.

The study intersections, roadway segments, freeway ramps and freeway mainline segments are as follows:

Existing Study Intersections

1. Powerline Road and Elverta Road (County)
2. Elverta Road and SR 70/99 (Caltrans)
3. Powerline Road and Elkhorn Boulevard (County)
4. Elkhorn Boulevard and Lone Tree Road (City/County)
5. SR 70/99 Southbound Ramps and Elkhorn Boulevard (Caltrans)
6. SR 70/99 Northbound Ramps and Elkhorn Boulevard (Caltrans)
7. Elkhorn Boulevard and East Commerce Way (City)
8. Powerline Road and Del Paso Road (County)

Future Study Intersections

- 2a. SR 70/99 Southbound Ramps and Elverta Road (Caltrans)
- 2b. SR 70/99 Northbound Ramps and Elverta Road (Caltrans)
9. Metro Air Parkway and I-5 Northbound Ramps (Caltrans)
10. Metro Air Parkway and I-5 Southbound ramps (Caltrans)
11. Elverta Road and Lone Tree Road (City/County)
12. Metro Air Parkway and Elverta Road (County)
13. Elkhorn Boulevard and Metro Air Parkway (County)
14. Meister Way and Metro Air Parkway (County)
15. Meister Way and Lone Tree Road (City/County)
16. Meister Way and East Commerce Way (City)
17. Metro Air Parkway and Bayou Road (County)
18. Elkhorn Boulevard and Project Street 1 Driveway (City)
19. Elkhorn Boulevard and Project Street 2 Driveway (City)
20. Elkhorn Boulevard and Project Street 3 Driveway (City)

Existing Roadway Segments

1. Elkhorn Boulevard west of SR 70/99 Interchange (City)
2. Lone Tree Road south of Elkhorn Boulevard (City/County)

Future Roadway Segments

1. Metro Air Parkway north of I-5 Interchange (County)
2. Meister Way west of SR 70/99 (City)

Existing Freeway Ramps

1. Elkhorn Boulevard to SR 70/99 Northbound (loop on-ramp)
2. Elkhorn Boulevard to SR 70/99 Northbound (on-ramp)
3. SR 70/99 Northbound to Elkhorn Boulevard (off-ramp)
4. SR 70/99 Southbound to Elkhorn Boulevard (off-ramp)

5. Elkhorn Boulevard to SR 70/99 Southbound (loop on-ramp)
6. Elkhorn Boulevard to SR 70/99 Southbound (on-ramp)
7. SR 70/99 Southbound to I-5 Northbound (off-ramp)
8. I-5 Southbound to SR 70/99 Northbound (off-ramp)
9. SR 70/99 Southbound to I-5 Southbound (on-ramp)
10. I-5 Northbound to SR 70/99 Northbound (off-ramp)

Future Freeway Ramps

11. I-5 Northbound to Metro Air Parkway (off-ramp)
12. Metro Air Parkway to I-5 Northbound (on-ramp)
13. Metro Air Parkway to I-5 Northbound (loop on-ramp)
14. I-5 Southbound to Metro Air Parkway (off-ramp)
15. Metro Air Parkway to I-5 Southbound (on-ramp)
16. Metro Air Parkway to I-5 Southbound (loop on-ramp)
17. Elverta Boulevard to SR 70/99 Northbound (loop on-ramp)
18. Elverta Boulevard to SR 70/99 Northbound (on-ramp)
19. SR 70/99 Northbound to Elverta Boulevard (off-ramp)
20. SR 70/99 Southbound to Elverta Boulevard (off-ramp)
21. Elverta Boulevard to SR 70/99 Southbound (loop on-ramp)
22. Elverta Boulevard to SR 70/99 Southbound (on-ramp)

Freeway Mainline Segments

1. I-5 east of Powerline Road
2. I-5 north of Del Paso Road
3. I-5 north of I-5/I-80 Interchange
4. SR 70/99 between Elverta Road and Elkhorn Boulevard
5. SR 70/99 between Elkhorn Boulevard and I-5/SR 90 Interchange

TRAFFIC SCENARIOS

Traffic conditions were evaluated for the following scenarios:

- ▶ *Existing Conditions* – This scenario documents existing conditions at study area intersections, roadways, and freeway facilities based on recent traffic counts and field surveys conducted in 2005.
- ▶ *Baseline Conditions* – This scenario documents study intersection, roadway, and freeway conditions by adding projects approved or in process of final approval to the existing conditions scenario. Approved projects consist of developments that are under construction, are built but not fully occupied, or are not built but have final approval from decision-makers.
- ▶ *Baseline plus Project Conditions* – This scenario adds traffic from the proposed project to the Baseline Conditions. The estimated project trips are based on the trip rates provided in Trip Generation, 7th Edition, published by the Institute of Transportation Engineers (ITE).
- ▶ *Cumulative (2025) Conditions* – This scenario considers future year 2025 traffic conditions based on the North Natomas version of the SACMET Regional Travel Demand Forecasting model. The North Natomas Model assumes the build out of the North Natomas Community Plan (NNCP) and is modified to incorporate all approved projects in the North Natomas area. The following is a list of additional projects assumed in the Cumulative Conditions:

1. Meister Way – SR 70/99 overcrossing would be operational by the build out of the NNCP (Meister Way was assumed in the Metro Airpark project)
 2. Metro Airpark project including all adopted mitigation measures and roadway improvements
 3. The Extension of the light rail transit (LRT) from Downtown Sacramento to the Sacramento International Airport. A light rail station is assumed to be located in the center of the project along Meister Way.
- ▶ *Cumulative (2025) plus Project Conditions* – This scenario adds traffic from the proposed project to the Cumulative (2025) Conditions.

Trip Generation

Trip generation is defined as the number of vehicle trips produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips. The project and approved project trip generation were estimated based on the trip rates provided in Trip Generation, 7th Edition, published by the ITE.

Trip Distribution and Assignment

Trip distribution is the process of determining in what proportion vehicles would travel between the project site and various destinations within the study area. Trip assignment is the process of determining the various paths vehicles would take from the project site to each destination. Trip distribution assumptions for the proposed project and the approved projects were developed using output from the SACMET Regional Travel Demand Forecasting model, knowledge of the study area, and input from City staff.

EXISTING OPERATIONAL CONDITIONS

Existing Intersections Levels of Service

In general, the operational characteristics of a roadway network are defined by the operations of key intersections within the network. Intersections are typically considered to be the critical analysis locations, because conflicting traffic movements at intersections impose capacity constraints on the overall roadway network.

Eight study intersections were selected with input from City staff for analysis. These intersections are listed in Table 6.1-7, along with the results of the LOS analysis under existing conditions. Appendix B contains the detailed LOS calculation sheets for existing conditions.

Currently, all study intersections operate at acceptable levels of service under Existing Conditions, except for the following intersections:

- ▶ Elverta Road and SR 70/99 – LOS E during the a.m. peak hour
- ▶ SR 70/99 northbound ramps and Elkhorn Boulevard – LOS F for the SR 70/99 northbound off-ramp approach during the p.m. peak hour

Elkhorn Boulevard and East Commerce Way – LOS E and LOS D for the northbound East Commerce Way (minor approach) during the a.m. and p.m. peak hours, respectively

| ID | Intersections | Traffic Control | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----|-------------------------------------------------|-----------------|------------------------------|------------|--------------------------------------------|----------------------------|------------|--------------------------------------------|
| | | | Average Delay ¹ | LOS | Queue Length (feet) [X: Y, Z] ¹ | Average Delay ¹ | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| 1 | Powerline Road and Elverta Road | All Way Stop | 7.2 | A | - | 7.0 | A | - |
| 2 | Elverta Road and SR 70/99 | Signal | 58.9 | E | [SBT: 1,524, 2,000+] | 14.6 | B | [WBL: 62, 425] |
| 3 | Powerline Road and Elkhorn Boulevard | All Way Stop | 7.0 | A | - | 7.2 | A | - |
| 4 | Elkhorn Boulevard and Lone Tree Road | One Way Stop | No Traffic on Lone Tree Road | | | | | |
| 5 | SR 70/99 Southbound Ramps and Elkhorn Boulevard | One Way Stop | (9.2) | (A) | - | (9.0) | (A) | - |
| 6 | SR 70/99 Northbound Ramps and Elkhorn Boulevard | One Way Stop | (11.6) | (B) | [NBR: 46, 485] | 217.9 | F | [NBR: 1,548, 485] |
| 7 | Elkhorn Boulevard and East Commerce Way | One Way Stop | (36.5) | (E) | [NBL: 60, 265] | (29.7) | (D) | [NBL: 26, 265] |
| 8 | Powerline Road and Del Paso Road | One Way Stop | (9.2) | (A) | - | (8.5) | (A) | - |

Notes: ¹ Seconds per Vehicle; LOS = Level of Service; (X) = LOS for minor approach
(X.X) = Delay in seconds per vehicle for minor approach
Bold = Unacceptable Intersection Operation
¹ X: Y, Z: X= Most critical approach; Y=50th Percentile Queue for unsignalized intersection or 90th Percentile Queue for signalized intersection; Z= Total Segment Length or Storage for Turn Pocket
- = Storage data not reported for those intersections with acceptable LOS conditions
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left; T = Through; R = Right
HCM 2000 Methodology does not report the overall intersection LOS for one-way stop intersections

Existing Roadway Segment Levels of Service

Existing roadway traffic volumes and level of service are illustrated on Table 6.1-8.

Currently, Elkhorn Boulevard west of SR 70/99 operates acceptably at LOS A under Existing Conditions.

| Roadway Segment | Lanes (Max. ADT for acceptable LOS in vpd) | Daily Volume (vpd) | LOS |
|------------------------------------------------|--------------------------------------------|--------------------|-----|
| Elkhorn Boulevard west of SR 70/99 Interchange | 2 (14,400) | 458 | A |
| Lone Tree Road south of Elkhorn Boulevard | No Traffic on Lone Tree Road | | |
| Metro Air Parkway north of I-5 Interchange | NA | | |
| Meister Way west of SR 70/99 | NA | | |

Notes: LOS = Level of Service; vpd = vehicles per day; Max. ADT: Maximum average daily traffic
Bold = Unacceptable Roadway Segment Operation.
NA= Not existing roads

Existing Freeway Facilities

Ramp Levels of Service

Ten freeway ramps were selected with input from City staff and Caltrans for analysis. Existing a.m. and p.m. peak-hour levels of service are illustrated on Table 6.1-9.

| Ramp | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---------------------------------------------------------|----------------|-----|--------------------------------------------|----------------|----------|--------------------------------------------|
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 10 | B | - | 5 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (On-ramp) | 125 | B | - | 136 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 426 | C | [NBR: 46, 1,270] | 1,197 | C | [NBR: 1,548, 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 144 | C | [SBL: 12, 1,250] | 109 | C | [SBL: 9, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 783 | B | - | 416 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (on-ramp) | 30 | B | - | 19 | B | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 879 | C | - | 64 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 89 | C | - | 1,281 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 3,044 | C | - | 1,540 | B | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 1,495 | C | - | 3,231 | E | - |

Notes: LOS – level of service for ramp freeway junction areas of influence
Bold – Unacceptable Ramp Operation
Reference – Highway Capacity Manual 2000 Edition
vph – Vehicles per hour
¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage
- Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the slip ramps.

Currently, all the study ramps operate at acceptable levels of service (LOS D or better) under Existing Conditions except for the following:

- ▶ I-5 northbound to SR 70/99 northbound off-ramp – LOS E during the p.m. peak hour.

Existing Freeway Mainline Levels of Service

Five freeway mainline segments were selected with input from City of Sacramento and Caltrans staff for analysis. The freeway and corresponding existing a.m. and p.m. peak-hour levels of service are illustrated in Table 6.1-10.

Currently, the following freeway segments operate unacceptably under Existing Conditions:

- ▶ I-5 north of Del Paso Road – LOS F for the northbound approach during the p.m. peak hour

- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the northbound approach during the p.m. peak hour
- ▶ SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange – LOS E for the southbound approach during the a.m. peak hour and LOS F for the northbound approach during the p.m. peak hour

**Table 6.1-10
Existing Peak-Hour Freeway Mainline Operating Conditions**

| Freeway Segment | Direction | A.M. Peak Hour | | | P.M. Peak Hour | | |
|-------------------------------------------------------------------------|-----------|----------------|------------------|----------|----------------|------------------|----------|
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | WB/NB | 2,771 | 25.6 | C | 2,890 | 26.9 | D |
| | EB/SB | 2,557 | 23.5 | C | 3,258 | 31.3 | D |
| I-5 North of Del Paso Road | NB | 3,387 | 20.8 | C | 6,057 | > 45 | F |
| | SB | 5,512 | 38.5 | E | 3,517 | 21.6 | C |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 3,252 | 20.0 | C | 6,381 | > 45 | F |
| | SB | 5,780 | 42.9 | E | 3,143 | 19.3 | C |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 1,293 | 11.9 | B | 3,456 | 34.4 | D |
| | SB | 3,254 | 31.3 | D | 1,278 | 11.8 | B |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 1,584 | 14.6 | B | 4,512 | > 45 | F |
| | SB | 3,923 | 44.8 | E | 1,604 | 14.8 | B |

Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

6.1.3 REGULATORY SETTING

CALTRANS

Caltrans specifies LOS D as the minimum acceptable level of service standard for the freeway segments, ramps, and ramp intersections. However, LOS E is acceptable for the five freeway segments in the vicinity of the project area and downtown Sacramento area (milepost: 10.8 to 34.7).

CITY OF SACRAMENTO

The City of Sacramento specifies LOS C as the minimum acceptable level of service standard for the intersections that fall under its jurisdiction.

COUNTY OF SACRAMENTO

The County of Sacramento specifies LOS D for rural areas and LOS E for urban areas as the minimum acceptable level of service standards for the roadways and intersections that fall under its jurisdiction. Because the project study area is considered rural, LOS D was used as the minimum acceptable LOS standard for all the study intersections that fall under the County’s jurisdiction.

LAFCo

The LAFCo Policies, Procedures, and Guidelines document does not contain any policies related to transportation and circulation.

The detailed significance criteria for the City, County, and Caltrans listed under the “Thresholds of Significance” section of this report were used to determine the project specific impacts and mitigations.

6.1.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The analysis considered the impacts of the proposed project on the transportation system; vehicles, transit, bicycle, and pedestrians. The proposed project was evaluated using the significance criteria specified for the City, County, and Caltrans as applicable, to determine impacts on existing and proposed facilities.

BASELINE CONDITIONS ANALYSIS

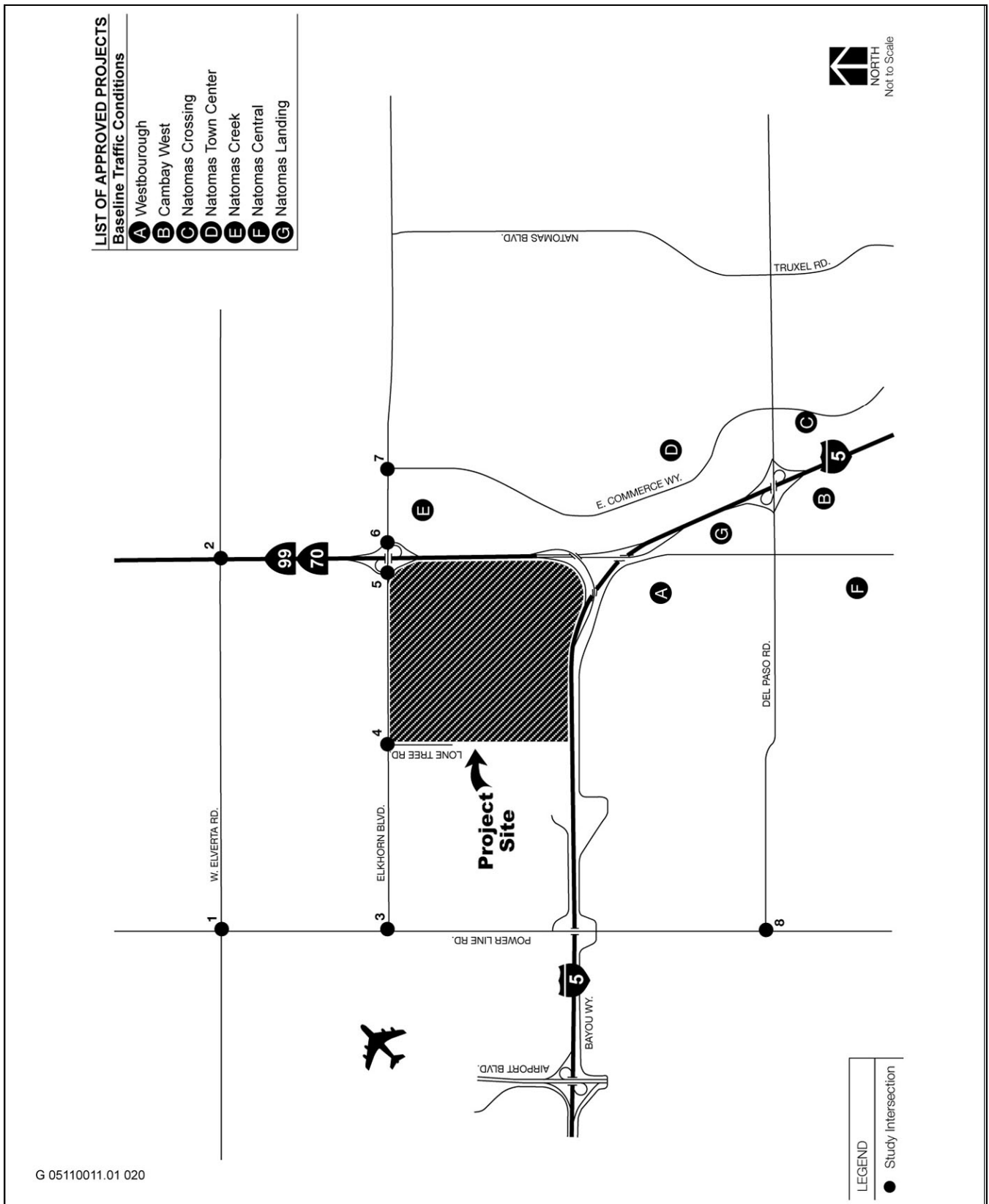
There are seven projects in the project vicinity that are considered under Baseline Conditions as determined by the City. These projects are listed in Table 6.1-11. The locations of the baseline projects are illustrated in Exhibit 6.1-4. These projects are consistent with land uses envisioned by the general plan, have been approved by the City, and are either built out or in the process of building out in the near term (i.e., within 2-4 years). The baseline project trip generation was estimated based on trip rates provided in Trip Generation, 7th Edition, published by ITE. This scenario establishes a baseline for analyzing the traffic impacts of the proposed project. Exhibit 6.1-5 shows the Baseline Conditions peak-hour turning movement volumes.

| Project | Land Use | Size | Daily Trips | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------|----------------|--------------|--------------|----------------|--------------|---------------|
| | | | | In | Out | Total | In | Out | Total |
| Westborough | Single Family Residential General Office Building Light Industrial Shopping Inst. (Med./Dental office) | 102 du ¹ 267 em ² 248 em 96 ksf ³ 157 ksf | 15,417 | 664 | 239 | 903 | 545 | 943 | 1,488 |
| Cambay West | General Office Building | 1,070 em | 3,260 | 451 | 61 | 512 | 78 | 378 | 456 |
| Natomas Crossing | Shopping Center | 2,256 ksf | 51,482 | 619 | 396 | 1,015 | 2,350 | 2,546 | 4,896 |
| Natomas Town Center | Shopping Center | 188 ksf | 10,233 | 140 | 89 | 229 | 456 | 493 | 949 |
| Natomas Creek | Single Family Residential Elementary School | 390 du 700 stud ⁴ | 4,540 | 202 | 319 | 521 | 310 | 232 | 542 |
| Natomas Central | Single Family Residential Single Family Residential Apartment General Office Building Elementary School | 728 du 1,047 du 976 du 340 ksf 349 ksf | 28,667 | 1,765 | 2,083 | 3,848 | 1,715 | 1,584 | 3,299 |
| Natomas Landing | Shopping Center General Office Building | 550 ksf 162 em | 21,235 | 355 | 182 | 537 | 946 | 1,102 | 2,048 |
| Total | | | 134,834 | 4,196 | 3,369 | 7,565 | 6,400 | 7,278 | 13,678 |

Notes: ¹ du – Dwelling Unit; ² em – employees; ³ ksf – 1,000 square feet; ⁴ Stud. – Students

Results of Level of Service Analysis

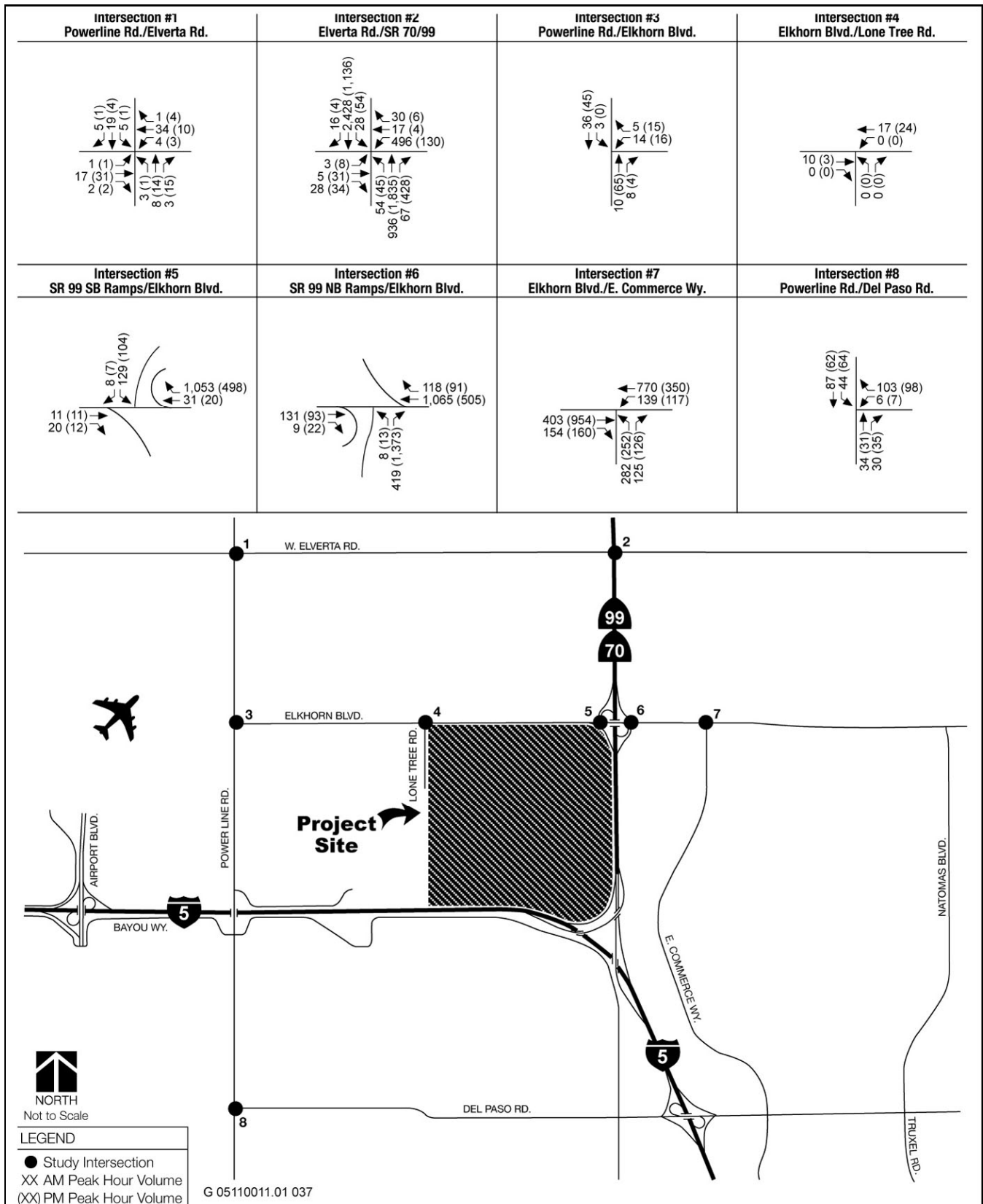
Tables 6.1-12, 6.1-13, 6.1-14, and 6.1-15 summarize the intersection, roadway segment, freeway ramp and freeway mainline segments levels of service, respectively, under the Baseline conditions. Detailed calculations are contained in Appendix B.



Source: TJKM 2005

Location of Approved Projects

Exhibit 6.1-4



Source: TJKM 2005

Baseline Peak-Hour Turning Movement Volumes

Exhibit 6.1-5

| ID | Intersections | Traffic Control | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----|-----------------------------------------|-----------------|------------------------------|------------|--------------------------------------------|----------------------------|------------|--------------------------------------------|
| | | | Average Delay ¹ | LOS | Queue Length (feet) [X: Y, Z] ¹ | Average Delay ¹ | LOS | Queue Length (feet) [X, Y, Z] ¹ |
| 1 | Powerline Road and Elverta Road | All Way Stop | 7.2 | A | - | 7.0 | A | - |
| 2 | Elverta Road and SR 70/99 | Signal | 76.3 | E | [SBT: 1,625, 2,000+] | 18.2 | B | [WBL: 106, 425] |
| 3 | Powerline Road and Elkhorn Boulevard | All Way Stop | 7.1 | A | - | 7.3 | A | - |
| 4 | Elkhorn Boulevard and Lone Tree Road | One Way Stop | No Traffic on Lone Tree Road | | | | | |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | One Way Stop | (9.3) | (A) | - | (9.1) | (A) | - |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | One Way Stop | (13.2) | (B) | [NBR: 72, 485] | 270.0 | (F) | [NBR: 1,869, 485] |
| 7 | Elkhorn Boulevard and E. Commerce Way. | One Way Stop | 6,932.0 | (F) | [NBL: >600, 265] | 6,676.0 | (F) | [NBL: >600, 265] |
| 8 | Powerline Road and Del Paso Road | One Way Stop | (9.1) | (A) | - | (9.0) | (A) | - |

Notes: ¹ Seconds per Vehicle; LOS = Level of Service; (X) = LOS for minor approach
(X.X) = Delay in seconds per vehicle for minor approach
Bold = Unacceptable Intersection Operation
¹ X:Y,Z = Most critical approach: 50th/95th Percentile Queue Length for unsignalized/signalized intersections respectively, Available Segment Length/Storage
- Storage data not reported for those intersections with acceptable LOS Conditions
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left; T = Through; R = Right
HCM 2000 Methodology does not report the overall intersection LOS for one-way stop intersections

Under Baseline Conditions, all study intersections are expected to continue to operate at acceptable levels of service, except for the following intersections:

- ▶ Elverta Road and SR 70/90 – LOS E during the a.m. peak hour
- ▶ SR 70/99 northbound ramps and Elkhorn Boulevard – LOS F for the SR 70/99 northbound off-ramp approach during the p.m. peak hour
- ▶ Elkhorn Boulevard and East Commerce Way – LOS F for the northbound East Commerce Way (minor approach) during the a.m. and p.m. peak hours, respectively

Under Baseline Conditions, Elkhorn Boulevard west of SR 70/99 is expected to continue to operate at an acceptable level of service LOS A (Table 6.1-13).

| Roadway Segment | Lanes (Max. ADT for acceptable LOS in vpd) | Daily Volume (vpd) | LOS |
|------------------------------------------------|-----------------------------------------------|-----------------------|-----|
| Elkhorn Boulevard west of SR 70/99 Interchange | 2 (14,400) | 2,103 | A |
| Lone Tree Road south of Elkhorn Boulevard | No Traffic on Lone Tree Road | | |
| Metro Air Parkway north of I-5 Interchange | NA | | |
| Meister Way west of SR 70/99 | NA | | |

Notes: LOS = Level of Service; vpd = vehicles per day; Max. ADT: Maximum average daily traffic
Bold = Unacceptable Roadway Segment Operation.
NA = not a baseline road

Baseline Ramp Levels of Service

Table 6.1-14 summarizes baseline a.m. and p.m. peak-hour levels of service at the study area freeway ramps.

| Table 6.1-14 Baseline Peak-Hour Freeway Ramp Operating Conditions | | | | | | |
|------------------------------------------------------------------------------|----------------|-----|-----------------------------------------------|----------------|----------|-----------------------------------------------|
| Ramp | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 10 | B | - | 5 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (On-ramp) | 129 | B | - | 143 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 518 | C | [NBR: 72, 1,270] | 1,290 | C | [NBR: 1,869, 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 152 | C | [SBL: 13, 1,250] | 114 | C | [SBL: 10, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 993 | B | - | 641 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (on-ramp) | 30 | B | - | 19 | B | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 935 | C | - | 126 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 111 | C | - | 1,303 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 3,374 | D | - | 1,871 | B | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 1,608 | C | - | 3,347 | E | - |

Notes: LOS – level of service for ramp freeway junction areas of influence
Bold – Unacceptable Ramp Operation
Reference – Highway Capacity Manual 2000 Edition
vph – Vehicles per hour
¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage
- Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the slip ramps.

All the study ramps are expected to operate at acceptable levels of service (LOS D or better) under Baseline Conditions (same as Existing Conditions) except for the following:

Interstate 5 northbound to SR 70/99 northbound off-ramp – LOS E during the p.m. peak hour

Baseline Freeway Mainline Levels of Service

Table 6.1-15 summarizes baseline a.m. and p.m. peak-hour levels of service at the freeway mainline segments.

The following freeway segments are expected to operate unacceptably under Baseline Conditions:

- ▶ I-5 north of Del Paso Road – LOS F for the southbound approach during the a.m. peak hour and the northbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard exit – LOS F for the southbound approach during the a.m. peak hour and the northbound approach during the p.m. peak hour

- ▶ SR 70/99 between Elverta Road and Elkhorn Boulevard – LOS E for the northbound approach during the p.m. peak hour.
- ▶ SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange – LOS E for the southbound approach during the a.m. peak hour and LOS F for the northbound approach during the p.m. peak hour

| Freeway Segment | Direction | A.M. Peak Hour | | | P.M. Peak Hour | | |
|-------------------------------------------------------------------------|-----------|----------------|------------------|----------|----------------|------------------|----------|
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | NB | 2,984 | 27.9 | D | 3,114 | 29.4 | D |
| | SB | 2,692 | 24.8 | C | 3,354 | 32.7 | D |
| I-5 North of Del Paso Road | NB | 3,657 | 22.4 | C | 6,335 | > 45 | F |
| | SB | 5,954 | > 45 | F | 3,922 | 24.1 | C |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 4,465 | 27.8 | D | 7,639 | > 45 | F |
| | SB | 6,894 | > 45 | F | 4,232 | 26.1 | D |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 1,340 | 12.3 | B | 3,509 | 35.3 | E |
| | SB | 3,437 | 34.0 | D | 1,451 | 13.4 | B |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 1,719 | 15.8 | B | 4,650 | > 45 | F |
| | SB | 4,308 | > 45 | F | 1,997 | 18.4 | C |

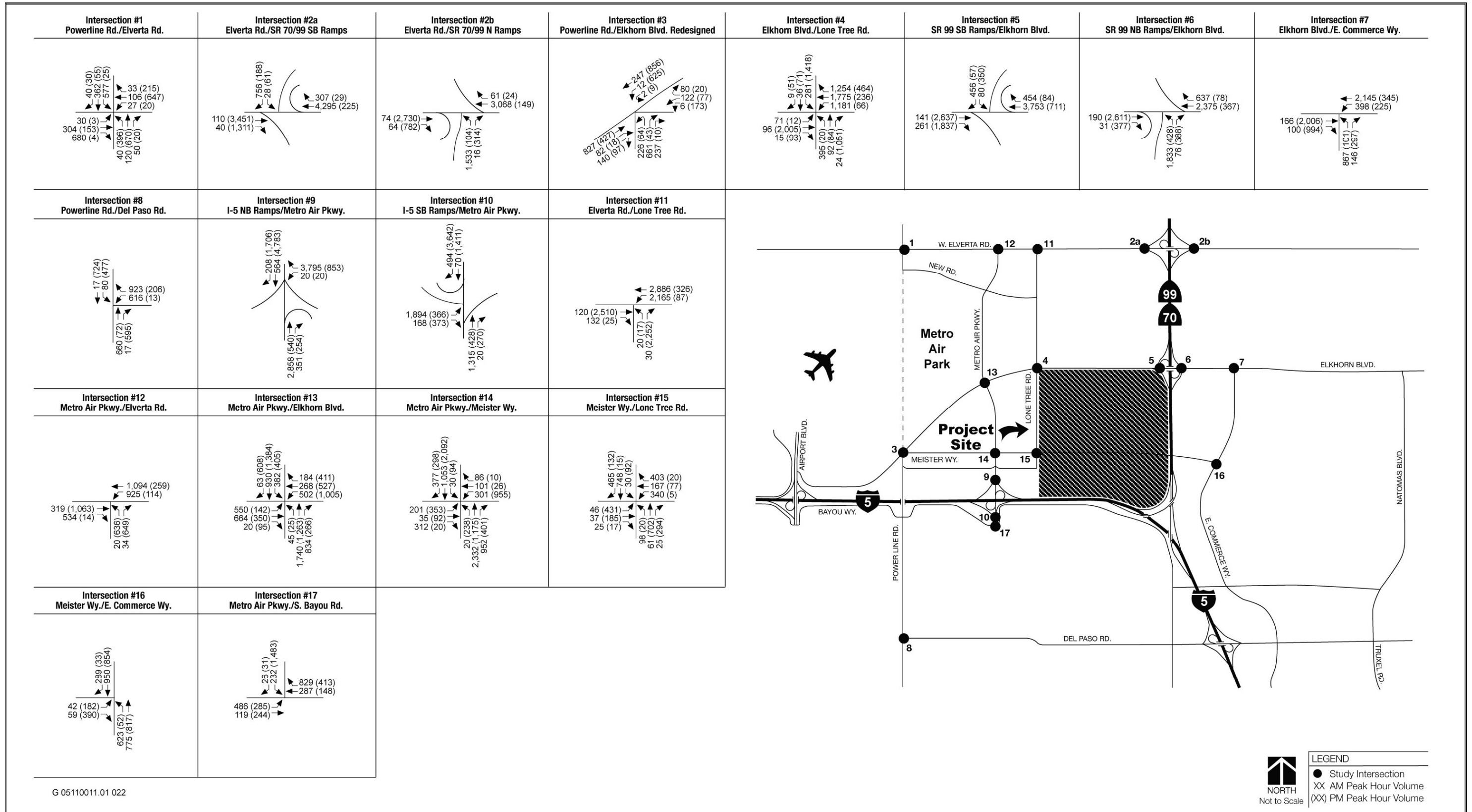
Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

Cumulative (2025) Conditions Analysis

The future cumulative conditions are based on traffic projections from the SACMET Regional Travel Demand Forecasting model. It should be noted that the cumulative projects in the model included all the Baseline approved projects, the West Lakeside project, and buildout of the NNCP. Based on the City’s input, three additional projects were incorporated into the model for the cumulative scenario: North Natomas Shopping Center, Metro Air Park, and Panhandle. The Metro Air Park project is an approved project and is expected to be built by the year 2025. The West Lakeside, Natomas Shopping Center, and Panhandle projects are under review by the City. Exhibit 6.1-6 shows the Cumulative (2025) peak-hour turning movement volumes. Exhibit 6.1-7 illustrates the lane configurations and controls assumed for the Cumulative Conditions (2025). The Meister Way – SR 70/99 overpass is assumed to be constructed by Year 2025.

Results of Level of Service Analysis

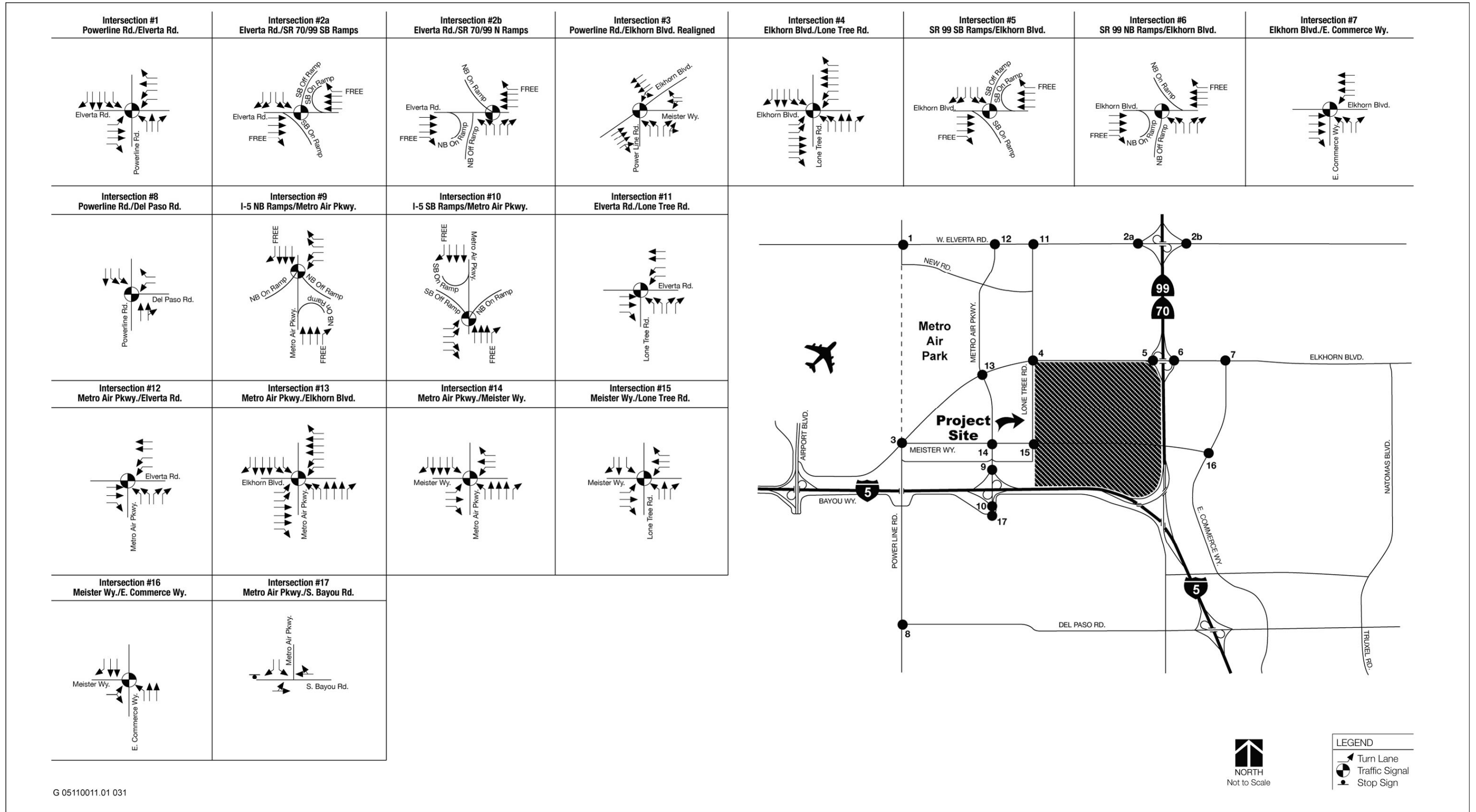
Tables 6.1-16, 6.1-17, 6.1-18, and 6.1-19 summarize the intersection, roadway segment, freeway ramp and freeway mainline segment levels of service under Cumulative Conditions. Detailed calculations are contained in Appendix B.



Source: TJKM 2005

Cumulative (2025) Peak-Hour Turning Movement Volumes

Exhibit 6.1-6



Source: TJKM 2005

Cumulative (2025) Lane Configurations

Exhibit 6.1-7

**Table 6.1-16
Cumulative (2025) Peak-Hour Intersection Operating Conditions**

| ID | Intersections | Traffic Control | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----|---------------------------------------------------------------|-----------------|-----------------------|------------|-----------------------------------------|-----------------------|------------|-----------------------------------------|
| | | | Average Delay or V/C* | LOS | Queue Length (feet) [X: Y] ¹ | Average Delay or V/C* | LOS | Queue Length (feet) [X: Y] ¹ |
| 1 | Powerline Road and Elverta Road (County) | Signal | 0.70 | B | - | 0.82 | D | - |
| 2a | SR 70/99 SB Ramps and Elverta Road | Signal | 140.6 | F | [WBT: 2,154] | 7.7 | A | [EBT: 520] |
| 2b | SR 70/99 NB Ramps and Elverta Road | Signal | 120.1 | F | [WBT: 1,348] | 12.4 | B | [EBT: 445] |
| 3 | Powerline Road and Elkhorn Boulevard and Meister Way (County) | Signal | 0.75 | C | - | 0.79 | C | - |
| 4 | Elkhorn Boulevard and Lone Tree Road | Signal | 37.4 | D | [WBR: 1,484] | 219.0 | F | [SBL: 957] |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | Signal | 44.5 | D | - | 10.8 | B | - |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | Signal | 96.4 | F | [WBT: 1,029] | 13.8 | B | [EBT: 467] |
| 7 | Elkhorn Boulevard and E. Commerce Way | Signal | 17.4 | B | - | 16.2 | B | - |
| 8 | Powerline Road and Del Paso Road (County). | Signal | 0.89 | D | - | 0.51 | A | - |
| 9 | I-5 NB Ramps and Metro Air Parkway | Signal | 256.6 | F | [WBR: 2,655] | 92.1 | F | [SBT: 2,278] |
| 10 | I-5 SB Ramps and Metro Air Parkway | Signal | 31.2 | C | - | 7.8 | A | - |
| 11 | Elverta Road and Lone Tree Road (County) | Signal | 0.97 | E | [WBT: 1,675] | 1.68 | F | [NBR: 1,495] |
| 12 | Elverta Road and Metro Air Parkway (County) | Signal | 0.71 | C | - | 0.65 | B | - |
| 13 | Elkhorn Boulevard and Metro Air Parkway (County) | Signal | 0.85 | D | - | 0.85 | D | - |
| 14 | Meister Way and Metro Air Parkway (County). | Signal | 0.81 | D | [WBL: 477] | 1.32 | F | [WBL: 1,264] |
| 15 | Meister Way and Lone Tree Road | Signal | 22.4 | C | - | 30.4 | C | - |
| 16 | Meister Way and E. Commerce Way | Signal | 20.6 | C | - | 13.3 | B | - |
| 17 | Bayou Road and Metro Air Parkway | One Way Stop | 8,993.0 | (F) | [SBL: >600] | 9,795.0 | (F) | [SBL: >600] |

Notes: * volume/capacity for County intersections; Seconds per Vehicle; LOS = Level of Service; (X) = LOS for minor approach (X.X) = Delay in seconds per vehicle for minor approach
Bold = Unacceptable Intersection Operation
¹ X: Y = Most critical approach: 50th/95th Percentile Queue Length for unsignalized/signalized intersections respectively
- Queue length not reported for those intersections with acceptable LOS conditions
Storage length not available for future lane configurations/study intersections
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left; T = Through; R = Right
HCM 2000 Methodology does not report the overall intersection LOS for one-way stop intersections

Under Cumulative Conditions, the following study intersections are expected to operate unacceptably:

- ▶ SR 70/99 Southbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elverta Road (LOS F during the a.m. peak)

- ▶ Elkhorn Boulevard and Lone Tree Road (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ SR 70/99 Northbound Ramps and Elkhorn Boulevard (LOS F during the a.m. peak)
- ▶ Metro Air Parkway and I-5 Northbound Ramps (LOS F during the a.m. and p.m. peaks)
- ▶ Elverta Road and Lone Tree Road (LOS E and LOS F during the a.m. and p.m. peak, respectively)
- ▶ Meister Way and Metro Air Parkway (LOS F during the p.m. peak)
- ▶ Metro Air Parkway and Bayou Road (LOS F during the a.m. and p.m. peaks)

It should be noted that the cumulative scenario lane configuration includes all planned improvements provided in the environmental impact report for the Metro Air Park General Plan Amendment and Rezone project (1993) in addition to all roads and freeway improvements as of the 2025 Metropolitan Transportation Plan (MTP) (SACOG 2002) and NNCP (1994).

As shown in Table 6.1-17, under Cumulative Conditions the following roadway segments are expected to operate unacceptably:

- ▶ Elkhorn Boulevard west of SR 70/99 Interchange – LOS E
- ▶ Metro Air Parkway north of I-5 Interchange – LOS F

| Roadway Segment | Lanes (Max. ADT for acceptable LOS in vpd) | Daily Volume (vpd) | LOS |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------|----------|
| Elkhorn Boulevard west of SR 70/99 Interchange | 6 (43,200) | 52,409 | E |
| Lone Tree Road south of Elkhorn Boulevard | 4 (28,800) | 13,655 | A |
| Metro Air Parkway north of I-5 Interchange | 6 (48,600) | 78,823 | F |
| Meister Way west of SR 70/99 | 2 (14,400) | 6,559 | A |
| Notes: LOS = Level of Service; vpd = vehicles per day; Max. ADT: Maximum average daily traffic Bold = Unacceptable Roadway Segment Operation. | | | |

As shown in table 6.1-18, the following ramps are expected to operate unacceptably under Cumulative (2025) Conditions:

- ▶ SR 70/99 northbound to Elkhorn Boulevard off-ramp – LOS E during the a.m. peak hour
- ▶ I-5 northbound to SR 70/99 northbound off-ramp – LOS E during the a.m. peak hour
- ▶ I-5 northbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ I-5 southbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ Metro Air Parkway to I-5 southbound loop on-ramp – LOS F during the p.m. peak hour

As shown in Table 6.1-19, the following freeway segments are expected to operate unacceptably under Cumulative (2025) Conditions:

- ▶ I-5 East of Powerline Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of Del Paso Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour

**Table 6.1-18
Cumulative (2025) Peak-Hour Freeway Ramp Operating Conditions**

| Ramp | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---------------------------------------------------------|----------------|----------|-----------------------------------------------|----------------|----------|-----------------------------------------------|
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 31 | B | - | 377 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (On-ramp) | 638 | B | - | 78 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 1,908 | E | [NBL: 1,156, 1,270] | 815 | C | [NBL: 112, 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 536 | C | [SWR: 383, 1,250] | 408 | C | [SWL: 92, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 454 | B | - | 84 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (on-ramp) | 261 | B | - | 1,837 | D | - |
| Elverta Boulevard to SR 70/99 northbound (Loop on-ramp) | 64 | B | - | 781 | B | - |
| Elverta Boulevard to SR 70/99 northbound (On-ramp) | 61 | B | - | 24 | B | - |
| SR 70/99 northbound to Elverta Boulevard (off-ramp) | 1,549 | D | [NBL: 1,008, 1,270] | 417 | C | [NBR: 99, 1,270] |
| SR 70/99 southbound to Elverta Boulevard (off-ramp) | 783 | C | [SWR: 707, 1,250] | 249 | C | [SWL: 35, 1,250] |
| Elverta Boulevard to SR 70/99 southbound (loop on-ramp) | 306 | B | - | 28 | B | - |
| Elverta Boulevard to SR 70/99 southbound (on-ramp) | 40 | B | - | 1,311 | C | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 562 | C | - | 174 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 148 | C | - | 506 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 1,524 | B | - | 3,409 | D | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 3,211 | E | - | 1,863 | C | - |
| I-5 northbound to Metro Air Parkway (off-ramp)* | 3,795 | F | [WBR: 2655, 1270] | 853 | C | [WBR: 231, 1270] |
| Metro Air Parkway to I-5 northbound (On-ramp)* | 209 | B | - | 1,707 | D | - |
| Metro Air Parkway to I-5 northbound (loop on-ramp)* | 350 | B | - | 254 | B | - |
| I-5 southbound to Metro Air Parkway (off-ramp)* | 2,062 | F | [SEL: 757, 1250] | 739 | C | [SER: 56, 1250] |
| Metro Air Parkway to I-5 southbound (On-ramp)* | 0 | B | - | 270 | B | - |
| Metro Air Parkway to I-5 southbound (loop on-ramp)* | 494 | B | - | 3,642 | F | - |

Notes: LOS – level of service for ramp freeway junction areas of influence

Bold – Unacceptable Ramp Operation

Reference – Highway Capacity Manual 2000 Edition

vph – Vehicles per hour

* Future ramps

¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage

- Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues.

As shown in the table, traffic volumes are low on the slip ramps.

| Freeway Segment | Direction | A.M. Peak Hour | | | P.M. Peak Hour | | |
|-------------------------------------------------------------------------|-----------|----------------|------------------|----------|----------------|------------------|----------|
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | NB | 6,266 | > 45 | F | 3,807 | 41.6 | E |
| | SB | 3,243 | 31.1 | D | 6,064 | > 45 | F |
| I-5 North of Del Paso Road | NB | 8,915 | > 45 | F | 5,496 | 25.4 | C |
| | SB | 4,619 | 21.3 | C | 8,966 | > 45 | F |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 10,545 | > 45 | F | 6,976 | 34.9 | D |
| | SB | 5,760 | 26.7 | D | 10,802 | > 45 | F |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 2,120 | 19.5 | C | 2,009 | 18.5 | C |
| | SB | 1,909 | 17.6 | B | 2,069 | 19.0 | C |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 3,359 | 20.6 | C | 2,369 | 14.5 | B |
| | SB | 2,087 | 12.8 | B | 3,583 | 22.0 | C |

Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

Project Trip Generation – Baseline Conditions

The project trip generation was estimated based on the trip rates provided in Trip Generation, 7th Edition, published by the ITE.

The Pre-Census Travel Behavior Report Analysis of the 2000 Sacramento Area Council of Government (SACOG) Household Travel Survey (SACOG 2001) was used to estimate project trips by various modes of travel. It is expected that project trips would predominantly be by autos, with a few by transit, walking, biking and by other means of transportation.

As shown in Table 6.1-20, the proposed project is expected to generate a total of 46,318 new daily trips with 3,551 trips occurring during the a.m. peak hour and 4,779 trips occurring during the p.m. peak hour.

The projected trips were discounted (shown in parenthesis in Table 6.1-20) to account for internal trips between the different land uses and trips that would likely be by transit, walking, and biking. Accounting for discounted trips, the project is expected to generate a net total of 41,119 daily auto trips, with 3,153 auto trips occurring during the a.m. peak hour and 4,467 auto trips occurring during the p.m. peak hour. Appropriate LRT reduction was applied for the project trips under Cumulative plus Project Conditions when the light rail extension and light rail stop is expected to be in place. For additional details, please see “Cumulative plus Projects Conditions” section (Page: 6.1-45).

The residential, village and community commercial portion of the project is estimated to generate 996 daily non-auto trips (walk, bike and transit trips) with 72 trips occurring during the a.m. peak hour and 89 trips during the p.m. peak hour. The majority of residential, village and community commercial non-auto trips are expected to be by walking in the vicinity of the project area. Walking is expected to account for 467 daily non-auto trips (about 47% of projected daily non-auto trips).

A significant number of residential trips are expected to be internal trips between the different land uses: about 1,868 daily trips to/from the proposed elementary school and 2,335 daily trips to/from the village and community commercial. The majority of the residential trips to the elementary school are expected to occur only in the a.m. peak hour. Also, the majority of the residential trips to the village and community commercial are expected to occur during the p.m. peak hour.

**Table 6.1-20
Proposed Project Trip Generation**

| Land Use | Size | Daily Rate | Trips | A.M. Peak Hour Rate | In | Out | Total | P.M. Peak Hour Rate | In | Out | Total |
|-------------------------------------------------------------|---------------------------------------------------|------------|----------------|---------------------|--------------|--------------|--------------|---------------------|--------------|--------------|--------------|
| Single Family Residential (Low Density Housing) | 671 DU ¹ | 9.57 | 6,421 | 0.77 | 134 | 382 | 516 | 1.02 | 438 | 246 | 684 |
| Single Family Residential (Medium Density Housing) | 2,215 DU | 5.86 | 12,980 | 0.44 | 175 | 799 | 974 | 0.52 | 737 | 415 | 1,152 |
| Multi Family Residential (High Density Housing) | 587 DU | 6.72 | 3,945 | 0.55 | 65 | 258 | 323 | 0.67 | 256 | 138 | 394 |
| Total Residential Trips Generated | | | 23,346 | | 374 | 1,439 | 1,813 | | 1,431 | 799 | 2,230 |
| Elementary School | 122.4 ksf ³ (10.2 AC ²) | 14.49 | 1,774 | 4.69 | 310 | 264 | 574 | 3.13 | 165 | 218 | 383 |
| Village and Community Commercial | | | | | | | | | | | |
| - Retail | 263 ksf | 42.94 | 11,293 | 1.03 | 165 | 106 | 271 | 3.75 | 473 | 513 | 986 |
| - Retail/Major Grocery | 67 ksf | 102.24 | 6,850 | 10.05 | 330 | 343 | 673 | 12.02 | 427 | 379 | 806 |
| Meister Retail | 29.7 ksf | 42.94 | 1,275 | 1.03 | 19 | 12 | 31 | 3.75 | 53 | 58 | 111 |
| Meister Retail/Restaurant | 14 ksf | 127.15 | 1,780 | 13.53 | 98 | 91 | 189 | 18.8 | 145 | 118 | 263 |
| Total Project Trips Generated | | | 46,318 | | 1,296 | 2,255 | 3,551 | | 2,694 | 2,085 | 4,779 |
| <i>Trip discount²</i> | | | | | | | | | | | |
| Residential Travel Mode Discount | | | | | | | | | | | |
| Transit (1%) | | | (233) | | (4) | (14) | (18) | | (14) | (8) | (22) |
| Walk (2%) | | | (467) | | (7) | (29) | (36) | | (29) | (16) | (45) |
| Bike (1%) | | | (233) | | (4) | (14) | (18) | | (14) | (8) | (22) |
| Other Travel Mode Discount | | | | | | | | | | | |
| Village and Community Commercial - Transit Ridership (0.3%) | | | (54) | | | Negligible | | | | Negligible | |
| Meister Retail and Restaurant - Transit Ridership | | | (9) | | | Negligible | | | | Negligible | |
| Sub Total | | | (996) | | (15) | (57) | (72) | | (57) | (32) | (89) |
| Residential Linked Trip by Purpose Discount | | | | | | | | | | | |
| Elementary School (8%) A.M. only | | | (1,868) | | (30) | (115) | (145) | | | | |
| Village and Community Commercial (10%) | | | (2,335) | | (37) | (144) | (181) | | (143) | (80) | (223) |
| Sub Total | | | (4,203) | | (67) | (259) | (326) | | (143) | (80) | (223) |
| Total Auto Trips | | | 41,119 | | 1,214 | 1,939 | 3,153 | | 2,494 | 1,973 | 4,467 |

Notes:

¹ DU - Dwelling Unit, ² AC - Acre ³ ksf – 1,000 square feet.

² Mode split based on Pre-Census Behavior Report Analysis of the 2000 SACOG Household Travel Survey, SACOG 2001, Weighted Results for Tables A7,A26,and A27.

88% of Residential trips are by auto during the a.m. peak hour, 1% by Transit,2% by Walk and 1% by Bike with 8% trips made to the Elementary School by other means besides auto.

96% of Residential trips are expected to be made by auto during the p.m. peak hour. 10% of the Residential auto trips are expected to be linked to Village and Community Commercial trips.

0.3 % of non residential trips are expected to be made to the Village and Community Commercial by transit.

Source: ITE Trip Generation 7th Edition 2003

PROJECT TRIP DISTRIBUTION

The project trip distributions for a.m. and p.m. peak hours are shown in Exhibits 6.1-8, 6.1-9, 6.1-10, and 6.1-11. Trips to and from the proposed Greenbriar Project and approved projects were assigned to the study intersections based on the execution of the SACMET model and the trip distribution assumptions shown in the exhibits.

Baseline Scenario

Trips distribution assumptions for the a.m. peak hour are as follows:

- ▶ 55% to/from the south on I-5
- ▶ 15% to/from the north on SR 70/99
- ▶ 15% to/from the east on Elkhorn Boulevard
- ▶ 10% to/from the west on Elkhorn Boulevard
- ▶ 5% to/from the west on I-5

Trips distribution assumptions for the p.m. peak hour are as follows:

- ▶ 45% to/from the south on I-5
- ▶ 20% to/from the west on Elkhorn Boulevard
- ▶ 15% to/from the north on SR 70/99
- ▶ 15% to/from the east on Elkhorn Boulevard
- ▶ 5% to/from the west on I-5

Cumulative Conditions (assumes the Meister Way Overpass is constructed)

Trips distribution assumptions for the a.m. peak hour are as follows:

- ▶ 45% to/from the south on I-5
- ▶ 20% to/from the east on Meister Way over SR 70/99
- ▶ 15% to/from the east on Elkhorn Boulevard
- ▶ 10% to/from the north on SR 70/99
- ▶ 5% to/from the west on Elkhorn Boulevard
- ▶ 5% to/from the west on I-5

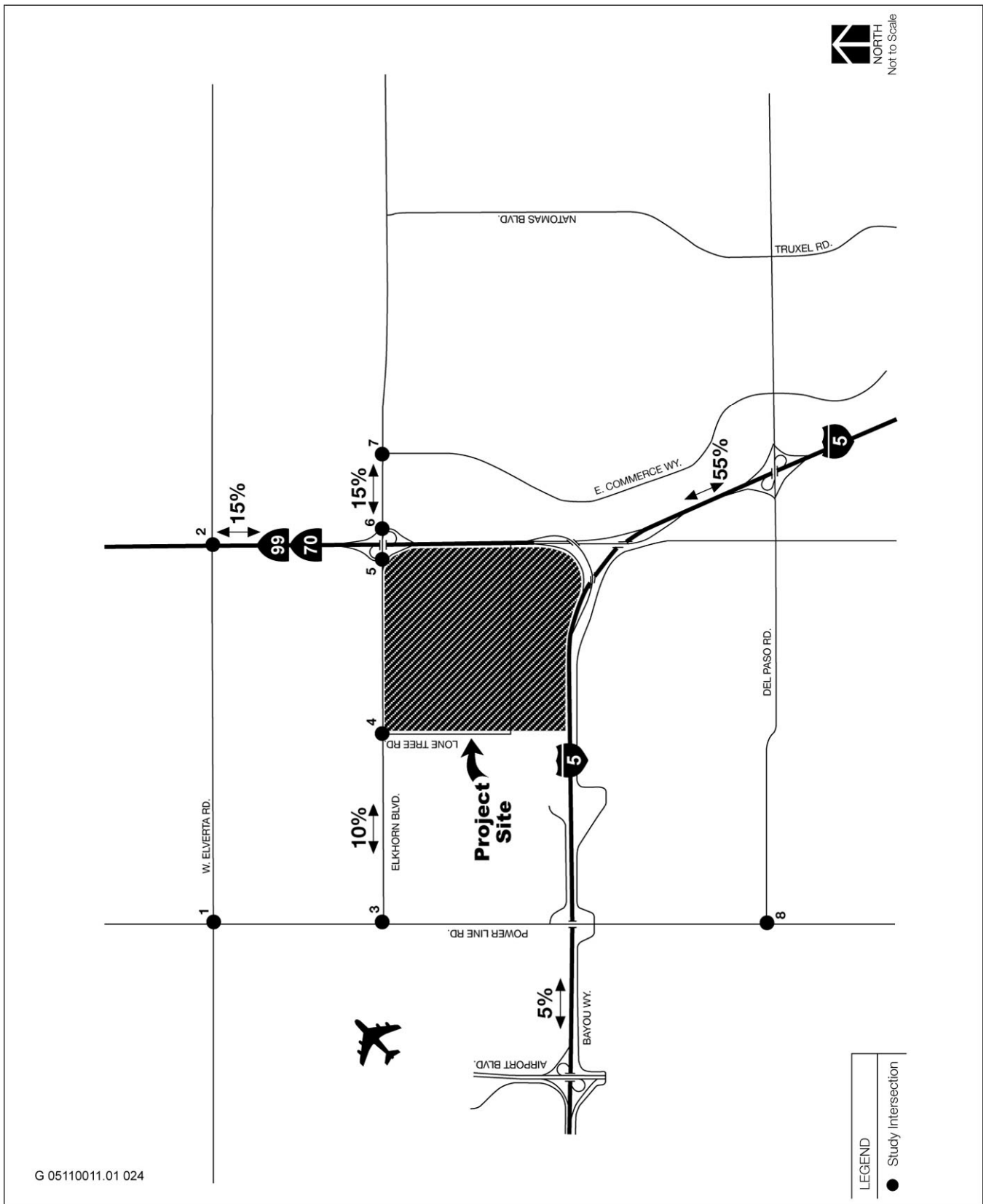
Trips distribution assumptions for the p.m. peak hour are as follows:

- ▶ 35% to/from the south on I-5
- ▶ 30% to/from the east on Meister Way over SR 70/99
- ▶ 10% to/from the east on Elkhorn Boulevard
- ▶ 10% to/from the north on SR 70/99
- ▶ 10% to/from the west on Elkhorn Boulevard
- ▶ 5% to/from the west on I-5

Baseline plus Project Conditions Analysis

The Baseline plus Project Conditions analysis adds traffic from the proposed project to the Baseline traffic conditions.

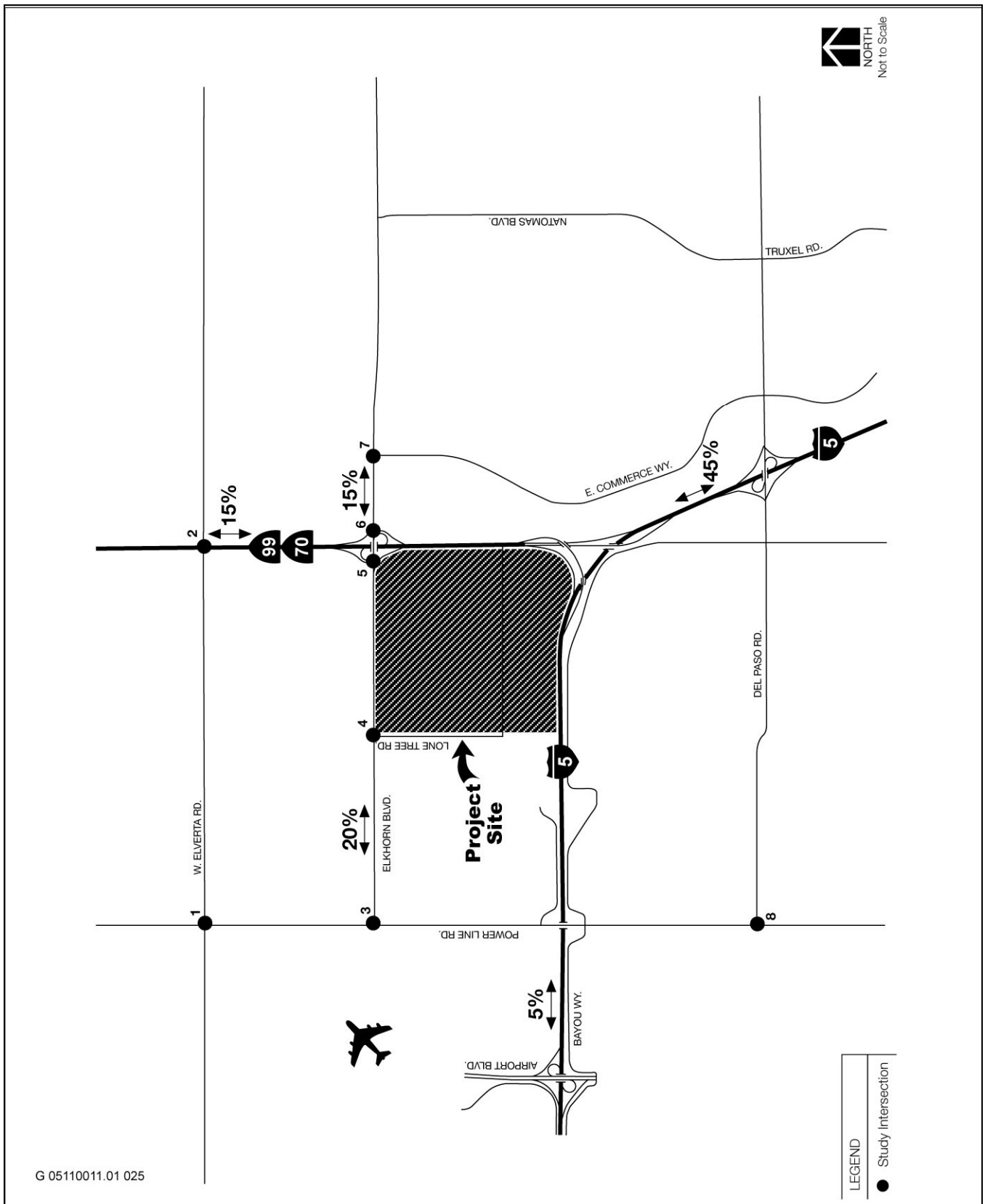
Exhibit 6.1-12 shows the Baseline plus Project peak-hour turning movement volumes. The Baseline plus Project lane configurations are shown in Exhibit 6.1-13.



Source: TJKM 2005

A.M. Peak-Hour Project Trip Distribution without Meister Way Overpass

Exhibit 6.1-8

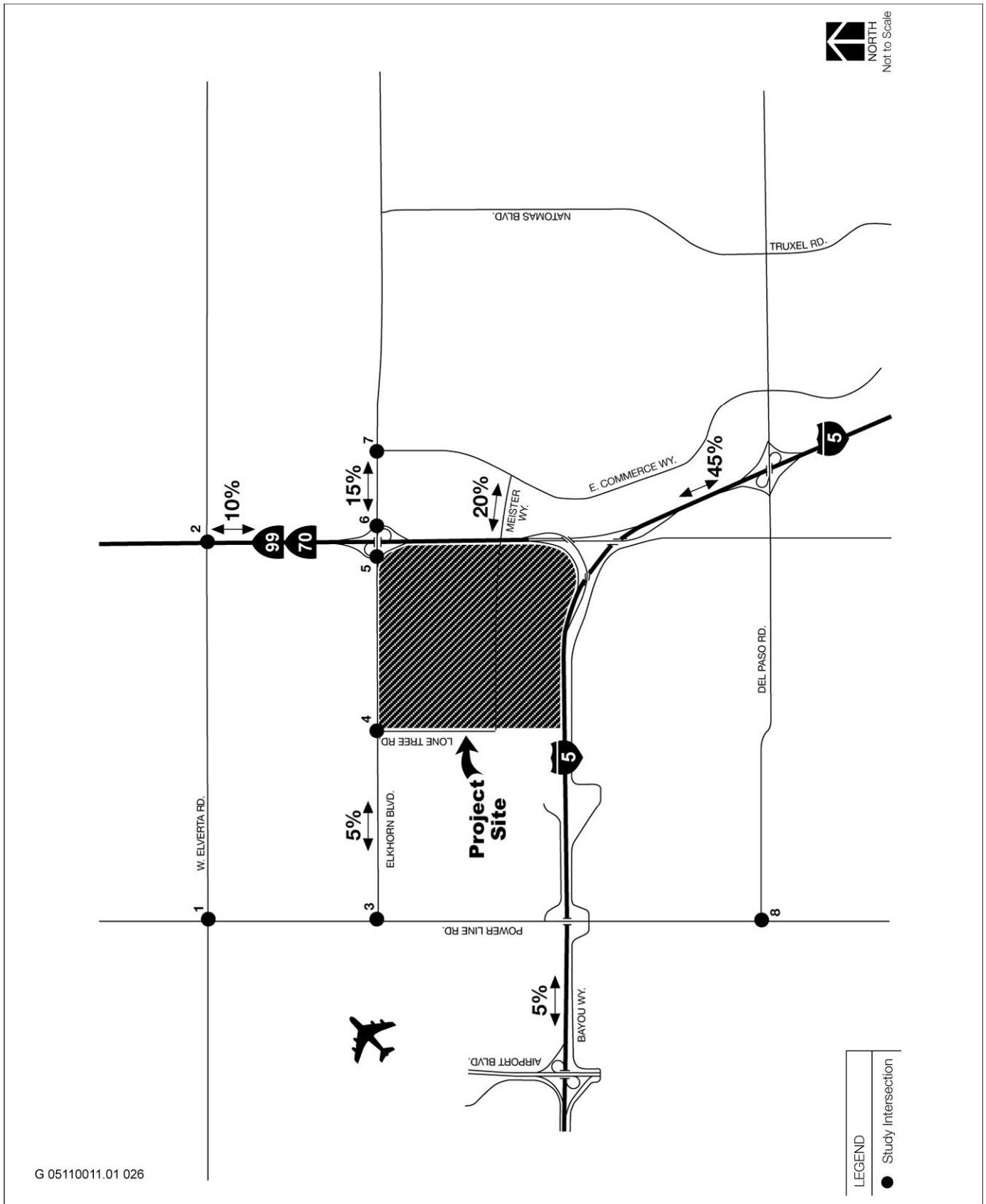


G 05110011.01 025

Source: TJKM 2005

P.M. Peak-Hour Project Trip Distribution without Meister Way Overpass

Exhibit 6.1-9

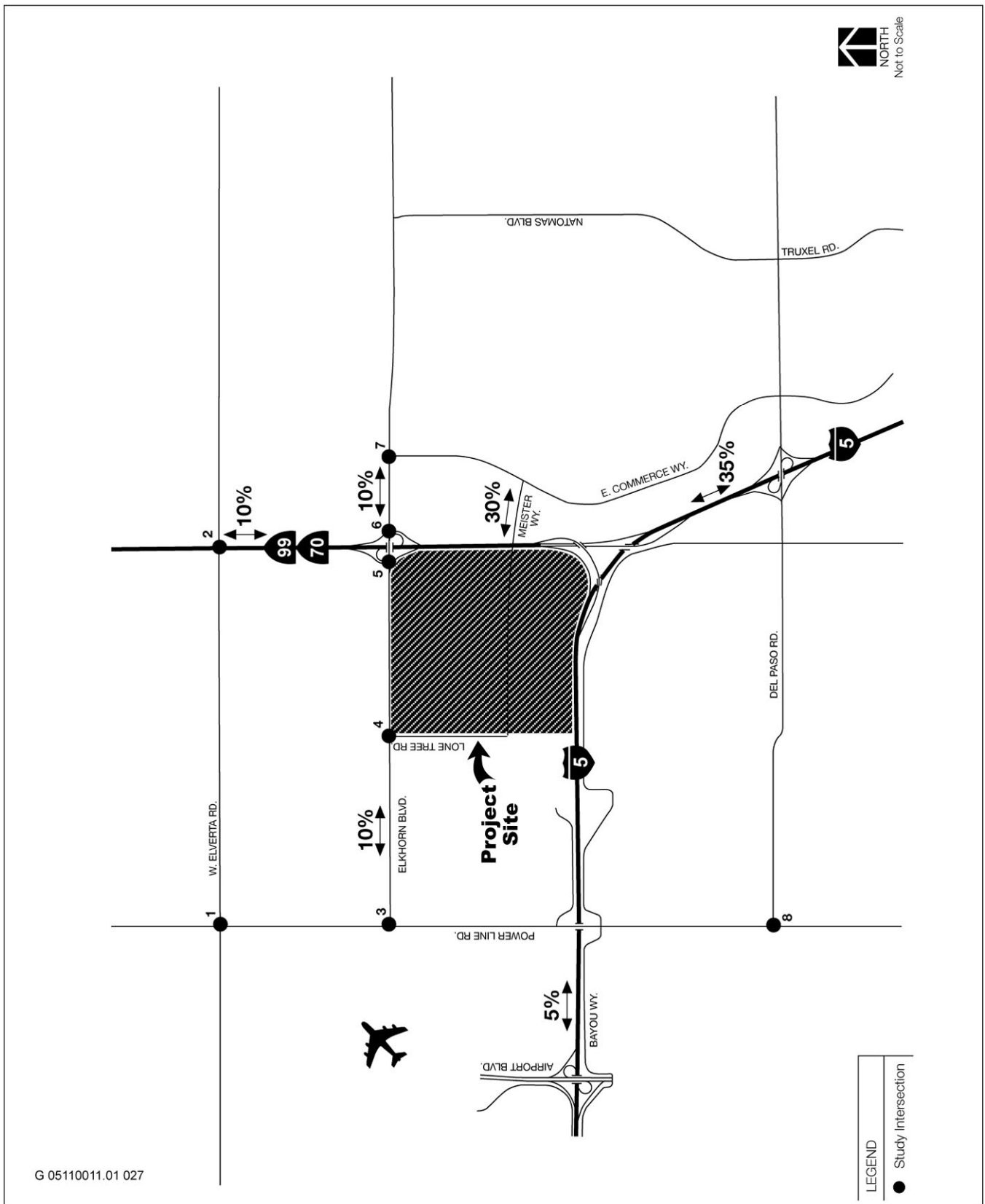


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Source: TJKM 2005

A.M. Peak-Hour Project Trip Distribution with Meister Way Overpass

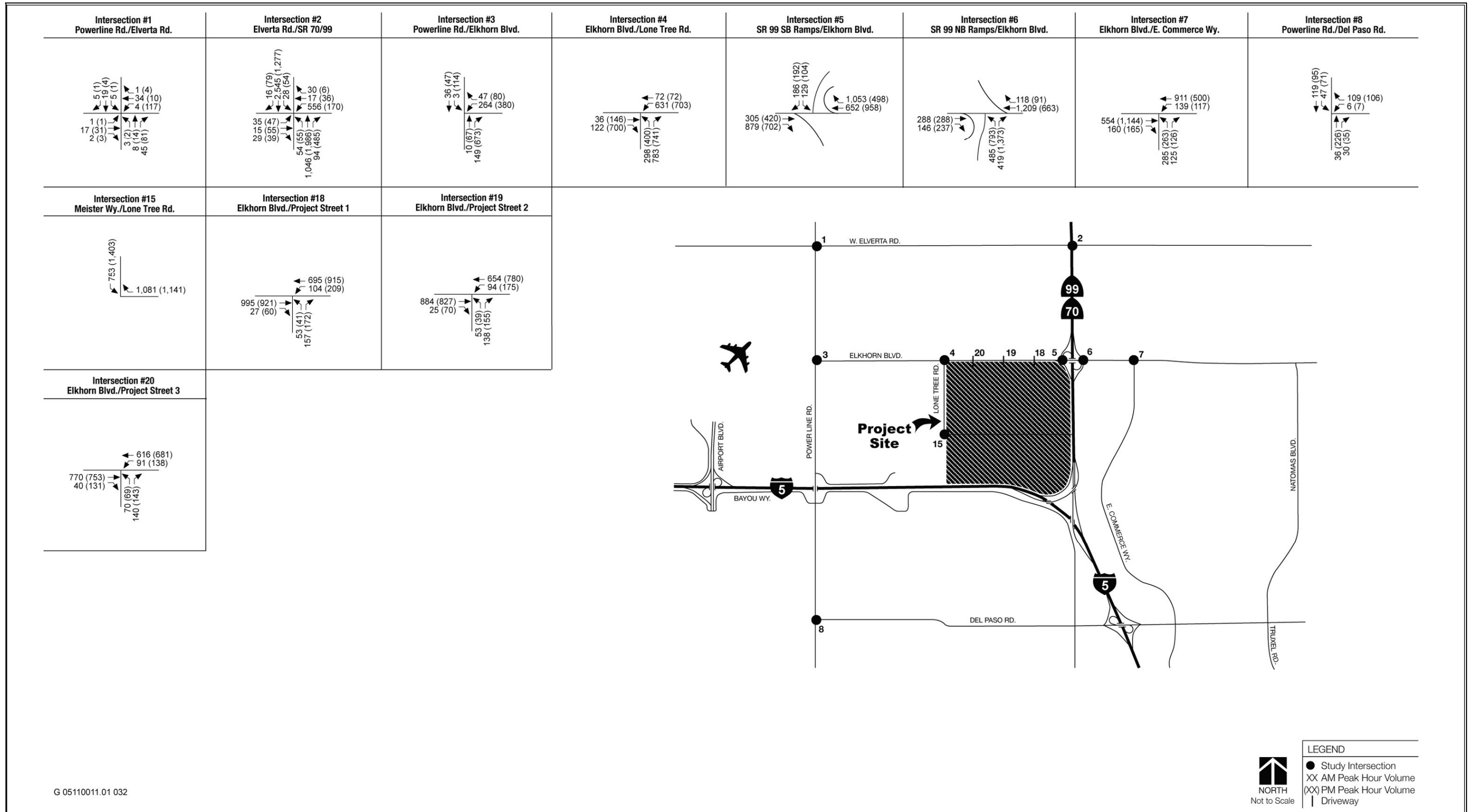
Figure 6.1-10



Source: TJKM 2005

P.M. Peak-Hour Project Trip Distribution with Meister Way Overpass

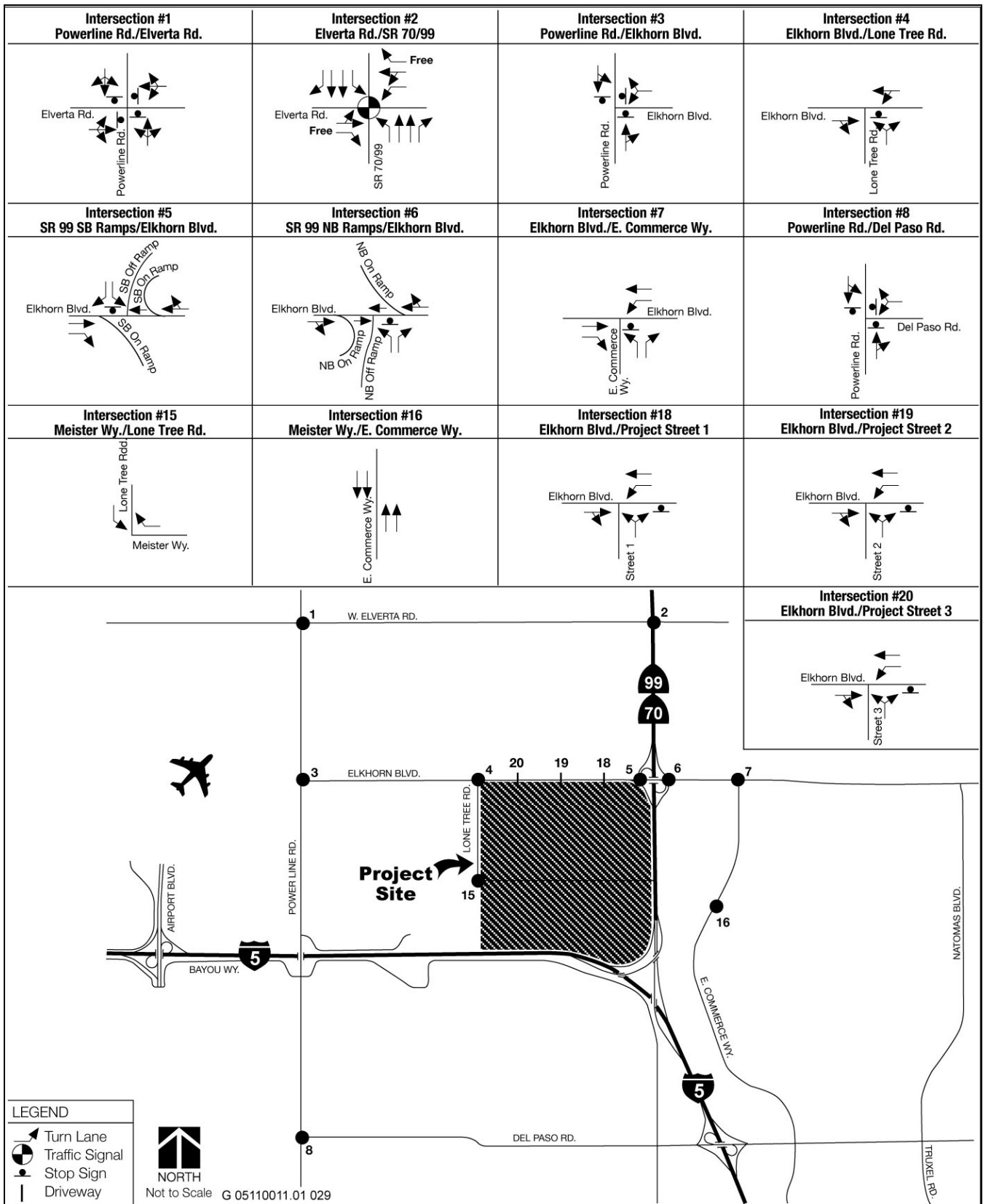
Exhibit 6.1-11



Source: TJKM 2005

Baseline Plus Project Peak-Hour Turning Movement Volumes (without the Meister Way-SR 70/99 Overpass)

Exhibit 6.1-12



Source: TJKM 2005

Baseline Plus Project Lane Configurations (without the Meister Way-SR 70/99 Overpass) Exhibit 6.1-13

Results of Level of Service Analysis

Tables 6.1-21, 6.1-22, 6.1-23, and 6.1-24 summarize the intersection, roadway segment, freeway ramp and freeway mainline segment levels of service under the Baseline plus Project Conditions. Detailed calculations are contained in Appendix B.

As shown in Table 6.1-21, under Baseline plus Project Conditions the following study intersections are expected to operate unacceptably:

| Table 6.1-21 Baseline plus Project Peak-Hour Intersection Operating Conditions | | | | | | | | |
|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------|----------------------------|----------|--------------------------------------------|----------------------------|----------|--------------------------------------------|
| ID | Intersections | Traffic Control | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | | | Average Delay ¹ | LOS | Queue Length (feet) [X: Y, Z] ¹ | Average Delay ¹ | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| 1 | Powerline Road and Elverta Road | All Way Stop | 7.1 | A | - | 8.0 | A | - |
| 2 | Elverta Road and SR 70/99 | Signal | 111.4 | F | [SBT: 1820, 2,000+] | 33.6 | C | [WBL: 151, 425] |
| 3 | Powerline Road and Elkhorn Boulevard | All Way Stop | 11.3 | B | - | 94.9 | F | - |
| 4 | Elkhorn Boulevard and Lone Tree Road | One Way Stop | 5,569.3 | (F) | [NBLR: >600, 1,200+] | 7,805.5 | (F) | [NBLR: >600, 1,200+] |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | One Way Stop | (26.4) | (D) | [SBL: 76, 450] | (67.1) | (F) | [SBR: 137, 450] |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | One Way Stop | 5,372.8 | (F) | [NBL: >600, 485] | 3,973.2 | (F) | [NBL: >600, 485] |
| 7 | Elkhorn Boulevard and E. Commerce Way | One Way Stop | 6,955.1 | (F) | [NBL: >600, 265] | 6,775.9 | (F) | [NBL: >600, 265] |
| 8 | Powerline Road and Del Paso Road | One Way Stop | (9.2) | (A) | - | (10.8) | (B) | - |
| 18 | Elkhorn Boulevard and Project Street 1 | One Way Stop | 473.1 | (F) | [NBLR: 448, --] | 903.5 | (F) | [NBLR: 559, --] |
| 19 | Elkhorn Boulevard and Project Street 2 | One Way Stop | 256.9 | (F) | [NBLR: 324, --] | 382.4 | (F) | [NBLR: 386, --] |
| 20 | Elkhorn Boulevard and Project Street 3 | One Way Stop | 231.5 | (F) | [NBLR: 334, --] | 428.2 | (F) | [NBLR: 435, --] |

Notes: Seconds per Vehicle; LOS = Level of Service; (X) = LOS for minor approach
 (X.X) = Delay in seconds per vehicle for minor approach
Bold = Unacceptable Intersection Operation
¹ X:Y,Z = Most critical approach: 50th/95th Percentile Queue Length for unsignalized/signalized intersections respectively , Available Segment Length/Storage
 - Queue length not reported for those intersections with acceptable LOS Conditions or all-way stop control
 -- Storage length not available for future lane configurations/study intersections
 NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left; T = Through; R = Right
 HCM 2000 Methodology does not report the overall intersection LOS for one-way stop intersections

- ▶ Elverta Road and SR 70/99 – LOS F during the a.m. peak hour
- ▶ Powerline Road and Elkhorn Boulevard – LOS F during the p.m. peak hour
- ▶ Elkhorn Boulevard and Lone Tree Road – LOS F during the a.m. and p.m. peak hours
- ▶ SR 70/99 Southbound Ramps and Elkhorn Boulevard – LOS F during the p.m. peak hour
- ▶ SR 70/99 Northbound Ramps and Elkhorn Boulevard – LOS F during the a.m. and p.m. peak hours
- ▶ Elkhorn Boulevard and E. Commerce Way – LOS F during the a.m. and p.m. peak hours
- ▶ Elkhorn Boulevard and Project Street 1 – LOS F during the a.m. and p.m. peak hours
- ▶ Elkhorn Boulevard and Project Street 2 – LOS F during the a.m. and p.m. peak hours
- ▶ Elkhorn Boulevard and Project Street 3 – LOS F during the a.m. and p.m. peak hours

As shown in Table 6.1-22, Elkhorn Boulevard west of SR 70/99 interchange and Lone Tree Road south of Elkhorn Boulevard are expected to operate unacceptably (LOS F) under Baseline plus Project Conditions.

| Table 6.1-22 Baseline plus Project Roadway Operating Conditions | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------|----------|
| Roadway Segment | Lanes (Max. ADT for acceptable LOS in vpd) | Daily Volume (vpd) | LOS |
| Elkhorn Boulevard west of SR 70/99 Interchange | 2 (14,400) | 22,170 | F |
| Lone Tree Road south of Elkhorn Boulevard | 2 (14,400) | 25,440 | F |
| Metro Air Parkway north of I-5 Interchange | Future Roadway | | |
| Notes: LOS = Level of Service; vpd = vehicles per day; Max. ADT: Maximum average daily traffic Bold = Unacceptable Roadway Segment Operation. | | | |

As shown in Table 6.1-23, all the study ramps are expected to continue to operate at acceptable levels of service under Baseline plus Project Conditions except for the following:

- ▶ SR 70/99 Northbound to Elkhorn Boulevard off-ramp – LOS F during the p.m. peak hour
- ▶ SR 70/99 Southbound to I-5 Southbound on-ramp – LOS F during the a.m. peak hour
- ▶ I-5 Northbound to SR 70/99 Northbound off-ramp – LOS F during the p.m. peak hour

| Table 6.1-23 Baseline plus Project Peak-Hour Freeway Ramp Operating Conditions | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|--------------------------------------------|----------------|----------|--------------------------------------------|
| Ramp | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 147 | B | - | 220 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (On-ramp) | 129 | B | - | 146 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 995 | C | [NBL: >600, 1,270] | 2070 | F | [NBL: > 600, 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 330 | C | [SBL: 76, 1,250] | 300 | C | [SBR: 137, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 993 | B | - | 641 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (on-ramp) | 889 | B | - | 704 | B | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 982 | C | - | 174 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 141 | C | - | 1,335 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 4,186 | F | - | 2,508 | C | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 2,055 | C | - | 4,095 | F | - |
| Notes: LOS – level of service for ramp freeway junction areas of influence Bold – Unacceptable Ramp Operation Reference – Highway Capacity Manual 2000 Edition vph – Vehicles per hour ¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage - Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the slip ramps. | | | | | | |

As shown in Table 6.1-24, the following freeway segments are expected to operate unacceptably (LOS E or worse) under Baseline plus Project Conditions:

- ▶ I-5 north of Del Paso Road – LOS F for the southbound approach during the a.m. peak hour and the northbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the southbound approach during the a.m. peak hour and the northbound approach during the p.m. peak hour
- ▶ SR 70/99 between Elverta Road and Elkhorn Boulevard – LOS E for the southbound approach during the a.m. peak hour and the northbound approach during the p.m. peak hour
- ▶ SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange – LOS F for the southbound approach during the a.m. peak hour and the northbound approach during the p.m. peak hour

| Freeway Segment | Direction | A.M. Peak Hour | | | P.M. Peak Hour | | |
|-------------------------------------------------------------------------|-----------|----------------|------------------|----------|----------------|------------------|----------|
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | WB/NB | 3,031 | 28.4 | D | 3,162 | 30.0 | D |
| | EB/SB | 2,722 | 25.1 | C | 3,386 | 33.2 | D |
| I-5 North of Del Paso Road | NB | 4,104 | 25.3 | C | 7,083 | > 45 | F |
| | SB | 6,766 | > 45 | F | 4,559 | 28.5 | D |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 4,851 | 31.0 | D | 8,459 | > 45 | F |
| | SB | 7,722 | > 45 | F | 4,926 | 31.7 | D |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 1,477 | 13.6 | B | 3,727 | 39.7 | E |
| | SB | 3,615 | 37.3 | E | 1,637 | 15.1 | B |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 2,196 | 20.2 | C | 5,430 | > 45 | F |
| | SB | 5,167 | > 45 | F | 2,682 | 24.7 | C |

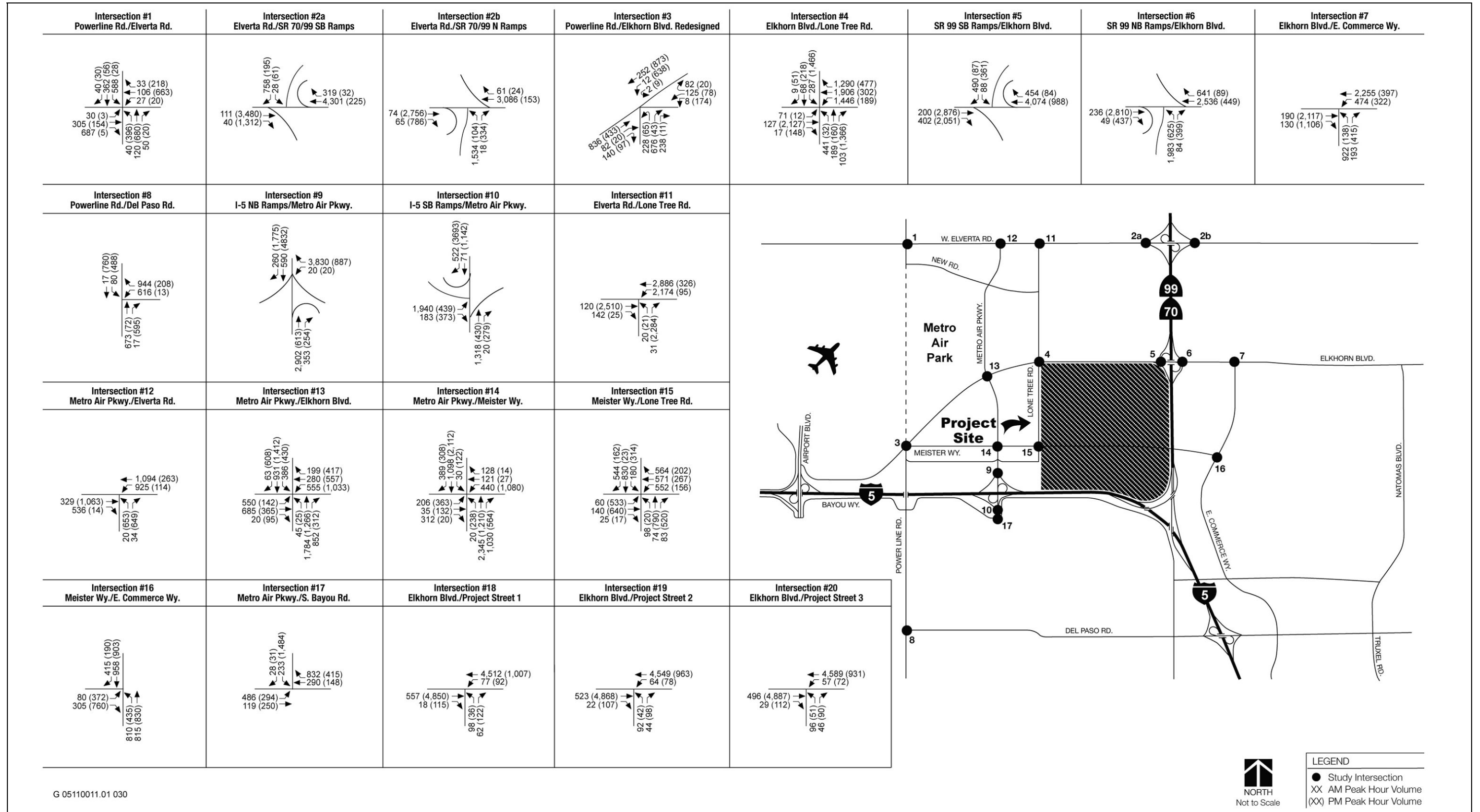
Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

Cumulative (2025) plus Project Conditions Analysis

The Cumulative (2025) plus Project conditions analysis adds traffic from the proposed project to the Cumulative (2025) traffic conditions without project. This scenario presents the expected long term traffic impacts of the project on the study intersections, roadway segments, and freeway facilities. Exhibit 6.1-14 presents the Cumulative plus Project peak-hour turning movement volumes. Exhibit 6.1-15 presents Cumulative plus Project lane configurations.

The Meister Way – SR 70/99 overpass is assumed to be constructed by year 2025. Also, under Cumulative plus Project conditions, the light rail transit (LRT) service is assumed to be extended from downtown Sacramento to the Sacramento International Airport area with a light rail stop along Meister Way in the center of the project site (within ½ mile).

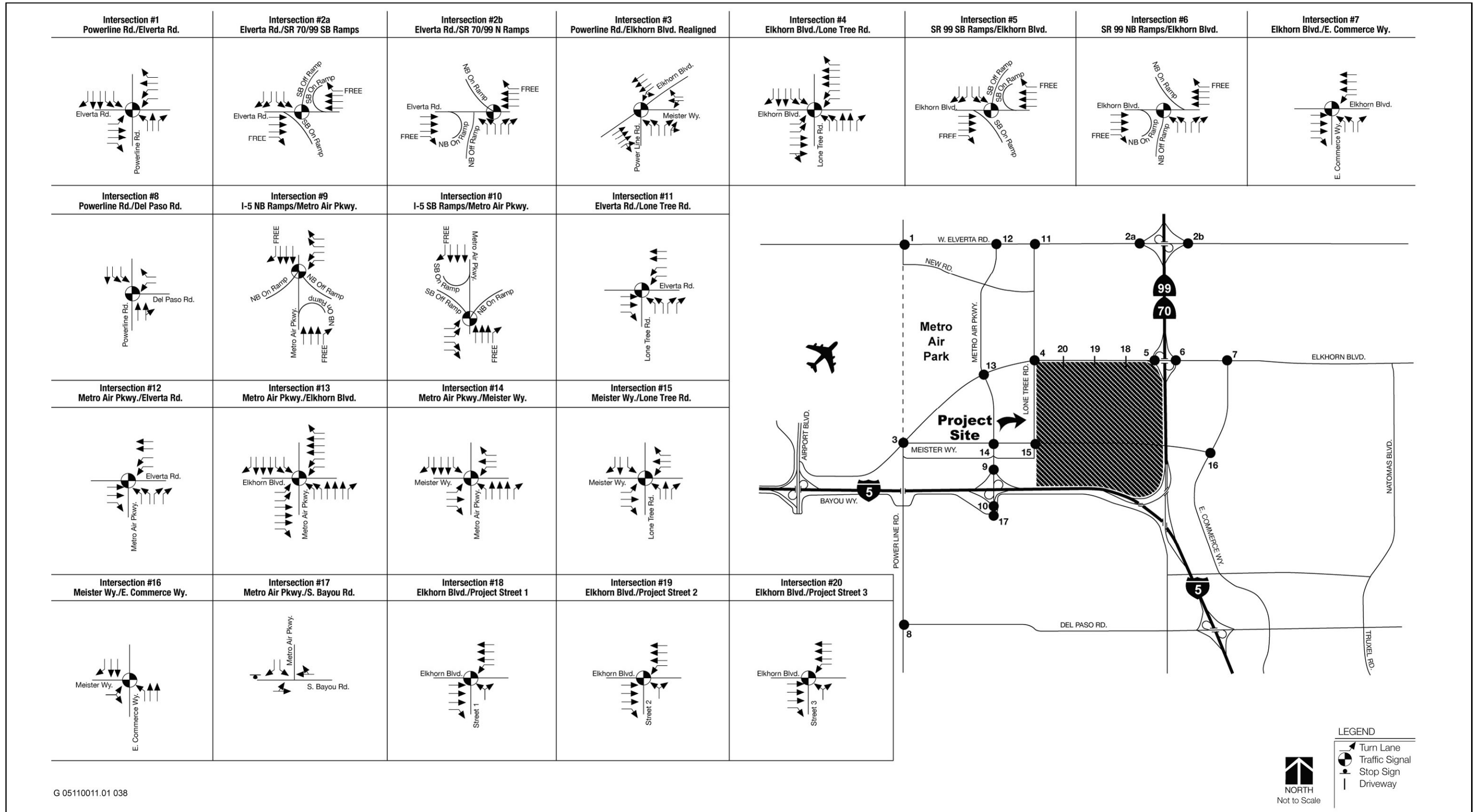
Based on the growth in transit use in the Sacramento area between 1990 and 2000 and light rail use between the suburbs and downtown Sacramento (per 2000 SACOG Household Survey), a trip reduction of 11% for LRT use was applied to the residential portion of the project trip generation for Cumulative (2025) Conditions. A memo detailing this reduction is included in Appendix B. Based on the information provided in the recent traffic impact study completed for Hampton Station project (within ½ mile of a light rail station), a trip reduction of 8% was



Source: TJKM 2005

Cumulative (2025) Plus Project Peak-Hour Turning Movement Volumes

Exhibit 6.1-14



Source: TJKM 2005

Cumulative (2025) Plus Project Lane Configurations

Exhibit 6.1-15

applied to the retail and commercial portion of the project trip generation for Cumulative (2025) Conditions. It is important to note the Hampton Station project was a 176-unit residential project ½ mile from LRT while the proposed project is an entire mixed-use community planned around LRT.

Results of Level of Service Analysis

Tables 6.1-25, 6.1-26, 6.1-27, and 6.1-28 summarize the intersection, roadway segment, freeway ramp and freeway mainline segment levels of service under Cumulative (2025) plus Project conditions. Detailed calculations are contained in Appendix B. Under Cumulative (2025) plus Project conditions, the following study intersections are expected to operate unacceptably (Table 6.1-25):

- ▶ SR 70/99 Southbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ Elkhorn Boulevard and Lone Tree Road (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ SR 70/99 Southbound Ramps and Elkhorn Boulevard (LOS E during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elkhorn Boulevard (LOS F during the a.m. peak)
- ▶ Metro Air Parkway and I-5 Northbound Ramps (LOS F during the a.m. and p.m. peaks)
- ▶ Elverta Road and Lone Tree Road (LOS E and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and Metro Air Parkway (LOS E and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and Lone Tree Road (LOS D and LOS F during both the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and E. Commerce Way (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Metro Air Parkway and Bayou Road (LOS F during the a.m. and p.m. peaks)
- ▶ Elkhorn Boulevard and Project Street 1 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Elkhorn Boulevard and Project Street 2 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Elkhorn Boulevard and Project Street 3 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)

As shown in Table 6.1-26, under Cumulative plus Project conditions the following segments are expected to operate unacceptably:

- ▶ Elkhorn Boulevard west of SR 70/99 Interchange – LOS F
- ▶ Metro Air Parkway north of I-5 Interchange – LOS F
- ▶ Meister Way west of SR 70/99 – LOS E

As shown in Table 6.1-27 the following ramps are expected to operate unacceptably under Cumulative (2025) plus Project conditions:

- ▶ SR 70/99 northbound to Elkhorn Boulevard off-ramp – LOS F during the a.m. peak hour
- ▶ Elkhorn Boulevard to SR 70/99 southbound slip on-ramp – LOS E during the p.m. peak hour
- ▶ I-5 northbound to SR 70/99 northbound off-ramp – LOS E during the a.m. peak hour
- ▶ I-5 northbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ I-5 southbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ Metro Air Parkway to I-5 southbound loop on-ramp – LOS F during the p.m. peak hour

As shown in Table 6.1-28, the following freeway segments are expected to operate unacceptably under Cumulative (2025) plus Project conditions:

- ▶ I-5 East of Powerline Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of Del Paso Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour

**Table 6.1-25
Cumulative (2025) plus Project Peak-Hour Intersection Operating Conditions**

| ID | Intersections | Traffic Control | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----|---------------------------------------------------------------|-----------------|-----------------------|------------|-----------------------------------------|-----------------------|------------|-----------------------------------------|
| | | | Average Delay or V/C* | LOS | Queue Length (feet) [X: Y] ¹ | Average Delay or V/C* | LOS | Queue Length (feet) [X, Y] ¹ |
| 1 | Powerline Road and Elverta Road (County) | Signal | 0.71 | C | - | 0.84 | D | - |
| 2a | SR 70/99 SB Ramps and Elverta Road | Signal | 141.3 | F | [WBT: 2,160] | 8.1 | A | [EBT: 547] |
| 2b | SR 70/99 NB Ramps and Elverta Road | Signal | 120.0 | F | [WBT: 1,349] | 13.1 | B | [EBT: 469] |
| 3 | Powerline Road and Elkhorn Boulevard and Meister Way (County) | Signal | 0.76 | C | - | 0.79 | C | - |
| 4 | Elkhorn Boulevard and Lone Tree Road | Signal | 48.4 | D | [WBR: 1,906] | 226.2 | F | [SBL: 1,034] |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | Signal | 78.0 | E | [WBT: 1,893] | 10.9 | B | [EBT: 596] |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | Signal | 125.0 | F | [WBT: 1,163] | 16.3 | B | [EBT: 519] |
| 7 | Elkhorn Boulevard and E. Commerce Way | Signal | 20.2 | C | - | 33.4 | C | - |
| 8 | Powerline Road and Del Paso Road (County) | Signal | 0.90 | D | - | 0.54 | A | - |
| 9 | I-5 NB Ramps and Metro Air Parkway | Signal | 256.6 | F | [WBR: 2,694] | 102.9 | F | [SBT: 2,371] |
| 10 | I-5 SB Ramps and Metro Air Parkway | Signal | 34.5 | C | - | 8.0 | A | - |
| 11 | Elverta Road and Lone Tree Road (County) | Signal | 0.97 | E | [WBT: 1,675] | 1.69 | F | [NBR: 1,524] |
| 12 | Elverta Road and Metro Air Parkway (County) | Signal | 0.71 | C | - | 0.66 | B | - |
| 13 | Elkhorn Boulevard and Metro Air Parkway (County) | Signal | 0.88 | D | [WBL: 311] | 0.87 | D | [WBL: 551] |
| 14 | Meister Way and Metro Air Parkway (County) | Signal | 0.89 | D | [WBL: 725] | 1.45 | F | [WBL: 1,460] |
| 15 | Meister Way and Lone Tree Road (City/County) | Signal | 49.4 | D | [WBL: 929] | 116.5 | F | [EBL: 586] |
| 16 | Meister Way and E. Commerce Way | Signal | 53.5 | D | [NBL: 928] | 109.3 | F | [EBLR: 1,021] |
| 17 | Bayou Road and Metro Air Parkway | One Way Stop | 8,994.0 | (F) | [SBL: >600] | 9795 | (F) | [SBL: >600] |
| 18 | Elkhorn Boulevard and Project Street 1 | Signal | 40.3 | D | [WBT: 2,069] | 99.6 | F | [EBT: 2,329] |
| 19 | Elkhorn Boulevard and Project Street 2 | Signal | 41.7 | D | [WBT: 2,099] | 95.5 | F | [EBT: 2,342] |
| 20 | Elkhorn Boulevard and Project Street 3 | Signal | 45.9 | D | [WBT: 2,128] | 97.4 | F | [EBT: 2,100] |

Notes: * Volume/Capacity for County intersections; Seconds per Vehicle; LOS = Level of Service; (X) = LOS for minor approach (X.X) = Delay in seconds per vehicle for minor approach

Bold = Unacceptable Intersection Operation.

¹ X: Y = Most critical approach: 50th/95th Percentile Queue Length for unsignalized/signalized intersections respectively

- Queue length not reported for those intersections with acceptable LOS conditions

Storage length not available for future lane configurations/study intersections

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left; T = Through; R = Right

HCM 2000 Methodology does not report the overall intersection LOS for one-way stop intersections

**Table 6.1-26
Cumulative (2025) plus Project Roadway Operating Conditions**

| Roadway Segment | Lanes (Max. ADT for acceptable LOS in vpd) | Daily Volume (vpd) | LOS |
|------------------------------------------------|--------------------------------------------|--------------------|----------|
| Elkhorn Boulevard west of SR 70/99 Interchange | 6 (43,200) | 59,995 | F |
| Lone Tree Road south of Elkhorn Boulevard | 4 (28,800) | 20,802 | A |
| Metro Air Parkway north of I-5 Interchange | 6 (48,600) | 81,081 | F |
| Meister Way west of SR 70/99 | 2 (14,400) | 17,198 | E |

Notes: LOS = Level of Service; vpd = vehicles per day; Max. ADT: Maximum average daily traffic
Bold = Unacceptable Roadway Segment Operation.

**Table 6.1-27
Cumulative (2025) plus Project Peak-Hour Freeway Ramp Operating Conditions**

| Ramp | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---------------------------------------------------------|----------------|----------|--------------------------------------------|----------------|----------|--------------------------------------------|
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 49 | B | - | 437 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (On-ramp) | 641 | B | - | 90 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 2,067 | F | [NBL: 1,290, 1,270] | 1,024 | C | [NBL: 222, 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 577 | C | [SWR: 468, 1,250] | 447 | C | [SWL: 115, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 454 | B | - | 84 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (on-ramp) | 404 | B | - | 2,045 | E | - |
| Elverta Boulevard to SR 70/99 northbound (Loop on-ramp) | 65 | B | - | 785 | B | - |
| Elverta Boulevard to SR 70/99 northbound (On-ramp) | 61 | B | - | 24 | B | - |
| SR 70/99 northbound to Elverta Boulevard (off-ramp) | 1,553 | D | [NBL: 1,021, 1,270] | 437 | C | [NBR: 105, 1,270] |
| SR 70/99 southbound to Elverta Boulevard (off-ramp) | 785 | C | [SWR: 709, 1,250] | 256 | C | [SWL: 35, 1,250] |
| Elverta Boulevard to SR 70/99 southbound (loop on-ramp) | 319 | B | - | 32 | B | - |
| Elverta Boulevard to SR 70/99 southbound (on-ramp) | 40 | B | - | 1,312 | C | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 568 | C | - | 186 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 156 | C | - | 516 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 1,662 | B | - | 3,605 | D | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 3,362 | E | - | 2,062 | C | - |
| I-5 northbound to Metro Air Parkway (off-ramp)* | 3,828 | F | [WBR: 2,693, 1,270] | 888 | C | [WBR: 373, 1270] |
| Metro Air Parkway to I-5 northbound (On-ramp)* | 259 | B | - | 1,776 | D | - |
| Metro Air Parkway to I-5 northbound (loop on-ramp)* | 353 | B | - | 254 | B | - |
| I-5 southbound to Metro Air Parkway (off-ramp)* | 2,122 | F | [SEL: 776, 1,250] | 809 | C | [SEL: 60, 1,250] |
| Metro Air Parkway to I-5 southbound (On-ramp)* | 0 | B | - | 278 | B | - |
| Metro Air Parkway to I-5 southbound (loop on-ramp)* | 521 | B | - | 3,690 | F | - |

| Table 6.1-27 Cumulative (2025) plus Project Peak-Hour Freeway Ramp Operating Conditions | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|--------------------------------------------|----------------|-----|--------------------------------------------|
| Ramp | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Notes: LOS – level of service for ramp freeway junction areas of influence Bold – Unacceptable Ramp Operation Reference – Highway Capacity Manual 2000 Edition vph – Vehicles per hour * Future ramps ¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage - Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the slip ramps. | | | | | | |

| Table 6.1-28 Cumulative (2025) plus Project Peak-Hour Freeway Mainline Operating Conditions | | | | | | | |
|------------------------------------------------------------------------------------------------|-----------|----------------|------------------|----------|----------------|------------------|----------|
| Freeway Segment | Direction | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | NB | 6,304 | - | F | 3,854 | 42.9 | E |
| | SB | 3,278 | 31.6 | D | 6,130 | - | F |
| I-5 North of Del Paso Road | NB | 9,099 | - | F | 5,730 | 26.6 | D |
| | SB | 4,784 | 22.0 | C | 9,218 | - | F |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 10,783 | - | F | 7,305 | 38.0 | E |
| | SB | 6,004 | 28.1 | D | 11,189 | - | F |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 2,141 | 19.7 | C | 2,079 | 19.1 | C |
| | SB | 1,949 | 17.9 | B | 2,108 | 19.4 | C |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 3,518 | 21.6 | C | 2,578 | 15.8 | B |
| | SB | 2,230 | 13.7 | B | 3,791 | 23.3 | C |

Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

Thresholds of Significance

City of Sacramento

Signalized and Unsignalized Intersections

As stated in the City’s Traffic Impact Analysis Guidelines, a significant traffic impact would occur under the following conditions:

- ▶ The addition of traffic generated by a project degrades peak period level of service (LOS) of a facility from A, B, or C (without project) to D, E, or F (with project); or,
- ▶ The LOS (without project) is D, E, or F and project generated traffic increases the peak period average vehicle delay by five seconds or more.

The City of Sacramento General Plan, specifically section 5-11 – Goal D, states that the City will “work towards achieving a Level of Service C on the City’s local and major street system. However, because of the constraints associated with existing development in the City, and because of other environmental concerns, this

goal cannot always be met.” It is important to note that the study intersections under Caltrans jurisdiction were evaluated using the aforementioned criteria.

Roadway Facilities

An impact is considered significant for roadways if the proposed project would:

- ▶ Generate traffic that would degrade peak period LOS C or better (without project) to LOS D or worse (with the project); or
- ▶ For facilities that are worse than LOS C without the project, if the project increases the Volume/Capacity ratio by 0.02 or more on a roadway.

Pedestrian Facilities

A significant pedestrian circulation impact would occur if a project would:

- ▶ Result in unsafe conditions for pedestrians, including unsafe increase in pedestrian/bicycle or pedestrian/motor vehicle conflicts.

Bicycle Facilities

A significant bikeway impact would occur if:

- ▶ The project would hinder or eliminate an existing designated bikeway, or if the project would interfere with the implementation of a proposed bikeway, or
- ▶ The project would result in unsafe conditions for bicyclists, including unsafe bicycle/pedestrian or bicycle/motor vehicle conflicts.

Transit Facilities

An impact to the transit system would be significant if the proposed project would:

- ▶ Generate an increase in ridership, when added to existing or future ridership, which exceeds available 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.

Parking

A significant parking impact would occur if the anticipated parking demand of the project exceeds the available or planned parking supply.

Sacramento County

Roadways/Signalized Intersections

As stated in the County’s Traffic Impact Analysis Guidelines, a project is considered to have a significant impact if it would:

- ▶ Result in a roadway or a signalized intersection at an acceptable LOS D to deteriorate to an unacceptable LOS E or

- ▶ Increase the V/C ratio by more than 0.05 at a roadway or at a signalized intersection that is operating at an unacceptable LOS without the project

Unsignalized Intersections

A project would have a significant impact if it would:

- ▶ Result in an unsignalized intersection movement/approach operating at an acceptable LOS D to deteriorate to an unacceptable LOS E and also cause the intersection to meet a traffic signal warrant; or
- ▶ For an unsignalized intersection that meets a signal warrant, increase the delay by more than 5 seconds at a movement/approach that is operating at an unacceptable LOS E without the project

Caltrans (California Department of Transportation)

Freeway Facilities

A significant impact to the freeway system would occur if the project would:

- ▶ Result in off-ramps with vehicle queues that extend into the ramp’s deceleration area onto the freeway.
- ▶ Result in an increase in traffic that would cause any ramp’s merge/diverge level of service to be worse than the freeway’s level of service.
- ▶ Result in project traffic increases that cause the freeway level of service to deteriorate beyond level of service D. However, LOS E is acceptable for the I-5 freeway segments in the vicinity of the project area and downtown Sacramento area (milepost: 10.8 to 34.7).

In addition, a significant impact would occur if the expected queue were greater than the storage capacity.

Impacts and Mitigation Measures

Baseline plus Project Conditions

| |
|------------------------|
| IMPACT 6.1-1 |
|------------------------|

Impacts to Study Intersections. *Traffic volumes associated with the project would cause several study area intersections (i.e., Elverta Road and SR 70/99, Elkhorn Boulevard and Lone Tree Road, SR 70/99 NB Ramps and Elkhorn Boulevard, Elkhorn Boulevard and East Commerce Way, Elkhorn Boulevard and Project Street 1, Elkhorn Boulevard and Project Street 1, and Elkhorn Boulevard and Project Street 1) to operate unacceptably and exceed City and County thresholds of significance for intersection operations. Because study area intersections would operate unacceptably as a result of the project, this would be a significant impact.*

The project would result in the generation of 41,119 daily vehicle trips, 3,153 a.m. peak-hour trips (1,214 inbound/1,939 outbound) and 4,467 p.m. peak-hour trips (2,494 inbound/1,973 outbound). Please refer to Table 6.1-20 for a breakdown of project-generate trips by land use type.

As shown in Table 6.1-29, the intersections of Elverta Road and SR 70/99 (a.m. peak hour), SR 70/99 northbound ramps and Elkhorn Boulevard (p.m. peak hour), and Elkhorn Boulevard and East Commerce Way (a.m. and p.m. peak hours) currently operate unacceptably.

**Table 6.1-29
Baseline Peak-Hour Intersection Operating Conditions**

| ID | Intersections | Traffic Control | Average Delay ¹ (Level of Service) | | | |
|----|-----------------------------------------|-----------------|-----------------------------------------------|------------------|------------------|------------------|
| | | | No Project | | Plus Project | |
| | | | AM | PM | AM | PM |
| 1 | Powerline Road and Elverta Road | All Way Stop | 7.2 (A) | 7.0 (A) | 7.1 (A) | 8.0 (A) |
| 2 | Elverta Road and SR 70/99 | Signal | 76.3 (E) | 18.2 (B) | 111.4 (F) | 33.6 (C) |
| 3 | Powerline Road and Elkhorn Boulevard | All Way Stop | 7.1 (A) | 7.3 (A) | 11.3 (B) | 94.9 (F) |
| 4 | Elkhorn Boulevard and Lone Tree Road | One Way Stop | No Traffic on Lone Tree Road | | 5,569(F) | 7,805 (F) |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | One Way Stop | 9.3 (A) | 9.1 (A) | 26.4 (D) | 67.1 (F) |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | One Way Stop | 13.2 (B) | 270 (F) | 5,372 (F) | 3,973 (F) |
| 7 | Elkhorn Boulevard and E. Commerce Way | One Way Stop | 6,932 (F) | 6,676 (F) | 6,955 (F) | 6,775 (F) |
| 8 | Powerline Road and Del Paso Road | One Way Stop | 9.1 (A) | 9.0 (A) | 9.2 (A) | 10.8 (B) |
| 18 | Elkhorn Boulevard and Project Street 1 | One Way Stop | No Project Traffic | | 473 (F) | 903 (F) |
| 19 | Elkhorn Boulevard and project Street 2 | One Way Stop | No Project Traffic | | 256 (F) | 382 (F) |
| 20 | Elkhorn Boulevard and Project Street 3 | One Way Stop | No Project Traffic | | 231 (F) | 428 (F) |

Notes: ¹ Seconds per Vehicle; LOS = Level of Service; **Bold** = Unacceptable Intersection Operation

With implementation of the project, the intersection of Elverta Road and SR 70/99 would degrade from LOS E to LOS F during the a.m. peak hour and would increase delay by more than 35 seconds. The intersection of SR 70/99 northbound ramps and Elkhorn Boulevard would degrade from LOS B to LOS F during the a.m. peak hour and would continue to operate at LOS F during the p.m. peak hour with average delay increased by more than 5 seconds.

With implementation of the project, the project would cause the intersections of Elkhorn Boulevard and Lone Tree Road (a.m. and p.m. peak hours); SR 70/99 south bound ramps and Elkhorn Boulevard (p.m. peak hours); Elkhorn Boulevard and Project Street 1 (a.m. and p.m. peak hours); Elkhorn Boulevard and Project Street 2 (a.m. and p.m. peak hours); and Elkhorn Boulevard and Project Street 3 (a.m. and p.m. peak hours) to degrade to unacceptable service levels.

Because the project would either cause an intersection that currently operates unacceptably to exceed the City or County’s applicable thresholds or would cause intersections that currently operate acceptably to degrade to an unacceptable condition, the project would result in significant impacts to study area intersections.

Mitigation Measure 6.1-1a: Develop a Financial Plan (City of Sacramento and LAFCo)

The applicant shall be required to develop the Greenbriar Finance Plan for review and approval by the City prior to annexation. The plan shall identify the financing mechanisms for all feasible transportation improvements defined as mitigation measures, including but not limited to, new roadways, roadways widening, traffic signals, and public transit. The project applicant shall coordinate the preparation of the finance plan with the City of Sacramento, Sacramento County, and the Metro Air Park Public Facilities Financing Plan. All mitigation

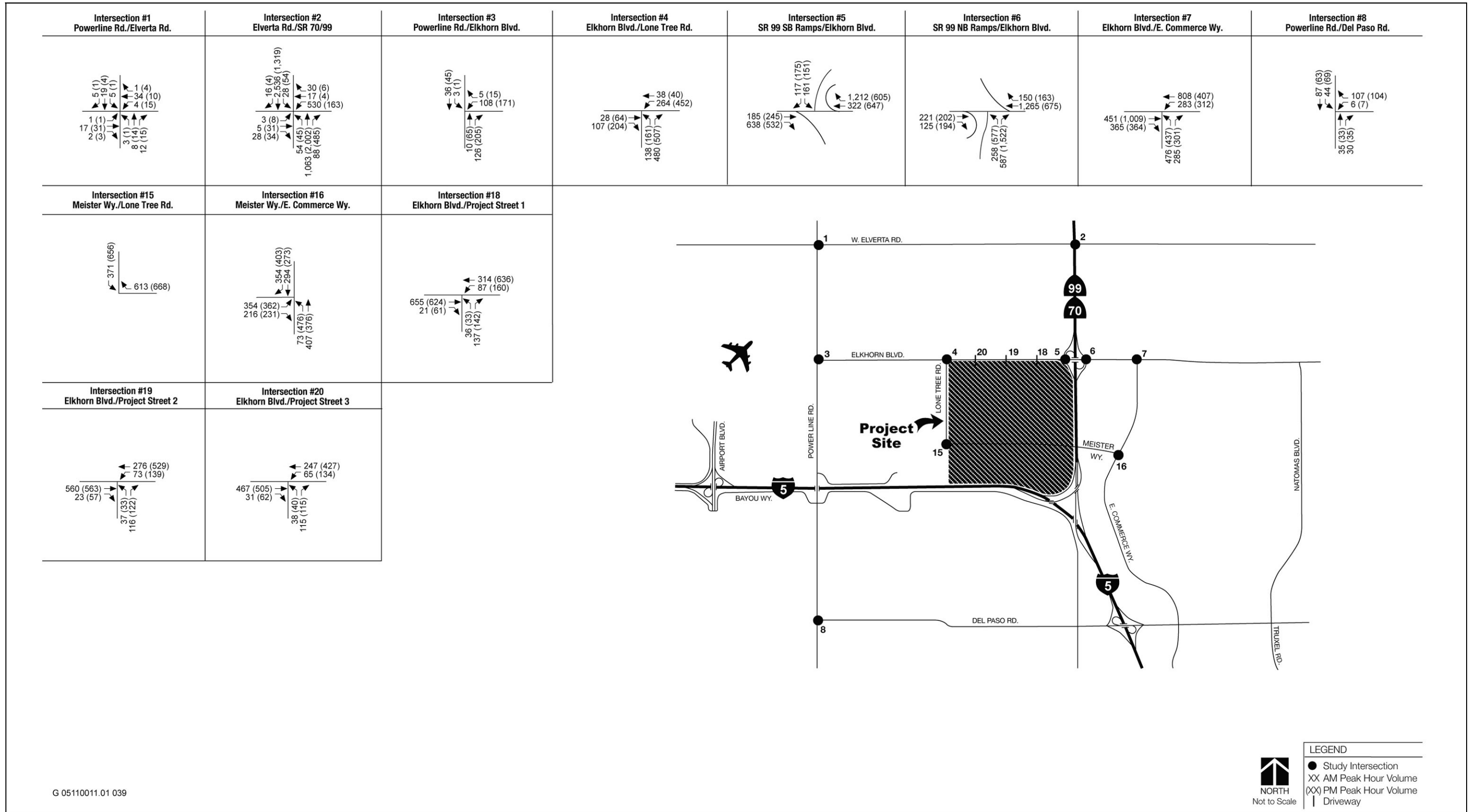
measures with “fair share” contributions would be implemented through the proposed financing mechanism(s) indicated in the finance plan or by some other mechanism as determined by the City of Sacramento in consultation with the Sacramento County. The Greenbriar Finance Plan shall be adopted by the City at the time the project is considered for approval. A copy of the Draft Greenbriar Finance Plan is included in Appendix C of this EIR.

Mitigation Measure 6.1-1b: Meister Way Overpass (City of Sacramento)

The project applicant in coordination with the City shall ensure that the Meister Way overpass is constructed and in operation on or before 65% buildout of the project based on total project trips. With implementation of this improvement, operating conditions at study area intersections would substantially improve as shown in Table 6.1-30 below. Exhibit 6.1-16 shows the Baseline plus Project peak-hour turning movement volumes with the Meister Way overpass and Exhibit 6.1-17 shows the Baseline plus Project lane configurations with Meister Way overpass.

| ID | Intersections | Traffic Control | Average Delay* (Level of Service) | | | |
|----|-----------------------------------------|-----------------------------------------------|-----------------------------------|-----------------------|--------------------------------------------------------|------------------|
| | | | No Project | | Plus Project (with the Meister Way- SR 70/99 Overpass) | |
| | | | AM | PM | AM | PM |
| 1 | Powerline Road and Elverta Road | All Way Stop | 7.2 (A) | 7.0 (A) | 7.2 (A) | 7.1 (A) |
| 2 | Elverta Road and SR 70/99 | Signal | 76.3 (E) | 18.2 (B) | 86.1 (F) | 26.8 (C) |
| | 36.8 (D) | | | | 19.0 (B) | |
| 3 | Powerline Road and Elkhorn Boulevard | All Way Stop | 7.1 (A) | 7.3 (A) | 7.9 (A) | 9.4 (A) |
| 4 | Elkhorn Boulevard and Lone Tree Road | One Way Stop | No Traffic on Lone Tree Road | | 55.9 (F) | 505 (F) |
| | With Mitigation | Signal | | | 6.3 (A) | 32.3 (C) |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | One Way Stop | 9.3 (A) | 9.1 (A) | 14.2 (B) | 26.3 (D) |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | One Way Stop | 13.2 (B) | 120+ 270 (F) | 243 (F) | 502 (F) |
| | With Mitigation | Signal | | | 25.3 (C) | 26.2 (C) |
| 7 | Elkhorn Boulevard and E. Commerce Way | One Way Stop | 120+ 6,932 (F) | 120+ 6,676 (F) | 6,943 (F) | 6,711 (F) |
| | With Mitigation | Signal | | | 9.5 (A) | 34.4 (C) |
| 8 | Powerline Road and Del Paso Road | One Way Stop | 9.1 (A) | 9.0 (A) | 9.1 (A) | 9.2 (A) |
| 16 | Meiser Way And E. Commerce Way | Signal | No Meister Way overpass | | 8.1 (A) | 23.0 (C) |
| 18 | Elkhorn Boulevard and Project Street 1 | One Way Stop | No Project Traffic | | 30.0 (D) | 68.9 (F) |
| | With Mitigation | Signal | | | 8.5 (A) | 8.2 (A) |
| 19 | Elkhorn Boulevard and project Street 2 | One Way Stop | No Project Traffic | | 21.8 (C) | 36.3 (E) |
| | With Mitigation | Signal | | | 5.6 (A) | 7.4 (A) |
| 20 | Elkhorn Boulevard and Project Street 3 | One Way Stop (Full Access) | No Project Traffic | | 18.0 (C) | 30.0 (D) |
| | With Mitigation | One Way Stop (Right in/Right out Access Only) | | | 13.4 (B) | 14.3 (B) |

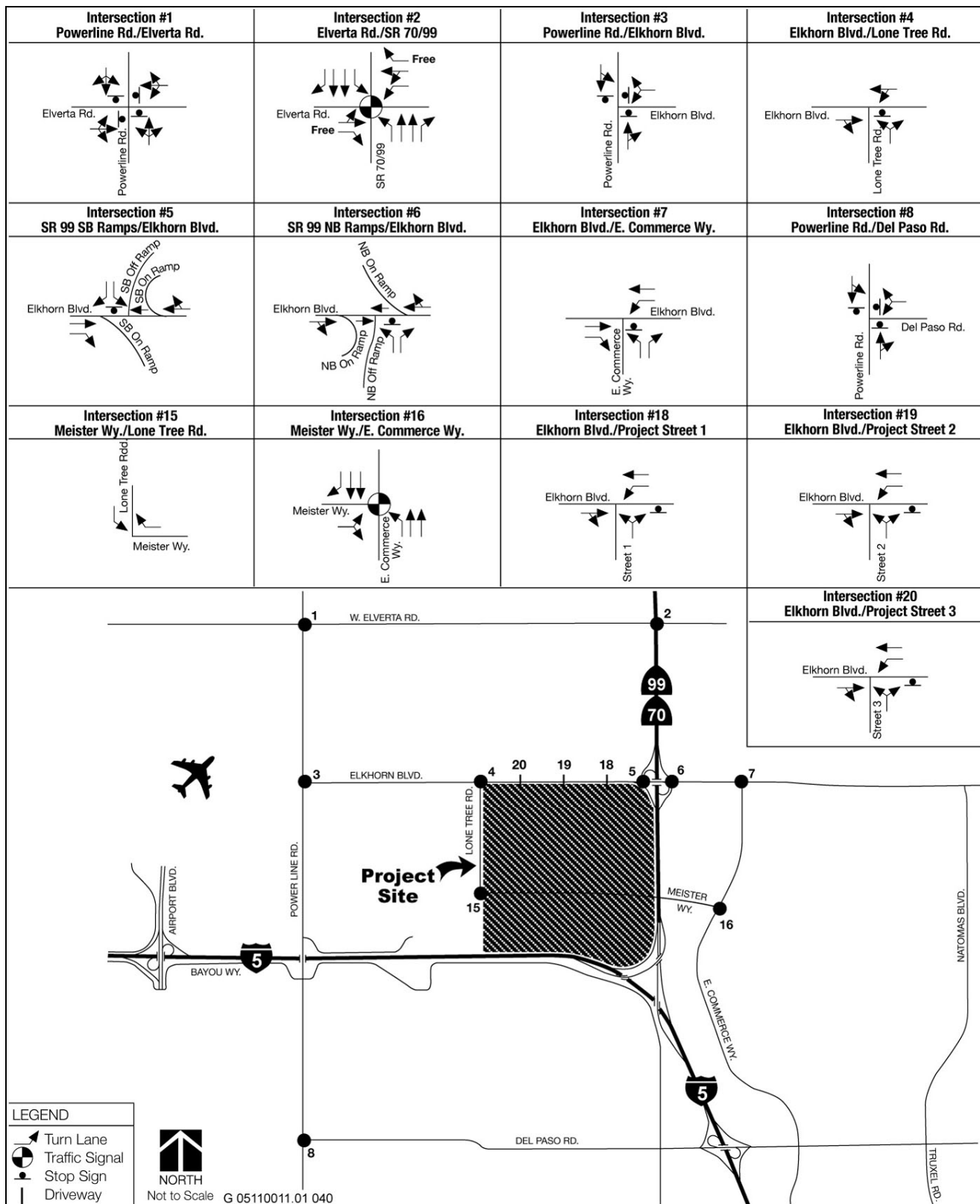
Notes: * Seconds per Vehicle; LOS = Level of Service; **Bold** = Unacceptable Intersection Operation



Source: TJKM 2005

Baseline Plus Project Peak-Hour Turning Movement Volumes (with the Meister Way – SR 70/99 Overpass)

Exhibit 6.1-16



Source: TJKM 2005

Baseline Plus Project Lane Configurations (with the Meister Way – SR 70/99 Overpass) Exhibit 6.1-17

Table 6.1-30 compares the peak-hour intersection operating conditions for Baseline No Project conditions with that of Baseline plus Project conditions with the Meister Way – SR 70/99 overpass.

Construction of this improvement would primarily occur on the project site; therefore, site specific environmental impacts have been evaluated throughout this DEIR. However, this improvement would also extend east of SR 70/99 to East Commerce Way. Areas east of the project site are developed or are currently developing with urban land uses. The City has recently purchased the right-of-way for this improvement. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, and traffic impacts and operational traffic impacts (e.g., re-distribution of local traffic trips). Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. Operational impacts associated with this improvement have been evaluated and are described in Table 6.1-30 and throughout this EIR (i.e., air, noise, and biological resources). Because land for this improvement has been secured by the City, a financing mechanism would be established to ensure the funding (see Mitigation Measure 6.1-1a), and construction of this improvement, and no new significant environmental impacts not already identified or evaluated in this DEIR would occur, this improvement would be considered feasible.

Although this improvement would substantially reduce the project’s impacts to study area intersections, some intersections would continue to operate unacceptably and additional mitigation would be required to improve these intersections to an acceptable operation level. Further, other traffic improvements are necessary to ensure the safe operation of the local roadway network. As described in Table 6.1-30, with implementation of this recommended measure, the intersection of SR 70/99 southbound ramps and Elkhorn Boulevard would improve to LOS D during the p.m. peak hour and the intersection of Elkhorn Boulevard and Project Street 2 would improve to LOS D during the a.m. peak hour. The following mitigation measures would further reduce impacts to remaining study area intersections.

Mitigation Measure 6.1-1c: Elverta Road and SR 70/99 (City of Sacramento, Caltrans, County)

Before issuance of the first occupancy permit, the project applicant shall restripe the westbound Elverta Road approach to provide two left turn lanes, and a shared through-right turn lane (currently, a left turn lane, a shared left turn-through lane, and a right turn lane). Available right-of way currently exists at this intersection to implement this mitigation measure. Construction outside existing right-of-way would not be required. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, operation of this intersection would improve to LOS D, which is acceptable based on Caltrans and County standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-1d: Elkhorn Boulevard and Lone Tree Road (City of Sacramento and County)

On or before 50% buildout of the project based on total project trip generation, the project applicant shall construct a traffic signal at the Elkhorn Boulevard and Lone Tree Road intersection. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this intersection would improve to LOS B under Baseline plus Project conditions, which is acceptable based on City and County standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-1e: SR 70/99 Northbound Ramps and Elkhorn Boulevard (City of Sacramento and Caltrans)

Prior to project approval, the project applicant in coordination with the City, prepare a City Council-approved Finance Plan to fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the installation of a traffic signal at the SR 70/99 Northbound Ramps and Elkhorn Boulevard intersection and shall install the traffic signal before recordation of the first map. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement including funds collected through the Metro Air Park Finance Plan and the North Natomas Public Facilities Finance Plan. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this intersection would improve to LOS D under Baseline plus Project conditions, which is acceptable based on City and County standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-1f: Elkhorn Boulevard and E. Commerce Way (City of Sacramento)

Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the installation of a traffic signal at the Elkhorn Boulevard/East Commerce Way intersection. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to implement this improvement. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this intersection would improve to LOS C under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-1g: Elkhorn Boulevard and Project Street 1 (City of Sacramento)

On or before the issuance of the first occupancy permit, the project applicant shall install a traffic signal at the Elkhorn Boulevard/Project Street 1 intersection. With implementation of this mitigation measure the operation of this intersection would improve to LOS A under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-1h: Elkhorn Boulevard and Project Street 2 (City of Sacramento)

On or before the issuance of the first occupancy permit, the project applicant shall install a traffic signal at the Elkhorn Boulevard/Project Street 2 intersection. With implementation of this mitigation measure the operation of this intersection would improve to LOS A under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-i: Elkhorn Boulevard and Project Street 3 (City of Sacramento)

On or before issuance of the first occupancy permit, the project applicant shall make revisions to the project plans so that this intersection will be restricted to right in/ right out access only. With implementation of this mitigation measure the operation of this intersection would improve to LOS B under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Significance After Mitigation

With implementation of the above mitigation measures, all of the project’s study intersections would operate at acceptable levels and these impacts would be reduced to a *less-than-significant* level.

**IMPACT
6.1-2**

Impacts to Study Area Roadway Segments. *The proposed project would increase traffic volumes on study area roadway segments (i.e., Elkhorn Boulevard west of SR 70/99 Interchange and Meister Way west of SR 70/99) and would cause these segments to degrade from an acceptable operating condition (i.e., LOS A) to an unacceptable operating condition (i.e., LOS F). Because study area roadway segments would operate unacceptably as a result of the project, this would be a **significant** impact.*

Traffic associated with proposed land uses would increase traffic volumes on local roadway segments. Table 6.1-31 summarizes the roadway segment operating conditions for Baseline No Project conditions and Baseline plus Project conditions.

Implementation of the project would result in the project’s study roadway segments degrading from LOS A to LOS F, which is unacceptable based on City operating standards. Therefore, this would be a *significant* impact.

| Table 6.1-31 Baseline Roadway Segment Operating Conditions | | | |
|-----------------------------------------------------------------------|-------|----------------------------------------------------------|-----------------|
| Roadway Segment | Lanes | Level of Service (V/C) | |
| | | No Project | Plus Project |
| Elkhorn Boulevard west of SR 70/99 Interchange | 2 | A (0.12) | F (1.23) |
| Lone Tree Road south of Elkhorn Boulevard | 2 | No Traffic on Lone Tree Road | F (1.41) |
| Metro Air Parkway north of I-5 Interchange | | Future Roadway* | |
| Meister Way west of SR 70/99 | | No Meister Way Overpass under Baseline Conditions | |

Notes: LOS = level of service; V/C: Volume/ Capacity ratio
 *Evaluated under cumulative plus project conditions
Bold = Unacceptable Ramp Operation
 Reference: Highway Capacity Manual 2000 Edition.

Mitigation Measure 6.1-2a: Meister Way Overpass (City of Sacramento)

The project applicant shall implement Mitigation Measure 6.1-1b above (i.e., construct Meister Way overpass). Table 6.1-32 summarizes the roadway segment operation conditions for Baseline No Project conditions and Baseline plus Project conditions with the Meister way overpass. As shown in the table, even with implementation of the Meister Way overpass, two of the project’s study roadway segments (i.e., Elkhorn Boulevard west of SR 70/99 Interchange and Meister Way west of SR 70/99) would continue to operate unacceptably under Baseline plus Project conditions. Therefore, additional measures are required for these intersections.

| Table 6.1-32 Baseline Roadway Segment Operating Conditions | | | |
|---------------------------------------------------------------|-----------------|------------------------------|-----------------------------------------------------|
| Roadway Segment | Lanes | Level of Service (V/C) | |
| | | No Project | Plus Project (with Meister Way – SR 70/99 Overpass) |
| Elkhorn Boulevard west of SR 70/99 Interchange | 2 | A (0.12) | D (0.87) |
| With Mitigation | 4 | | A (0.44) |
| Lone Tree Road south of Elkhorn Boulevard | 2 | No Traffic on Lone Tree Road | C (0.74) |
| Metro Air Parkway north of I-5 Interchange | Future Roadway* | | |
| Meister Way west of SR 70/99 | 2 | No Meister Way Overpass | D (0.82) |
| With Mitigation | 4 | | A (0.41) |

Notes: LOS = level of service; V/C = Volume/Capacity ratio
 * Evaluated under cumulative project conditions
Bold = Unacceptable Ramp Operation
 Reference: Highway Capacity Manual 2000 Edition.

Mitigation Measure 6.1-2b: Elkhorn Boulevard west of SR 70/99 Interchange (City of Sacramento and County)

On or before 60% total buildout of the project based on trip generation, the project applicant shall widen Elkhorn Boulevard west of SR 70/99 interchange to Lone Tree road to provide two travel lanes in each direction. Right-of-way for the recommended widening is currently available and has been secured by the City. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With the implementation of this mitigation measure, this roadway segment would improve to LOS A under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-2c: Meister Way west of SR 70/99 (City of Sacramento)

On or before 66% total buildout of the project based on trip generation, the project applicant shall widen Meister Way west of SR 70/99 to provide two travel lanes in each direction from the first street intersection of SR70/99 west to Lone Tree Road. Right-of-way for the recommended widening is currently available on-site. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this roadway segment would improve to LOS D under Baseline plus Project conditions, which is acceptable based on City standards. Therefore, impacts to this intersection would be reduced to a *less-than-significant* level.

Significance After Mitigation

With implementation of the above mitigation measures, all of the project’s study roadway segments would operate at acceptable levels and these impacts would be reduced to a *less-than-significant* level.

**IMPACT
6.1-3**

Impacts to the Freeway Ramps. *The proposed project would increase traffic volumes on the freeway system and would cause three study freeway ramps (i.e., SR 70/99 NB/Elkhorn Boulevard off-ramp, SR 70/99 SB/I-5 SB off-ramp, and I-5 NB/SR 70/99 NB off-ramp) to operate unacceptably under Baseline plus Project conditions. This would be a **significant** impact.*

With implementation of the project, traffic volumes on the local freeway system would increase. Table 6.1-33 compares the peak-hour operating conditions for the study ramps under Baseline No Project conditions with that of Baseline plus Project conditions. As shown in Table 6.1-33, all the study ramps are expected to operate acceptably under Baseline plus Project and Baseline plus Project conditions, except for the following ramps:

- ▶ SR 70/99 Northbound to Elkhorn Boulevard off-ramp
- ▶ SR 70/99 Southbound to I-5 Southbound on-ramp
- ▶ I-5 Northbound to SR 70/99 Northbound off-ramp

With implementation of the project, the above study freeway ramps would degrade to LOS F, which is unacceptable based on Caltrans standards. Therefore, this would be a **significant** impact.

Mitigation Measure 6.1-3a: Meister Way Overpass (City of Sacramento)

The project applicant shall implement Mitigation Measure 6.1-1b above (i.e., construct the Meister Way overpass). Table 6.1-34 summarizes the peak-hour operating conditions for the study ramps under Baseline No Project conditions and Baseline plus Project conditions with the Meister Way overpass. As shown in the table, even with implementation of the Meister Way overpass, all three study freeway ramps (i.e., SR 70/99 NB/Elkhorn Boulevard off-ramp, SR 70/99 SB/I-5 SB off-ramp, and I-5 NB/SR 70/99 NB off-ramp) would continue to operate unacceptably under Baseline plus Project conditions. Therefore, additional measures are required for these ramps.

Mitigation Measure 6.1-3b: SR 70/99 Northbound to Elkhorn Boulevard off-ramp (City of Sacramento and Caltrans)

- a. The project applicant shall implement mitigation measure 6.1-1e, which would require the installation of a traffic signal at the SR 70/99 Northbound Ramps and Elkhorn Boulevard intersection.
- b. Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City and Caltrans) toward the widening the off-ramp from one lane to two lanes. The Draft Greenbriar Finance Plan identifies 100% of funding needed to construct this improvement. This improvement is included in the Metro Air Park Financing Plan (MAPFP) and the North Natomas Public Facilities Finance Plan. Existing right-of-way is available to accommodate this improvement. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur.

Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, the operation of this freeway ramp would improve to LOS C under Baseline plus Project conditions, which is acceptable based on Caltrans standards. Therefore, impacts to this ramp would be reduced to a **less-than-significant** level.

**Table 6.1-33
Baseline Peak-Hour Freeway Ramp Operating Conditions**

| Ramp | Level of Service | | | | | | | | | | | |
|---------------------------------------------------------|------------------|-----|--------------------------------------------|----------------|----------|--------------------------------------------|----------------|----------|--------------------------------------------|----------------|----------|--------------------------------------------|
| | No Project | | | | | | Plus Project | | | | | |
| | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 10 | B | - | 5 | B | - | 147 | B | - | 220 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (Slip on-ramp) | 129 | B | - | 143 | B | - | 129 | B | - | 146 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 518 | C | [NER: 72, 1,270] | 1290 | C | [NER: 1869, 1,270] | 995 | C | [NEL: >1270, 1,270] | 2,070 | F | [NEL: > 1270 , 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 152 | C | [SBL: 13, 1,250] | 114 | C | [SBL: 10, 1,250] | 330 | C | [SBL: 76, 1,250] | 300 | C | [SBR: 137, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 993 | B | - | 641 | B | - | 993 | B | - | 641 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (slip on-ramp) | 30 | B | - | 19 | B | - | 889 | B | - | 704 | B | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 935 | C | - | 126 | C | - | 982 | C | - | 174 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 111 | C | - | 1,303 | C | - | 141 | C | - | 1,335 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 3,374 | D | - | 1,871 | B | - | 4,186 | F | - | 2,508 | C | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 1,608 | C | - | 3,347 | E | - | 2,055 | C | - | 4,095 | F | - |

Notes: LOS – level of service for ramp freeway junction areas of influence

Bold – Unacceptable Ramp Operation

Reference – Highway Capacity Manual 2000 Edition

vph – Vehicles per hour

¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage

- Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the Slip ramps.

**Table 6.1-34
Baseline Peak-Hour Freeway Ramp Operating Conditions**

| Ramp | Level of Service | | | | | | | | | | | |
|---------------------------------------------------------|------------------|-----|--------------------------------------------|----------------|-----|--------------------------------------------|-----------------------------------------------------------|-----|--------------------------------------------|----------------|-----|--------------------------------------------|
| | No Project | | | | | | Plus Project ("with" the Meister Way – SR 70/99 overpass) | | | | | |
| | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 10 | B | - | 5 | B | - | 126 | B | - | 177 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (Slip on-ramp) | 129 | B | - | 143 | B | - | 161 | B | - | 215 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 518 | C | [NBR: 72, 1,270] | 1,290 | C | [NBR: 1,869, 1,270] | 936 | C | [NBL: 625, 1,270] | 2,003 | F | [NBR: 2,748, 1,270] |
| With Mitigation | | | | | | | | B | [NBL: 390, 1,270] | | C | [NBR: 676, 1,270] |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 152 | C | [SBL: 13, 1,250] | 114 | C | [SBL: 10, 1,250] | 294 | C | [SBL: 39, 1,250] | 330 | C | [SBL: 85, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 993 | B | - | 641 | B | - | 1,152 | C | - | 748 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (slip on-ramp) | 30 | B | - | 19 | B | - | 648 | B | - | 551 | B | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 935 | C | - | 126 | C | - | 1,002 | C | - | 187 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 111 | C | - | 1,303 | C | - | 153 | C | - | 1,345 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 3,374 | D | - | 1,871 | B | - | 4,084 | E | - | 2,449 | C | - |
| With Mitigation | | | | | | | | C | | | B | |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 1,608 | C | - | 3,347 | E | - | 1,984 | C | - | 4,018 | F | - |
| With Mitigation | | | | | | | | B | | | D | |

Notes: LOS – Level of Service for ramp freeway junction areas of influence
Bold – Unacceptable Ramp Operation
Reference – Highway Capacity Manual 2000 Edition
vph – Vehicles per hour
¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage
- Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the slip ramps.

Mitigation Measure 6.1-3c: SR 70/99 Southbound to I-5 Southbound on-ramp (City of Sacramento and Caltrans)

Widening SR 70/99 Southbound to I-5 Southbound on-ramp to provide an additional lane is required to mitigate this impact. With implementation of this mitigation measure, this freeway ramp would operate at LOS C. Caltrans District 3 Draft District System Management Plan (DSMP) includes adding a lane to the existing two-lane on-ramp for SR 70/99 southbound to I-5 southbound by the year 2010. However, to implement this mitigation measure, additional right-of-way would be required and is not currently available. Additionally, this improvement is not included in any of Caltrans' funding mechanisms. Because this mitigation measure is beyond the control of the project applicant, outside the jurisdiction of the City, and there is no established funding mechanism available for contribution, this mitigation measure is considered infeasible and the impact is considered *significant and unavoidable*.

Mitigation Measure 6.1-3d: I-5 Northbound to SR 70/99 Northbound off-ramp (City of Sacramento and Caltrans)

Widening I-5 Northbound to SR 70/99 Northbound off-ramp to provide an additional lane is required to mitigate this impact. With implementation of this mitigation measure, this freeway ramp would operate at LOS C. Caltrans District 3 Draft DSMP does not include adding a lane to the existing two-lane on-ramp for SR 70/99 southbound to I-5 southbound by the year 2010. To implement this mitigation measure, additional right-of-way would be required and is not currently available. Additionally, this improvement is not included in any of Caltrans' funding mechanisms. Because this mitigation measure is beyond the control of the project applicant, outside the jurisdiction of the City, and there is no established funding mechanism available for contribution, this mitigation measure is considered infeasible and the impact is considered *significant and unavoidable*.

Significance After Mitigation

With implementation of the above mitigation measures, the SR 70/99 Northbound to Elkhorn Boulevard off-ramp would operate at acceptable levels and this impact would be reduced to a less-than-significant level. However, this ramp is not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this ramp to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA impacts to the SR 70/99 Northbound to Elkhorn Boulevard off-ramp (Impact 6.1-3b) would remain *significant and unavoidable*. Further, no feasible mitigation is available to reduce the project's impacts to the SR 70/99 Southbound to I-5 Southbound on-ramp and the I-5 Northbound to SR 70/99 Northbound off-ramp because recommended mitigation is beyond the control of the project applicant, outside the jurisdiction of the City, and there is no established funding mechanism available for contribution to recommended improvements. Therefore, impacts to these ramps are considered *significant and unavoidable*.

IMPACT 6.1-4

Freeway Mainline Segment Impacts. *The proposed project would increase traffic volumes on the freeway system and would cause four study freeway mainline segments (i.e., I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard, SR 70-99 between Elverta Road and Elkhorn Boulevard, and SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 interchange) to operate unacceptably under Baseline plus Project Conditions. This would be a significant impact.*

With implementation of the project, traffic volumes on the local freeway system would increase. Table 6.1-35 compares the peak-hour operating conditions for the freeway mainline segments under Baseline No Project conditions with that of Baseline plus Project conditions. As shown in Table 6.1-35, all the study ramps are expected to operate acceptably under Baseline plus Project and Baseline plus Project conditions, except for the following mainline segments:

- ▶ Interstate 5 – North of Del Paso Road
- ▶ Interstate 5 – North of I-5/I-80 Interchange – between I-80 and Arena Boulevard Exit

**Table 6.1-35
Baseline Peak-Hour Freeway Mainline Operating Conditions**

| Freeway Segment | Direction | Level of Service | | | | | | | | | | | |
|-------------------------------------------------------------------------|-----------|------------------|------------------|-----|----------------|------------------|-----|----------------|------------------|-----|----------------|------------------|-----|
| | | No Project | | | | | | Plus Project | | | | | |
| | | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | WB/NB | 2,984 | 27.9 | D | 3,114 | 29.4 | D | 3,031 | 28.4 | D | 3,162 | 30 | D |
| | EB/SB | 2,692 | 24.8 | C | 3,354 | 32.7 | D | 2,722 | 25.1 | C | 3,386 | 33.2 | D |
| I-5 North of Del Paso Road | NB | 3,657 | 22.4 | C | 6,335 | > 45 | F | 4,104 | 25.3 | C | 7,083 | > 45 | F |
| | SB | 5,954 | > 45 | F | 3,922 | 24.1 | C | 6,766 | > 45 | F | 4,559 | 28.5 | D |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 4,465 | 27.8 | D | 7,639 | > 45 | F | 4,851 | 31 | D | 8,459 | > 45 | F |
| | SB | 6,894 | > 45 | F | 4,232 | 26.1 | D | 7,722 | > 45 | F | 4,926 | 31.7 | D |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 1,340 | 12.3 | B | 3,509 | 35.3 | E | 1,477 | 13.6 | B | 3,727 | 39.7 | E |
| | SB | 3,437 | 34 | D | 1,451 | 13.4 | B | 3,615 | 37.3 | E | 1,637 | 15.1 | B |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 1,719 | 15.8 | B | 4,650 | > 45 | F | 2,196 | 20.2 | C | 5,430 | > 45 | F |
| | SB | 4,308 | > 45 | F | 1,997 | 18.4 | C | 5,167 | > 45 | F | 2,682 | 24.7 | C |

Notes: vph – vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

- ▶ State Route 70/99 – between Elverta Road and Elkhorn Boulevard.
- ▶ State Route 70/99 – between Elkhorn Boulevard and I-5/SR 70/99 Interchange.

Although the above segments would operate unacceptably (i.e., LOS F) without the project, the project would add additional traffic to a mainline segment that is currently operating unacceptably under Baseline No Project conditions, which is unacceptable based on Caltrans standards. Therefore, this would be a *significant* impact.

Mitigation Measure 6.1-4a: Meister Way Overpass (City of Sacramento)

The project applicant shall implement Mitigation Measure 6.1-1b above (i.e., construct the Meister Way overpass). Table 6.1-36 summarizes the peak-hour operating conditions for the study mainline segments under Baseline No Project conditions and Baseline plus Project conditions with the Meister way overpass. As shown in the table, even with implementation of the Meister Way overpass, all four study mainline segments (i.e., I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard, SR 70/99 between Elverta Road and Elkhorn Boulevard, and SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 interchange) would continue to operate unacceptably under Baseline plus Project conditions. Therefore, additional measures are required for these mainline segments.

Mitigation Measure 6.1-4b: I-5 North of Del Paso Road (City of Sacramento and Caltrans)

Because this mainline segment of I-5 currently operates unacceptably, the only mitigation that could improve the operating conditions of this segment during peak conditions would be the widening of this segment of I-5 mainline to eight lanes (currently six lanes). While widening of I-5 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of I-5 beyond its current capacity nor are any funding mechanisms established to collect monies to fund improvements such as this. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain *significant and unavoidable*.

Mitigation Measure 6.1-4c: I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit (City of Sacramento and Caltrans)

Because this mainline segment of I-5 currently operates unacceptably, the only mitigation that could improve the operating conditions of this segment during peak conditions would be the widening of this segment of I-5 mainline to eight lanes (currently six lanes). While widening of I-5 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of I-5 beyond its current capacity nor are any funding mechanisms established to collect monies to fund improvements such as this. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain *significant and unavoidable*.

Mitigation Measure 6.1-4d: SR 70/99 Southbound between Elverta Road and Elkhorn Boulevard (City of Sacramento)

Because this mainline segment of SR 70/99 currently operates unacceptably, widening this segment of SR 70/99 mainline to 3 lanes (currently 2 lanes) between Elkhorn Boulevard and Elverta Road would improve the operating conditions of this segment during peak conditions to an acceptable LOS. Widening of the segment is not included in Caltrans' DSMP. While widening of SR 70/99 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of SR 70/99 beyond its current capacity nor are any funding mechanisms established to fund improvements such as this. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain *significant and unavoidable*.

**Table 6.1-36
Baseline Peak-Hour Freeway Mainline Operating Conditions**

| Freeway Segment | Direction | Level of Service | | | | | | | | | | | |
|-------------------------------------------------------------------------|-----------------|------------------|------------------|-----|----------------|------------------|-----|-----------------------------------------------------------|------------------|-----|----------------|------------------|-----|
| | | No Project | | | | | | Plus Project ("with" the Meister Way – SR 70/99 overpass) | | | | | |
| | | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | WB/NB | 2,984 | 27.9 | D | 3,114 | 29.4 | D | 3,051 | 28.7 | D | 3,175 | 30.2 | D |
| | EB/SB | 2,692 | 24.8 | C | 3,354 | 32.7 | D | 2,734 | 25.3 | C | 3,396 | 33.4 | C |
| I-5 North of Del Paso Road | NB | 3,657 | 22.4 | C | 6,335 | > 45 | F | 4,033 | 24.8 | C | 7,006 | > 45 | F |
| | With Mitigation | | | | | | | | | B | | | E |
| | SB | 5,954 | > 45 | F | 3,922 | 24.1 | C | 6,664 | > 45 | F | 4,500 | 28.1 | D |
| | With Mitigation | | | | | | | | | E | | | C |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | 4,465 | 27.8 | D | 7,639 | > 45 | F | 4,839 | 30.9 | D | 8,595 | > 45 | F |
| | With Mitigation | | | | | | | | | B | | | E |
| | SB | 6,894 | > 45 | F | 4,232 | 26.1 | D | 7,679 | > 45 | F | 4,909 | 31.5 | D |
| | With Mitigation | | | | | | | | | E | | | B |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 1,340 | 12.3 | B | 3,509 | 35.3 | E | 1,488 | 13.7 | B | 3,753 | 40.3 | E |
| | With Mitigation | | | | | | | | | B | | | D |
| | SB | 3,437 | 34 | D | 1,451 | 13.4 | B | 3,579 | 36.6 | E | 1,667 | 15.3 | B |
| | With Mitigation | | | | | | | | | D | | | B |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 1,719 | 15.8 | B | 4,650 | > 45 | F | 2,137 | 19.7 | C | 5,363 | > 45 | F |
| | With Mitigation | | | | | | | | | B | | | E |
| | SB | 4,308 | > 45 | F | 1,997 | 18.4 | C | 5,085 | > 45 | F | 2,636 | 24.3 | C |
| | With Mitigation | | | | | | | | | E | | | B |

Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

Mitigation Measure 6.1-4e: SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange (City of Sacramento)

Because this mainline segment of SR 70/99 currently operates unacceptably, the only mitigation that could improve the operating conditions of this segment during peak conditions would be the widening this segment of SR 70/99 mainline to six lanes (currently 4 lanes) between Elkhorn Boulevard and Elverta Road. While widening of SR 70/99 would improve the operating conditions of this mainline segment to acceptable conditions, Caltrans currently has no plans to expand this segment of SR 70/99 beyond its current capacity nor are any funding mechanisms established to collect monies to fund improvements such as this. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain **significant and unavoidable**.

Significance After Mitigation

Because no feasible mitigation is available to reduce the project's impacts to study area freeway segments, impacts to the I-5 north of Del Paso Road, I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit, SR 70/99 Southbound between Elverta Road and Elkhorn Boulevard, and SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange freeway segments would remain **significant and unavoidable**.

Cumulative Impacts and Mitigation Measures (Cumulative plus Project)

| |
|-----------------|
| IMPACT 6.1-5 |
|-----------------|

Cumulative Traffic Impacts to Study Area Intersections. *Traffic volumes associated with the project in combination with other reasonably foreseeable cumulative projects would cause several study area intersections to operate unacceptably and exceed City County, and Caltrans thresholds of significance for intersection operations. This would be a **significant** cumulative impact and the project's contribution to this impact would be cumulatively considerable.*

The project in combination with other approved and reasonably foreseeable projects would result in an increase in local traffic volumes. Table 6.1-37 summarizes the peak-hour operating conditions for the study intersections under Cumulative Conditions (with and without the project). Because the Meister Way overpass was proposed as part of the Metro Airpark project, the overpass was assumed to be constructed by 2025 without project; therefore, the Meister Way overpass was assumed in the Cumulative No Project scenario.

Fourteen of the study intersections would operate unacceptably under Cumulative plus Project conditions as described below:

- ▶ *SR 70/99 Southbound Ramps and Elverta Road:* This intersection would continue to operate at LOS F during the a.m. peak hour. However, the project would not cause the average delay of this intersection to increase by more than 5 seconds.
- ▶ *SR 70/99 Northbound Ramps and Elverta Road:* This intersection would continue to operate at LOS F during the a.m. peak hour. However, the project would not cause the average delay of this intersection to increase by more than 5 seconds.
- ▶ *Elkhorn Boulevard and Lone Tree Road:* This intersection would continue to operate at LOS D during the a.m. peak hour and LOS F during the p.m. peak hour. The project would cause the average delay at this intersection to increase by more than 5 seconds during the a.m. and p.m. peak hour.

**Table 6.1-37
Cumulative Peak-Hour Intersection Operating Conditions**

| ID | Intersections | Traffic Control | Average Delay or V/C (Level of Service) | | | |
|----|--------------------------------------------------|-----------------------------------------|-----------------------------------------|------------------|------------------|------------------|
| | | | No Project | | Plus Project | |
| | | | AM | PM | AM | PM |
| 1 | Powerline Road and Elverta Road (County) | Signal | 0.70 (B) | 0.82 (D) | 0.71 (C) | 0.84 (D) |
| 2a | SR 70/99 SB Ramps and Elverta Road | Signal | 140.6 (F) | 7.7 (A) | 141.3 (F) | 8.1 (A) |
| 2b | SR 70/99 NB Ramps and Elverta Road | Signal | 120.1 (F) | 12.4 (B) | 120.1 (F) | 13.1 (B) |
| 3 | Powerline Road and Elkhorn Boulevard (County) | Signal | 0.75 (C) | 0.79 (C) | 0.76(C) | 0.79 (C) |
| 4 | Elkhorn Boulevard and Lone Tree Road | Signal | 37.4 (D) | 219 (F) | 48.4 (D) | 226.2 (F) |
| | With Mitigation | | | | 23.4 (C) | 221.8 (F) |
| 5 | SR 70/99 SB Ramps and Elkhorn Boulevard | Signal | 44.5 (D) | 10.8 (B) | 78.0 (E) | 10.9 (B) |
| | With Mitigation | | | | 49.9 (D) | 10.8 (B) |
| 6 | SR 70/99 NB Ramps and Elkhorn Boulevard | Signal | 96.4 (F) | 13.8 (B) | 125 (F) | 16.3 (B) |
| | With Mitigation | | | | 55.2 (E) | 16.1 (B) |
| 7 | Elkhorn Boulevard and E. Commerce Way | Signal | 17.4 (B) | 16.2 (B) | 20.2 (C) | 33.4 (C) |
| 8 | Powerline Road and Del Paso Road (County) | Signal | 0.89 (D) | 0.51 (A) | 0.90 (D) | 0.54 (A) |
| 9 | I-5 NB Ramps and Metro Air Parkway | Signal | 256.6 (F) | 92.1 (F) | 256.6 (F) | 102.9 (F) |
| | With Mitigation | | | | 179.9 (F) | 77.4 (E) |
| 10 | I-5 SB Ramps and Metro Air Parkway | Signal | 31.2 (C) | 7.8 (A) | 34.5 (C) | 8.0 (A) |
| 11 | Elverta Road and Lone Tree Road (County) | Signal | 0.97 (E) | 1.68 (F) | 0.97 (E) | 1.69 (F) |
| 12 | Elverta Road and Metro Air Parkway (County) | Signal | 0.71 (C) | 0.65 (B) | 0.71 (C) | 0.66 (B) |
| 13 | Elkhorn Boulevard and Metro Air Parkway (County) | Signal | 0.85 (D) | 0.85 (D) | 0.88 (D) | 0.87 (D) |
| 14 | Meister Way and Metro Air Parkway (County) | Signal | 0.81 (D) | 1.32 (F) | 0.89 (D) | 1.45 (F) |
| | With Mitigation | | | | 0.87 (D) | 1.13 (F) |
| 15 | Meister Way And Lone Tree Road | Signal | 22.4 (C) | 30.4 (C) | 49.4 (D) | 116.5 (F) |
| | With Mitigation | | | | 26.3 (C) | 28.8 (C) |
| 16 | Meister Way And E. Commerce Way | Signal | 20.6 (C) | 13.3 (B) | 53.5 (D) | 109.3 (F) |
| | With Mitigation | | | | 16.1 (B) | 25.8 (C) |
| 17 | Bayou Road and Metro Air Parkway | One way Stop | 8,993 (F) | 9,795 (F) | 8,994 (F) | 9,795 (F) |
| 18 | Elkhorn Boulevard and Project Street 1 | Signal | No Project Traffic | | 40.3 (D) | 99.6 (F) |
| | With Mitigation | | | | 11.5 (B) | 23.6 (C) |
| 19 | Elkhorn Boulevard and project Street 2 | Signal | No Project Traffic | | 41.7 (D) | 95.5 (F) |
| | With Mitigation | | | | 11.3 (B) | 21.1 (C) |
| 20 | Elkhorn Boulevard and Project Street 3 | One Way Stop (Right In/ Right Out Only) | No Project Traffic | | 9.5 (A) | 18.4 (B) |

Notes: * Seconds per Vehicle and volume/capacity for County intersections; **Bold** = Unacceptable Intersection Operation

- ▶ *SR 70/99 Southbound Ramps and Elkhorn Boulevard*: This intersection would degrade from LOS D to LOS E under cumulative plus project conditions.
- ▶ *SR 70/99 Northbound Ramps and Elkhorn Boulevard*: This intersection would continue to operate at LOS F during the a.m. peak hour. The project would cause the average delay at this intersection to increase by more than 5 seconds.
- ▶ *Metro Air Parkway and I-5 Northbound Ramps*: This intersection would continue to operate at LOS F during the a.m. and p.m. peak hours. The project would cause the average delay of this intersection to increase by more than 5 seconds in the pm peak hour.
- ▶ *Elverta Road and Lone Tree Road*: This intersection would continue to operate at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. However, the project would not cause the average delay at this intersection to increase the volume to capacity ratio by more than 5 seconds during the a.m. and p.m. peak hours.
- ▶ *Meister Way and Metro Air Parkway*: This intersection would continue to operate at LOS F during the p.m. peak hour. The project would cause the volume to capacity at this intersection to increase by more than 0.05.
- ▶ *Meister Way and Lone Tree Road*: This intersection would degrade from LOS C during the a.m. and p.m. peak hours to LOS D during the a.m. peak hour and LOS F during the p.m. peak hour.
- ▶ *Meister Way and E. Commerce Way*: This intersection would degrade from LOS C to LOS D during the a.m. peak hour and LOS B to LOS F during the p.m. peak hour.
- ▶ *Metro Air Parkway and Bayou Road*: This intersection would continue to operate at LOS F during the a.m. and p.m. peak hours. However, the project would not cause the average delay of this intersection to increase by more than 5 seconds.
- ▶ *Elkhorn Boulevard and Project Street 1*: The project would cause this intersection to operate at LOS D during the a.m. peak hour and LOS F during the p.m. peak hour.
- ▶ *Elkhorn Boulevard and Project Street 2*: The project would cause this intersection to operate at LOS D during the a.m. peak hour and LOS F during the p.m. peak hour.
- ▶ *Elkhorn Boulevard and Project Street 3*: The project would cause this intersection to operate at LOS D during the a.m. peak hour and LOS F during the p.m. peak hour.

Because the project in combination with cumulative projects would either cause intersections that operate unacceptably under Cumulative No Project conditions to exceed the City or County applicable average delay thresholds under Cumulative plus Project conditions or would cause intersections that would operate acceptably under Cumulative No Project conditions to degrade to an unacceptable level under Cumulative plus Project conditions, the project would result in **significant** cumulative impacts to study area intersections.

Mitigation Measure 6.1-5a: Elkhorn Boulevard and Lone Tree Road (City of Sacramento and County)

The project applicant shall provide an expanded intersection with a right turn pocket length of 200 feet for vehicles turning right onto northbound Lone Tree Road from the westbound Elkhorn Boulevard approach. With implementation of this mitigation measure, the project would increase the average delay at this intersection by only 2.8 seconds, which is below City standards (i.e., 5 seconds). Construction associated with this mitigation

measure would require the acquisition of additional right-of-way. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site and therefore no new environmental impacts would occur. The applicant in consultation with the City shall coordinate with County to secure additional right-of-way for this improvement. However, because this intersection is located within the County and is not subject to the City’s jurisdiction, implementation of this measure can not be guaranteed. Therefore, this impact would be considered *significant and unavoidable*.

Mitigation Measure 6.1-5b: SR 70/99 Southbound Ramps and Elkhorn Boulevard (City of Sacramento and Caltrans)

Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City and Caltrans) toward the restriping of the SR 70/99 southbound off-ramp approach to provide a left-turn lane, a shared left turn-right turn lane, and two right-turn lanes (cumulative base lane geometry assumes two left turn and two right turn lanes). The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way would be available with the future intersection configuration to accommodate these improvements without resulting in substantial alteration or expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this intersection would operate at LOS D and this impact would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-5c: SR 70/99 Northbound Ramps and Elkhorn Boulevard (City of Sacramento and Caltrans)

Before project approval, the project applicant shall coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the restriping of the SR 70/99 northbound off-ramp approach to provide two left-turn lanes, a shared left turn-right turn lane, and a right-turn lane (cumulative base lane geometry assumes two left turn and two right turn lanes). The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way would be available with the future intersection lane configuration to accommodate these improvements without resulting in substantial alteration or expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this intersection would operate at LOS E in the a.m. peak hour and this impact would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-5d: Metro Air Parkway and I-5 Northbound Ramps (City of Sacramento and Caltrans)

Before project approval, the project applicant shall coordinate with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the restriping of the I-5 northbound off-ramp approach to provide a left-turn lane, a shared left turn-right turn lane and two right-turn lanes (cumulative base lane geometry assumes two left turn and two right turn lanes). The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. This improvement would not require any additional right-of-way and would not in substantial alteration or expansion of this intersection. With

implementation of this mitigation measure, this intersection would operate at LOS F in the a.m. and LOS E in the p.m. peak hour and this impact would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-5e: Meister Way and Metro Air Parkway (City of Sacramento)

Adding a left-turn lane and restriping the westbound Meister Way approach to provide two left-turn lanes and a shared, through right-turn lane (cumulative base lane geometry assumes a left turn lane, a through lane, and a right turn lane) would mitigate this impact to a less-than-significant level. However, construction of this mitigation measure would require the acquisition of additional right-of-way which is not controlled by the applicant. Although implementation of this measure would reduce the project's cumulative impacts to this intersection to a less-than-significant level, it is unknown whether additional right-of-way could be secured and whether this measure would be implemented. Therefore, for purposes of CEQA this impact is considered *significant and unavoidable*.

Mitigation Measure 6.1-5f: Meister Way and Lone Tree Road (City of Sacramento)

Adding a left-turn lane for the eastbound and westbound Meister Way approaches, and southbound Lone Tree Road approach would improve the operations of this intersection to LOS C and would reduce this impact to a less-than-significant level. Sufficient right-of-way could be secured by the applicant for the westbound approach; however, right-of-way along eastbound and southbound approach is controlled by the County and not within the City's jurisdiction. Although implementation of this measure would reduce the project's cumulative impacts to this intersection to a less-than-significant level, it is unknown whether additional right-of-way could be secured and whether this measure would be implemented. Therefore, for purposes of CEQA, this impact is considered *significant and unavoidable*.

Mitigation Measure 6.1-5g: Meister Way and E. Commerce Way (City of Sacramento)

On or before 65% buildout of the project based on the project's total trips, the project applicant shall revise the improvement plan to provide a left-turn lane for the northbound East Commerce Way approach, an additional lane for the eastbound Meister Way approach, and restripe the eastbound Meister Way approach to provide a left-turn lane and a right-turn lane (base cumulative lane geometry assumed to have a shared left turn-right turn lane for the eastbound approach). Sufficient right-of-way is currently available to accommodate these improvements without resulting in substantial alteration or expansion of this intersection. Based on "windshield surveys" of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project's construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. With implementation of this mitigation measure, this intersection would operate at LOS C and this impact would be reduced to a *less-than-significant* level.

Mitigation Measure 6.1-5h: Elkhorn Boulevard and Project Street 1 (City of Sacramento)

Construction of an additional through lane for the eastbound and westbound Elkhorn Boulevard approaches (cumulative base lane geometry assumes three through lanes in each direction on Elkhorn Boulevard) would reduce this impact to a less-than-significant level. However, this measure would require the acquisition of additional right-of-way beyond the maximum right-of-way proposed by the City/County for this roadway. No other feasible measures are available to reduce this impact because of limited right-of-way. Therefore, this impact is considered *significant and unavoidable*.

Mitigation Measure 6.1-5i: Elkhorn Boulevard and Project Street 2 (City of Sacramento)

Construction of an additional through lane for the eastbound and westbound Elkhorn Boulevard approaches (cumulative base lane geometry assumes three through lanes in each direction on Elkhorn Boulevard) would reduce this impact to a less-than-significant level. However, this measure would require the acquisition of

additional right-of-way beyond the maximum right-of-way proposed by the City/ County for this roadway. No other feasible measures are available to reduce this impact because of limited right-of-way. Therefore, this impact is considered **significant and unavoidable**.

Mitigation Measure 6.1-5j: Elkhorn Boulevard and Project Street 3 (City of Sacramento)

Construction of an additional through lane for the eastbound and westbound Elkhorn Boulevard approaches (cumulative base lane geometry assumes three through lanes in each direction on Elkhorn Boulevard) would reduce this impact to a less-than-significant level. However, this measure would require the acquisition of additional right-of-way beyond the ultimate right-of-way proposed by the City for this roadway. To improve the operations of this intersection under cumulative conditions, before buildout of the project, the project applicant shall restrict the left turn in/out movement at this intersection so that it will be right in/ right out movement only with a stop sign control on the side street. Although the operation of this intersection would improve, it would not cause this intersection to operate at an acceptable level (e.g., LOS D or better). No other mitigation is available to reduce this impact. As a result, this impact would remain **significant and unavoidable**.

Significance After Mitigation

With implementation of the above mitigation measures, the SR 70/99 Southbound Ramps and Elkhorn Boulevard, SR 70/99 Northbound Ramps and Elkhorn Boulevard, Metro Air Parkway and I-5 Northbound Ramps, and Meister Way and E. Commerce Way intersections would operate at acceptable levels under cumulative conditions and the project's cumulative impacts would be reduced to a less-than-significant level.

No feasible mitigation is available or implementation of feasible mitigation can not be guaranteed because it is not subject to the control of the City for the intersections of Elkhorn Boulevard and Lone Tree Road, Meister Way and Metro Air Parkway, Meister Way and Lone Tree Road, Elkhorn Boulevard and Project Street 1, Elkhorn Boulevard and Project Street 2, and Elkhorn Boulevard and Project Street 3. Therefore, the project's cumulative impacts to these intersections are considered **significant and unavoidable**.

IMPACT 6.1-6

Cumulative Impacts to Study Area Roadway Segments. *The proposed project in combination with cumulative projects would increase traffic volumes on study area roadway segments and would cause these segments (i.e., Elkhorn Boulevard west of SR 70/99 Interchange, Metro Air Parkway north of I-5 Interchange, and Meister Way west of SR 70/99) to degrade from an acceptable operating condition (i.e., LOS A) to an unacceptable operating condition (i.e., LOS F). Because study area roadway segments would operate unacceptably as a result of the project, this would be a **significant impact**.*

On a cumulative basis, traffic associated with proposed land uses and cumulative projects would increase traffic volumes on local roadway segments. Table 6.1-38 compares the roadway segment operating conditions for Cumulative No Project conditions with that of Cumulative plus Project conditions.

Implementation of the project in combination with cumulative projects would cause three study area segments to operate unacceptably as described below:

- ▶ *Elkhorn Boulevard west of SR 70/99 Interchange:* The project would cause this segment to degrade from LOS E to LOS F under Cumulative plus Project conditions.
- ▶ *Metro Air Parkway north of I-5 Interchange:* The project would cause this segment to continue operating at LOS F under Cumulative plus Project conditions. However, the project would not cause the volume-to-capacity ratio of this segment to increase by more than 0.05 seconds.

- *Meister Way west of SR 70/99*: The project would cause this segment to degrade from LOS A to LOS F under Cumulative plus Project Conditions.

| Table 6.1-38 Cumulative Roadway Segment Operating Conditions | | | |
|-------------------------------------------------------------------------------|-------|------------------------|-----------------|
| Roadway Segment | Lanes | Level of Service (V/C) | |
| | | No Project | Plus Project |
| Elkhorn Boulevard west of SR 70/99 Interchange (With Meister Way overpass) | 6 | E (0.97) | F (1.11) |
| | 8 | | D (0.83) |
| Lone Tree Road south of Elkhorn Boulevard | 4 | A (0.38) | B (0.58) |
| Metro Air Parkway north of I-5 Interchange (with Meister Way overpass) | 6 | F (1.46) | F (1.50) |
| | 8 | | F (1.12) |
| Meister Way west of SR 70/99 (with Meister Way overpass) | 2 | | F (0.96) |
| | 4 | A (0.36) | A (0.48) |

Notes: LOS = level or service; V/C = Volume/Capacity ratio
Bold = Unacceptable Ramp Operation
Reference: Highway Capacity Manual 2000 Edition.

The project would result in less-than-significant cumulative impacts to the Lone Tree Road south of Elkhorn Boulevard segment because it would operate at LOS B, which is acceptable based on City and County standards. Further, the project’s cumulative impact to the Metro Air Parkway north of I-5 segment would be less-than-significant because the project would not cause the volume-to-capacity of this segment to increase by more than 0.05. However, because the project would cause the Elkhorn Boulevard west of SR 70/99 Interchange segment to degrade from LOS E to LOS F and the Meister Way west of SR 70/99 to degrade from LOS A to LOS F under Cumulative plus Project conditions, impacts to these intersections would be a cumulatively *significant* impact.

Mitigation Measure 6.1-6a: Elkhorn Boulevard west of SR 70/99 Interchange (City of Sacramento)

Widening Elkhorn Boulevard to eight lanes (4 in each direction) would reduce this impact to a less-than-significant level. The City includes widening of Elkhorn Boulevard to six lanes within its General Plan; widening to eight lanes is not feasible nor planned by the City. Therefore, before project approval, the project applicant shall, in coordination with the City, establish a funding mechanism to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs towards widening Elkhorn Boulevard to six lanes west of the SR 70/99 Interchange (the number of lanes planned by the City of Sacramento). The City and developers of the MAP project have identified 100% of the funding necessary to widen the Elkhorn Boulevard/SR 70/99 overpass to six lanes. No other feasible mitigation is available to reduce this impact. Therefore, while reduced, this impact would remain *significant and unavoidable*.

Mitigation Measure 6.1-6b: Meister Way west of SR 70/99 (City of Sacramento)

The project applicant shall implement Mitigation measure 6.1-2c. With implementation of this mitigation measure, this segment would operate at LOS B and this impact would be reduced to a *less-than-significant* level.

Significance After Mitigation

With implementation of the above mitigation measures, the Meister Way west of SR 70/99 segment would operate at acceptable levels under cumulative conditions and the project's cumulative impacts would be reduced to a *less-than-significant* level.

However, no feasible mitigation is available to reduce the project's cumulative impacts to the Elkhorn Boulevard west of SR 70/99 interchange segment. Therefore, the project's cumulative impact to this intersection is considered *significant and unavoidable*.

IMPACT 6.1-7

Cumulative Impacts to Study Area Freeway Ramps. *The proposed project in combination with cumulative projects would increase traffic volumes on the freeway system and would cause six study freeway ramps (i.e., SR 70/99 Northbound to Elkhorn Boulevard off ramp, Elkhorn Boulevard to SR 70/99 Southbound slip on ramp, I-5 Northbound to SR 70/99 Northbound off ramp, I-5 Northbound to Metro Air Parkway off-ramp, I-5 Southbound to Metro Air Parkway off ramp, and Metro Air Parkway to I-5 Southbound loop on ramp) to operate unacceptably under Cumulative plus Project conditions and exceed Caltrans thresholds of significance for freeway ramp operations. This would be a **significant** cumulative impact and the project's contribution to this impact would be cumulatively considerable.*

With implementation of the project and cumulative projects, traffic volumes on the local freeway system would increase. Tables 6.1-39 compares the peak-hour operating conditions for the study ramps under Cumulative No Project conditions with that of Cumulative plus Project conditions.

As shown in Table 6.1-39, all the study ramps are expected to operate acceptably under Cumulative plus Project conditions, except for the following ramps:

- ▶ *SR 70/99 Northbound to Elkhorn Boulevard off-ramp:* The project would cause this freeway ramp to degrade from LOS E to LOS F under Cumulative plus Project conditions.
- ▶ *Elkhorn Boulevard to SR 70/99 Southbound slip on-ramp:* The project would cause this freeway ramp to degrade from LOS D to LOS E under Cumulative plus Project conditions.
- ▶ *I-5 Northbound to SR 70/99 Northbound off-ramp:* Under Cumulative No Project conditions, this freeway ramp would operate at LOS E. Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS E; however, the project would contribute additional traffic during peak hours to an intersection that would operate unacceptably.
- ▶ *I-5 Northbound to Metro Air Parkway off-ramp:* Under Cumulative No Project conditions, this freeway ramp would operate at LOS F. Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS F; however, the project would contribute additional traffic during the a.m. peak hour to an intersection that would operate unacceptably.
- ▶ *I-5 Southbound to Metro Air Parkway off-ramp:* Under Cumulative No Project conditions, this freeway ramp would operate at LOS F. Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS F; however, the project would contribute additional traffic during the a.m. peak hour to an intersection that would operate unacceptably.

**Table 6.1-39
Cumulative Peak-Hour Freeway Ramp Operating Conditions**

| Ramp | Level of Service | | | | | | | | | | | |
|---------------------------------------------------------|------------------|----------|-----------------------------------------------|----------------|-----|-----------------------------------------------|-----------------------------------------------------|----------|-----------------------------------------------|----------------|-------------------|-----------------------------------------------|
| | No Project | | | | | | Plus Project ("with" the Meister-SR 70/99 overpass) | | | | | |
| | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Elkhorn Boulevard to SR 70/99 northbound (Loop on-ramp) | 31 | B | - | 377 | B | - | 49 | B | - | 437 | B | - |
| Elkhorn Boulevard to SR 70/99 northbound (on-ramp) | 638 | B | - | 78 | B | - | 641 | B | - | 90 | B | - |
| SR 70/99 northbound to Elkhorn Boulevard (off-ramp) | 1,908 | E | [NBL: 1,156, 1,270] | 815 | C | [NBL: 112, 1,270] | 2,067 | F | [NBL: 1,290, 1,270] | 1,024 | C | [NBL: 222, 1,270] |
| With Mitigation | | | | | | | | C | | | [NBL: 393, 1,270] | B |
| SR 70/99 southbound to Elkhorn Boulevard (off-ramp) | 536 | C | [SWR: 383, 1,250] | 408 | C | [SWL: 92, 1,250] | 577 | C | [SWR: 468, 1,250] | 447 | C | [SWL: 115, 1,250] |
| Elkhorn Boulevard to SR 70/99 southbound (loop on-ramp) | 454 | B | - | 84 | B | - | 454 | B | - | 84 | B | - |
| Elkhorn Boulevard to SR 70/99 southbound (on-ramp) | 261 | B | - | 1,837 | D | - | 404 | B | - | 2,045 | E | - |
| With Mitigation | | | | | | | | B | | | C | |
| Elverta Boulevard to SR 70/99 northbound (Loop on-ramp) | 64 | B | - | 781 | B | - | 65 | B | - | 785 | B | - |
| Elverta Boulevard to SR 70/99 northbound (on-ramp) | 61 | B | - | 24 | B | - | 61 | B | - | 24 | B | - |
| SR 70/99 northbound to Elverta Boulevard (off-ramp) | 1,549 | D | [NBL: 1,008, 1,270] | 417 | C | [NBR: 99, 1,270] | 1553 | D | [NBL: 1,021, 1,270] | 437 | C | [NBR: 105, 1,270] |

| Table 6.1-39 Cumulative Peak-Hour Freeway Ramp Operating Conditions | | | | | | | | | | | | |
|------------------------------------------------------------------------|------------------|----------|--------------------------------------------|----------------|-----|--------------------------------------------|-----------------------------------------------------|----------|--------------------------------------------|----------------------------|----------|--------------------------------------------|
| Ramp | Level of Service | | | | | | | | | | | |
| | No Project | | | | | | Plus Project ("with" the Meister-SR 70/99 overpass) | | | | | |
| | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| SR 70/99 southbound to Elverta Boulevard (off-ramp) | 783 | C | [SWR: 707, 1,250] | 249 | C | [SWL: 35, 1,250] | 785 | C | [SWR: 709, 1,250] | 256 | C | [SWL: 35, 1,250] |
| Elverta Boulevard to SR 70/99 southbound (loop on-ramp) | 306 | B | - | 28 | B | - | 319 | B | - | 32 | B | - |
| Elverta Boulevard to SR 70/99 southbound (on-ramp) | 40 | B | - | 1,311 | C | - | 40 | B | - | 1,312 | C | - |
| SR 70/99 southbound to I-5 northbound (off-ramp) | 562 | C | - | 174 | C | - | 568 | C | - | 186 | C | - |
| I-5 southbound to SR 70/99 northbound (off-ramp) | 148 | C | - | 506 | C | - | 156 | C | - | 516 | C | - |
| SR 70/99 southbound to I-5 southbound (on-ramp) | 1,524 | B | - | 3,409 | D | - | 1,662 | B | - | 3,605 | D | - |
| I-5 northbound to SR 70/99 northbound (off-ramp) | 3,211 | E | - | 1,863 | C | - | 3,362 | E | - | 2,062 | C | - |
| with Meister Way overpass | | | | | | | | C | | | B | |
| I-5 northbound to Metro Air Parkway (off-ramp)* | 3,795 | F | [WBR: 2,655, 1,270] | 853 | C | [WBR: 231, 1,270] | 3,828 | F | 888 | [WBR: 2,693, 1,270] | C | [WBR: 373, 1,270] |
| with Meister Way overpass | | | | | | | | D | | [WBR: 1,124, 1,270] | B | [WBR: 313, 1,270] |
| Metro Air Parkway to I-5 northbound (on-ramp)* | 209 | B | - | 1,707 | D | - | 259 | B | - | 1,776 | D | - |

**Table 6.1-39
Cumulative Peak-Hour Freeway Ramp Operating Conditions**

| Ramp | Level of Service | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|--------------------------------------------|----------------|----------|--------------------------------------------|-----------------------------------------------------|----------|--------------------------------------------|----------------|----------|--------------------------------------------|
| | No Project | | | | | | Plus Project ("with" the Meister-SR 70/99 overpass) | | | | | |
| | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ | Volume (vph) | LOS | Queue Length (feet) [X: Y, Z] ¹ |
| Metro Air Parkway to I-5 northbound (loop on-ramp)* | 350 | B | - | 254 | B | - | 353 | B | - | 254 | B | - |
| I-5 southbound to Metro Air Parkway (off-ramp)* | 2,062 | F | [SEL: 757, 1,250] | 739 | C | [SER: 56, 1,250] | 2122 | F | [SBL: 776, 1,250] | 809 | C | [SBL: 60, 1,250] |
| with Meister Way overpass | | | | | | | | C | | | B | |
| Metro Air Parkway to I-5 southbound (on-ramp)* | 0 | B | - | 270 | B | - | 0 | B | - | 278 | B | - |
| Metro Air Parkway to I-5 southbound (loop on-ramp)* | 494 | B | - | 3,642 | F | - | 521 | B | - | 3,690 | F | - |
| with Meister Way overpass | | | | | | | | B | | | D | |
| <p>Notes: LOS – level of service for ramp freeway junction areas of influence Bold – Unacceptable Ramp Operation Reference – Highway Capacity Manual 2000 Edition vph – Vehicles per hour * Future ramps ¹ X:Y,Z = Most critical ramp approach: 95th Percentile Queue Length, Available Segment Length/Storage - Slip ramps. Requires arrival and departure data to estimate queuing on-ramps. However, the ramps are long enough to contain queues. As shown in the table, traffic volumes are low on the slip ramps.</p> | | | | | | | | | | | | |

- ▶ *Metro Air Parkway to I-5 Southbound loop on-ramp*: Under Cumulative No Project conditions, this freeway ramp would operate at LOS F. Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS F; however, the project would contribute additional traffic during the p.m. peak hour to an intersection that would operate unacceptably.

Because the project would cause six study area freeway ramps to either degrade from an acceptable operating condition to an unacceptable operating condition or would contribute traffic to a freeway ramp that would operate unacceptably under Cumulative no Project conditions, the project's impacts to these intersections would be cumulatively ***significant***.

Mitigation Measure 6.1-7a: SR 70/99 Northbound to Elkhorn Boulevard off-ramp (City of Sacramento and Caltrans)

The project applicant shall implement mitigation measure 6.1-5c, which requires a funding mechanism for the re-striping the SR 70/99 northbound off-ramp approach to provide two left-turn lanes, a shared left turn-right turn lane and a right-turn lane (cumulative base lane geometry assumes two left turn and two right turn lanes). With implementation of this mitigation measure and widening this ramp from one lane to two lanes, this ramp would operate at LOS C and this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered ***significant and unavoidable***.

Mitigation Measure 6.1-7b: Elkhorn Boulevard to SR 70/99 Southbound diagonal on-ramp (City of Sacramento and Caltrans)

Widening the on-ramp to provide an additional lane would reduce the impact of the project to a less-than-significant level and the on-ramp would operate at LOS C. However, widening of the on-ramp is not included in Caltrans' DSMP and Caltrans does not have any funding mechanisms to implement this improvement. Therefore, this mitigation measure is considered infeasible and the impact would remain ***significant and unavoidable***.

Mitigation Measure 6.1-7c: I-5 Northbound to SR 70/99 Northbound off-ramp (City of Sacramento and Caltrans)

Widening the on-ramp to provide an additional lane would improve the operating condition on this off-ramp to LOS C. The project would contribute approximately 4% of the total a.m. peak-hour trips at this off-ramp and would be required to pay a 4% fairshare contribution toward implementing a feasible mitigation measure, if available. Widening of the off-ramp is not included in Caltrans' DSMP and Caltrans does not have any funding mechanisms to implement this improvement. Furthermore, widening the off-ramp would require additional right-of-way which is not controlled by the project applicant and is not within the jurisdiction of the City. Therefore, this mitigation measure is considered infeasible and the impact would remain ***significant and unavoidable***.

Mitigation Measure 6.1-7d: I-5 Northbound to Metro Air Parkway off-ramp (City of Sacramento and Caltrans)

The project applicant shall implement mitigation measure 6.1-5d, which requires the establishment of a funding mechanism for restriping the I-5 northbound off-ramp approach to provide a left turn lane, a shared left turn-right turn lane and two right turn lanes (cumulative base lane geometry assumes two left turn and two right turn lanes). With implementation of this mitigation measure, this ramp would operate at LOS D and this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is

unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered *significant and unavoidable*.

Mitigation Measure 6.1-7e: I-5 Southbound to Metro Air Parkway off-ramp (City of Sacramento and Caltrans)

Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City) toward the re-stripping the I-5 southbound off-ramp approach to provide two left-turn lanes, a shared left turn-right turn lane and a right-turn lane (cumulative base lane geometry assumes two left turn and two right turn lanes). The Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way is currently available to accommodate these improvements without resulting in expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. The project would contribute approximately 3% of the total a.m. peak-hour trips at this off-ramp and as a result shall contribute 3% to construction of this improvement. Caltrans would be the agency responsible for implementation of this measure and as a result the City would be required to coordinate with Caltrans on the funding of this improvement. Caltrans’ District 3 DSMP includes the I-5/Metro Air Parkway Interchange, but does not identify specific improvements or project construction date. Construction of I-5 Southbound to Metro Air Park off-ramp is included in Metro Air Park Finance Plan, so the applicant would be required to pay its fair share contribution in conjunction with Metro Air Park finance plan toward the construction of this improvement. With implementation of this mitigation measure, this freeway ramp would operate at LOS C; therefore, this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered *significant and unavoidable*.

Mitigation Measure 6.1-7f: Metro Air Parkway to I-5 Southbound loop on-ramp (City of Sacramento and Caltrans)

Before project approval, the project applicant shall in coordination with the City, prepare a City Council-approved Finance Plan to fully fund necessary traffic mitigation. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs (determined in consultation with the City and Caltrans) toward the widening of the on-ramp to provide an additional lane. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Sufficient right-of-way is currently available to accommodate these improvements without resulting in expansion of this intersection. Based on “windshield surveys” of the project area, the site proposed for this improvement is substantially similar to the project site. Construction-related impacts would be similar to the project’s construction-related impacts and no new significant impacts would occur. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. The project would contribute approximately 1% of the total p.m. peak-hour trips at this off-ramp and as a result shall contribute 1% to construction of this improvement. Caltrans would be the agency responsible for implementation of this measure and as a result the project applicant would be required to coordinate with Caltrans on the funding of this improvement. Caltrans’ District 3 DSMP includes the I-5/Metro Air Parkway Interchange, but does not identify specific improvements or project construction date. Additionally, the construction of Metro Air Parkway to I-5 southbound loop on-ramp is

included in the Metro Air Park Finance Plan, so the applicant would be required to pay its fair share contribution in conjunction with Metro Air Park finance plan toward the construction of this improvement. With implementation of this mitigation measure, this freeway ramp would operate at LOS D; therefore, this impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered **significant and unavoidable**.

Significance After Mitigation

With implementation of the above mitigation measures, SR 70/99 Northbound to Elkhorn Boulevard off-ramp, I-5 Northbound to Metro Air Parkway off-ramp, I-5 Southbound to Metro Air Parkway off-ramp, and the Metro Air Parkway to I-5 Southbound loop on-ramp would operate at acceptable levels under cumulative conditions and the project's cumulative impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered **significant and unavoidable**.

Further, no feasible mitigation is available or implementation of feasible mitigation can not be guaranteed because it is not subject to the control of the City for the Elkhorn Boulevard to SR 70/99, Southbound slip on-ramp and the Northbound to SR 70/99 Northbound off-ramp. Therefore, the project's cumulative impacts to these intersections are considered **significant and unavoidable**.

IMPACT 6.1-8

Cumulative Freeway Mainline Segment Impacts. *The proposed project in combination with cumulative projects would increase traffic volumes on the freeway system and would cause three study freeway mainline segments (i.e., I-5 east of Powerline Road, I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard) to operate unacceptably under Cumulative plus Project Conditions. These intersections would operate unacceptably under Cumulative no Project conditions; however, the project would contribute additional trips to these intersections, which is unacceptable based on Caltrans standards. This would be a cumulatively significant impact.*

With implementation of the project and cumulative projects, traffic volumes on the local freeway system would increase. Tables 6.1-40 compares the peak-hour operating conditions for the freeway mainline segments under Cumulative No Project conditions with that of Cumulative plus Project conditions.

As shown in Table 6.1-36, three mainline segments are expected to operate unacceptably under Cumulative plus Project conditions as described below:

- ▶ *Interstate 5 – east of Powerline Road* – Under Cumulative No Project conditions, this mainline segment would operate at LOS F during the a.m. and p.m. peak hours (westbound/northbound direction and eastbound/ southbound direction respectively). Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS F during the a.m. and p.m. peak hours; however, the project would contribute additional traffic during the a.m. peak hour to an intersection that would operate unacceptably.

**Table 6.1-40
Cumulative Peak-Hour Freeway Mainline Operating Conditions**

| Freeway Segment | Direction | Level of Service | | | | | | | | | | | |
|-------------------------------------------------------------------------|---------------------------|------------------|------------------|-----|----------------|------------------|-----|-----------------------------------------------------|------------------|-----|----------------|------------------|-----|
| | | No Project | | | | | | Plus Project ("with" the Meister-SR 70/99 overpass) | | | | | |
| | | A.M. Peak Hour | | | P.M. Peak Hour | | | A.M. Peak Hour | | | P.M. Peak Hour | | |
| | | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS | Volume (vph) | Density (pc/m/l) | LOS |
| I-5 East of Power Line Road | WB/NB | | | | | | | | | | | | |
| | with Meister Way overpass | 6,266 | > 45 | F | 3,807 | 41.6 | E | 6,304 | - | F | 3,854 | 42.9 | E |
| | EB/SB | | | | | | | | | | | | |
| | with Meister Way overpass | 3,243 | 31.1 | D | 6,064 | > 45 | F | 3,278 | 31.6 | D | 6,130 | - | F |
| I-5 North of Del Paso Road | NB | | | | | | | | | | | | |
| | with Meister Way overpass | 8,915 | > 45 | F | 5,496 | 25.4 | C | 9,099 | - | E | 5,730 | 26.6 | C |
| | SB | | | | | | | | | | | | |
| | with Meister Way overpass | 4,619 | 21.3 | C | 8,966 | > 45 | F | 4,784 | 22 | C | 9,218 | - | F |
| I-5 North of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit | NB | | | | | | | | | | | | |
| | with Meister Way overpass | 10,545 | > 45 | F | 6,976 | 34.9 | D | 10,783 | - | E | 7,305 | 38 | C |
| | SB | | | | | | | | | | | | |
| | with Meister Way overpass | 5,760 | 26.7 | D | 10,802 | > 45 | F | 6,004 | 28.1 | D | 11,189 | - | F |
| SR 70/99 between Elverta Road and Elkhorn Boulevard | NB | 2,120 | 19.5 | C | 2,009 | 18.5 | C | 2,141 | 19.7 | C | 2,079 | 19.1 | C |
| | SB | 1,909 | 17.6 | B | 2,069 | 19 | C | 1,949 | 17.9 | B | 2,108 | 19.4 | C |
| SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 Interchange | NB | 3,359 | 20.6 | C | 2,369 | 14.5 | B | 3,518 | 21.6 | C | 2,578 | 15.8 | B |
| | SB | 2,087 | 12.8 | B | 3,583 | 22 | C | 2,230 | 13.7 | B | 3,791 | 23.3 | C |

Notes: vph - vehicles per hour; pc/m/l - passenger cars per mile per lane; LOS = Level of Service;
Bold = Unacceptable Freeway Segment Operation.

- ▶ *Interstate 5 – north of Del Paso Road* – Under Cumulative No Project conditions, this mainline segment would operate at LOS F during the a.m. and p.m. peak hours (northbound direction and southbound direction respectively). Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS F during the a.m. and p.m. peak hours; however, the project would contribute additional traffic during the a.m. peak hour to an intersection that would operate unacceptably.
- ▶ *Interstate 5 – north of I-5/I-80 Interchange* – between I-80 and Arena Boulevard Exit – Under Cumulative No Project conditions, this mainline segment would operate at LOS F during the a.m. and p.m. peak hours (northbound direction and southbound direction respectively). Under Cumulative plus Project conditions, this freeway ramp would continue to operate at LOS F during the a.m. and p.m. peak hours; however, the project would contribute additional traffic during the a.m. peak hour to an intersection that would operate unacceptably.

Because the project would contribute traffic to three freeway mainline segments that would operate unacceptably under Cumulative No Project conditions, the project’s impacts to these intersections would be cumulatively ***significant***.

Mitigation Measure 6.1-8a: I-5 east of Powerline Road to the MAP Interchange (City of Sacramento and Caltrans)

Because this mainline segment of I-5 would operate unacceptably under Cumulative No Project conditions, widening this segment to eight lanes (currently four lanes) would improve the operating conditions of this segment during peak conditions to an acceptable LOS. The Caltrans’ District 3 DSMP includes adding an HOV lane to I-5 by the year 2020 and according to Metro Air Park Finance Plan, this segment of I-5 would be upgraded to six lanes with buildout of the Metro Air Park project. Therefore, prior to recordation of the first map, the project applicant shall, in coordination with the City, prepare a City Council-approved Finance Plan. This funding mechanism shall be in conformance with the Draft Greenbriar Finance Plan presented in Appendix C. This funding mechanism shall ensure that the project applicant will pay their fair-share costs, determined in consultation with the City and in coordination with the Metro Air Park Finance Plan, toward the widening of I-5 to six lanes. No other right-of-way is available to widen this segment to eight lanes. The Draft Greenbriar Finance Plan identifies 100% of the funding needed to construct this improvement. Additional right-of-way to accommodate the expansion of this freeway segment beyond six lanes is not available because of the developing nature of properties to the east and west of I-5. While expansion of this freeway segment would reduce the project’s cumulative traffic impacts to this freeway segment, it would not reduce the project’s cumulative impact to a less-than-significant level because widening to eight lanes is not feasible. No other feasible mitigation is available to reduce this impact. Therefore, while reduced, this impact would remain ***significant and unavoidable***.

Mitigation Measure 6.1-8b: I-5 north of Del Paso Road (City of Sacramento and Caltrans)

Widening this segment of I-5 mainline to 10 lanes (currently six lanes) would improve the operating conditions of this segment during peak conditions to an acceptable LOS. The Caltrans District 3 DSMP includes adding an HOV lane to I-5 by the year 2020 but no funding mechanism for this project is defined. No other freeway expansion projects are planned for this segment of I-5. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project’s impacts to this mainline segment, this impact would remain ***significant and unavoidable***.

Mitigation Measure 6.1-8c: I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit (City of Sacramento and Caltrans)

Because this mainline segment of I-5 would operate unacceptably under Cumulative No Project conditions, widening this segment of I-5 mainline to 12 lanes (currently six lanes) would improve the operating conditions of this segment during peak conditions to an acceptable LOS. The Caltrans District 3 DSMP includes adding an HOV lane to I-5 by the year 2020 but no funding mechanism for this project is available. No other freeway expansion projects are planned for this segment of I-5. Further, because of the developing nature of properties to the east and west of I-5, additional right-of-way is not available for the expansion of this freeway segment. Because no feasible mitigation is available to reduce the project's impacts to this mainline segment, this impact would remain *significant and unavoidable*.

Significance After Mitigation

No feasible mitigation is available to reduce the project's cumulative mainline freeway segment impacts to a less-than-significant level. Therefore, the project's cumulative impacts to these mainline freeway segment impacts are considered *significant and unavoidable*.

**IMPACT
6.1.9**

Pedestrian and Bicycle Circulation Impacts. *The project would add pedestrian demands within the project site and to and from proposed commercial, retail, and light-rail land uses. Specific information on improvements to on and off-site bicycle and pedestrian facilities is not available at this time. Because the project would add demand for pedestrians and bicycle facilities for which facilities may not be available. This would be a **potentially significant** bicycle and pedestrian circulation impact.*

According to the City's criteria, the project would result in a significant impact to bicycles and pedestrians if the project conflicts with any existing or planned facility or adds demand to one of these modes that is not adequately accommodated by appropriate facilities. The project would construct sidewalks and pedestrian paths throughout the development. These sidewalks would provide pedestrian connections within the site and to the proposed commercial, retail, and light rail land uses. Further, a pedestrian sidewalk would be provided along the Meister Way overpass and would allow pedestrians to access areas east of SR 70/99.

No bicycle facilities are currently available on or near the project site. On street bike lanes exist at several locations along Del Paso Road and six-foot wide bike lanes exist on both sides of East Commerce Way. The project would increase demand for bicycle and pedestrian facilities details of project facilities (e.g., design, siting) is unknown at this time. Therefore, the project could result in inadequate access to on- and off-site pedestrian and bicycle facilities. This would be a *potentially significant* impact.

Mitigation Measure 6.1-9: Bicycle and Pedestrian Facilities (City of Sacramento)

- a. Prior to recordation of the first map, the project applicant shall coordinate with the City of Sacramento Development Engineering and Finance Division to identify the necessary on- and off-site pedestrian and bicycle facilities to serve the proposed development. These facilities shall be incorporated into the project and could include: sidewalks, stop signs, in-pavement lighted crosswalks, standard pedestrian and school crossing warning signs, lane striping to provide a bicycle lane, bicycle parking, signs to identify pedestrian and bicycle paths, marked and raised crosswalks, and pedestrian signal heads.
- b. Circulation and access to all proposed parks and public spaces shall include sidewalks that meet American with Disability Act Standards.

- c. The project applicant shall dedicate a buffer along the edges of the project site (south, east, and west) to the City of Sacramento. This buffer shall be landscaped by the project applicant and shall provide space for future 10-foot off-street bikeways that would connect residents and employees to the NNCP area and other Class I bike facilities. The buffer on the western edge of the project site shall not encroach on the 250-foot linear open space/buffer proposed for giant garter snake habitat.
- d. The project applicant shall provide on-street bicycle lanes 5-6-feet wide within the community. Details on the design and siting of these bike lanes shall be done in consultation with the City of Sacramento Development Engineering and Finance Division.
- e. Bicycle parking shall conform to City standards and shall be located in high visibility areas to encourage bicycle travel. Class I (i.e., bicycle lockers) and Class II (i.e., racks) bicycle facilities shall be provided throughout the commercial areas of the project, at a ratio of 1 bicycle storage space for every 20 off-street vehicle parking spaces required. Fifty percent of the storage spaces shall be Class I facilities and the remaining 50% shall be Class II facilities.
- f. The project applicant shall provide residents, tenants, and employees of the project site with information regarding the Sacramento Area Council of Government's (SACOG) Rideshare bicycle commuting program.

Significance After Mitigation

With implementation of this mitigation measure, adequate bicycle and pedestrian facilities would be provided at the project site in accordance with City standards. This impact would be reduced to a *less-than-significant* level.

**IMPACT
6.1-10**

Demand for Public Transportation. *Public transit is not currently provided to the project site. At the time the project application was submitted to the City, no plans for the provision of public transit services were proposed. The project would increase demands for public transit facilities, none of which are proposed to be provided to the project site. Therefore, the project would result in a **significant** public transportation impact.*

The project would increase demands for public transportation services. As shown in Table 6.1-20, residents at the project site would generate 233 transit trips per day and patrons of the commercial component of the project would generate 63 transit trips per day. Sacramento Regional Transit District (RT) provides light-rail transit (LRT) service in Sacramento. Regional Transit plans to extend service from downtown Sacramento to the Sacramento International Airport, located west of the project site. Service would be provided through construction of a LRT line along the project's proposed Meister Way. With construction and operation of the proposed LRT station, the project would increase demands for LRT services.

Currently, public transit services (e.g., LRT, shuttle, and bus services) are not provided on the project site or the nearby vicinity and none were proposed at the time the project application was submitted to the City. The project is proposed to be a transit-oriented development that would serve to encourage the use of public transit facilities. Construction of a new LRT station at the project site would facilitate the transit-oriented design elements and would allow for enhanced public transit opportunities. While the RT intends to construct a new LRT line along Meister Way, the timing of construction of this service is currently unknown and this project would be subject to separate environmental review and project approval processes. No interim public transit facilities/services are proposed at the project site and demand for public transit services would not be met. Therefore, the project would result in a *significant* public transportation impact.

Mitigation Measure 6.1-10: (City of Sacramento)

- a. Prior to the construction and operation of RT's proposed LRT station along Meister Way, the project applicant shall fund and operate an interim shuttle/bus transportation service for residents and patrons of the project site. The project applicant shall develop this interim transit service in consultation with the City of Sacramento and the RT. The interim transit service shall provide transit services for peak commute periods. To promote the use of public transit services, the project applicant at the sale of proposed residences shall promote the availability of transit services. Once demand for public transit services reaches 50 service requests, the project applicant shall begin to provide transit services and shall increase those services in proportion to the development levels and increased rider ship levels occurring on the project site.
- b. The transit service shall take residents to the Central Business District (CBD) (i.e., downtown Sacramento) where they can transfer to light rail, bus, or train and connect to anywhere in greater Sacramento region and to the Bay Area. The transit service shall connect residents to the following transit services: Sacramento Regional Transit, El Dorado Transit, Yuba-Sutter Transit, Yolo Bus, Placer County Transit, San Joaquin Transit, Fairfield/Suisun Transit, Amador Transit, Roseville Transit, ETRAN (Elk Grove), and the Capitol Corridor/Amtrak. Midday service shall also be considered as development and rider ship demands increase.
- c. Final design and operation of the transit service will be subject to the approval of the City and other proposed operating agencies (e.g., RT).

Significance After Mitigation

With implementation of interim public transportation services, the project would ensure that public transportation demands would be adequately met until public transportation services are provided to the project site by RT. This impact would be reduced to a *less-than-significant* level.

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|--------------------------|
| IMPACT 6.1-11 |
|--------------------------|

Construction-Related Impacts. *Construction activities for the project would result in the generation of 50 one-way truck trips per day associated with construction activities and 500 one-way vehicle trips (250 construction workers on-site on a worst-case basis) associated with construction personnel. All construction personnel and vehicles would access the project site from Elkhorn Boulevard and would park in designated areas on the project site. No on-street parking would occur. Although the construction trips would be temporary, because of the size of this project and the large number of personnel required on a daily basis, the project's construction trips could substantially increase local roadway volumes and interfere with the safe and efficient operation of these roadways. This would be a **potentially significant** impact.*

Construction of the project would result in short-term increases in traffic on local roadways. Construction activities would require the hauling of equipment and materials to the project site and transportation of employees to and from off-site locations. Construction activities would require a maximum of 250 construction workers to commute to the site on a daily basis over a period of 5 to 10 years. These construction workers would generate 500 one-way daily trips to and from the project site. In addition, the project would generate 50 one-way truck trips per day associated with the delivery of construction equipment and materials. Construction vehicles, personnel, and deliveries would access the project site from Elkhorn Boulevard and would park all vehicles in designated areas on the project site. No construction-related vehicles (i.e., equipment, personal vehicles) would be allowed to park along streets in the surrounding neighborhood (e.g., along Elkhorn Boulevard or Lone Tree Road). Existing roadway volumes along Elkhorn Boulevard along the project site frontage are 458 vehicles per day. As a result, the project's proposed construction and vehicle and truck trips (i.e., 650) would increase local roadway volumes by 1.2 times (total of an estimated 1,008 trips).

Because of the extended construction period, these construction trips would combine over time with traffic trips associated with the project, which could result in substantial increases in local roadway volumes. Further, construction activities could result in the temporary disruption of the transportation system in and around the project area, including temporary street closures, which could result in increased roadway congestion, which could interfere with the safe and efficient operation of the local roadway system. Because the construction-related activities could result in substantial increases in local roadway volumes and potential disruptions in the operation of the local roadway network, this would be a *potentially significant* impact.

Mitigation Measure 6.1-11: (City of Sacramento)

- a. Prior to issuance of grading permits for the project site, the project applicant shall prepare a detailed Traffic Management Plan that will be subject to review and approval by the City Department of Transportation, Caltrans, Sacramento County, and local emergency services providers including the City of Sacramento fire and police departments. The plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained. At a minimum, the plan shall include:
 - ▶ the number of truck trips, time an day of street closures,
 - ▶ time of day of arrival and departure of trucks,
 - ▶ limitations on the size and type of trucks, provision of a truck staging area with a limitation on the number of trucks that can be waiting,
 - ▶ provision of a truck circulation pattern,
 - ▶ provision of driveway access plan along Elkhorn Boulevard so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas),
 - ▶ maintain safe and efficient access routes for emergency vehicles,
 - ▶ manual traffic control when necessary,
 - ▶ proper advance warning and posted signage concerning street closures, and
 - ▶ provisions for pedestrian safety.
- b. A copy of the construction traffic management plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct local roadways.

Significance After Mitigation

Implementation of the construction traffic management plan would ensure the safe and efficient operation of the local roadway system and would reduce the project's construction-related transportation impacts to a *less-than-significant* level.

**IMPACT
6.1-12**

Conformity with City Parking Requirements. *A detailed parking plan has not been submitted by the project applicant. As a result, it is unknown whether adequate parking would be provided on the project site for residential, commercial, and retail land uses. Therefore, this would be a potentially significant impact.*

The proposed project intends to provide parking facilities for on-site residences, the proposed school, public park facilities, the proposed light rail station, and proposed commercial and retail land uses. The City has developed minimum parking standards for each land use and these standards are presented in Table 6.1-41.

| Table 6.1-41 City Parking Requirements | | |
|-------------------------------------------|------------|---------------------------|
| Land use | Size | Parking Required (Spaces) |
| Low Density Residential | 671 D.U. | 671 |
| Medium Density Residential | 2,215 D.U. | 2,215 |
| High Density Residential (HDR) | 587 D.U. | 940 |
| Community/Village Commercial | 325.2 KSF | 1,301 |
| Retail with HDR | 47.5 KSF | 191 |
| Open space | | None required |

Source: Planning Division, City of Sacramento, email dated Sep, 19, 2005

Proposed single-family residences would consist of 2- and 3-car garages in addition to on-street parking spaces. The light rail station, school, commercial, and retail land uses would also provide parking areas for employees and patrons to these land uses. However, the project applicant have not submitted a detailed parking plan to the City for review. Therefore, it is unknown whether adequate parking in conformance with the City’s parking standards would be provided on-site. Therefore, the project would result in a **potentially significant** parking impact.

Mitigation Measure 6.1-12: (City of Sacramento)

The project applicant shall submit a detailed parking plan for each proposed land use at the time development entitlements (e.g., building permits or special permits) are sought. The parking plan shall ensure that parking provided on the project site would meet the City’s most current parking standards for the proposed land use and it shall identify the number and location of proposed parking spaces including proposed handicap parking spaces. If a light rail station is constructed within project site, then a park and ride lot or park and ride spaces shall be allocated in the retail zoned area in the vicinity of the proposed LRT station. The parking plan shall be subject to the review and approval by the City Development Engineering and Finance Division.

Significance After Mitigation

With implementation of this mitigation measure, adequate parking would be provided on-site in accordance with the City’s standards. This impact would be reduced to a **less-than-significant** level.

**IMPACT
6.1-13**

Project Site Access Impacts. *The project would construct 5 new access points to the project site along Elkhorn Boulevard and Lone Tree Road and 3 access points along Meister Way. With implementation of the project and recommended traffic improvements, access from Elkhorn Boulevard and Lone Tree Road would be adequate. However, access points along Meister Way would be uncontrolled and with project build out could result in unsafe site access conditions (e.g., long queues of vehicles, left-turns across free flow traffic). Therefore, this would be a **potentially significant** site access impact.*

Access to the project site would be provided primarily from Elkhorn Boulevard via three roadways. Other access points would include Meister Way and a new roadway along Lone Tree Road north of Meister Way. Meister Way is a proposed new east-west arterial that would extend

to the east over SR 70/99 where it would connect with East Commerce Way. To the west this roadway would connect to Metro Air Parkway.

In general, Meister Way serves as the central dividing line within the project site and divides the site into a northern and southern half. Primary access to the northern half of the project site would be provided at three intersections along Elkhorn Boulevard and one intersection on Lone Tree Road between Elkhorn Boulevard and Meister Way. As described above in Impacts 6.1-1, 6.1-2, 6.1-5, and 6.1-6, with implementation of recommended mitigation under baseline and cumulative plus project conditions, the project driveways along Elkhorn Boulevard and Lone Tree Road would operate acceptably. Primary access to the southern half of the project site would be provided at three intersections along Meister Way. These intersections also provide access to the northern portion of the project. As currently proposed, these intersections would be uncontrolled. Traffic associated with the project could result in hazardous and unsafe driving conditions and could result in the queuing of long lines of vehicles behind a vehicle making a left turn off Meister Way and vehicles turning left would cross free flowing traffic. This would be a *potentially significant* impact.

Mitigation Measure 6.1-13: (City of Sacramento)

- a. Prior to 40% buildout of the project site based on total project trips, an exclusive left turn lane and a shared through-right turn lane for the project side streets with stop control shall be provided at the three four legged project intersections along Meister Way.
- b. An exclusive left turn lane for vehicles turning left from the eastbound and westbound Meister Way approaches shall be provided at these intersections. Exhibit 6.1-18 shows the proposed traffic controls throughout the project site.
- c. Final design and siting of these improvements shall be subject to the approval of the City Development Engineering and Finance Division, Development Services Department.

Significance After Mitigation

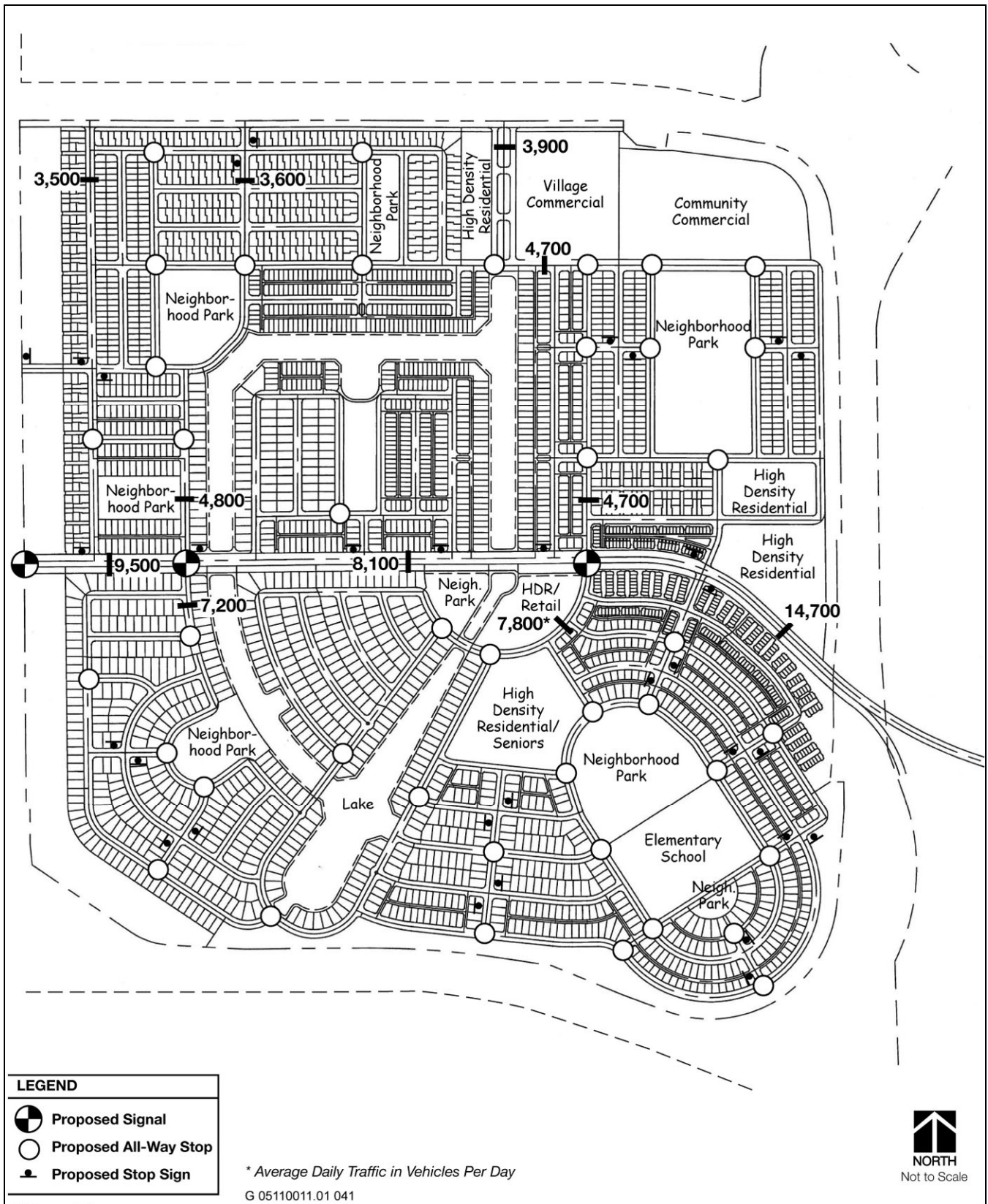
With implementation of this measure, site access impacts along Meister Way would be improved to provide adequate turning opportunities along Meister Way. This impact would be reduced to a *less-than-significant* level.

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| IMPACT 6.1-14 |
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Impacts to Internal Circulation. *Some elements of the internal roadway network (e.g., long, straight streets) could encourage vehicle speeding, which could lead to vehicle safety impact. This would be a *potentially significant* internal circulation impact.*

The proposed internal circulation network generally consists of three- and four-legged intersections controlled by stop-signs (two-way or all-way). Three traffic signals are proposed along the Meister Way alignment. Exhibit 6.1-18 shows the proposed internal circulation traffic facilities.

While most roadway segments providing internal circulation throughout the neighborhood to Meister Way and proposed commercial and retail areas are controlled by stop signs and some traffic signals. Some roadway segments within the project site result in areas where there would be long, straight streets. Without traffic control features in place, these facilities could encourage vehicle speeding, which could lead to vehicle safety impacts within the community. This would be a *potentially significant* impact.



Source: TJKM 2005

Proposed Traffic Controls

Exhibit 6.1-18

Mitigation Measure 6.1-14: Traffic Calming Measures (City of Sacramento)

During review of the project’s tentative map and project entitlements, the project applicant shall coordinate with the City to identify roadways where traffic calming measures including but not limited to narrow travel lanes, speed bumps, round-a-bouts, raised intersections, and stop controls are needed to ensure the orderly, efficient, and safe flow of traffic. Design and siting of these facilities would be subject to approval by the City Development Engineering and Finance Division, Development Services Department.

Significance After Mitigation

With implementation of this mitigation measure, safe driving conditions within the project site would be ensured and would be consistent with the City’s standards for internal circulation. This impact would be reduced to a *less-than-significant* level.

**IMPACT
6.1-15**

Impacts to Emergency Vehicle Access. *The project would provide adequate emergency access to the project site. However, construction vehicles could temporarily obstruct local roadways, which could impair the ability of local agencies to respond to an emergency in the project area. This would be a **potentially significant** impact.*

With implementation of the project, emergency access would be provided via three roadways along Elkhorn Boulevard, two roadways along Lone Tree Road, and the Meister Way overpass over SR 70/99. Design and siting of all roadways would be done in consultation with the City Development Engineering and Finance Division, Development Services Department, Fire Department, and Police Department staff to ensure that the roadways provide adequate access for emergency vehicles (i.e., turning radii, lane width).

Although the majority of project construction would occur within the footprint of the project site, construction of proposed intersection improvements, water and wastewater infrastructure, and the Meister Way overpass could partially obstruct roadways in the project vicinity. Obstruction of these roadways could block or slow emergency response vehicles traveling to the site and could adversely affect the response times of emergency response agencies depending on the time of day (i.e., peak hours). This would be a *potentially significant* impact.

Mitigation Measure 6.1-15: Emergency Access (City of Sacramento)

- a. During review of the project’s tentative map and project entitlements, the project applicant shall coordinate with the City Development Engineering and Finance Division, Development Services Department, Fire Department, and Police Department staff to ensure that the roadways provide adequate access for emergency vehicles (i.e., turning radii, lane width).
- b. The project applicant shall implement mitigation measure 6.1-12 (Construction Traffic Management Plan).

Significance After Mitigation

With implementation of this measure, adequate emergency access would be provided to the project site during construction and operation of the project. This impact (Impact 6.1-15) would reduce the project’s emergency access impacts to a *less-than-significant* level.

6.2 AIR QUALITY

6.2.1 INTRODUCTION

This section includes a summary of applicable regulations, existing air quality conditions, and an analysis of potential short-term and long-term air quality impacts of the proposed project and alternatives. The method of analysis for short-term construction, long-term regional (operational), local mobile source, odor, and toxic air emissions is consistent with the recommendations of the Sacramento Metropolitan Air Quality Management District (SMAQMD). In addition, mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

6.2.2 ENVIRONMENTAL SETTING

The proposed project site is located in Sacramento County, California, which is within the Sacramento Valley Air Basin (SVAB). The SVAB also comprises all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo and Yuba counties, the western portion of Placer County, and the eastern portion of Solano County. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by pollutant sources and the atmosphere's ability to transport and dilute such emissions. Natural factors which affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The SVAB is relatively flat, bordered by the North Coast Ranges to the west and the Northern Sierra Nevada Mountains to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin River Delta from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50°F to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature.

Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Characteristic of SVAB winters are also periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods combined with the reduced vertical flow because of less surface heating reduces the influx of air and leads to the concentration of air pollutants under stable meteorological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or temperature inversions which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_x), which result in ozone formation. Typically, the delta breeze transports air

pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind pattern to shift southward resulting in air pollutants being blown back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to violations of the ambient air quality standards.

Local meteorology of the proposed project site is represented by measurements recorded at the Sacramento station. The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 38°F to a normal maximum of 53°F. July temperatures range from a normal minimum of 58°F to a normal maximum of 93°F (National Oceanic and Atmospheric Administration 1992). The predominant wind direction and speed is from the south-southwest at 10 mph (California Air Resources Board 1994).

Existing Air Quality—Criteria Air Pollutants

Concentrations of the following air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable and fine particulate matter (PM₁₀ and PM_{2.5}), and lead are used as indicators of ambient air quality conditions. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as “criteria air pollutants.”

A brief description of each criteria air pollutant including source types, health effects, and future trends is provided below along with the most current attainment area designations and monitoring data for the project area.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 1991).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 parts per million (ppm) for 1 to 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in responsiveness of the respiratory system to challenges, and the interference or inhibition of the immune system’s ability to defend against infection (Godish 1991).

Emissions of ozone precursors ROG and NO_x have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Consequently, peak 1-hour and 8-hour ozone concentrations in the SVAB have declined overall by about 15% since 1988. However, peak ozone values in the SVAB have not declined as rapidly over the last several years as they have in other urban areas. This can be attributed to influx of pollutants into the SVAB from other urbanized areas, making the region both a transport contributor and a receptor of pollutants (California Air Resources Board 2005a).

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 77% of the nationwide CO emissions are from mobile sources. The other 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (U.S. Environmental Protection Agency 2006).

The highest concentrations are generally associated with cold stagnant weather conditions that occur during the winter. In contrast to ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO₂ are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO₂ (U.S. Environmental Protection Agency 2006). The combined emissions of NO and NO₂ are referred to as NO_x, which are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local NO_x emission sources.

Inhalation is the most common route of exposure to NO₂. Because NO₂ has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO₂ intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions.

Sulfur Dioxide

Sulfur dioxide (SO₂) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills. The major adverse health effects associated with SO₂ exposure pertain to the upper respiratory tract. SO₂ is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO₂ at 5 ppm or more. On contact with the moist mucous membranes, SO₂ produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO₂ concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM₁₀. PM₁₀ consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO₂ and ROG (U.S. Environmental Protection Agency 2006). Fine particulate matter (PM_{2.5}) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less (California Air Resources Board 2005a).

The adverse health effects associated with PM₁₀ depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons (PAH), and other toxic substances adsorbed onto fine particulate matter, which is referred to as the piggybacking effect, or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM₁₀ may result from both short-term and long-term exposure to elevated concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (U.S. Environmental Protection Agency 2006). PM_{2.5} poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health.

Direct emissions of both PM₁₀ and PM_{2.5} have increased in the SVAB between 1975 and 2000 and are projected to increase through 2020. These emissions are dominated by area-wide sources, primarily because of development. Direct emissions of PM from mobile and stationary sources have remained relatively steady (California Air Resources Board 2005a).

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995 (U.S. Environmental Protection Agency 2006).

As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded (U.S. Environmental Protection Agency 2006).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (the EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the ARB identified lead as a toxic air contaminant.

Monitoring Station Data and Attainment Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. The Sacramento-Airport and T Street stations are the closest in proximity to the proposed project site with recent data for ozone, CO, PM₁₀ and PM_{2.5}. In general, the ambient air quality measurements from these stations are representative of the air quality in the vicinity of the proposed project site. Table 6.2-1 summarizes the air quality data from the most recent 3 years.

Both California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) use this type of monitoring data to designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. The most current attainment designations for the Sacramento County portion of the SVAB are shown in Table 6.2-2 for each criteria air pollutant.

Existing Air Quality—Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of ambient-air-quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality (California Air Resources Board 2005a), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, the ARB has made preliminary concentration estimates based on a PM exposure method. This method uses ARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available, in California.

Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, the ARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB. Since 1990, the diesel PM's health risk has been reduced by 52%. Overall, levels of most TACs have gone down since 1990 except for *para*-dichlorobenzene and formaldehyde (California Air Resources Board 2005a).

**Table 6.2-1
Summary of Annual Ambient Air Quality Data (2003–2005)¹**

| | 2003 | 2004 | 2005 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| Ozone | | | |
| Maximum concentration (1-hr/8-hr, ppm) | 0.097/ 0.085 | 0.090/ 0.072 | 0.100/ 0.087 |
| Number of days state standard exceeded (1-hr) | 2 | 0 | 4 |
| Number of days national standard exceeded (1-hr/8-hr) | 0/1 | 0/0 | 0/1 |
| Carbon Monoxide (CO) | | | |
| Maximum concentration (1-hr/8-hr, ppm) | 4.1/3.13 | 4.0/3.53 | 3.9/2.97 |
| Number of days state standard exceeded (8-hr) | 0 | 0 | 0 |
| Number of days national standard exceeded (1-hr/8-hr) | 0/0 | 0/0 | 0/0 |
| Nitrogen Dioxide (NO₂) | | | |
| Maximum concentration (1-hr, ppm) | 0.102 | 0.082 | 0.074 |
| Number of days state standard exceeded (1-hr) | 0 | 0 | 0 |
| Annual Average (ppm) | 0.018 | 0.015 | 0.015 |
| Fine Particulate Matter (PM_{2.5}) | | | |
| Maximum concentration (µg/m ³) | 49.0 | 52.5 | 63.8 |
| Number of days national standard exceeded (measured ²) | 0 | 0 | 0 |
| Respirable Particulate Matter (PM₁₀) | | | |
| Maximum concentration (µg/m ³) | 123.0 | 87.1 | 99.8 |
| Number of days state standard exceeded (measured/calculated ²) | -/28 | 0/12 | 6.4/19 |
| Number of days national standard exceeded (measured/calculated ²) | -/0 | 0/0 | -/0 |
| <p>Notes: µg/m³ = micrograms per cubic meter; ppm = parts per million</p> <p>¹ Measurements from the Sacramento-Airport Road and T Street stations.</p> <p>² Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.</p> <p>Sources: California Air Resources Board 2006, U.S. Environmental Protection Agency 2006</p> | | | |

| Table 6.2-2 Ambient Air Quality Standards and Designations | | | | | | |
|---------------------------------------------------------------|------------------------|---------------------------------------------------|--------------------------------|---------------------------------------------------|--------------------------------------|--------------------------------|
| Pollutant | Averaging Time | California | | National Standards ¹ | | |
| | | Standards ^{2,3} | Attainment Status ⁴ | Primary ^{3,5} | Secondary ^{3,6} | Attainment Status ⁷ |
| Ozone | 1-hour | 0.09 ppm (180 µg/m ³) | N(Serious) | 0.12 ppm ⁹ (235 µg/m ³) | Same as Primary Standard | N(Severe) ⁹ |
| | 8-hour | 0.07 ppm ⁸ (137 µg/m ³) | – | 0.08 ppm (157 µg/m ³) | | N(Serious) |
| Carbon Monoxide (CO) | 1-hour | 20 ppm (23 mg/m ³) | A | 35 ppm (40 mg/m ³) | – | U/A |
| | 8-hour | 9 ppm (10 mg/m ³) | | 9 ppm (10 mg/m ³) | | |
| Nitrogen Dioxide (NO ₂) | Annual Arithmetic Mean | – | – | 0.053 ppm (100 µg/m ³) | Same as Primary Standard | U/A |
| | 1-hour | 0.25 ppm (470 µg/m ³) | A | – | | – |
| Sulfur Dioxide (SO ₂) | Annual Arithmetic Mean | – | – | 0.030 ppm (80 µg/m ³) | – | U |
| | 24-hour | 0.04 ppm (105 µg/m ³) | A | 0.14 ppm (365 µg/m ³) | – | |
| | 3-hour | – | – | – | 0.5 ppm (1300 µg/m ³) | |
| | 1-hour | 0.25 ppm (655 µg/m ³) | A | – | – | |
| Respirable Particulate Matter (PM ₁₀) | Annual Arithmetic Mean | 20 µg/m ³ | N | 50 µg/m ³ | Same as Primary Standard | N(Moderate) |
| | 24-hour | 50 µg/m ³ | | 150 µg/m ³ | | |
| Fine Particulate Matter (PM _{2.5}) | Annual Arithmetic Mean | 12 µg/m ³ | N | 15 µg/m ³ | Same as Primary Standard | U |
| | 24-hour | – | – | 65 µg/m ³ | | |
| Lead ¹⁰ | 30-day Average | 1.5 µg/m ³ | U | – | – | – |
| | Calendar Quarter | – | – | 1.5 µg/m ³ | Same as Primary Standard | |
| Sulfates | 24-hour | 25 µg/m ³ | A | No National Standards | | |
| Hydrogen Sulfide | 1-hour | 0.03 ppm (42 µg/m ³) | U | | | |
| Vinyl Chloride ¹⁰ | 24-hour | 0.01 ppm (26 µg/m ³) | U/A | | | |

**Table 6.2-2 (Continued)
Ambient Air Quality Standards and Designations**

| | | |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Visibility-Reducing Particle Matter | 8-hour Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%. | U |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

¹ National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The PM_{2.5} 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

² California standards for ozone, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

³ Concentration expressed first in units in which it was promulgated [i.e., parts per million (ppm) or micrograms per cubic meter (µg/m³)]. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

⁴ Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment. Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period. Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area. Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

⁷ Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant. Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant. Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

⁸ This concentration was approved by the ARB on April 28, 2005 and is expected to become effective in early 2006.

⁹ The 1-hour ozone NAAQS was revoked on June 15, 2005.

¹⁰ ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board 2006, U.S. Environmental Protection Agency 2006

6.2.3 REGULATORY SETTING

Air quality within Sacramento County is regulated by such agencies as the EPA, ARB, and SMAQMD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

At the federal level, the EPA has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

The CAA required the EPA to establish national ambient air quality standards (NAAQS). As shown in Table 6.2-2, the EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA has responsibility to review all state SIPs to determine conformation to the mandates of the CAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

State Plans, Policies, Regulations, and Laws

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required the ARB to establish California ambient air quality standards (CAAQS) (Table 6.2-2). The ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Other ARB responsibilities include, but are not limited to, overseeing local air district compliance with California and federal laws, approving local air quality plans, submitting SIPs to the EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Local Plans, Policies, Regulations, and Laws

Sacramento Valley Air Quality Management District

The SMAQMD seeks to improve air quality conditions in Sacramento County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the SMAQMD includes the preparation of plans and programs for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The SMAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA, CAAA, and the CCAA.

In July 2004, the SMAQMD released a revision to the previously adopted guidelines document. This revised Guide to Air Quality Assessment (SMAQMD 2004) is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The guide contains the following applicable components:

- ▶ Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- ▶ Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- ▶ Methods available to mitigate air quality impacts;
- ▶ Information for use in air quality assessments that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

As mentioned above, the SMAQMD adopts rules and regulations. All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the proposed project 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 before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the SMAQMD 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) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or ARB 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 (VOC) 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.

In addition, effective as of October 10, 2005, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance (85 pounds per day [lb/day]) by the application of the standard construction mitigation, then an off-site construction mitigation fee is recommended. Payment of the fee is required before the issuance of a grading permit. This fee is used by SMAQMD to purchase off-site emissions reductions. This is done through SMAQMD's Heavy Duty Incentive Program, through which select owners of

heavy duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

Air Quality Plans

The SMAQMD in coordination with the air quality management districts and air pollution control districts of El Dorado, Placer, Solano, Sutter, and Yolo counties prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the CCAA, which specifically addressed the nonattainment status for ozone and to a lesser extent, CO and PM₁₀. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing ozone precursor emissions of ROG and NO_x. It promotes active public involvement, enforcement of compliance with SMAQMD rules and regulations, public education in both the public and private sectors, development and promotion of transportation and land use programs designed to reduce vehicle miles traveled (VMT) within the region, and implementation of stationary and mobile-source control measures. The OAP became part of the SIP in accordance with the requirements of the CAAA and amended the 1991 AQAP. However, at that time the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of “severe nonattainment” coupled with additional emission requirements on stationary sources. Additional triennial reports were also prepared in 1997, 2000, and 2003 in compliance with the CCAA that act as incremental updates.

As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. Milestone reports were prepared for 1996, 1999, and 2002. These milestone reports include compliance demonstrations that the requirements have been met for the Sacramento nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO_x, and PM₁₀ emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary-, mobile-, and indirect-source control measures.

In July of 1997, the EPA promulgated a new 8-hour ozone standard. This change lowered the standard for ambient ozone from 0.12 ppm averaged over one hour to 0.08 ppm averaged over eight hours. In general, the 8-hour standard is more protective of public health and more stringent than the 1-hour standard. The promulgation of this standard prompted new designations and nonattainment classifications in June 2004, and resulted in the revocation of the 1-hour standard in June 2005. The region has been designated as a nonattainment (serious) area for the national (8-hour) ozone standard with an attainment deadline of June 2013.

Although the region has made significant progress in reducing ozone, a problem has arisen with regard to another issue. The region’s transportation plan must conform and show that implementation will not harm the region’s chances of attaining the ozone standard. The SIP is tied to a “motor vehicle emissions budget” and thus, transportation planners must ensure that emissions anticipated from plans and improvement programs remain within this budget. The region is not required to update the SIP before the ozone (8-hour) plans are due in 2006. However, since a conformity lapse began October 4, 2004, an expedited process to prepare a plan is underway (SMAQMD 2006).

City of Sacramento

The City of Sacramento General Plan does not have an adopted Air Quality Element and does not have any policies or goals directly related to air quality. However, other elements (e.g., transportation and housing) do contain goals, policies, and actions that refer to air quality where applicable in the context of the subject element.

LAFCo

The LAFCo Policies, Procedures, and Guidelines document does not contain any policies related to air quality.

Toxic Air Contaminants

Air quality regulations also focus on TACs, or in federal parlance hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 6.2-2). Instead, the EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by the ARB (for mobile sources) and SMAQMD establish the regulatory framework for TACs.

Federal Hazardous Air Pollutant Programs

The EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed the EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

State and Local Toxic Air Contaminant Programs

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted the EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, the ARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

The ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In

February 2000, the ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines; 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures [e.g., Low Emission Vehicle (LEV)/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

The ARB recently published the Air Quality and Land Use Handbook: A Community Health Perspective, which provides guidance concerning land use compatibility with TAC sources (California Air Resources Board 2005b). While not a law or adopted policy, the handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries dry cleaners, gasoline stations, and industrial facilities to help keep children and other sensitive populations out of harm's way. A number of comments on the Handbook were provided to the ARB by air districts, other agencies, real estate representatives, and others. The comments included concern over whether the ARB was playing a role in local land use planning, the validity of relying on static air quality conditions over the next several decades in light of technological improvements, and support for providing information that can be used in local decision making.

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SMAQMD Rule 201 (General Permit Requirements), Rule 202 (New Source Review), and Rule 207 (Federal Operating Permit), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The SMAQMD limits emissions and public exposure to TACs through a number of programs. The SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. The SMAQMD is also currently developing guidelines for implementation of ARB's Air Quality and Land Use Handbook (Maertz, pers. comm., 2006).

Sources that require a permit are analyzed by the SMAQMD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the project would emit toxics in excess of SMAQMD's threshold of significance for TACs, as identified below, sources have to implement the best available control technology for TACs (T-BACT) in order to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the SMAQMD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that SMAQMD's air quality permitting process applies to stationary sources; properties which are exposed to elevated levels of non-stationary type sources of TACs, and the non-stationary type sources themselves (e.g., on-road vehicles) are not subject to air quality permits. Further, due to feasibility and practicality reasons, mobile sources (cars, trucks, etc.) are not required to implement T-BACT on a project-specific basis, even if they do have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on such sources (e.g., vehicles) are subject to regulations implemented on the state and federal level. This regulatory program constitutes programmatic mitigation for these sources.

6.2.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

Short-term construction-generated criteria air pollutant (e.g., PM₁₀) and ozone precursor emissions (ROG and NO_x) were assessed in accordance with SMAQMD-recommended methods. Where quantification is required, emissions were modeled using the URBEMIS 2002 Version 8.7 computer model, and other emission factors and recommended methodologies from SMAQMD's Guide to Air Quality Assessment (SMAQMD 2004). Modeling was based on project-specific data (e.g., estimated duration of construction, size and type of proposed land uses); URBEMIS default settings for the SVAB; and SMAQMD recommended construction equipment types and number requirements, and maximum daily acreage disturbed. Predicted short-term construction-generated emissions were compared with applicable SMAQMD thresholds for determination of significance.

It is important to note that according to the SMAQMD, short-term construction-generated ROG emissions should be modeled; however, the SMAQMD does not have a threshold of significance to compare with such emissions. Thus, in accordance with SMAQMD recommended methodologies, short-term construction-generated ROG emissions resulting from implementation of the proposed project are modeled and shown for informational purposes, but no determination of significance is based on such emissions. SMAQMD bases this approach on the fact that ROG emissions attributable to construction equipment exhaust are low and those from the application of architectural coatings are regulated by Rule 442 (Christensen, pers. comm., 2005). For purposes of the EIR, determinations of significance for short-term construction emissions were based on the comparison of project-generated NO_x and PM₁₀ to SMAQMD thresholds, as recommended by SMAQMD. (SMAQMD 2004, Christensen, pers. comm., 2005)

Long-term (i.e., operational) regional criteria air pollutant and precursor emissions, including mobile- and area-source emissions, were also quantified using the URBEMIS 2002 Version 8.7 computer model. Modeling was based on project-specific data (e.g., size and type of proposed uses), URBEMIS default settings for the SVAB, and trip generation data from the traffic analysis. Long-term stationary source emissions were qualitatively assessed in accordance with SMAQMD-recommended methodologies. Predicted long-term operational emissions were compared with applicable SMAQMD thresholds for determination of significance.

All other air quality impacts (i.e., local mobile source, odor, and TAC emissions) were assessed in accordance with ARB and SMAQMD-recommended methodologies. Such methodologies include the use of SMAQMD's screening level procedure for local mobile-source CO concentrations, and a qualitative assessment for the exposure of sensitive receptors to odor or TAC emissions.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following thresholds of significance, as identified by the State CEQA Guidelines (Appendix G) and the SMAQMD, have been used to determine whether implementation of the proposed project would result in significant air quality impacts. Based on Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the proposed project under consideration would do any of the following:

- ▶ conflict with or obstruct implementation of the applicable air quality plan,
- ▶ violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- ▶ result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is nonattainment under any applicable national or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors),

- ▶ expose sensitive receptors to substantial pollutant concentrations, or
- ▶ create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance of criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Thus, as contained in SMAQMD’s Guide to Air Quality Assessment, implementation of the proposed project would result in significant air quality impacts if:

- ▶ Construction-generated emissions of NO_x exceed the SMAQMD-recommended mass emissions threshold of 85 pounds per day (lb/day).
- ▶ Construction-generated criteria air pollutant or precursor emissions result in or substantially contribute to emissions concentrations that exceed the CAAQS (e.g., 50 µg/m³ [24-hour] for PM₁₀). According to SMAQMD, a project is considered to contribute substantially to an existing or projected violation of the CAAQS if it emits pollutants at a level equal to or greater than 5% of the CAAQS (e.g., 2.5 µg/m³ [24-hour] for PM₁₀).
- ▶ Long-term operational (regional) emissions of ROG or NO_x exceed the SMAQMD-recommended mass emissions threshold of 65 lb/day.
- ▶ Long-term operational (regional) criteria air pollutant or precursor emissions result in or substantially contribute to emissions concentrations that exceed the CAAQS. According to SMAQMD, a project is considered to contribute substantially to an existing or projected violation of the CAAQS if it emits pollutants at a level equal to or greater than 5% of the CAAQS.
- ▶ Long-term operational local mobile-source emissions result in emissions concentrations of CO that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm.
- ▶ Exposure of sensitive receptors to excessive odor emissions, as defined under the California Code of Regulations, Health & Safety Code Section 41700, Air Quality Public Nuisance.

No significance thresholds have been established by the SMAQMD for exposure of sensitive receptors to mobile source TAC emissions (Maertz, pers. comm., 2006). Construction-related air quality impacts associated with construction of wastewater treatment facilities are discussed in Section 6.4, “Utilities.”

IMPACTS AND MITIGATION MEASURES

IMPACT 6.2-1

*Short Term Construction-Generated Emissions. Construction-generated emissions of NO_x would exceed SMAQMD’s significance threshold of 85 lb/day, and because of the project’s size, PM₁₀ emissions would result in or substantially contribute to emission concentrations that exceed the CAAQS. In addition, because Sacramento County is currently designated as a nonattainment area for both ozone and PM₁₀, construction-generated emissions could further contribute to pollutant concentrations that exceed the CAAQS. This impact would be **significant**.*

Construction emissions are described as “short term” or temporary in duration and have the potential to represent a significant impact with respect to air quality. Construction of the proposed project is anticipated to begin in 2007 and would last approximately 5–10 years. Initial site preparation (i.e., clearing, grubbing, grading) of the entire project site would occur first before the building of the proposed uses, which would occur in two phases. Phase 1 of building construction would include the development of land north of Meister Way and Phase 2 would develop land south of Meister Way. Construction of the proposed project would temporarily generate emissions

of ozone precursor pollutants (i.e., ROG and NO_x) and fugitive dust emissions (including PM₁₀), as discussed separately below, from employee commute trips, diesel mobile equipment, material transport, and other construction operations, such as asphalt paving and the application of architectural coatings.

Ozone Precursor Emissions (ROG and NO_x)

Emissions of ozone precursor pollutants are primarily associated with construction equipment exhaust. Employee commute trips and other construction activities (e.g., asphalt paving and the application of architectural coatings) also contribute to short-term increases in emissions but to a much lesser extent.

Short-term construction emissions of ROG and NO_x were estimated using the ARB-approved URBEMIS 2002 Version 8.7 computer program as recommended by the SMAQMD (SMAQMD 2004). URBEMIS is designed to model construction emissions for land use development projects and allows for the input of project-specific information. Detailed construction information (e.g., equipment requirements, type, hours of operation, number of employees) was not available at the time this analysis was conducted. As a result, the estimation of construction-generated emissions was based primarily on the default assumptions contained in the model for the size and location (i.e., within the SVAB) of the proposed project. Model parameters were adjusted to reflect the overall construction phasing schedule, as well as equipment assumptions recommended by the SMAQMD for site preparation and building activities. The estimated daily construction-generated emissions of ROG and NO_x attributable to the proposed project are summarized in Table 6.2-3. Refer to Appendix D for model output files and assumptions.

As discussed above, SMAQMD has not established a threshold of significance with respect to construction-generated ROG emissions because those attributable to construction equipment exhaust are low and those from the application of architectural coatings are regulated by Rule 442 (Christensen, pers. comm., 2005); however, SMAQMD has adopted a threshold of 85 (lb/day) for NO_x (SMAQMD 2004). Thus, as depicted in Table 6.2-3, the initial site preparation phase of construction would generate maximum daily emissions of approximately 638.7 lb/day of NO_x. Subsequent development phases (i.e., building construction of phases 1 and 2) would generate maximum daily emissions of approximately 357.9 and 297.0 lb/day of NO_x, respectively. Modeled emissions of NO_x, during all phases of construction (i.e., initial site preparation phase and building construction of phases 1 and 2), would exceed the SMAQMD's significance threshold of 85 lb/day. In addition, because Sacramento County is currently designated as a nonattainment area for ozone and PM₁₀, construction-generated emissions could further contribute to pollutant concentrations that exceed the CAAQS.

PM₁₀ Emissions

Fugitive dust emissions, including PM₁₀, are associated primarily with ground disturbance activities during site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT on- and off-site. Exhaust emissions from employee commute trips and diesel mobile construction equipment also contribute to short-term increases in PM₁₀ emissions but to a much lesser extent.

| Table 6.2-3 Summary of Modeled Worst-Case Daily Short-Term Construction-Generated Emissions | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|
| Source | Emissions (lb/day) | |
| | ROG | NO _x |
| Initial Site Preparation Phase (Beginning Spring 2007) | | |
| Diesel Mobile Equipment Exhaust ¹ | 92.9 | 637.3 |
| Employee Trips | 1.2 | 1.4 |
| Total Unmitigated (Site Preparation) | 94.1 | 638.7 |
| Total Mitigated (Site Preparation) ² | 89.5 | 511.2 |
| Building Construction Phase 1-North of Meister Way (Beginning 2007) | | |
| Diesel Mobile Equipment Exhaust ¹ | 52.0 | 330.9 |
| Employee Trips | 21.2 | 27.0 |
| Architectural Coating ³ | - | - |
| Asphalt Off-Gas ⁴ | 6.1 | - |
| Total Unmitigated (Phase 1) | 79.3 | 357.9 |
| Total Mitigated (Phase 1) ² | 76.7 | 291.7 |
| Building Construction Phase 2-South of Meister Way (Beginning 2009) | | |
| Diesel Mobile Equipment Exhaust ¹ | 43.8 | 279.2 |
| Employee Trips | 14.5 | 17.8 |
| Architectural Coating ³ | - | - |
| Asphalt Off-Gas ⁴ | 4.5 | - |
| Total Unmitigated (Phase 2) | 62.8 | 297.0 |
| Total Mitigated (Phase 2) ² | 60.6 | 241.2 |
| Maximum Daily Emissions Unmitigated All Phases | 94.1 | 638.7 |
| Maximum Daily Emissions Mitigated All Phases ² | 89.5 | 511.2 |
| SMAQMD Significance Threshold: | None | 85 |
| ¹ Based on default model settings, and SMAQMD-recommended equipment types and number requirements and maximum daily acreage disturbed. ² Reductions based on SMAQMD-recommended construction mitigation measures. ³ As recommended by SMAQMD, architectural coating emissions are not included in the analysis ⁴ Includes off-gas emissions from the application of asphalt during paving activities. Refer to Appendix D for additional assumptions and modeling output files. Source: Data modeled by EDAW 2006. | | |

With respect to PM₁₀ emissions, SMAQMD has also developed screening-level values related to the maximum actively disturbed area of the project site. According to these values, if more than 15 acres would be actively disturbed, even with the implementation of the recommended mitigation measures, project construction would likely result in potentially significant emissions. Consequently, because of the large size of the project coupled with the lack of available detailed construction information, SMAQMD has recommended that concentration of PM₁₀ emissions be qualitatively discussed rather than modeled and that all SMAQMD-recommended mitigation measures be incorporated (Tholen, pers. comm., 2004). Thus, because of the project's size (577 acres) and the maximum actively disturbed area would exceed SMAQMD's screening level of 15 acres on any given day, short-term construction-generated PM₁₀ emissions would result in or substantially contribute to emissions concentrations that exceed the CAAQS.

In summary, modeled emissions of NO_x, during all phases of construction, would exceed the SMAQMD's significance threshold of 85 lb/day and, because of the project's size, short-term construction-generated PM₁₀ emissions would result in or substantially contribute to emissions concentrations that exceed the CAAQS. In addition, because Sacramento County is currently designated as a nonattainment area for ozone and PM₁₀, construction-generated emissions could further contribute to pollutant concentrations that exceed the CAAQS. As a result, this impact would be *significant*.

Mitigation Measure 6.2-1: (City of Sacramento and LAFCo)

In accordance with the recommendations of the SMAQMD, the project applicant shall implement the following measures to reduce temporary construction emissions.

- a. The project applicant shall implement the following measures to reduce NO_x and visible emissions from heavy-duty diesel equipment.
 - i. Before issuance of a grading permit, the project applicant shall provide a plan for approval by the lead agency, in consultation with 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% NO_x reduction and 45% particulate reduction compared to the most recent ARB fleet average at the time of construction. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, particulate matter traps, engine retrofit technology, after-treatment products, and/or such other options as become available.
 - ii. Before issuance of a grading permit, the project applicant shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 hp, that will be used an aggregate of 40 or more hours during any portion of project construction. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction operations occur. At least 48 hours before heavy-duty off-road equipment is used, the project applicant shall provide the SMAQMD with the anticipated construction timeline including start date, and the name and phone number of the project manager and on-site foreman.
 - iii. Before issuance of a grading permit, the project applicant shall ensure that emissions from off-road, diesel-powered equipment used on the project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (for white smoke) or Ringlemann 2.0 (for black smoke) shall be repaired immediately, and the SMAQMD shall be notified of non-compliant equipment within 48 hours of identification. A visual survey of all in-operation equipment shall be made at least weekly by the construction contractor, and the contractor shall submit a monthly summary of visual survey results throughout the duration of the construction project, except that the monthly summary shall not be required for any 30-day period in which no construction operations occur. 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.
- b. As recommended by the SMAQMD, the project applicant shall reduce fugitive dust emissions by implementing the measures listed below during construction.
 - i. All disturbed areas, including storage piles that are not being actively used for construction purposes, shall be effectively stabilized of dust emissions using water, a chemical stabilizer or suppressant, or vegetative ground cover. Soil shall be kept moist at all times.
 - ii. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or a chemical stabilizer or suppressant.

- iii. When materials are transported off-site (e.g., trees, plantings), all material shall be covered, effectively wetted to limit visible dust emissions, or maintained with at least 2 feet of freeboard space from the top of the container.
 - iv. All operations shall limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring.
 - v. After materials are added to or removed from the surfaces of outdoor storage piles, the storage piles shall be effectively stabilized of fugitive dust emissions using sufficient water or a chemical stabilizer or suppressant.
 - vi. On-site vehicle speeds on unpaved roads shall be limited to 15 mph.
 - vii. Wheel washers shall be installed for all trucks and equipment exiting unpaved areas, or wheels shall be washed to remove accumulated dirt before such vehicles leave the site.
 - viii. Sandbags or straw waddles shall be installed to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1 %.
 - ix. Excavation and grading activities shall be suspended when winds exceed 20 mph.
 - x. The extent of areas simultaneously subject to excavation and grading shall be limited, wherever possible, to the minimum area feasible.
 - xi. Emulsified diesel, diesel catalysts, or SMAQMD-approved equal, shall be used on applicable heavy-duty construction equipment that can be operated effectively and safely with the alternative fuel type.
- c. The applicant shall pay \$1,525,537 into SMAQMD's off-site construction mitigation fund to further mitigate construction-generated emissions of NO_x that exceed SMAQMD's daily emission threshold of 85 lb/day. The calculation of daily NO_x emissions is based on the current cost of \$14,300 to reduce a ton of NO_x. The determination of the final mitigation fee shall be conducted in coordination with SMAQMD. The fee shall be paid to the SMAQMD prior to any ground disturbance in total or on an acre bases (\$5,959.13/acre) as development occurs and permits are sought. (See Appendix D for calculation worksheet.)
- d. In addition to the measures identified above, construction operations are required to comply with all applicable SMAQMD rules and regulations.

Significance After Mitigation

Implementation of the measures under part a above would result in a 20% reduction in NO_x emissions and a 45% reduction in visible emissions from heavy-duty diesel equipment according to SMAQMD. Implementation of the measures under part (b) would reduce fugitive dust emissions by up to 75%, according to estimates provided by SMAQMD. Daily construction emissions would still exceed the SMAQMD's significance threshold (Table 6.2-3) despite implementation of all feasible mitigation measures, and thus would potentially result in or substantially contribute to pollutant concentrations that exceed the CAAQS. As a result, this would be considered a **significant and unavoidable** impact.

**IMPACT
6.2-2**

*Generation of Long-Term Operational (Regional) Emissions ROG, NO_x, and PM₁₀. Long-term operation of the proposed project would result in emissions of ozone-precursor pollutants that would exceed SMAQMD's threshold. Furthermore, the project's operational emissions would potentially conflict with or obstruct implementation of applicable air quality plans. As a result, this impact would be considered **significant**.*

Regional area- and mobile-source emissions of ROG, NO_x, and PM₁₀ associated with implementation of the proposed project were estimated using URBEMIS 2002 Version 8.7.0 computer program, which is designed to model emissions for land use development projects.

URBEMIS allows land use selections that include project location specifics and trip generation rates. URBEMIS accounts for area emissions from the usage of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products; and mobile sources emissions associated with trip generation. Regional area and mobile source emissions were estimated based on proposed land uses identified in the phasing plan and trip generation rates obtained from the transportation analysis prepared for this project, Section 6.1, "Transportation and Circulation." The estimation of mobile-source emissions includes a pass-by trip adjustment, which accounts for trips made as intermediate stops on the way from an origin to a primary trip destination, and a double-counting trip adjustment, which is designed to reduce double counting of internal trips between residential and nonresidential land uses.

Operational emissions are summarized in Table 6.2-4. During the summer months, buildout of the proposed project would generate operational emissions of approximately 418.3 lb/day of ROG, 266.1 lb/day of NO_x, and 241.1 lb/day of PM₁₀. Operational emissions would increase substantially during the winter months because of emissions generated by residential-use wood-burning fireplaces. Estimated operational emissions during the winter months would be approximately 2,382.1 lb/day of ROG, 438.3 lb/day of NO_x, and 778.2 lb/day of PM₁₀.

**Table 6.2-4
Summary of Modeled Daily Long-Term Operational Emissions**

| Source | Emissions (lb/day) ¹ | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------|------------------|
| | ROG | NO _x | PM ₁₀ |
| Summer | | | |
| Motor Vehicles | 233.4 | 216.9 | 240.7 |
| Landscape Maintenance | 11.3 | 1.5 | 0.3 |
| Natural Gas Usage | 3.7 | 47.7 | 0.1 |
| Consumer Products | 169.9 | -- | -- |
| Wood-Burning Fireplace | No Summer Emissions | | |
| Total Unmitigated | 418.3 | 266.1 | 241.1 |
| Total Mitigated | 355.5 | 226.2 | 204.9 |
| Winter | | | |
| Motor Vehicles | 237.4 | 323.3 | 240.7 |
| Landscape Maintenance | No Winter Emissions | | |
| Natural Gas Usage | 3.7 | 47.7 | 0.1 |
| Consumer Products | 169.9 | -- | -- |
| Wood-Burning Fireplace | 1,971.1 | 67.3 | 537.4 |
| Total Unmitigated | 2,382.1 | 438.3 | 778.2 |
| Total Mitigated | 350.7 | 338.5 | 206.6 |
| SMAQMD Significance Threshold: | 65 | 65 | – |
| ¹ Emissions modeled using the Urbemis2002 (v8.7) computer model, based on trip generation rates obtained from the transportation analysis prepared for this project and proposed land uses identified in the project phasing plan. Refer to Appendix D for additional assumptions and modeling output files. Source: Data modeled by EDAW 2006. | | | |

Long-term operation of the proposed project would result in emissions of ROG and NO_x in excess of SMAQMD's corresponding thresholds of 65 lb/day. Furthermore, operation of the project would result in increased vehicle trips and VMT compared to existing conditions that are not already accounted for in an approved plan. An increase in VMT and associated mobile source emissions, may conflict with the SMAQMD's air quality planning efforts. Consequently, an increase in VMT beyond projections in local plans would potentially result in a significant adverse incremental effect on the region's ability to attain and/or maintain the CAAQS. This would be a *significant* impact.

Mitigation Measure 6.2-2: (City of Sacramento and LAFCo)

When a proposed project's operational emissions are estimated to exceed SMAQMD's threshold of significance of 65 lb/day for ROG or NO_x, an Air Quality Mitigation Plan (Appendix E) to reduce operational emissions by a minimum of 15% shall be submitted to the SMAQMD for approval. The following mitigation has been chosen from SMAQMD's most current recommended land use reduction measure and shall be incorporated to achieve a 15% reduction.

- a. Non-residential land uses shall provide bicycle lockers and/or racks (commercial).
- b. Nonresidential land uses shall provide personal showers and lockers for employees (commercial).
- c. Bicycle storage (Class I) shall be provided at apartment complexes or condos without garages (residential).
- d. Entire project shall be located within ½ mile of a Class I or Class II bike lane and provide a comparable bikeway connection to that existing facility (residential, commercial, mixed).
- e. The project shall provide for pedestrian facilities and improvements such as overpasses and wider sidewalks (e.g., 5-foot) (residential, commercial, mixed).
- f. Preferential parking shall be provided for carpools/vanpools (commercial).
- g. High density residential, mixed, or retail/commercial uses shall be within 1/4 mile of planned light rail, linking with activity centers and other planned infrastructure (residential, commercial, mixed).
- h. Parking lot design shall include clearly marked and shaded pedestrian pathways between transit facilities and building entrances (commercial).
- i. Setback distance shall be minimized between development and planned transit, bicycle, or pedestrian corridor (commercial, mixed).
- j. Neighborhood shall serve as focal point with parks, school and civic uses within 1/4 mile (residential, mixed).
- k. Separate, safe, and convenient bicycle and pedestrian paths shall connect residential, commercial, and office uses (residential, commercial, mixed).
- l. The project shall provide a development pattern that eliminates physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that impede bicycle or pedestrian circulation (commercial, mixed).
- m. Wood-burning fireplaces shall be prohibited, and if natural gas fireplaces are installed they shall be the lowest emitting commercially available (residential).

- n. The lowest emitting commercially available furnaces shall be installed (residential, commercial, mixed).
- o. Ozone destruction catalyst shall be installed on air conditioning systems in consultation with SMAQMD (residential, commercial, mixed).
- p. Loading and unloading facilities shall be provided for transit and carpool/vanpool users (commercial).
- q. Average residential density shall be seven dwelling units per acre or greater (residential).
- r. The project shall be mixed-use and consist of at least three of the following on-site and/or within 1/4 mile; residential development, retail development, personal services, open space, and, office space (mixed).

Although the above mitigation measures would substantially reduce the project’s operational emissions, they would not reduce the project’s operational emissions below SMAQMD’s significance thresholds (refer to Table 6.2-4). As a result, this impact would be **significant and unavoidable**.

**IMPACT
6.2-3**

Generation of Local Mobile-Source CO Emissions. Implementation of the proposed project would not contribute to localized mobile-source CO concentrations that exceed the 1-hour or 8-hour CAAQS of 20 ppm and 9.0 ppm, respectively. Therefore, this impact would be less than significant.

CO concentration is a direct function of motor vehicle activity, particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. As a result, the SMAQMD recommends analysis of CO emissions at a local rather than a regional level.

The recent guidelines from the SMAQMD (SMAQMD 2004) provide a project-level screening procedure to determine whether detailed intersection-level modeling is required. The screening procedure conservatively estimates the background CO concentration in the project area and the project’s contribution to predicted future concentrations, based on an estimation of peak hour vehicle trips. The project’s contributions to local CO concentrations were estimated for interim Phase 1 completion and buildout conditions. Predicted CO concentrations are presented in Table 6.2-5.

Based on the modeling conducted, the predicted local mobile-source CO concentrations would not exceed the 1-hour or 8-hour CAAQS (i.e., 20 ppm and 9.0 ppm, respectively). As a result, this impact would be **less than significant**.

No mitigation measures are required.

**Table 6.2-5
Predicted Local Mobile Source Carbon Monoxide Concentrations**

| | CO Concentration (ppm) | | | |
|--------------------------------------------|------------------------|--------|------------------------|--------|
| | Phase 1 | | Buildout - Phase 1 & 2 | |
| | 1-hour | 8-hour | 1-hour | 8-hour |
| Background Concentration ¹ | 3.06 | 1.53 | 2.64 | 1.32 |
| Project Contribution | 3.10 | 2.17 | 9.2 | 6.5 |
| Predicted Total Concentration ² | 6.16 | 3.70 | 11.84 | 7.8 |
| California Ambient Air Quality Standard | 20.0 | 9.0 | 20.0 | 9.0 |

¹ The SMAQMD CO screening methodology does not identify corresponding background concentrations for buildout year 2012. To ensure a conservative analysis, the background concentration for buildout conditions are based on SMAQMD-recommended year 2010 concentrations. This is a conservative approach because background concentrations for the buildout year of 2012 would actually be lower due to more stringent vehicle emission control standards.

² Predicted CO concentrations are the sums of a background component, which includes the cumulative effects of all CO sources in the project area vicinity, and the proposed project's contribution.

Refer to Appendix D for CO screening analysis modeling.

Source: EDAW 2005.

**IMPACT
6.2-4**

*Exposure of Sensitive Receptors to Toxic Air Contaminant Emissions. Implementation of the proposed project could result in the exposure of existing sensitive receptors to minor increases in short-term construction emissions and future residents closest to I-5 and SR 70/99 to mobile source TAC emissions that elevate their health risks compared to other areas on the site and in the Sacramento region in general. There are no accepted or prescribed thresholds for exposure to the impacts of TAC emissions from mobile sources. Consequently, although there is a potential that exposure to mobile sources along the margins of the site closest to the freeways would result in elevated health risk compared with other areas of the site, an accurate quantifiable risk is not possible. Further, in view of the on-going state and federal regulatory programs which have demonstrated significant reductions in health risks from toxic air contaminants in the Sacramento area (as well as throughout the state), and forecasted future improvements as a result of continued implementation of these existing regulatory programs, this impact would be **less than significant**.*

The exposure of sensitive receptors to TAC emissions can occur during both the construction and operational phases of the project. Health-related impacts associated with short-term construction and long-term stationary and mobile source operational emissions are discussed separately, as follows:

Short-Term Construction

Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy duty equipment. Diesel PM were identified as a TAC by the ARB in 1998. Construction of the project would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. According to the ARB, the potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential non-cancer health impacts (ARB 2003).

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would

result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Salinas, pers. comm., 2004). Thus, because the use of mobilized equipment would be temporary (i.e., less than 7% of the total exposure period for which risk is based upon) in combination with the dispersive properties of diesel PM (Zhu and Hinds 2002) and project construction activities would not be atypical in comparison to similar development-type projects (i.e., no excessive material transport or associated truck travel), short-term construction activities would not result expose sensitive receptors to substantial TAC concentrations. This would be a *less-than-significant* impact.

Stationary Sources

Long-term operation of the project would likely include the installation of diesel-fueled emergency backup generators at some of the proposed land uses. This category of stationary sources, in addition to any other stationary sources that may emit TACs, would be subject to SMAQMD permitting and T-BACT requirements.

The proposed project includes construction of commercial land uses, which may potentially include stationary sources of TACs, such as dry cleaning establishments, gasoline dispensing facilities, diesel-fueled back-up generators. These types of stationary sources, in addition to any other stationary sources that may emit TACs, would be subject to SMAQMD rules and regulations, including SMAQMD Rule 201 (General Permit Requirements), Rule 202 (New Source Review), Rule 904 (Air Toxics Control Measures), and Rule 207 (Title V-Federal Operating Permit Program), T-BACT requirements. Thus, as discussed above, SMAQMD would analyze such sources (e.g., health risk assessment) based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of SMAQMD's applicable threshold of significant, T-BACT would be implemented in order to reduce emissions. If the implementation of T-BACT would not reduce the risk below the applicable threshold, the SMAQMD would deny the required permit. As a result, given compliance with applicable rules and regulations, operation of any stationary sources would not result in the exposure of sensitive receptors to TACs at levels exceeding SMAQMD's significance threshold. This would be a *less-than-significant* impact.

Airport

In recent years there has been heightened scientific awareness and public debate over potential impacts that may result from the exposure of sensitive receptors to TACs generated for aircraft and ground support operations at and near airports. Sources of airport-related TACs include aircraft (e.g., air carriers, commuter and cargo aircraft, and general aviation), ground service equipment, fuel storage and handling, and others. TACs released by these sources include, but are not limited to, volatile organic compounds, VOCs (acetaldehyde, formaldehyde, benzene, and 1,3-butadiene), chromium, dioxins, polycyclic organic compounds (PAHs), tetrachloroethylene, nickel, and toluene.

Several studies and analyses have been performed in an effort to evaluate the risk posed from airport operations. In 1999 and 2000, public initiated studies and analyses of toxic emissions from the O'Hare International Airport and associated health risks in surrounding residential communities were released. The overall findings of these analyses were that the cancer risks associated with operations at O'Hare Airport exceeds 10 in 1,000,000 over an area of approximately 40 square miles and 1 in 1,000,000 over an area of approximately 1,000 square miles, assuming 70 years of

exposure (Environ 2000). These studies also identified the need for better assessment of the data used and recommended that comprehensive air monitoring be conducted around O'Hare so that these data could be used to conduct a more complete and comprehensive analysis.

In response, the Illinois EPA monitored toxic air contaminants in the vicinity of O'Hare as well as other locations in the Chicago area from June to December of 2000, focusing on toxic compounds identified in the EPA's national strategy and on mobile source emissions associated with airport operations (Illinois EPA 2002). The compounds of interest included volatile and semi-volatile organics, carbonyls, and trace metals. The purpose of this program was to collect information that would help assess the relative impact of airport-generated emissions and toxic characteristics of large urban areas. One important objective of the monitoring program was to determine if the emissions associated with O'Hare have a measurable impact on air quality in areas adjacent to the airport. A review and analysis of the accumulated monitoring results found that the levels of toxic compounds (e.g., acetaldehyde and formaldehyde) attributable to airport operations were detected at monitoring sites. However, the concentrations of such compounds were indistinguishable from (or lower than) typical urban background levels.

Overall, from the studies and analyses conducted so far, including those discussed above, uncertainties in data and methods have provided an inadequate foundation to perform airport-related health studies. More recently, in an effort to improve available data, a multi-agency aircraft particle emissions experiment (APEX) was established with participants from the EPA, National Aeronautics and Space Administration (NASA), Federal Aviation Administration (FAA), the aviation industry (GE and Boeing), and the research community (Massachusetts Institute of Technology [MIT]). The main focus is to test aircraft engines for TACs. Data from this study is currently being analyzed and updated emission factors to follow in approximately 2 years. This will, along with further monitoring around airports and validation of modeling results, allow the compilation of more accurate emissions data into EPA models and identification of the proper characterization methods.

Based on the above discussion, it can be ascertained that the proposed project, because of its proximity to the Sacramento International Airport, has the potential to expose sensitive receptors to toxic air emissions to an extent that health risks could result. However, this issue is not well understood and is the subject of ongoing research, and any conclusions regarding health risks would be speculative. Therefore, a conclusion on significance of the environmental impact cannot be reasonably reached. Section 15145 of the State CEQA Guidelines provides that, if after a thorough investigation a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impacts. This is the case here. No impact conclusion can be made based on research of this issue.

Off-site Mobile Sources

As previously discussed, the project site is located adjacent to Interstate I-5 and SR 70/99 (Refer to Exhibit 3-3 of this report). The proposed project includes a mix of land uses, including commercial and residential uses, senior housing, and an elementary school. The nearest proposed residences would be within approximately 300 feet of I-5 and SR 70/99. Proposed senior housing would be located approximately 1,200 feet from I-5 and approximately 1,500 feet from SR 70/99. The proposed elementary school would be located near the southeastern portion of the project site, approximately 545 feet from I-5 and SR 70/99.

In April 2005, the ARB published a guidance document entitled "Air Quality and Land Use Handbook: A Community Health Perspective," which includes the recommendation to avoid siting of new sensitive land uses (e.g., residences and schools) within 500 feet of freeways. In addition, the recently adopted SB 352 (Education Code Section 17213, Public Resources Code Section

21151.8) expands upon previous requirements for the review of TAC sources near school sites. Accordingly, SB 352 requires that any school site located within 500 feet of the edge of the closest travel lane of a freeway or other busy traffic corridor be reviewed for potential health risks. The location of the school site, which as discussed above would be further than 500 feet from the nearby freeways, would be consistent with the above recommendations. Consequently, off-site mobile source TAC emissions at the school site would be considered less than significant; however, the location of the nearest proposed residences would not be in concurrence with ARB recommendations. The ARB guidance document is not regulatory. The SMAQMD has not established any guidelines for the assessment of such impacts or any applicable thresholds, as the 10 in one million threshold mentioned above only applies to individual stationary-type sources, and not to the mobile source emissions at issue here. (Maertz, pers. comm. 2006).

A health-risk assessment (HRA) was prepared by Sierra Research to evaluate the potential health-related impacts to on-site sensitive receptors, proposed as part of the project, from exposure to off-site, on-road, mobile sources of TACs associated with nearby freeways (i.e., I-5 and SR 70/99) (Refer to Appendix E). A summary of the HRA is included for informational purposes. The SMAQMD does not currently recommend the use of HRAs for assessing the potential risk from diesel PM adjacent to freeways until specific guidelines for development and review have been established by the District. This is based on the limitations of HRAs conducted to date regarding the level of uncertainty in real world assumptions, model selection, and due in large part to a number of complexities associated with methodologies and their applicability to mobile source conditions (Maertz, pers. comm., 2006).

That stated, the results of the HRA are included because they provide the best informational basis for considering relative risk of exposure at the site. However, they need to be considered with caution, respecting the concerns raised above. To assess the risk, vehicle emissions on the freeway segments were quantified by Sierra Research for 21 TACs and the cancer risk and non-cancer acute and chronic hazard indices were estimated at various distances from I-5, SR 70/99, and the interchange using dispersion modeling. Dispersion modeling was performed in 5-year increments, beginning with the initial year of construction (2007) (Sierra Research 2005).

Based on the findings of the HRA, the highest modeled acute and chronic non-cancer hazard indices at all distances from the freeway segments and for all years analyzed were 0.63 and 0.26, respectively. The acute and chronic hazard indices represent the potential non-cancer health impacts resulting from short-term (one-hour) and long-term (from one year to a 70-year lifetime) exposure to TACs, respectively. The hazard indices are calculated by dividing the concentrations of TACs by the applicable reference exposure levels (i.e., an indicator of potential non-cancer health impacts and defined as the concentration at which no adverse effects are anticipated).

For the residences nearest the freeways, the highest modeled 70-year average cancer risk was 5.5% of the 2000 total average risk for the SVAB as determined by ARB (i.e., 520 chances in one million), which interpolates to 28.6 chances in one million, (Sierra Research 2005). This cancer risk represents the number of chances in one million of developing cancer based on 70-year exposure duration.

With respect to the SVAB, the 2000 total average risk of 520 chances in one million, as determined by ARB, takes into account emissions of 10 select TACs which pose the greatest risk in California based primarily on ambient air quality data from all sources (e.g., stationary, area, on-road mobile, other mobile, and natural). According to ARB's emissions inventory for 2000, approximately 23% of the total SVAB acetaldehyde emissions for that year, 43% of benzene, 39% of 1,3-butadiene, 31% of formaldehyde, and 28% of diesel PM were associated with on-road mobile sources (California Air Resources Board 2001). Based on these percentages and the individual health risks

as determined by ARB in 2000 for each TAC, approximately 27.5% (143 chances in one million) of the total SVAB estimated risk of 520 chances in one million was associated with on-road mobile sources, 70% of the risk being attributable to diesel PM alone. According to the ARB, implementation of the risk reduction plan to reduce diesel PM is estimated to drop 2010 and 2020 concentrations, and associated health risk by 75% and 85% respectively, from the estimated 2000 level (California Air Resources Board 2005a). The ARB also estimated a range of relative cancer risk near freeways of 300–1,700 chances in one million, as contained in the Air Quality and Land Use Handbook (California Air Resources Board 2005b).

By comparison, the highest 70-year risk value estimated at the proposed residences nearest the freeways is 5 times lower than the risk of 143 chances in one million from on-road mobile sources, as interpolated from ARB’s 2000 total average risk for SVAB, and over 10 times lower than the low end of ARB’s range of 300-1,300 chances in one million, as presented in the Air Quality and Land Use Handbook (Sierra Research 2005).

However, though the comparison above relates the risk estimated by Sierra Research from on-road mobile sources to those attributable to the same source-type as estimated by ARB, the modeling methodologies (e.g., model, timeframe, TACs analyzed) used by each differ and could account for differences between the results. Also, because SMAQMD has not established specific guidelines for the development and review of HRAs for such impacts, SMAQMD cannot support any conclusions drawn from the results thereof (Maertz, pers. comm., 2006). In the interim, SMAQMD recommends, as does the ARB, the potential risk be considered in the planning process (Maertz, pers. comm., 2006). It is also important to note that the recommendations of the ARB concerning the siting of sensitive receptors provides guidance on planning issues and are not adopted thresholds for which development projects can be evaluated against.

Based on the above discussion, it can be ascertained that the proposed project, because of its proximity to existing freeways, has the potential to expose sensitive receptors to TACs to an extent that health risks could result. Since this potential risk is related to existing sources of emissions (i.e., the adjacent roadways), and not to emissions from the project, it is important to understand the trend in emissions (and associated risk) from these existing sources. As shown in Table 6.2-6 below, and as summarized above, the TAC risk management programs implemented by the SMAQMD and ARB have been extremely effective at reducing risks from toxic air contaminants in the Sacramento area.

**Table 6.2-6
Summary of Health Risks from Toxic Air Contaminants Sacramento Valley Air Basin**

| | 1990 | 1995 | 2000 | 2004 | Change (1990–2004) |
|------------------------------------------|-------|------|------|-------------------|-----------------------|
| All TACs | 1,135 | 705 | 520 | <478 ² | -58% |
| Mobile Source TACs ¹ | 1,079 | 624 | 447 | <430 ² | -60% |
| Mobile Source TACs (excluding Diesel PM) | 329 | 144 | 87 | 73 | -78% |
| Diesel PM | 750 | 480 | 360 | <360 | >52% |

Notes: ARB estimates changes in Diesel PM health risk every 5 years; 2004 data are based on the assumption that these levels are lower than those estimated for 2000.

¹ Benzene, 1,3-butadiene, and Diesel PM.

Source: Sierra Research 2006; The California Almanac of Emissions and Air Quality. 2006 Edition. California Air Resources Board. 2006.

Although the values presented in Table 6.2-6 represent estimated exposures throughout the SVAB, the trend in risks from mobile source TACs applies equally to the proposed project location, where the background health risk is expected to be dominated by the health risks associated with emissions from motor vehicles on nearby roadways. Consequently, although residents in the proposed project development may be exposed to health risks that are somewhat elevated as compared with other locations, these health risks are declining substantially, and are expected to continue to decline, as a result of existing ARB and SMAQMD regulatory programs. Consequently, this impact is concluded to be *less-than-significant*. Importantly, this analysis provides information on the relative level of health risk, including disclosures on increased health risks along the margins of the freeways, to allow the City of Sacramento to make the most informed decision currently possible on this issue.

On-site Mobile Sources

On-site mobile sources of TACs would be primarily associated with the operation of school buses transporting students to and from the proposed elementary school, as well as diesel-powered delivery trucks associated with proposed on-site commercial activities.

Emissions from school buses can vary, depending on various factors, including bus type, age, maintenance, and amount of time spent idling. Health impacts from exhaust exposure include eye and respiratory irritation, enhanced respiratory allergic reactions, asthma exacerbation, increased cancer risk, and immune system degradation. Generally, children are more vulnerable to air pollutants because of higher inhalation rates, narrower airways, and less mature immune systems.

In response to the above issue, the ARB adopted an air toxic control measure (ATCM) as part of the Particulate Matter Risk Reduction Plan to specifically deal with diesel emissions from school buses. This ATCM became effective July 16, 2003. The school bus idling ATCM includes the following requirements:

- (a) The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and to restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy-duty vehicle (other than a bus) shall be prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.
- (b) The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities.

According to ARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, protecting children from unhealthful exhaust emissions and thus reducing localized exposure to air toxic contaminant and other harmful air pollution emissions at and near schools.

In addition to the school bus idling ATCM, ARB recently adopted an idling restriction ATCM for large commercial diesel-powered vehicles, which became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. ARB is currently evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles. Nonetheless, given that proposed on-

site commercial land uses have not yet been identified and given the potential proximity of nearby sensitive receptors, exposure of nearby on-site receptors to mobile-source TACs associated with commercial activities would be considered *potentially significant*.

Mitigation Measure 6.2-4: (City of Sacramento and LAFCo)

On-site Mobile Sources. The following mitigation measures shall be implemented:

- a. Proposed facilities that would require the long-term use of diesel equipment and heavy-duty trucks shall develop and implement a plan to reduce emissions, which may include such measures as scheduling such activities when the residential uses are the least occupied, and requiring such equipment to be shut off when not in use and prohibiting heavy-trucks from idling. The plan shall be submitted to and approved by the City before loading dock activities begin. Copies of the plan shall be provided to all residential dwellings located within 1,000 feet of loading dock areas.
- b. Proposed commercial/convenience land uses (e.g., loading docks) that have the potential to emit toxic air emissions shall be located as far away as feasibly possible from existing and proposed sensitive receptors.

Significance After Mitigation

Implementation of the above mitigation measure would reduce health-related risks associated with on-site mobile-source TACs, but not necessarily to a less-than-significant level. Exposure to mobile-source TAC emissions from on-site mobile sources are, therefore, considered *significant and unavoidable*. This conclusion is because of the uncertainty associated with on-site commercial land use activities and the proximity of sensitive receptors to such uses. This conclusion may, therefore, change as more detailed information regarding proposed on-site commercial uses becomes available.

Regarding exposure to TACs from freeways adjacent to the site, the current regulatory programs being implemented by the ARB have resulted and are expected to continue to result in a substantial reduction in exposure to TACs. This reduction has resulted in a commensurate reduction in health risks from exposure to TACs at the project site and along all major roadways in the Sacramento region.

| |
|------------------------|
| IMPACT 6.2-5 |
|------------------------|

Exposure to Odor Emissions. *Operation of the proposed project could result in the frequent exposure of on-site receptors to substantial objectionable odor emissions. As a result, this impact would be considered significant.*

No major sources of odors have been identified in the project area that would result in the exposure of on-site receptors to existing odorous emissions.

Minor sources of odors associated with the proposed project would be primarily associated with the construction of the proposed land uses. The predominant source of power for construction equipment is diesel engines. Exhaust odors from diesel engines, as well as emissions associated with asphalt paving and the application of architectural coatings, may be considered offensive to some individuals. However, because odors would be temporary and would disperse rapidly with distance from the source, construction-generated odors would not result in the frequent exposure of on-site receptors to objectionable odorous emissions. As a result, short-term construction-related odors would be considered *less than significant*.

Commercial uses may include sources of odorous emissions (e.g., charbroiling restaurants, dry cleaners). The operation of such sources could result in the frequent exposure of on-site receptors

to substantial objectionable odorous emissions. As a result, this impact would be considered *potentially significant*.

Mitigation Measure 6.2-5: (City of Sacramento and LAFCo)

The following mitigation measures shall be implemented:

- a. To the extent feasible, proposed commercial/convenience land uses that have the potential to emit objectionable odor emissions shall be located as far away as possible from existing and proposed receptors.
- b. When permitting the facility that would occupy the proposed commercial/convenience space, the City shall take into consideration its odor-producing potential.
- c. If an odor-emitting facility is to occupy space in the commercial/convenience area, the City shall require odor control devices (e.g., wet chemical scrubbers, activated carbon scrubbers, biologically-active filters, enclosures) to be installed to reduce the exposure of receptors to objectionable odor emissions.

Implementation of the above-mentioned mitigation measures would prevent high numbers of odor complaints by ensuring that odor sources are located near sensitive receptors and reduce the affects of any odor-generating facilities by addressing odors at the source. Thus, implementation of Mitigation Measure 6.2-5 would reduce this impact to a *less-than-significant* level.

6.3 NOISE

6.3.1 INTRODUCTION

This section includes a summary of applicable noise regulations, a description of ambient noise conditions, and an analysis of potential noise impacts of the proposed project. Mitigation measures are recommended, as necessary, to reduce significant noise impacts.

6.3.2 EXISTING SETTING

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration.

SOUND PROPERTIES

A sound wave is introduced into a medium (air) by a vibrating object. The vibrating object (e.g., vocal chords, the string, and sound board of a guitar, or the diaphragm of a radio speaker) is the source of the disturbance that moves through the medium. Regardless of the type of source creating the sound wave, the particles of the medium through which the sound moves are vibrating in a back and forth motion at a given frequency (pitch). The frequency of a wave refers to how often the particles vibrate when a wave passes through the medium. The frequency of a wave is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave would be 500 vibrations per second. A commonly used unit for frequency is hertz (Hz).

Each particle vibrates as a result of the motion of its nearest neighbor. The first particle of the medium begins vibrating at, say, 500 Hz, and sets the second particle of the medium into motion at the same frequency (500 Hz). The second particle begins vibrating at 500 Hz and thus sets the third particle into motion at 500 Hz. The process continues throughout the medium; hence each particle vibrates at the same frequency, which is the frequency of the original source. Subsequently, a guitar string vibrating at 500 Hz will set the air particles in the room vibrating at the same frequency (500 Hz), which carries a sound signal to the ear of a listener that is detected as a 500 Hz sound wave.

The back-and-forth vibration motion of the particles of the medium would not be the only observable phenomenon occurring at a given frequency. Because a sound wave is a pressure wave, a detector could be used to detect oscillations in pressure from high to low and back to high pressure. As the compression (high-pressure) and rarefaction (low-pressure) disturbances move through the medium, they would reach the detector at a given frequency. For example, a compression would reach the detector 500 times per second if the frequency of the wave were 500 Hz. Similarly, a rarefaction would reach the detector 500 times per second if the frequency of the wave were 500 Hz. Thus, the frequency of a sound wave refers not only to the number of back-and-forth vibrations of the particles per unit of time but also to the number of compression or rarefaction disturbances that pass a given point per unit of time. A detector could be used to detect the frequency of these pressure oscillations over a given period of time. The period of the sound wave can be found by measuring the time between successive high-pressure points (corresponding to the compressions) or the time between successive low-pressure points (corresponding to the rarefactions). The frequency is simply the reciprocal of the period; thus an inverse relationship exists so that as frequency increases, the period decreases, and vice versa.

A wave is an energy transport phenomenon that transports energy along a medium. The amount of energy carried by a wave is related to the amplitude (loudness) of the wave. A high-energy wave is characterized by high amplitude; a low-energy wave is characterized by low amplitude. The amplitude of a wave refers to the maximum amount of displacement of a particle from its rest position. The energy transported by a wave is directly

proportional to the square of the amplitude of the wave. This means that a doubling of the amplitude of a wave is indicative of a quadrupling of the energy transported by the wave.

SOUND AND THE HUMAN EAR

Because of the ability of the human ear to detect a wide range of sound-pressure fluctuations, sound-pressure levels are expressed in logarithmic units called decibels (dB). The sound-pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 1998). Use of this logarithmic scale reveals that the total sound from two individual 65-dBA sources is 68 dBA, not 130 dBA (i.e., doubling the source strength increases the sound pressure by 3 dBA).

Because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. An A-weighted dB (dBA) scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale has been chosen by most authorities for the purpose of regulating environmental noise. Typical indoor and outdoor noise levels are presented in Exhibit 6.3-1.

With respect to how humans perceive increases in noise levels, a 1 dBA increase is imperceptible, a 3 dBA increase is barely perceptible, a 6 dBA increase is clearly perceptible, and a 10 dBA increase is subjectively perceived as approximately twice as loud (Egan 1988). For this reason, an increase of 3 dBA or more is generally considered a degradation of the existing noise environment.

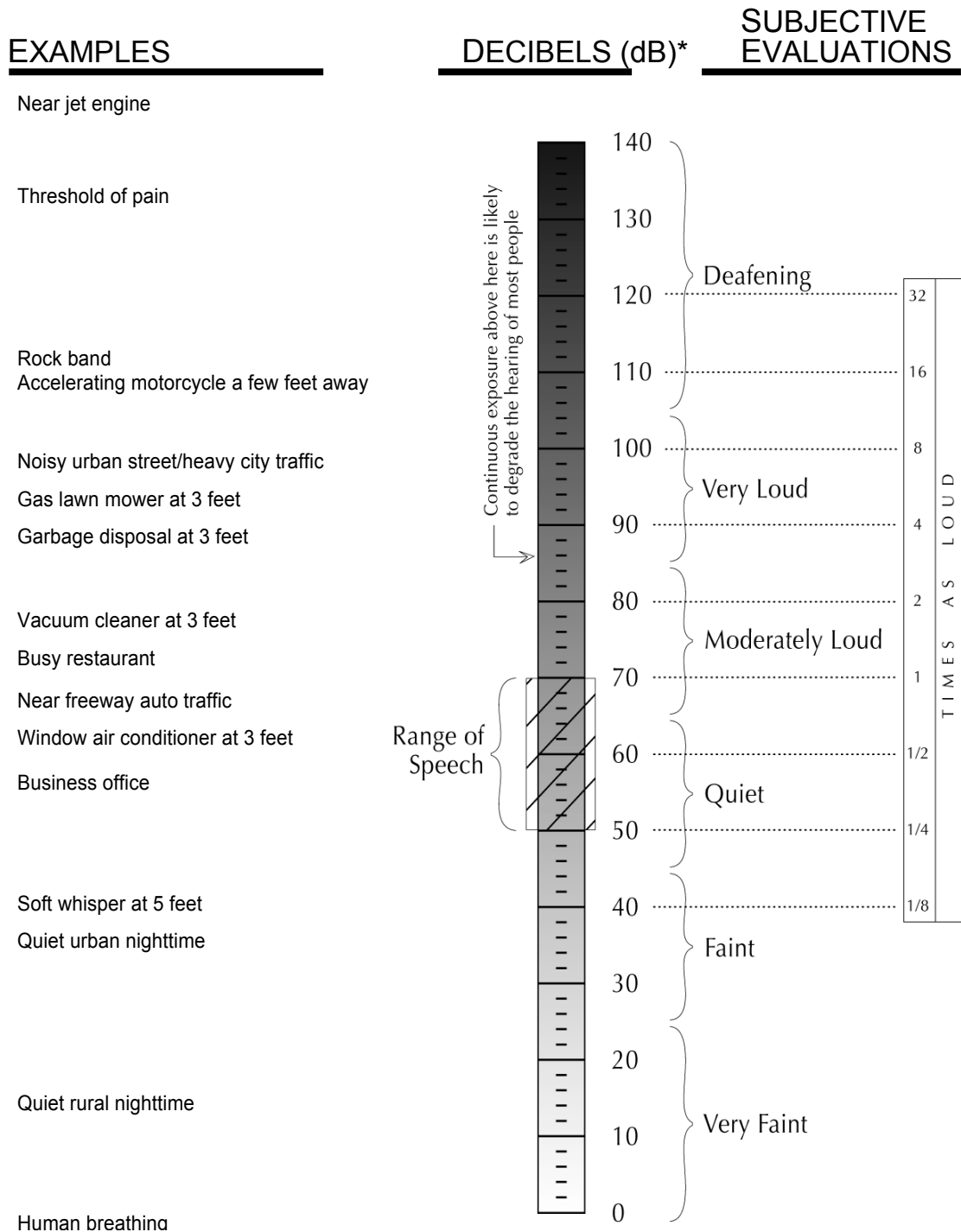
SOUND PROPAGATION

As sound (noise) propagates from the source to the receptor, the attenuation, or manner of noise reduction in relation to distance, is dependent on surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse-square law describes the attenuation caused by the pattern in which sound travels from the source to receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate of 6 dBA per doubling of distance (dBA/DD). However, from a line source (e.g., a road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate of 3 dBA/DD. The surface characteristics between the source and the receptor may result in additional sound absorption and/or reflection. Atmospheric conditions such as wind speed, temperature, and humidity may affect noise levels. Furthermore, the presence of a barrier between the source and the receptor may also attenuate noise levels. The actual amount of attenuation is dependent upon the size of the barrier and the frequency of the noise. A noise barrier may be any natural or human-made feature such as a hill, tree, building, wall, or berm (Caltrans 1998).

All buildings provide some exterior-to-interior noise reduction. A building constructed with a wood frame and a stucco or wood sheathing exterior typically provides a minimum exterior-to-interior noise reduction of 25 dBA with its windows closed, whereas a building constructed of a steel or concrete frame, a curtain wall or masonry exterior wall, and fixed plate glass windows of one-quarter-inch thickness typically provides an exterior-to-interior noise reduction of 30–40 dBA with its windows closed (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002).

NOISE DESCRIPTORS

The selection of a proper noise descriptor for a specific source is dependent upon the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (Caltrans 1998, Lipscomb and Taylor 1978).



* dB are "average" values as measured on the A-scale of a sound-level meter.
 From *Concepts in Architectural Acoustics* (M. David Egan, McGraw Hill, 1988) and *The Noise Guidebook* (U.S. Department of Housing and Urban Development, Office of Community Planning and Development, undated).

Source: EDAW 2006

Typical Noise Levels

Exhibit 6.3-1

- ▶ L_{\max} (Maximum Noise Level): The maximum instantaneous noise level during a specific period of time. The L_{\max} may also be referred to as the “peak (noise) level.”
- ▶ L_{\min} (Minimum Noise Level): The minimum instantaneous noise level during a specific period of time.
- ▶ L_X (Statistical Descriptor): The noise level exceeded X% of a specific period of time.
- ▶ L_{eq} (Equivalent Noise Level): The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq} . In noise environments determined by major noise events, such as aircraft overflights, the L_{eq} value is heavily, and usually entirely, influenced by the magnitude and number of single events (SENL, see below) that produce the high work levels.
- ▶ L_{dn} (Day-Night Noise Level): The 24-hour L_{eq} with a 10 dBA “penalty” for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is “added” to single noise events that occur in the nighttime hours, and this generates a higher reported noise level when determining compliance with noise standards. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.
- ▶ CNEL (Community Noise Equivalent Level): The CNEL is similar to the L_{dn} described above, but with an additional 5 dBA “penalty” added to single noise events that occur during the noise-sensitive hours between 7:00 p.m. to 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. If using the same 24-hour noise data, the reported CNEL is typically approximately 0.5 dBA higher than the L_{dn} .
- ▶ SENL (Single Event [Impulsive] Noise Level): The SENL describes a receiver’s cumulative noise exposure from a single impulsive noise event (e.g., an automobile passing by or an air craft flying overhead), which is defined as an acoustical event of short duration and involves a change in sound pressure above some reference value. SENLs typically represent the noise events used to calculate the L_{eq} , L_{dn} , and CNEL.

NEGATIVE EFFECTS OF NOISE ON HUMANS

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, and level of the noise, and the exposure time (Caltrans 1998).

6.3.3 EXISTING NOISE ENVIRONMENT

EXISTING NOISE-SENSITIVE LAND USES

Noise-sensitive land uses generally include those uses where exposure to noise would result in adverse effects, as well as uses where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other noise-sensitive land uses include schools, hospitals, convalescent facilities, parks, hotels, places of worship, libraries, and other uses where low interior noise levels are essential.

The project site currently consists of undeveloped and fallow farmlands with no buildings or sensitive receptors on-site. Two farm houses are located near the northwest corner of the site across from Lone Tree Road, approximately 55 feet west of the project site's western boundary. There are no existing schools, hospitals, convalescent facilities, places of worship, parks, hotels, or libraries on or directly adjacent to the project site. A neighborhood of single family homes is currently being constructed immediately to the north of the location where a wastewater pipeline extension would be built to serve the project. This pipeline extension would approach the project site from the east and extend under State Route (SR 70/99). A water pipeline extension would be constructed under I-5 to connect with the south side of the project site. This extension would not be located near any existing or future planned sensitive receptors.

EXISTING NOISE SOURCES

The existing noise environment within the project area is influenced primarily by surface transportation noise emanating from vehicular traffic on area highways and aircraft operations associated with Sacramento International Airport. Existing noise levels from vehicular traffic and aircraft activity are described in greater detail below.

Vehicular Traffic

One of the dominant noise sources on the project site is vehicular traffic on I-5, which passes along the south side of the project site, and SR 70/99, which passes along the east side of the site. The project site is situated northwest of the intersection formed by I-5 and SR 70/99, and borders their respective right-of-ways. The ambient noise environment in areas surrounding the project site is also dominated by vehicular traffic on area roadways.

Table 6.3-1 presents existing traffic noise levels on area roadways, which were modeled using the FHWA Traffic Noise Model (FHWA 1988) and traffic data obtained from the traffic analysis prepared for this project (TJKM 2005). Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Table 6.3-1 presents the predicted L_{dn} /CNEL noise levels at 50 feet from the near travel lane centerline and distance from roadway centerline to the 55, 60, 65 and 70 dBA L_{dn} /CNEL contours for existing average daily traffic (ADT) volumes.

Aircraft Activity

Another dominant noise source at the project site is noise generated by aircraft operations associated with Sacramento International Airport, which is located approximately one mile west of the project site. Flight operations, flight patterns, and associated CNEL contours are discussed below.

Flight Operations

Operations at the airport consist of takeoffs and landings by commercial passenger, cargo, military, and general aviation aircraft. The average number of flights in 2005 was 461 daily flights, most of which are domestic commercial passenger flights (Newhouse, pers. comm., 2006; Sacramento County Airport System Planning [SCAS] and Development Department 2004). The models of aircraft used most at the airport include Boeing 737-300s (43.8% of aircraft fleet), Boeing 737-700s (10.4%), Boeing 737-800s (7.6%), Airbus 320s (6.9%), and Boeing 737-200s (6.3%) (SCAS Planning and Development Department 2004). Most flight operations occur between 6:00 a.m. and 11:00 p.m. each day; however, some landings and takeoffs occur during the early morning hours (SCAS Planning and Development Department 2004).

The County has a Memorandum of Understanding with the military that it will only operate flights from 7:00 a.m. to 7:00 p.m. Monday through Friday. However, this restriction is non-binding and the military could fly planes during other times, such as on weekends, if it so decided. For instance, because the Navy conducted training exercises with E6 Mercury aircraft on the afternoon of Saturday, March 5, 2005 (Latourrette, pers. comm., 2005), it is assumed that military aircraft operations occasionally take place on weekend days as well. The aircraft

models most used by the military at the Sacramento International Airport are cargo planes (i.e., C5s and C130s), refueling and transport aircraft (i.e., KC10s and KC135s), and jet training aircraft (i.e., T38s) (Newhouse, pers. comm., 2004).

**Table 6.3-1
Summary of Modeled Existing Vehicular Traffic Noise Levels**

| Roadway Segment and Location | Distance (ft) from Roadway Centerline to L _{dn} /CNEL (dBA) | | | | L _{dn} /CNEL (dBA) 50 Feet from Centerline of Near Travel Lane |
|-----------------------------------------------------------------|----------------------------------------------------------------------|---------|---------|---------|-------------------------------------------------------------------------|
| | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL | |
| Power Line Road north of W. Elverta Road | — | — | — | — | 53.85 |
| Power Line Road south of W. Elverta Road | — | — | — | — | 55.78 |
| W. Elverta Road east of Power Line Road | — | — | — | 87.5 | 57.93 |
| W. Elverta Road west of Power Line Road | — | — | — | 70.3 | 56.50 |
| Power Line Road north of Elkhorn Boulevard | — | — | 63.6 | 136.5 | 60.84 |
| Power Line Road between Elkhorn Boulevard and Del Paso Road | — | — | 60.5 | 129.9 | 60.51 |
| Elkhorn Boulevard between Power Line Road and Lone Tree Road | — | — | — | — | 53.09 |
| Elkhorn Boulevard between Lone Tree Road and SR 70/99 | — | — | — | 70.1 | 56.48 |
| Elkhorn Boulevard between SR 70/99 and E. Commerce Parkway | 78.8 | 169.3 | 364.5 | 784.9 | 72.24 |
| Elkhorn Boulevard east of E. Commerce Parkway | 67.5 | 144.9 | 311.9 | 671.7 | 71.23 |
| E. Commerce Parkway between Elkhorn Boulevard and Del Paso Road | — | — | 66.3 | 142.2 | 61.11 |
| Power Line Road south of Del Paso Road | — | — | 52.3 | 112.1 | 59.56 |
| Del Paso Road between Power Line Road and Wyndview Drive | — | — | — | — | 45.89 |
| Del Paso Road between Wyndview Drive and El Centro Road | — | — | — | — | 40.37 |
| SR 70/99 north of W. Elverta Road | 211.4 | 448.9 | 964.0 | 2,075.1 | 76.16 |
| SR 70/99 between W. Elverta Road and Elkhorn Boulevard | 246.2 | 524.7 | 1,127.7 | 2,427.8 | 77.19 |
| SR 70/99 between Elkhorn Boulevard and the I-5 split | 273.1 | 583.2 | 1,254.0 | 2,700.0 | 77.88 |
| I-5 west of the SR 70/99 split | 378.7 | 798.2 | 1,711.0 | 3,681.7 | 78.10 |

Note: Traffic noise levels were modeled using the FHWA Traffic Noise Model (FHWA 1988) based on traffic volumes obtained from the traffic report prepared for this project. Calculated noise levels do not consider any shielding or reflection of noise by existing structures or terrain features or noise contribution from other sources. See modeling results in Appendix G for further detail.
Source: Modeling performed by EDAW in 2005.

Flight Patterns

The Sacramento International Airport operates two runways, which are oriented in a north-south direction. The closer of the two runways is located 1.17 miles from the west boundary of the project site. The airport operates in a “south flow” airfield approximately 68% of the time and in a “north flow” airfield approximately 32% of the time (SCAS Planning and Development Department 2004), depending on wind conditions. During “south flow” conditions, all aircraft take off and land into the south wind. After taking off during “south flow” conditions, most aircraft immediately turn southeast and pass near the project site. Planes taking off in south flow conditions that are ultimately headed north turn and fly over or near the southeast portion of the project site. During “north flow” conditions, all aircraft take off and land into the north wind and do not pass over the project site (SCAS 2005).

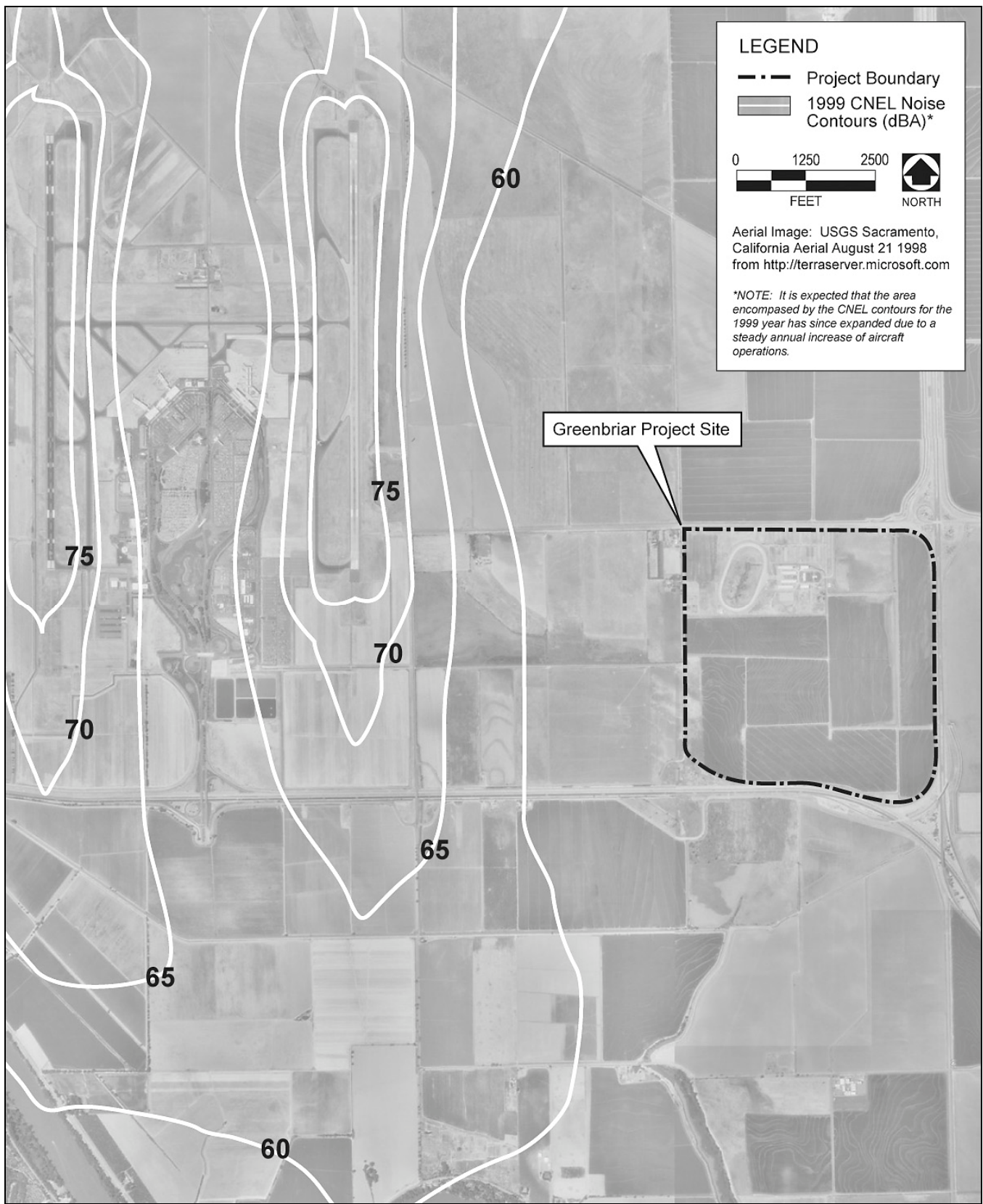
Airport CNEL Contours

The Sacramento International Airport Master Plan includes CNEL noise contours for aircraft activity associated with the airport operations in 1999. (SCAS Planning and Development Department 2004). These contours are shown in Exhibit 6.3-2. As shown in the Exhibit, the 60 dBA CNEL contour does not overlap with the proposed project site; however, it is expected that the area encompassed by the airport’s CNEL contours has since expanded because the increased aircraft activity at the airport over the past 6 years. According to the draft Airport Master Plan, the number of annual operations (i.e., takeoffs and landings) at the airport was estimated to increase from approximately 157,000 annual operations in 1999 to a projected approximately 190,000 annual operations in the year 2005 (SCAS Planning and Development Department 2004). Consequently, the 1999 contours are outdated and do not accurately represent noise levels associated with current airport activity.

The SCAS Planning and Development Department has recently developed new draft CNEL contours as part of the new Airport Master Plan (SCAS Planning and Development Department 2004), which is currently undergoing environmental review. These draft contours are shown in Exhibit 6.3-3 and are associated with implementation of the Master Plan in some undetermined future year. They were provided by the SCAS Planning and Development Department in October 2005 and remain subject to approval by the Sacramento County Board of Supervisors (Newhouse, pers. comm., 2006). Nonetheless, these draft CNEL contours represent the most up-to-date estimation of noise levels generated by Sacramento International Airport when operating at full capacity, which has not yet been reached at the airport but could be within approximately the next 20 years. The full-capacity CNEL levels are based on the maximum number of flights that could be accommodated by facilities on the ground, including the number of passenger gates and the area of ramp space and cargo space at the airport. In addition, these noise contours are considered to represent bands of similar noise exposure, rather than absolute lines of demarcation. Actual noise levels would vary from day to day, depending on factors such as local meteorological conditions, weather-induced changes to flight paths, and the types and intensity of aircraft activity.

Exhibit 6.3-2 shows that the project site is approximately 2,800 feet from the 60 dBA CNEL contour for the 1999 year and Exhibit 6.3-3 shows that the projected future 60 dBA CNEL contour would be about 2,000 feet from the western boundary of the project site. Exhibit 6.3-3 also shows the airport’s future projected 55 dBA CNEL contour, which encompasses more than one third of the project site.

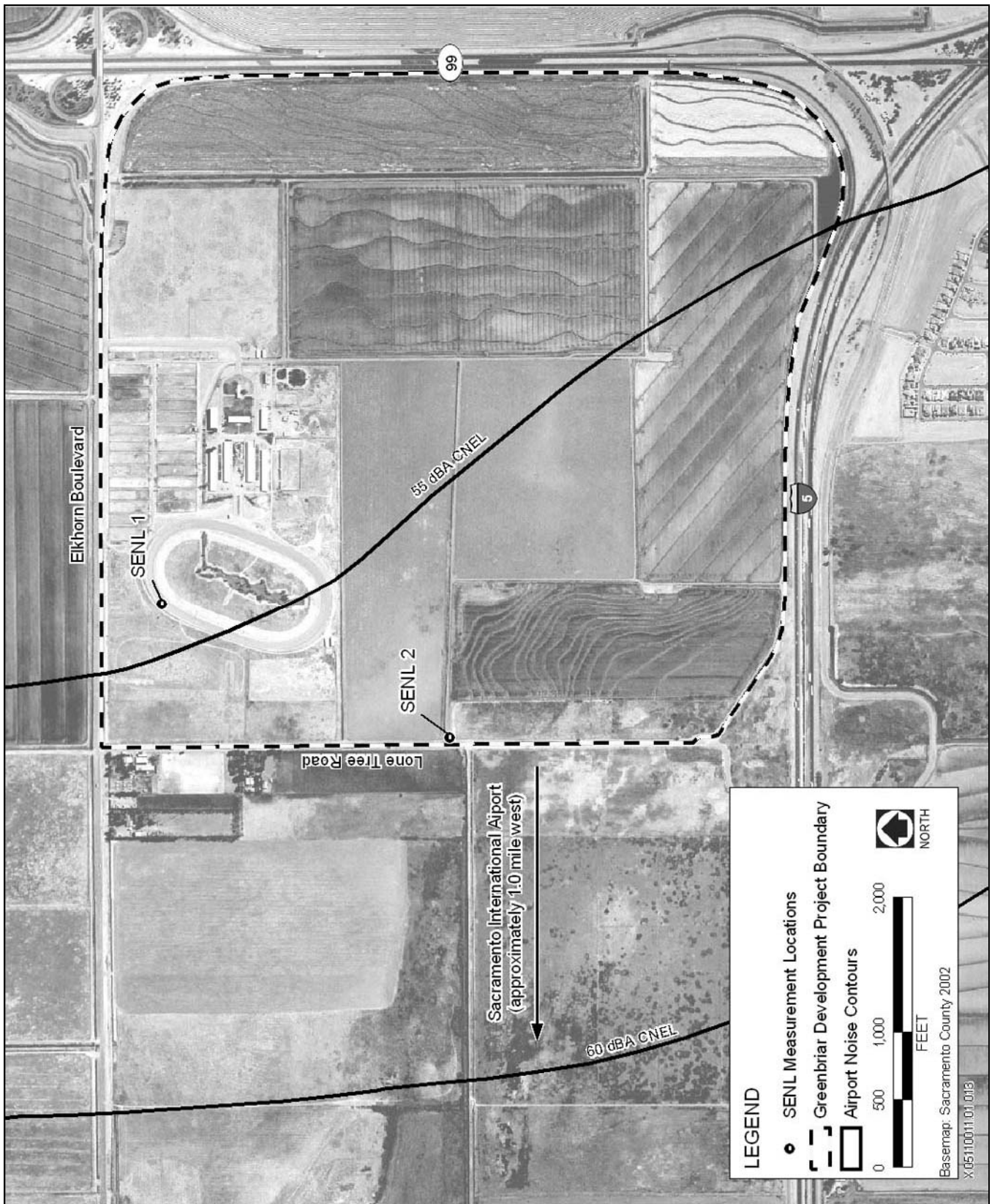
The SCAS Planning and Development Department does not produce SENL contours for aircraft-generated noise (Newhouse, pers. comm., 2004); however, as a 24-hour “average” noise descriptor, the full-capacity CNEL contours account for the frequency and intensity of SENL events.



Source: Sacramento County Airport System Planning and Development Department 2004

1999 CNEL Noise Contours for Sacramento International Airport

Exhibit 6.3-2



Source: Newhouse, pers. comm., 2005

Sacramento International Airport Noise Contours

Exhibit 6.3-3

**Table 6.3-2
Existing Ambient Noise Levels**

| Noise Measurement Location | Time of Day on September 27, 2005 | Predominant Noise Source(s) | Noise Level (dBA) | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------|-------------------|------------------|------------------|
| | | | L _{eq} | L _{max} | L _{min} |
| 1. South side of project site. Approximately 300 feet north of near travel lane of I-5 and 1,500 west of SR 70/99. | 2:25 pm – 2:40 pm | Traffic on I-5. | 59.0 | 65.6 | 48.1 |
| 2. Southeast portion of project site. Approximately 840 feet north of I-5, 816 feet west of SR 70/99, and 960 feet northwest of interchange connector between I-5 southbound and SR 70/99 northbound. | 3:04 pm – 3:19 pm | Traffic on I-5 and, to a lesser degree, traffic on SR 70/99. | 58.3 | 76.0 | 48.0 |
| 3. East side of project site. Approximately 300 feet west of near travel lane of SR 70/99. | 3:53 pm – 4:08 pm | Traffic on SR 70/99. | 52.1 | 65.9 | 40.7 |
| 4. Northwest portion of project site. Approximately 750 feet east of western boundary and 1,500 feet south of Elkhorn Boulevard. | 4:23 pm – 4:38 pm | Rooster(s) at farm house near western boundary, wild birds. | 46.1 | 59.5 | 36.0 |

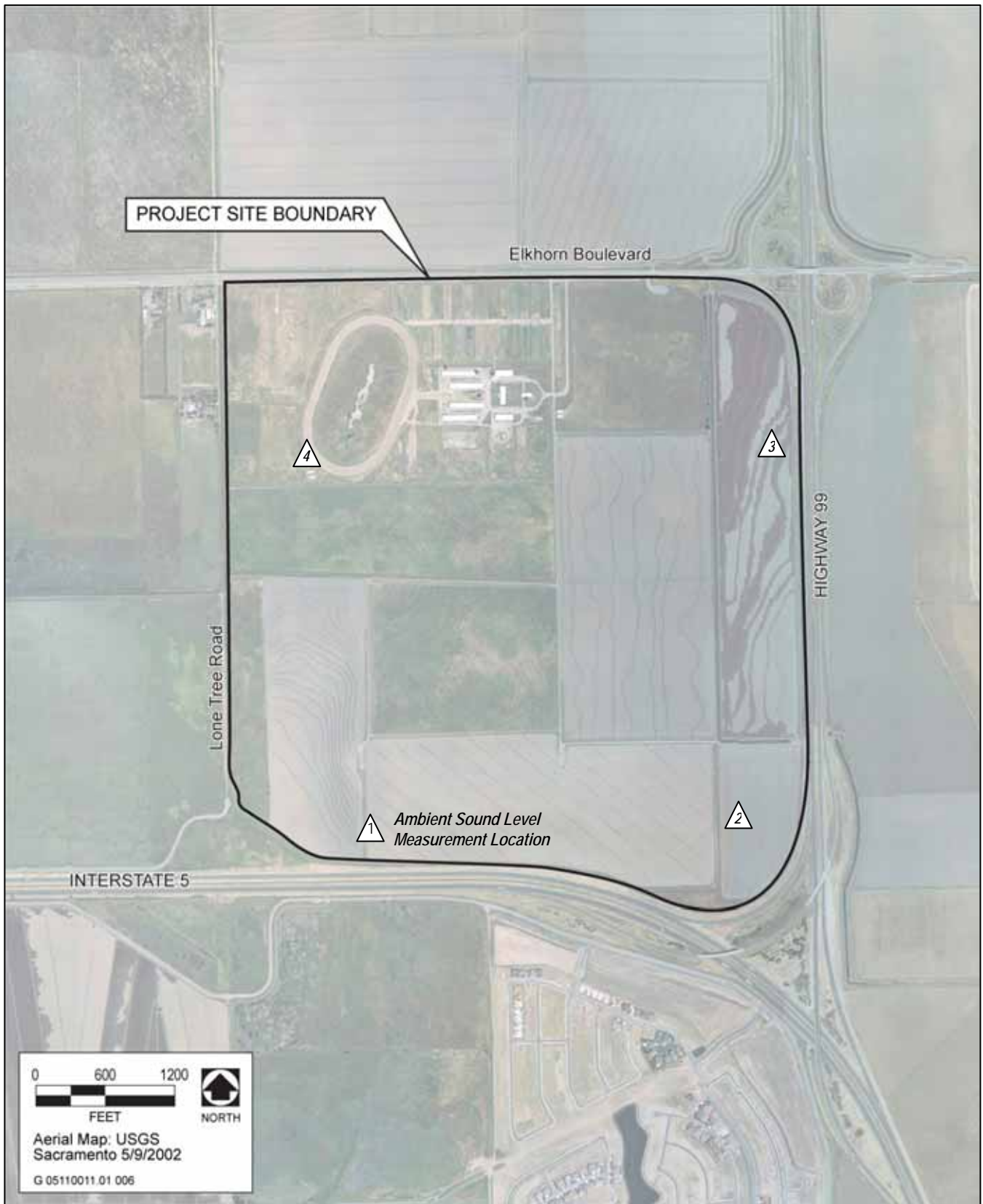
Source: Data collected by EDAW on September 27, 2005

EXISTING AMBIENT NOISE SURVEY

An ambient noise survey was conducted by EDAW on Tuesday, September 27, 2005 to document the existing noise environment at various locations within the project area. The dominant noise sources noted during the survey were vehicular traffic on I-5 to the south of the project site and on SR 70/99 to the east of the project site. Short-term noise level measurements were taken in accordance with the American National Standards Institute (ANSI) acoustic standards at four locations within the project area using a Larson Davis model 820 sound level meter. The short-term L_{eq} value along with the L_{max}, and L_{min}, for each ambient noise measurement location is presented in Table 6.3-2. The locations of the ambient sound level measurements are shown in Exhibit 6.3-4. Based on the short-term measurements conducted, average daytime noise levels (L_{eq}) within the project area range from 46.1 to 59.0 dBA L_{eq}, depending primarily on distance from I-5 and/or SR 70/99, while maximum noise levels (L_{max}) range from 59.5 to 76.0 dBA L_{max}. In addition, a series of traffic noise measurements on the project site were conducted on March 27, 2006 specifically to check the accuracy of the modeled on-site traffic noise levels, as contained in Appendix G (Sawyer, pers. comm., 2006).

COMMERCIAL AIRCRAFT SENL EVENT SURVEY

Because the Sacramento County Airport System Planning and Development Department does not produce SENL contours for aircraft-generated noise (Newhouse pers. comm., 2004), additional noise measurements were collected by EDAW to characterize the site's current exposure to SENLs generated by aircraft activity. SENL measurements were collected in accordance with the ANSI acoustic standards for SENL measurements (ANSI S12.9-2000/Part 6) at two locations within the project area using Larson Davis model 820 SLM. SENL measurements of commercial aircraft, collected during "south flow" conditions on Monday, January 9, 2006, are presented in Table 6.3-3. Measurements were collected from two locations on the west side of the project site as shown in Exhibit 6.3-3.



Source: EDAW 2006

Sound Level Measurement Locations

Exhibit 6.3-4

**Table 6.3-3
Noise Level Measurements Commercial Aircraft Activity**

| Measurement Number | Measurement Location ^a | Time of Day ^{b,c} | SENL (dBA) | SENL Duration (seconds) | L _{max} (dBA) ^d | Event L _{eq} (dBA) ^e | Commercial Aircraft Model ^f |
|--------------------|-----------------------------------|----------------------------|------------|-------------------------|-------------------------------------|------------------------------------------|----------------------------------------|
| 1 | 1 | 15:28:08 | 74.0 | 22.5 | 68.1 | 60.4 | BE58 |
| 2 | 2 | 15:33:05 | 77.1 | 13.5 | 70.4 | 65.8 | C501 |
| 3 | 2 | 15:39:40 | 82.6 | 27.0 | 73.3 | 68.3 | B737 |
| 4 | 1 | 15:39:43 | 77.6 | 31.0 | 68.9 | 62.7 | B737 |
| 5 | 2 | 15:47:52 | 79.0 | 22.0 | 72.5 | 65.6 | B733 |
| 6 | 1 | 15:47:57 | 73.9 | 26.5 | 65.5 | 59.7 | B733 |
| 7 | 2 | 15:51:54 | 76.2 | 61.5 | 66.3 | 58.3 | B733 |
| 8 | 2 | 15:59:37 | 83.8 | 30.5 | 74.7 | 69.0 | MD82 |
| 9 | 1 | 15:59:47 | 84.7 | 32.5 | 74.5 | 69.6 | MD82 |

Notes: SENL measurements were collected in accordance with the American National Standards Institute acoustic standards (ANSI S12.9-2000/Part 6) using Larson Davis model 820 sound level meters on the afternoon of January 9, 2005.

a SENL measurement locations 1 and 2 are shown on Exhibit 6.3-3.

b Weather conditions during measurements on the afternoon of January 9, 2005 were partly cloudy with a temperature of 55 F°, relative humidity of 67%, atmospheric pressure of 30.27 inches, and winds from the southwest averaging 5.8 mph.

c Time of day is expressed in military time and represents when the instantaneous L_{max} occurred. Sound level meters operated simultaneously during most recorded SENL events. The clocks of both sound meters were synchronized. In some cases an SENL event was recorded at only one of the two sound level meters.

d The L_{max} sound level represents the highest instantaneous sound level during the SENL event.

e The L_{eq} sound level represents the average sound level during the SENL event, during which the aircraft was the dominant noise source.

f Aircraft models were confirmed using the web-based resource, Replay of Sacramento Area Air Traffic (Sacramento County Airport System 2005). Measurements include aircraft takeoffs from both runways 16L and 16R.

Source: Data collected by EDAW on Monday, January 9, 2006.

Table 6.3-3 shows that the SENL events measured on the project site from commercial aircraft ranged from 73.9 dBA SENL to 84.7 dBA SENL. The average duration of the recorded SENL events was 29.7 seconds. For those SENL events recorded simultaneously at both measurement locations, the recorded SENL levels were not consistently higher at one two location or the other. Field observations by EDAW staff indicated that approximately 35% of the aircraft takeoffs observed resulted in recorded SENL events at one or both of the sound level meters.

MILITARY AIRCRAFT SENL EVENTS

In comparison to commercial aircraft, the flight tracks of military aircraft near the Sacramento International Airport are much more variable, consisting primarily of low, circling flyovers and touch-and-go activity (practice takeoffs and landings) at the runways. SENL events were recorded by EDAW staff on a site located approximately 3,000 feet south of the proposed Greenbriar site on March 17, 2005. Measurements were taken on a site known as “West Lakeside”; aircraft were noted to be at a similar height and similar maneuver in flight pattern as they flew over Greenbriar. Thus, these measurements, presented in Table 6.3-4, are considered to be representative of SENL events generated by military aircraft flyovers at the Greenbriar site. Most of military aircraft flyovers were observed approaching from or heading towards the direction of the Greenbriar site. Aside from their more variable flight paths and lower flight patterns, military aircraft generate louder SENL events because they are not subject to the same noise-related design standards as commercial aircraft. Table 6.3-4 shows that the SENL events measured near the

project site from military aircraft ranged from 67.4 dBA SENL to 110.8 dBA SENL. It is important to note that noise levels in excess of 70 dBA (interior; roughly equal to 85 to 100 dBA exterior, depending on whether windows are open or closed) are quite likely to elicit noise complaints and interfere with speech, outdoor activities, as well as indoor activities (e.g., watching television, talking on the phone).

**Table 6.3-4
Noise Level Measurements of Military Aircraft Activity**

| Measurement No. | Time of Day ^{a,b} | SENL (dBA) | SENL Duration (seconds) | L _{max} (dBA) ^c | Event L _{eq} (dBA) ^d | Aircraft Model ^e |
|-----------------|----------------------------|------------|-------------------------|-------------------------------------|------------------------------------------|-----------------------------|
| 1 | 12:48:53 | 84.8 | 14.5 | 79.2 | 73.2 | C130 |
| 2 | 12:48:56 | 85.9 | 12.0 | 79.7 | 75.1 | C130 |
| 3 | 14:30:21 | 108.3 | 8.0 | 104.6 | 99.3 | C5 |
| 4 | 14:30:28 | 110.8 | 7.5 | 109.4 | 102.0 | C5 |
| 5 | 14:46:02 | 76.3 | 31.5 | 67.2 | 61.3 | KC10 |
| 6 | 14:46:06 | 67.4 | 8.0 | 65.7 | 58.4 | KC10 |
| 7 | 14:46:13 | 68.0 | 4.0 | 65.2 | 62.0 | KC10 |
| 8 | 14:52:26 | 108.3 | 15.5 | 103.9 | 96.4 | C5 |
| 9 | 14:52:33 | 101.0 | 19.0 | 94.8 | 88.2 | C5 |
| 10 | 15:01:38 | 83.5 | 13.0 | 79.4 | 72.4 | C5 |
| 11 | 15:01:45 | 79.5 | 16.5 | 73.4 | 67.3 | C5 |
| 12 | 15:12:06 | 108.1 | 13.0 | 103.5 | 97.0 | C5 |
| 13 | 15:12:10 | 100.5 | 14.5 | 94.3 | 88.9 | C5 |

Notes: SENL measurements were collected in accordance with the American National Standards Institute acoustic standards (ANSI S12.9-2000/Part 6) using Larson Davis model 820 sound level meters.

^a Weather conditions during measurements on March 17 were partly cloudy with a temperature of 64 F°, relative humidity of 58%, atmospheric pressure of 29.96 inches, and winds from the south-southwest averaging 8.1 mph. The airport was operating in “south flow” conditions during all measurements.

^b Time of day is expressed in military time and represents when the instantaneous L_{max} occurred.

^c The L_{max} sound level represents the highest instantaneous sound level during the SENL event.

^d The L_{eq} sound level represents the average sound level during the SENL event, during which the aircraft was the dominant noise source.

^e Aircraft models were confirmed using the web-based resource, *Replay of Sacramento Area Air Traffic* (Sacramento County Airport System 2005). Measurements include aircraft takeoffs from both runways 16L and 16R. Airport staff has confirmed that all aircraft, including military aircraft, were following their typical flight patterns (Miller, pers. comm., 2005).

Source: Data collected by EDAW on March 17, 2005 at the proposed West Lakeside project site.

6.3.4 REGULATORY SETTING

STATE

Title 24 of the California Code of Regulations (CCR) establishes standards governing interior noise levels that apply to all new single family and multi-family residential units in California. These standards require that acoustical studies be performed before construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} levels to 45 dBA in any habitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an L_{dn} of 45 as an upper limit on interior noise in all residential units.

In addition, the state has developed land use compatibility guidelines for community noise environments. The State of California General Plan Guidelines (State of California 2003), published by the state Governor’s Office of Planning and Research (OPR), provides guidance for the acceptability of projects within specific L_{dn} /CNEL contours. Table 6.3-5 presents acceptable and unacceptable community noise exposure limits for various land use categories. There limits are expressed in terms of L_{dn} and CNEL. There are no compatibility standards for SENL, although it is recognized that the L_{dn} /CNEL account for the cumulative exposure to all SENLs. Generally, residential uses are considered to be acceptable in areas where exterior noise levels do not exceed 60 dBA L_{dn} /CNEL. Residential uses are normally unacceptable in areas exceeding 70 dBA L_{dn} and conditionally acceptable within 55 to 70 dBA L_{dn} . Schools are normally acceptable in areas up to 70 dBA CNEL and normally unacceptable in areas exceeding 70 dBA CNEL. Commercial uses are normally acceptable in areas up to 70 dBA CNEL. Between 67.5 and 77.5 dBA CNEL, commercial uses are conditionally acceptable, depending on the noise insulation features and the noise reduction requirements. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community’s sensitivity to noise, and the community’s assessment of the relative importance of noise pollution.

**Table 6.3-5
State Land Use Noise Compatibility Guidelines**

| Land Use Category | Community Noise Exposure (L_{dn} or CNEL, dBA) | | | |
|------------------------------------------------------------|---------------------------------------------------|---------------------------------------|------------------------------------|-----------------------------------|
| | Normally Acceptable ^a | Conditionally Acceptable ^b | Normally Unacceptable ^c | Clearly Unacceptable ^d |
| Residential-Low-Density Single-Family, Duplex, Mobile Home | <60 | 55–70 | 70–75 | 75+ |
| Residential-Multi-Family | <65 | 60–70 | 70–75 | 75+ |
| Transient Lodging-Motel, Hotel | <65 | 60–70 | 70–80 | 80+ |
| Schools, Libraries, Churches, Hospitals, Nursing Homes | <70 | 60–70 | 70–80 | 80+ |
| Auditoriums, Concert Halls, Amphitheatres | | <70 | 65+ | |
| Sports Arena, Outdoor Spectator Sports | | <75 | 70+ | |
| Playgrounds, Neighborhood Parks | <70 | | 67.5–75 | 72.5+ |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | <75 | | 70–80 | 80+ |
| Office Building, Business Commercial and Professional | <70 | 67.5–77.5 | 75+ | |
| Industrial, Manufacturing, Utilities, Agriculture | <75 | 70–80 | 75+ | |

a Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

b New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

c New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

d New construction or development should generally not be undertaken.

Source: State of California Governor’s Office of Planning and Research 2003

LOCAL

County of Sacramento General Plan

The County of Sacramento General Plan Noise Element contains several policies for controlling and reducing environmental noise, which are applicable only to the unincorporated areas of Sacramento County. The following policies are applicable to the proposed project:

- ▶ **Policy NO-1:** Noise created by new transportation noise sources should be mitigated so as not to exceed 60 dB L_{dn}/CNEL at the outdoor activity areas of any affected residential lands or land use situated in the unincorporated areas. When a practical application of the best available noise-reduction technology cannot achieve the 60 dB L_{dn}/CNEL standard, then an exterior noise level of 65 dB L_{dn}/CNEL may be allowed in outdoor activity areas.
- ▶ **Policy NO-2:** Noise created by new nontransportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1 [Table 6.3-6 of this EIR], as measured immediately within the property line of any affected residentially designated lands or residential land use situated in the unincorporated areas.

For the purposes of the Noise Element, transportation noise sources include traffic on public roadways.

| Table 6.3-6 County of Sacramento Noise Level Performance Standards^a for Residential Areas Affected by Nontransportation Noise^b | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------|
| Statistical Noise Level Descriptor | Exterior Noise Level Standards (dBA) | |
| | Daytime (7 a.m. to 10 p.m.) | Nighttime (10 p.m. to 7 a.m.) |
| L ₅₀ | 50 | 45 |
| L _{max} | 70 | 65 |

Note: Each of the noise standards in Table 6.3-6 shall be decreased by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

^a These standards are for planning purposes and may vary from the standards of the County's Noise Control Standards, which are for enforcement purposes.

^b These standards apply to new or existing residential areas affected by new or existing nontransportation sources.

Source: County of Sacramento General Plan 1993.

City of Sacramento General Plan

The Noise Element of the City of Sacramento General Plan establishes land use compatibility standards for noise measured at the property line of noise-sensitive land uses. The land use compatibility noise criteria provide the basis for decisions on location of land uses in relation to noise sources, and for determining noise mitigation requirements. The City's noise exposure standards for land use compatibility for residential uses (both single-family and multi-family) and schools are presented in Table 6.3-7.

| Table 6.3-7 City of Sacramento General Plan Land Use Compatibility Noise Levels Shown as dBA, L_{dn} or CNEL | | | | |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------|-----------------------|----------------------|
| Land Use | Normally Acceptable | Conditionally Acceptable | Normally Unacceptable | Clearly Unacceptable |
| Residential Uses | 50 to 60 | 60 to 70 | 70 to 75 | above 75 |
| Schools, Libraries, Churches | 50 to 60 | 60 to 70 | 70 to 80 | above 80 |
| Office Building, Business, Commercial | 50 to 65 | 65 to 80 | above 80 | not specified |

Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings are of normal construction without special noise requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design.

Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in this design.

Clearly Unacceptable: New construction or development clearly should not be undertaken.

Source: City of Sacramento General Plan 1988

**Table 6.3-8
City of Sacramento Maximum Acceptable Interior and Exterior Noise Level Standards for New
Development without Mitigation**

| Noise Source | Land Use | Applicable Area | | State Requirements ^a | Noise Element Requirements |
|----------------------------------------------------|---------------------------|-----------------|----------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| | | Interior | Exterior | | |
| Traffic or fixed source (industrial, plants, etc.) | Single-family | X | | None | $L_{dn} \leq 45$ dB ^b |
| | Single-family | | X | None | $L_{dn} \leq 60$ dB in backyards |
| | Multi-family ^c | X | | $L_{dn} \leq 45$ dB | $L_{dn} \leq 45$ dB |
| | Multi-family | | X | None | $L_{dn} \leq 60$ dB in common outdoor use areas |
| | Schools | X | | None | Noisiest hourly $L_{eq} \leq 40$ dB during school day |
| | Schools | | X | None | $L_{dn} \leq 60$ dB |
| Aircraft | Single-family | X | | None | $L_{dn} \leq 45$ dB and maximum instantaneous levels of ≤ 50 dB in bedrooms and ≤ 55 in other habitable rooms ^b |
| | Single-family | | X | CNEL ≤ 65 dB (State Aeronautics Noise Standards) requirement does not apply to Mather and McClellan AFB | CNEL ≤ 60 dB for Sacramento International Airport CNEL ≤ 65 dB for all other areas |
| | Multi-family | X | | $L_{dn} \leq 45$ dB | $L_{dn} \leq 45$ dB and maximum instantaneous levels of ≤ 50 dB in bedrooms and ≤ 55 in other habitable rooms ^b |
| | Multi-family | | X | CNEL ≤ 65 dB (State Aeronautics Noise Standards) requirement does not apply to Mather and McClellan AFB | CNEL ≤ 60 dB for Sacramento International Airport CNEL ≤ 65 dB for all other areas |
| | Schools | X | | None | Noisiest hourly $L_{eq} \leq 40$ dB during school day |
| | Schools | | X | CNEL ≤ 65 dB (State Aeronautics Noise Standards) requirement does not apply to Mather and McClellan AFB | CNEL ≤ 60 dB for Metro Airport CNEL ≤ 65 dB for all other areas |

^a Projects for which U.S. Department of Housing and Urban Development (HUD) financing is requested are subject to HUD noise requirements. The noise element requirements listed in this table are at least as stringent as the HUD requirements.

^b The requirement for interior noise exposure is triggered when the exterior L_{dn} exceeds 60 dB.

^c Multi-family includes hotels, motels, apartment houses, and dwellings other than detached single-family dwellings as defined by Title 24, Part 2, California Administrative Code.

Source: City of Sacramento General Plan 1988

The City of Sacramento General Plan's Noise Element also contains several goals and policies for controlling and reducing environmental noise. The following goals and policies are applicable to the proposed project:

- ▶ **Goal A:** Future development shall be compatible with the projected year 2016 noise environment.
 - **Policy 1:** Require an acoustical report for any project which would be exposed to noise levels in excess of those shown as normally acceptable in Figure 3 (Table 6.3-8 of this EIR). The contents of the acoustical report shall be as described in the Noise Assessment Report Guidelines. No acoustical report shall be required where City staff has an existing residential report on file which is applicable.
 - **Policy 2:** Require mitigation measures to reduce noise exposure to the “Normally Acceptable Levels” in Figure 3 (Table 6.3-8 of this EIR), except where such measures are not feasible.
 - **Policy 3:** Land uses proposed where the exterior noise level would be below the “Normally Acceptable Levels” may be approved without any requirement for interior or exterior mitigation measures.
- ▶ **Goal C:** Eliminate or minimize the noise impacts of future development on existing land uses in [the City of] Sacramento.
 - **Policy 1:** Review projects that may have noise generation potential to determine what impact they may have on existing uses. Additional acoustical analysis may be necessary to mitigate identified impacts.
 - **Policy 2:** Enforce the Sacramento Noise Ordinance [i.e., Noise Control Standards] as the method to control noise from sources other than transportation sources.

In addition, the City Noise Element also includes guidelines for conducting noise assessment. The Noise Element states that mitigation measures should be considered if the proposed development would increase the average daily noise levels at a noise-sensitive land use by more than 4 dBA or cause the overall level to exceed the “normally acceptable” standard for land use compatibility, or be expected to generate significant adverse community response.

The City Noise Element also includes maximum acceptable interior and exterior noise level standards for assessing whether new development should occur at a particular location. These standards are presented in Table 6.3-8. New development is considered “conditionally acceptable” provided adequate noise insulation features have been incorporated into the design of the project.

The project’s consistency with these policies is evaluated in Chapter 5.0, “Project Consistency with Plans and Policies.”

LAFCo Policies

The LAFCo Policies, Procedures, and Guidelines document does not contain any adopted policies related to exterior and interior noise levels.

City of Sacramento Noise Control Code and County of Sacramento Noise Control Code

The noise control standards of the City of Sacramento Municipal Code (Title 8, Health and Safety, Chapter 8.68 Noise Control) and the County of Sacramento Code (Title 6, Health and Sanitation, Chapter 6.68, Noise Control) are essentially identical, with a few exceptions. They have the same limits for exterior noise levels measured at residential land and agricultural land uses, which are presented in Table 6.3-9. Both codes state that it shall be unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed the standards shown in Table 6.3-9. The standards generally limit exterior noise levels (measured at residential land and agricultural land uses) to a maximum of 55 dBA during any cumulative 30-minute period during the daytime hours (7 a.m. to 10 p.m.), and 50 dBA during any cumulative 30-minute period during the nighttime hours (10 p.m. to 7 a.m.). The codes set somewhat higher noise limits for noise of shorter duration; however, noise shall never exceed 75 dBA in the day and 70 dBA at night.

**Table 6.3-9
Noise Control Standards of the City of Sacramento Municipal Code and County of Sacramento Code**

| Cumulative Period of Time | Exterior Noise Standards (dBA) ^{a,b} | |
|---------------------------|-----------------------------------------------|------------------------------|
| | Daytime (7 a.m. – 10 p.m.) | Nighttime (10 p.m. – 7 a.m.) |
| 1. 30 minutes in an hour | 55 | 50 |
| 2. 15 minutes in an hour | 60 | 55 |
| 3. 5 minutes in an hour | 65 | 60 |
| 4. 1 minute in an hour | 70 | 65 |
| 5. Never to exceed | 75 | 70 |

^a This table presents of summary of the noise control standards that are considered to be most applicable to the proposed project. Refer to the City of Sacramento Municipal Code, Title 8, Health and Safety, Chapter 8.68, Noise Control, or Sacramento County Code, Title 6, Health and Sanitation, Chapter 6.68, Noise Control, for additional noise control standards and limitations pertaining to noise-generating activities.

^b The above standards shall be reduced by 5 dBA for noise consisting of speech, music, or simple tones. If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified in Table 6.3-9, the allowable noise limit shall be increased in 5-dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

Source: County of Sacramento, 2005; City of Sacramento, 2005

The codes also establish interior noise standards for multiple dwelling units (two or more units); however, these standards are applicable only to noise created inside one of the residential units that disturbs a neighboring unit.

The City Noise Control Code and the County Noise Control Code conditionally exempt noise generated by certain activities. For instance, both codes exempt noise sources associated with agricultural operations provided such operations take place between the hours of 6:00 a.m. and 8:00 p.m. The City Noise Control Code, however, grants this exemption only if the internal combustion engines on agricultural equipment includes suitable exhaust and intake silencers that are in good working order.

Both the City Noise Control Code and the County Noise Control also exempt construction activity but during different times of the day and week. The City Noise Control Code exempts noise generated by construction activity that occurs during the hours of 7 a.m. to 6 p.m., Monday through Saturday, and from 9 a.m. to 6 p.m. on Sunday. The County Noise Control Code exempts noise generated by construction activity that occurs during the hours of 6 a.m. to 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday.

Also, residential use heating, ventilation and air conditioning (HVAC) system equipment, such as pumps, fans, and air conditioners, shall not exceed 60 dBA at any point at least 1 foot inside the property line of the affected residential or agricultural property, 55 dBA when measured in the center of a neighboring patio or at the nearest exterior window of the affected residential unit.

In other words, like most city or county noise ordinances, the noise control standards of the City of Sacramento Municipal Code and County of Sacramento Code were created to regulate noise generated by stationary sources and to provide criteria for the handling of noise disputes. The City of Sacramento General Plan Land Use Compatibility Noise Levels shown in Table 6.3-7 and the City of Sacramento Maximum Acceptable Interior and Exterior Noise Level Standards for New Development shown in Table 6.3-8 were developed for the purpose of assisting the City in making land use planning decisions.

6.3.5 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

To assess potential construction, area, and stationary source noise impacts, sensitive receptors and their relative exposure were identified. Noise levels of specific equipment expected to be used in project construction or operation were determined and resultant noise levels at sensitive receptors were calculated assuming a noise attenuation rate of 6 dBA/DD. Because the project site would be annexed by the City of Sacramento, this analysis examines the effects of noise generated by construction on the site pursuant to the Noise Control Standards of the City of Sacramento Municipal Code (Table 6.3-9) and accounts for the hours exempted by the City (7 a.m. to 6 p.m., Monday through Saturday, and from 9 a.m. to 6 p.m. on Sunday).

The FHWA Traffic Noise Model (FHWA 1988) was used to model traffic noise levels along affected roadways, based on the trip distribution estimates obtained from the traffic analysis prepared for this project (TJKM 2005). The project's contribution to the baseline traffic noise levels along area roadways was determined by comparing the predicted noise levels at 50 feet from the centerline of the near travel lane with and without project-generated traffic. Predicted traffic noise levels at particular sensitive receptors were calculated assuming a noise reduction of 4.5 dBA/DD from the roadway (i.e., the centerline of the near traffic lane). Separate thresholds of significance are applied based on whether the noise-sensitive receptor is located within Sacramento's city limits or in the unincorporated area of Sacramento County.

The land use compatibility analysis with respect to on-site noise levels from aircraft activity is based on CNEL contours provided by the SCAS Planning and Development Department, though aircraft SENL events, which make up the CNEL, and their potential to result in daytime annoyance and sleep disturbance are also discussed.

The thresholds of significance applied in this analysis primarily address the exterior noise standards established by the City of Sacramento and the Sacramento County. Unless otherwise stated, an exceedance of interior noise level standards would not occur if exterior noise standards are achieved because of sufficient exterior-to-interior noise reduction of common buildings.

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance, as identified in the Appendix G of the State CEQA Guidelines, were used to determine whether implementing the project would result in a significant noise impact. The project would result in a significant noise impact if it would:

- ▶ Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project,
 - **Short-Term Construction Noise Impacts.** Short-term construction noise impacts would be significant if construction-generated noise levels exceed the City of Sacramento Noise Code standards (Table 6.3-9) or result in a noticeable increase (i.e., 3 dBA or greater, according to Caltrans 1998) in ambient noise levels at existing nearby noise-sensitive land uses during the more noise-sensitive early morning, evening and nighttime periods of the day [i.e., outside the hours considered exempt (i.e., 7 a.m. to 6 p.m., Monday through Saturday, and 9 a.m. to 6 p.m. on Sunday)]
- ▶ Expose persons to or generation of noise levels in excess of standards establish in the local general plan or noise ordinance, or applicable standards of other agencies,
- ▶ Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project,

- ▶ Expose people residing or working in the project area to excessive noise levels
 - **Traffic Noise Impacts.** For the analysis of long-term traffic noise, separate thresholds of significance were applied based on whether the noise-sensitive receptor is located in the City of Sacramento or in the unincorporated area of Sacramento County. Long-term traffic noise impacts would be significant if traffic generated by operation of the proposed project would increase the average daily noise levels by more than 4 dBA or cause the overall exterior noise level to exceed the “normally acceptable” standard for land use compatibility established by the City of Sacramento General Plan (Table 6.3-7) (e.g., 60 dBA $L_{dn}/CNEL$ for residential land uses) at noise-sensitive receptors located in the City of Sacramento. Long-term traffic noise impacts would be significant if traffic noise generated by implementation of the proposed project would increase the average daily noise levels by more than 4 dBA where baseline levels already exceed 60 dBA $L_{dn}/CNEL$ or cause the exterior (i.e., outdoor activity area) noise level to exceed 60 dBA $L_{dn}/CNEL$ at noise sensitive receptors located in the unincorporated area of Sacramento County. When a practical application of the best available noise-reduction technology cannot achieve the 60 dBA $L_{dn}/CNEL$ standard, then an exterior noise level of 65 dBA $L_{dn}/CNEL$ may be allowed in outdoor activity areas (Sacramento County General Plan Policy NO-1). For all affected residential land uses, regardless of location, long-term traffic noise impacts would be significant if traffic noise generated by implementation of the proposed project would exceed 45 dBA $L_{dn}/CNEL$ in any habitable rooms (pursuant to Title 24 of the CCR).
 - **Stationary- and Area-Source Noise Impacts.** Long-term stationary source noise impacts would be significant if the proposed project would result in noise levels that exceed the City of Sacramento and Sacramento County Noise Control Standards at existing nearby noise-sensitive land uses. As shown in Table 6.3-9, the noise control standards limit exterior noise levels (measured at single-family residential land uses) to a maximum of 55 dBA during any cumulative 30-minute period during the daytime hours (7 a.m. to 10 p.m.) and 50 dBA during any cumulative 30-minute period during the nighttime hours (10 p.m. to 7 a.m.).
 - **Land Use Compatibility with On-site Noise Levels.** Development of the proposed land uses would have a significant impact if predicted on-site ambient noise levels under existing or future cumulative conditions would exceed applicable noise criteria of the City of Sacramento General Plan Land Use Compatibility Noise Levels (Table 6.3-7) or the City of Sacramento Maximum Acceptable Interior and Exterior Noise Level Standards for New Development (Table 6.3-8). With regard to exterior noise levels generated by aircraft, the development of residential land uses and schools would be considered a significant impact if they are located within the 60 dBA CNEL exterior noise contour of Sacramento International Airport. Development of the proposed land uses would also have a significant impact if predicted interior noise levels would exceed 45 dBA $L_{dn}/CNEL$ in residential buildings (pursuant to Title 24 of the CCR) or 40 for the noisiest hourly L_{eq} dBA in school buildings. Furthermore, development of the project would result in a significant impact if it would develop residential land uses in locations where people would be exposed to noise levels that result in substantial frequency of speech and/or sleep disturbance.
- ▶ Expose persons to or generation of excessive groundborne vibration or groundborne noise levels.
 - **Exposure of Sensitive Receptors or Generation of Excessive Vibration Levels.** Short- and long-term vibration impacts would be significant if construction or operation of the proposed project would result in the exposure of sensitive receptors to or generate vibration levels that exceed Caltrans recommended standard of 0.2 in/sec peak particle velocity (ppv) with respect to the prevention of structural damage for normal buildings (Caltrans 2002) or the Federal Transit Administration’s (FTA) maximum acceptable vibration standard of 80 velocity decibels (VdB) with respect to human response for residential uses (i.e., annoyance) (FTA 1995) at any nearby existing sensitive land uses.

IMPACTS AND MITIGATION MEASURES

IMPACT 6.3-1

Short-term Construction Noise. *Short-term construction-generated noise levels could exceed City of Sacramento Noise Code standards (Table 6.3-9) or result in a noticeable increase in ambient noise levels at existing nearby off-site sensitive land uses as well as on-site residences that are constructed and inhabited before other portions of the project are complete. This would be a **potentially significant** impact.*

Construction activities at the project site would include site preparation (e.g., excavation, grading, and clearing), trenching, laying of concrete foundations, paving, frame erection, equipment installation, finishing, cleanup, and other miscellaneous activities. No pile driving or rock blasting would occur as part of project construction.

The on-site equipment required is not known at this time but, based on similar projects, would be anticipated to include excavators, graders, loaders, haul trucks, and cranes. According to the EPA, the noise levels of primary concern are typically associated with the site preparation phase because of the on-site equipment associated with clearing, grading, and excavation. Depending on the operations conducted, individual equipment noise levels can range from 79 to 91 dBA at 50 feet, as indicated in Table 6.3-10. The simultaneous operation of the on-site heavy-duty equipment associated with the project, as identified above, could result in combined intermittent noise levels of approximately 94 dBA at 50 feet from the project site. Based on these equipment noise levels and assuming a noise attenuation rate of 6 dBA per doubling of distance from the source and no intervening barriers, exterior noise levels at sensitive receptors located within approximately 4,500 feet of the project site could exceed 55 dBA without feasible noise controls.

**Table 6.3-10
Typical Construction Equipment Noise Levels**

| Type of Equipment | Noise Level in dBA at 50 feet | |
|-------------------|--------------------------------|------------------------------------------|
| | Without Feasible Noise Control | With Feasible Noise Control ¹ |
| Dozer or Tractor | 80 | 75 |
| Excavator | 88 | 80 |
| Compactor | 82 | 75 |
| Front-end Loader | 79 | 75 |
| Backhoe | 85 | 75 |
| Grader | 85 | 75 |
| Crane | 83 | 75 |
| Generator | 78 | 75 |
| Truck | 91 | 75 |

¹ Feasible noise control includes the use of intake mufflers, exhaust mufflers, and engine shrouds in accordance with manufacturer's specifications.

Sources: U.S. Environmental Protection Agency 1971; Federal Transit Administration 1995

Noise from construction activities between the hours of 7 a.m. to 6 p.m., Monday through Saturday, and 9 a.m. to 6 p.m. on Sunday are exempt from the provisions of the City of Sacramento Noise Code. However, if construction operations were to occur during the noise-sensitive hours outside of these hours, the applicable noise standards could be exceeded at residential land uses near the proposed project. There are three off-site locations where such impacts could occur. One location includes the farm houses located near the northwest corner of the project site near Lone Tree Road. Even if no construction activity occurs within the 200-foot-

wide habitat preservation corridor along the west side of the project site, construction activity could be as close as 250 feet to the nearest farm house. The other two locations consist of the future planned residences that would be located in close proximity to the proposed water supply and wastewater pipeline connections. The water supply and wastewater pipeline connection would cross SR 70/99 to connect to a water and wastewater pipelines east of the project site, passing near residences that are part of the approved Natomas Creek development. These residences are currently being built and would be complete and likely occupied before the time of construction. Similarly, the water pipeline connection would cross I-5 to connect to a pipeline system south of the project site, passing near residences that are part of the approved and planned Westborough development. These residences also may be occupied before the time of construction. In addition, because the project's construction period would be completed in two phases and span 10 years, some residences may be built and inhabited while construction of other residences and facilities continue to be developed. Thus, if construction activities are not limited to the hours exempt from the standards set forth by the City of Sacramento Noise Control Code, the temporary construction noise associated with on-site equipment could expose off-site and on-site sensitive receptors to or generate noise levels in excess of the applicable noise standards and/or result in a noticeable increase in ambient noise levels at noise-sensitive receptors. This would be a *potentially significant* impact.

Mitigation Measure 6.3-1. (City of Sacramento and LAFCo)

Construction operations shall be limited to the hours between 7 a.m. to 6 p.m. Monday through Saturday, and 9 a.m. to 6 p.m. on Sunday.

Significance After Mitigation

This measure would ensure that construction operations are consistent with the exemption provided by the City of Sacramento Noise Control Code and that construction would not result in a noticeable increase in ambient noise levels at noise-sensitive receptors during the more noise-sensitive hours of the day, thereby reducing potential impacts to a *less-than-significant* level.

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| IMPACT 6.3-2 |
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*Long-Term Operational Traffic Noise. Implementation of the proposed project would result in increases in traffic noise levels greater than 4 dBA and cause traffic noise levels to exceed the County's 60 dBA L_{dn} /CNEL exterior noise standard at sensitive receptors in unincorporated Sacramento County. This would be a *significant* impact.*

The increase in daily traffic volumes resulting from implementation of the proposed project would generate increased noise levels along nearby roadway segments. The FHWA Traffic Noise Model (FHWA 1988) was used to predict traffic noise levels along affected roadways for baseline traffic conditions, with and without implementation of the proposed project, based on the trip distribution estimates obtained from the traffic analysis prepared for this project (TJKM 2005). Baseline traffic conditions include existing traffic levels as well as traffic that would be generated by all approved projects in the project area, as listed in Exhibit 6.1-1 of Section 6.1, "Traffic and Circulation." The project's contribution to the baseline traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without project-generated traffic under baseline conditions. The traffic volumes used to estimate the traffic noise levels account for completion of the Meister Way overpass over SR 70/99, which would be completed before full buildout of the project. This analysis examines only those nearby roadway segments on which sensitive receptors are currently located and/or on which development of future sensitive receptors is already approved.

This traffic noise analysis examines exposure of sensitive receptors located within the City of Sacramento separately from residences in unincorporated areas of Sacramento County because different standards of significance apply for these two areas.

Sensitive Receptors in the City of Sacramento

Table 6.3-11 summarizes the modeling results for road segments that pass by residential dwellings located in the City of Sacramento that would be affected by project-generated traffic. Table 6.3-11 displays the $L_{dn}/CNEL$ at a distance 50 feet from the centerline of the near travel lane for the baseline year with and without the proposed project traffic. Note that most of the noise levels presented in Table 6.3-11 would be lower at the property line of the nearest sensitive receptors assuming they are located further than 50 feet from the modeled road segments. Table 6.3-11 also shows the net increase in roadside noise levels as compared to baseline conditions. The roadway noise levels presented in the table represent worst-case potential noise exposures, which assume no natural or artificial shielding between the roadway and a noise receptor located 50 feet from the centerline of the near travel lane. Sound barriers may already be planned to protect some of the future planned receptors. For instance a sound wall is currently being constructed along the east side of SR 70/99 between Elkhorn Boulevard and the I-5 split, which would provide some protection for receptors in the Natomas Creek Development.

As shown by Table 6.3-11, baseline traffic noise levels along all four of the modeled road segments exceed the “normally acceptable” standard of 60 dBA $L_{dn}/CNEL$ for residential land uses established by the City of Sacramento General Plan (Table 6.3-7) and the noise increases generated by project traffic along all four modeled segments would be less than 4 dBA . Because project-generated traffic would not cause the city’s threshold to be exceeded (it already is), and all the increases are less than 4.0 dBA, the traffic noise impact at sensitive receptors located along these four road segments would be *less than significant*.

**Table 6.3-11
Summary of Modeled Traffic Noise Levels Along Area Roads Affecting Residences in the City of Sacramento**

| Roadway Segment | Nearby Receptors | $L_{dn}/CNEL$ (dBA) 50 ft from Centerline of Near Travel Lane | | |
|-----------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------|----------|
| | | Baseline | Baseline + PP with Overpass | Increase |
| Elkhorn Boulevard between SR 70/99 and E. Commerce Parkway | Residential dwellings approved at Natomas Creek | 73.0 | 74.0 | 0.9 |
| Elkhorn Boulevard east of E. Commerce Parkway | Residential dwellings approved at Natomas Town Center | 71.8 | 72.9 | 1.2 |
| E. Commerce Parkway between Elkhorn Boulevard and Del Paso Road | Residential dwellings approved at Natomas Town Center and Natomas Creek | 66.9 | 70.2 | 3.3 |
| SR 70/99 between Elkhorn Boulevard and the I-5 Split | Residential dwellings approved at Natomas Creek | 80.5 | 81.1 | 0.6 |

Notes: Traffic noise levels were predicted using the FHWA Traffic Noise Model based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data generated by JKM Transportation Consultants used to prepare the traffic section for this DEIR. Modeled estimates assume no natural or human-made shielding (e.g., vegetation, berms, walls, buildings). Refer to Appendix G for modeling input assumptions and output results.
Source: Modeling performed by EDAW in 2005

Sensitive Receptors in Unincorporated Sacramento County

Project-generated traffic would also result in traffic noise increases at residential dwellings located in unincorporated areas of Sacramento County. Table 6.3-12 summarizes the modeling results for road segments that pass by residential land uses located in unincorporated Sacramento County that would be affected by project-generated traffic. The values in Table 6.3-12 indicate the daily level of traffic noise at the nearest sensitive receptors under baseline conditions with and without the proposed project.

| Roadway Segment | Location of Nearby Receptors | L _{dn} /CNEL (dBA) at Receptor | | |
|--------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------|--------------------------------|----------|
| | | Baseline | Baseline + PP with Overpass | Increase |
| Lone Tree Road south of Elkhorn Boulevard | House located 50 feet west of centerline of Lone Tree Road | 61.4 | 69.1 | 7.7 |
| W. Elverta Road east of Power Line Road | House located 90 feet south of centerline of W. Elverta Road | 55.6 | 56.3 | 0.7 |
| Power Line Road between Elkhorn Boulevard and Del Paso Road | House located 80 feet east of centerline of Power Line Road | 58.8 | 64.9 | 6.1 |
| Elkhorn Boulevard between Power Line Road and Lone Tree Road | House located 575 feet south of centerline of Elkhorn Boulevard | 42.8 | 56.3 | 13.5 |
| | Two Houses located 175 feet south of centerline of Elkhorn Road | 47.9 | 61.3 | 13.5 |

Notes: Traffic noise levels were predicted using the FHWA Traffic Noise Model based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data generated by TJKM Transportation Consultants used to prepare the traffic section for this DEIR. Modeled estimates assume no natural or human-made shielding (e.g., vegetation, berms, walls, buildings). Refer to Appendix G for modeling input assumptions and output results.
Source: Modeling performed by EDAW in 2005

As shown by Table 6.3-12, project-generated traffic would cause the traffic noise level to exceed the County's 60 dBA L_{dn}/CNEL standard along three of the five road segments and five of the receptors would experience an increase in traffic noise levels that is greater than 4 dBA. For these reasons, exterior noise levels produced by project-generated traffic noise would result in a **significant** impact at five existing residences in unincorporated Sacramento County. None of the residences located along the modeled road segments, however, would be exposed to interior noise levels that exceed the Title 24 interior noise threshold of 45 dBA L_{dn}/CNEL. The resultant exterior noise level at each receptor shown in Table 6.3-12 would be less than 70 dBA L_{dn}/CNEL and, assuming a typical exterior-to-interior noise reduction of a minimum of 25 dBA, the interior noise levels at each receptor would be less than 45 dBA L_{dn}/CNEL. Therefore, interior noise levels would be **less than significant**.

Mitigation Measure 6.3-2: (City of Sacramento and LAFCo)

The project applicant shall implement the following measures to reduce the exposure of existing sensitive receptors to project-generated traffic noise levels.

- a. As individual facilities and elements of the proposed project are permitted by the City, the City shall evaluate each for compliance with the County's exterior noise standard and the substantial increase threshold [i.e., relative to existing levels attributed to existing year 2005 traffic volumes (Section 6.1, "Transportation and Circulation")] for transportation noise sources at the existing residences in unincorporated Sacramento County located along Lone Tree Road south of Elkhorn Boulevard (house is 50 feet west of centerline of Lone Tree Road), Power Line Road between Elkhorn Boulevard and Del Paso Road (house is located 80 feet

east of centerline of Power Line Road), and Elkhorn Boulevard between Power Line Road and Lone Tree Road (houses are located 575 feet south of centerline of Elkhorn Boulevard and 175 feet south of centerline of Elkhorn Road). Where traffic noise levels generated by individual projects do not clearly comply with the County's exterior noise standards or result in a substantial increase in ambient noise levels at these locations, the City shall offer the owners of the affected residences the installation of solid barriers (e.g., berms, wall, and/or fences) along their affected property line. Actual installation of the barriers/fences would either be funded by, or completed by the project applicant. The barriers/fences must be constructed of solid material (e.g., wood, brick, or adobe) and be of sufficient density and height to minimize exterior noise levels. The barriers/fences shall blend into the overall landscape and have an aesthetically pleasing appearance that agrees with the color and character of nearby residences, and not become the dominant visual element of the community. Where there is a question regarding premitigation or postmitigation noise levels in a particular area, site-specific noise studies/modeling may be conducted to determine compliance or noncompliance with standards. Funding for the installation of this mitigation measure shall be provided by the project applicant.

The County allows for an exterior noise level of up to 65 dBA CNEL/L_{dn} provided that practical exterior noise level reduction measures are implemented. The installation of noise barriers/fences could achieve an approximate 5 dB noise level reduction where the line-of-sight from the nearby roadways to the existing residences would be broken and 1.5 dB of additional noise level reduction for each meter of barrier height beyond the line-of-sight. Thus, a 5 to 10 dB noise reduction could be achieved, resulting in the reduction of traffic-generated noise levels at existing sensitive receptors to levels less than the 65 dBA standard. However, the placement of barriers/fences could be considered infeasible due to their effect on the aesthetic character of these roadways, the spacing between the existing residences and nearby roadways, and the presence of driveways which would prohibit a continuous structure. In addition, even with implementation of the above measure and the reduction of noise levels to below the standard, a substantial increase could still result along Elkhorn Boulevard, where project implementation would result in an approximate 13.5 dB increase. As a result, this impact would remain *significant and unavoidable*.

Significance After Mitigation

While Mitigation Measure 6.3-2 would substantially lessen exterior noise levels at nearby sensitive receptors, noise levels would still be substantially increased, and the feasibility of the mitigation to reduce all significant noise impacts is unknown. Therefore, this impact would remain *significant and unavoidable*.

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| IMPACT 6.3-3 |
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Stationary and Area-Source Noise. Noise levels generated by stationary- and area-noise sources on the project site would not exceed the Noise Control Standards of the City of Sacramento and County of Sacramento Code at existing nearby noise-sensitive land uses. This would be a less-than-significant impact of the proposed project.

The proposed project would include residential development, an elementary school, neighborhood parks, and retail, office, and commercial space introducing new noise sources to the area. All portions of the project boundary border agricultural lands or freeway corridors. The only noise-sensitive receptors close to the project site are the two farm houses located approximately 55 feet west of the site's western boundary across from Lone Tree Road near the site's northwest corner. These receptors would be buffered from new noise sources on the project site, in part, by Lone Tree Canal and conservation easement that would be established along the west side of the project site. The width of the canal and easement corridor would be approximately 250 feet. In addition, the project would develop three-story residential buildings just east of the buffer area that would act as a sound barrier protecting these off-site receptors from noise generated on the rest of the project site.

Noise typically associated with residential development, such as lawn and garden equipment, voices, amplified music, and HVAC, would not increase ambient noise levels at the off-site

receptors located 250 feet away. For instance, HVAC system located on a rooftop typically produces a noise level of 61 dBA L_{eq} at a distance of 50 feet (County of Sacramento 1993). At a distance of 250 feet, this noise level would attenuate to 47 dBA L_{eq} , below the City and County's daytime standards.

Noise generated at the neighborhood parks proposed on the site, such as noise from recreational activities or landscape maintenance equipment, would also not affect these off site receptors as the nearest park would be a minimum of 800 feet away and would not have a direct line of site to the off-site receptors. This would also be the case for the elementary school, which would have similar noise sources and would be located greater than 4,000 feet away, as well as noise generated by office, commercial, and retail land uses (e.g., loading dock activities, parking lot noise), all of which would be located on the eastern half of the project site greater than 3,000 feet away.

The loudest activity near the off-site noise-sensitive receptors would most likely be garbage collection activity. As at most medium- and high-density residential units, trash would be collected from large refuse dumpsters, possibly multiple times each week. The residents of the existing nearby single-family homes are not currently subject to this type of noise because they are located in a low-density area that is not served with large trash dumpsters. Although noise generated by trash collection would likely not increase hourly L_{eq} levels or CNEL levels near the project site, the increased frequency of single-event noise levels generated by trash collection activities could adversely affect the nearby off-site residences. Noise levels generated by garbage collection reach as high as 89 dBA L_{max} from a distance of 50 feet with frequent occurrence of single-event noise levels exceeding 80 dBA (EDAW 2004). These noise levels are sometimes generated high off the ground as a hydraulic lift shakes trash from the dumpster into the truck. At a distance of 305 feet, the loudest maximum noise level generated by garbage collection would attenuate to 73 dBA L_{max} , below the City and County's daytime "not-to-exceed" standard (Table 6.3-9) of 75 dBA L_{max} . Furthermore, the residential buildings located on this side of the project site would often obstruct a direct line of site between the garbage trucks and the off-site receptors, providing additional attenuation. Therefore, noise generated by stationary and areas noise sources on the project site would not exceed any of the noise control standards of the City of Sacramento and County of Sacramento Code (Table 6.3-9), resulting in a *less-than-significant* impact.

No mitigation measures are required.

**IMPACT
6.3-4**

Land Use Compatibility of Proposed Residential and School Uses with On-site Daily and Hourly Average (L_{dn} /CNEL and L_{eq}) Noise Levels. *With implementation of the proposed project, residential land uses (sensitive receptors) proposed on the project site would be exposed to future noise levels generated by area traffic that exceed applicable noise standards. Traffic noise along the bordering segments of I-5, SR 70/99, Elkhorn Boulevard, Lone Tree Road, and on-site Meister Way is estimated to exceed the City's 60 dBA L_{dn} /CNEL exterior noise standard in backyards of single-family homes proposed by the project. Also, the interiors of residential land uses located along these transportation routes would be exposed to interior noise levels that exceed applicable maximum interior noise level standards established by the City of Sacramento General Plan. Therefore, exposure of proposed residential land uses to noise generated by traffic would be a **significant** impact.*

As previously discussed, noise levels within the project area are influenced by traffic noise associated with vehicle traffic on area roadways, light rail operations, aircraft operations associated with nearby Sacramento International Airport, and agricultural operations on adjacent properties. The levels of noise typically associated with these sources and their compatibility with the proposed sensitive land uses are discussed separately below.

Proposed Residential Uses

Vehicular Traffic

For determination of land use compatibility, predicted traffic noise contours (in dBA CNEL) of area roadways were modeled for future-plus-project conditions (Table 6.3-13 and Exhibit 6.3-5) and calibrated to reflect project specific conditions. Future traffic noise contours were modeled using the FHWA Traffic Noise Prediction Model (FHWA 1988) and are based on the trip distribution estimates obtained from the traffic analysis prepared for this project. Table 6.3-13 summarizes the distances from each roadway centerline to the 55, 60, 65, and 70 dBA L_{dn} /CNEL contours for future plus project conditions. The predicted noise contour distances shown in Table 6.3-13 and Exhibit 6.3-5 do not take into account shielding or reflection of noise from existing or future planned structures or topography. Actual noise levels would vary from day to day, depending on factors such as local traffic volumes, shielding from existing structures, variations in attenuation rates resulting from changes in surface parameters, and meteorological conditions.

**Table 6.3-13
Predicted Traffic Noise Contours under Future Plus Project Conditions**

| Scenario/Roadway Segments | Distance (feet) From Roadway Centerline to Exterior Noise Contour (dBA) | | | |
|-------------------------------------------------------|-------------------------------------------------------------------------|-------------------|-------------------|-------------------|
| | 70 L_{dn} /CNEL | 65 L_{dn} /CNEL | 60 L_{dn} /CNEL | 55 L_{dn} /CNEL |
| I-5 west of SR 70/99 Split | 219 | 472 | 1,003 | 4,635 |
| SR 70/99 between Elkhorn Boulevard and I-5 Split | 216 | 465 | 1,000 | 2,150 |
| Elkhorn Boulevard between Lone Tree Road and SR 70/99 | 190 | 404 | 868 | 1,868 |
| Lone Tree Road south of Elkhorn Boulevard | 97 | 205 | 439 | 944 |
| Meister Way (on the project site) ¹ | 60 | 128 | 275 | 591 |

Note: Traffic noise levels were calculated using the FHWA Noise Prediction Model (FHWA 1988) based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data prepared for this project and calibrated to reflect project specific. Modeling assumes no natural or human-made shielding (e.g., vegetation, berms, walls, buildings). Contour distances of "0" are within roadway right-of-way.

¹Meister Way currently does not exist and would not be constructed under the No Project Alternative.

Source: Modeling performed by EDAW in 2005 and Calibration by Bollard Acoustical Consultants (Sawyer, pers. comm., 2006).

The City of Sacramento General Plan establishes 60 dBA L_{dn} as the exterior threshold at most sensitive receptors exposed to traffic noise. This threshold applies to the backyards of single-family homes and common outdoor use areas of multi-family residential developments (Table 6.3-8). Therefore, the 60 dBA L_{dn} /CNEL contour of each roadway is closely examined. The City of Sacramento General Plan also establishes an interior noise threshold of 45 dBA L_{dn} for single family homes and multi-family residences. Because the noise reduction from common building construction provides a minimum exterior-to-interior reduction of 25 dBA (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002), the 70 dBA L_{dn} /CNEL contour of each roadway is analyzed to determine whether traffic noise levels would exceed the City's maximum acceptable interior noise level standard of 45 dBA L_{dn} for new residential development.

As shown in Table 6.3-13, and Exhibit 6.3-5 freeway traffic from I-5 and SR 70/99 would be the predominant noise source for much of the project site with their 60 dBA L_{dn} /CNEL contours that extend 1,003 feet and 1,000 feet into the project site, respectively. The proposed noise-sensitive residential land uses are setback various distances from the major freeways and have varying degrees of exposure at the proposed outdoor activity areas. Thus, it is necessary to discuss noise impacts for each discrete location within the project site as shown in Exhibit 6.3-6.

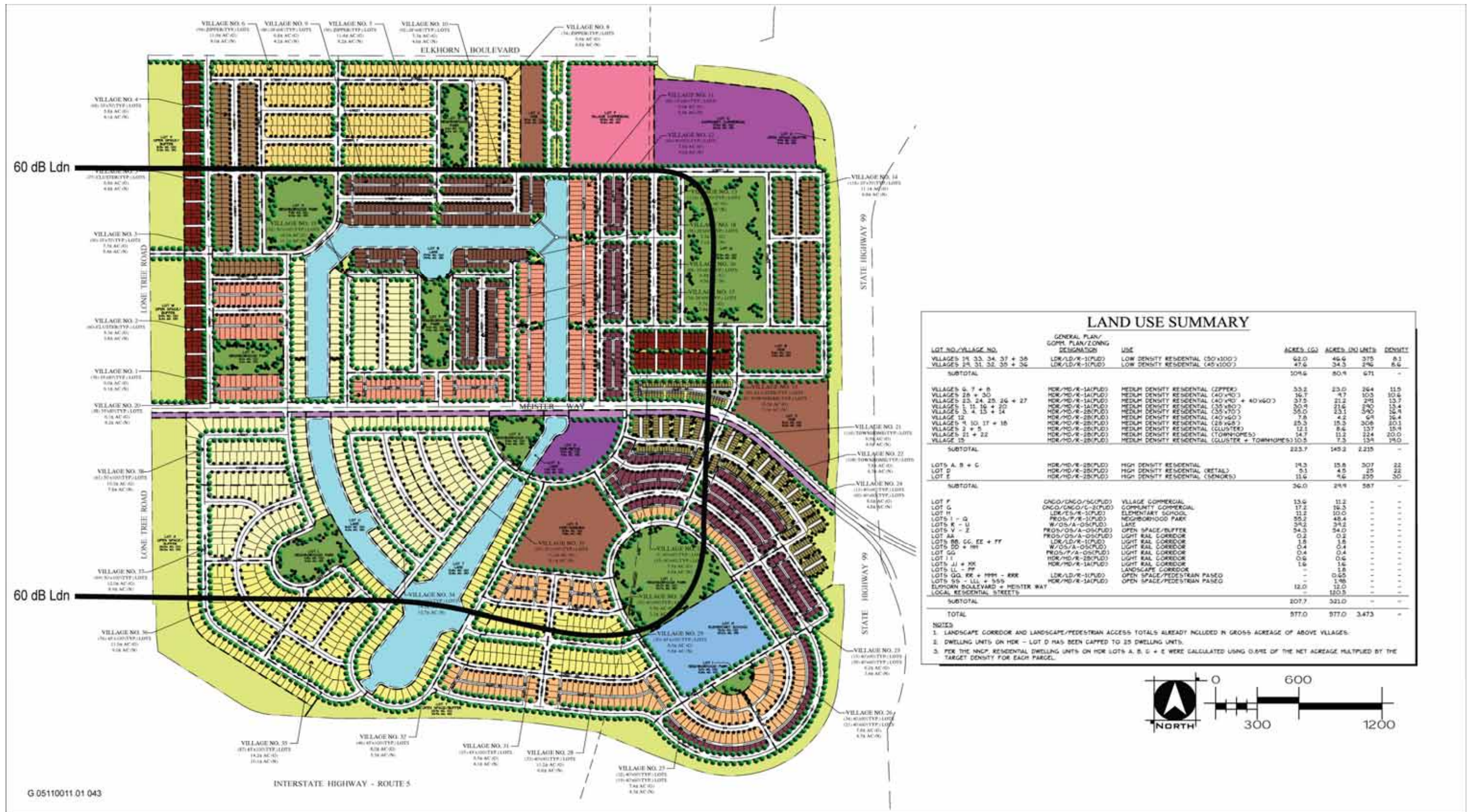
Noise-sensitive residential (low- and medium-density) land uses are proposed in the southeast portion of the project site (see Exhibit 6.3-6 for C1 noise impact study area). The extent of the 60 dBA $L_{dn}/CNEL$ contours of I-5 and SR 70/99 would likely be less than the distances shown in Table 6.3-13 due to attenuation provided by rows of buildings on the outer edge of the project site. For instance, the outer row of medium-density residential units in the southeast corner of the project site (as shown in Exhibit 6.3-6 that may be as much as three stories high, would provide some noise protection for the next row of land uses, low-density homes. However, the amount of noise protection provided by the first row of medium-density residential buildings is unknown, in part, because the interchange between I-5 and SR 70/99 is elevated approximately two stories high.

Generally, for an at-grade facility in an average residential area where the first row houses cover at least 40% of total area (i.e. no more than 60% spacing), the reduction provided by the first row is reasonably assumed at 3 dBA, and 1.5 dBA for each additional row (Caltrans 1998). For a facility area where the first row of houses or buildings are “packed” tightly (i.e., cover about 65-90% of total area, with 10-35% open space), the reduction provided by the first row of buildings is reasonably assumed to be 5 dBA, and 1.5 dBA for each additional row (Caltrans 1998). For these assumptions to be true, the first row of houses or buildings must be equal to or higher than the second row, which should be equal to or higher than the third row, etc. (Caltrans 1998). The outer row of medium-density residential land uses in the southwest corner of the site would have a tightly “packed” design; therefore a freeway noise attenuation of 5 dBA for the next row of low-density residential land uses would be provided, as shown in Exhibit 6.3-7, resulting in predicted backyard noise levels of approximately 68 dBA $L_{dn}/CNEL$ (Bollard Acoustical Consulting, Inc. 2006).

Similarly, freeway noise contours may encompass the backyards of single-family homes or the common outdoor use areas of multi-family residential developments proposed near the south and east sides (see Exhibit 6.3-6 for B, C2, D1, and E noise impact study areas), and the southwest corner of the project site (see Exhibit 6.3-6 for A noise impact study area). Even accounting for the reductions in freeway noise resulting from intervening building rows, the 60 dBA $L_{dn}/CNEL$ noise contours of both freeways would encompass one or more rows of residential land uses proposed along the south and east sides of the project site (e.g., predicted backyard noise levels ranging from approximately 60-69 dBA). In addition, because some of the proposed residences would have side-yard exposure to I-5 or SR 70/99 and oriented with backyard areas facing southwest toward I-5 (D1 and A noise impact study areas), they would not be appreciably shielded from traffic noise by the residential structure, as shown in Exhibit 6.3-7. Also, the draining opening identified in area B would create an acoustic opening permitting the transmission of excessive traffic noise from I-5 into the lake area and to nearby back yard spaces abut the lake area (Bollard Acoustical Consulting, Inc. 2006). Thus, some outdoor areas of residential land uses proposed on the site would be exposed to noise levels in exceedance of the “normally acceptable” 60 dBA $L_{dn}/CNEL$ standard of the City of Sacramento General Plan.

In addition, Table 6.3-13 indicates that the 70 dBA $L_{dn}/CNEL$ contour distances of I-5 and SR 70/99 would extend 219 feet and 216 feet, respectively. Because some residential buildings are proposed within one or both of these 70 dBA $L_{dn}/CNEL$ contours and exterior noise levels within this contour would be 70 dBA $L_{dn}/CNEL$ or greater, the City’s maximum acceptable interior noise level standard of 45 dBA L_{dn} for new residential development would also be exceeded.

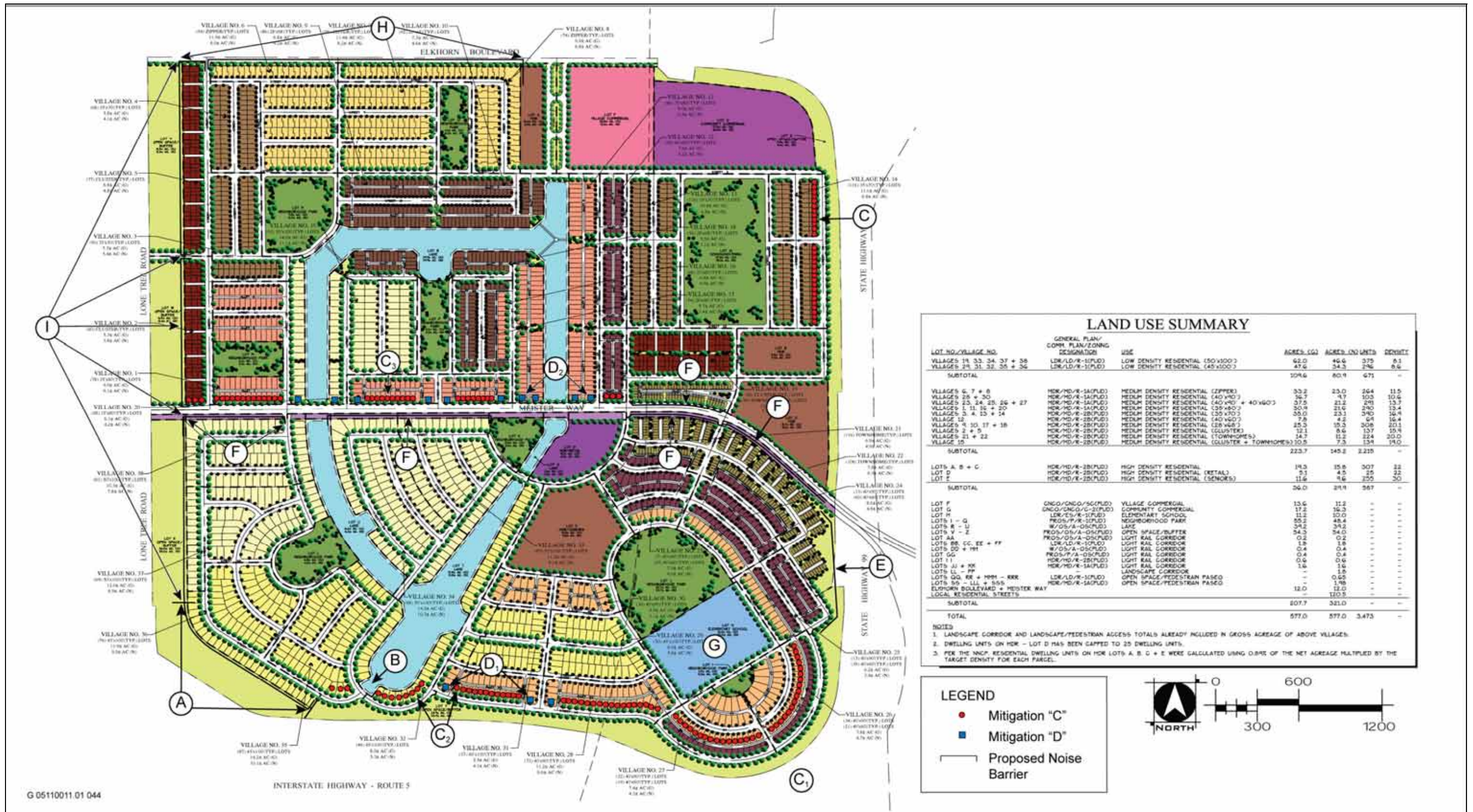
Meister Way would be the primary roadway located on the project site and would carry substantial traffic volume. As shown in Table 6.3-13, Meister Way would have a 60 dBA $L_{dn}/CNEL$ contour that extends approximately 275 feet from the road. The back yards of single family homes would be located on both sides of the road and would fall within this contour (see Exhibit 6.3-6 for C3, D2, and F noise impact study areas). With no intervening structures or



Source: Wood Rodgers 2005, Bollard Acoustical Consultants, Inc. 2006, EDAW 2005

Predicted Interstate 5, Highway 99, and Elkhorn Boulevard 60 dBA L_{dn}/CNEL Noise Contours under Future Plus Project Conditions

Exhibit 6.3-5



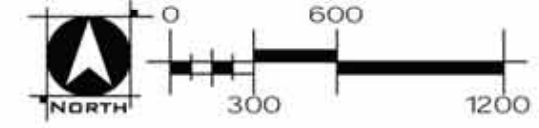
LAND USE SUMMARY

| LOT NO./VILLAGE NO. | GENERAL PLAN/ COMM. PLAN/ZONING DESIGNATION | USE | ACRES (G) | ACRES (N) | UNITS | DENSITY |
|----------------------------------------------------------|---------------------------------------------------|--------------------------------------------------|-----------|-----------|-------|---------|
| VILLAGES 19, 33, 34, 37 + 38 | LDR/LD/R-1(PUD) | LOW DENSITY RESIDENTIAL (50x500') | 62.0 | 46.6 | 375 | 6.1 |
| VILLAGES 25, 31, 32, 35 + 36 | LDR/LD/R-1(PUD) | LOW DENSITY RESIDENTIAL (45x500') | 47.6 | 34.3 | 346 | 8.6 |
| SUBTOTAL | | | 109.6 | 80.9 | 671 | - |
| VILLAGES 6, 7 + 8 | MDR/MD/R-1A(PUD) | MEDIUM DENSITY RESIDENTIAL (2PFR) | 33.2 | 23.0 | 264 | 11.5 |
| VILLAGES 28 + 30 | MDR/MD/R-1A(PUD) | MEDIUM DENSITY RESIDENTIAL (40x40') | 36.7 | 9.7 | 103 | 10.6 |
| VILLAGES 23, 24, 25, 26 + 27 | MDR/MD/R-1A(PUD) | MEDIUM DENSITY RESIDENTIAL (40x40' + 40x60') | 37.5 | 21.2 | 291 | 13.7 |
| VILLAGES 1, 11, 12 + 20 | MDR/MD/R-1A(PUD) | MEDIUM DENSITY RESIDENTIAL (35x40') | 30.9 | 21.6 | 290 | 13.4 |
| VILLAGES 3, 4, 13 + 14 | MDR/MD/R-2B(PUD) | MEDIUM DENSITY RESIDENTIAL (35x70') | 35.0 | 23.1 | 340 | 16.4 |
| VILLAGE 12 | MDR/MD/R-2B(PUD) | MEDIUM DENSITY RESIDENTIAL (40x70') | 7.8 | 4.2 | 64 | 16.4 |
| VILLAGES 4, 20, 17 + 18 | MDR/MD/R-2B(PUD) | MEDIUM DENSITY RESIDENTIAL (25x45') | 25.5 | 15.3 | 208 | 20.1 |
| VILLAGES 2 + 5 | MDR/MD/R-2B(PUD) | MEDIUM DENSITY RESIDENTIAL (CLUSTER) | 12.1 | 8.6 | 137 | 15.9 |
| VILLAGES 21 + 22 | MDR/MD/R-2B(PUD) | MEDIUM DENSITY RESIDENTIAL (TOWNHOMES) | 14.7 | 11.2 | 124 | 20.0 |
| VILLAGE 32 | MDR/MD/R-2B(PUD) | MEDIUM DENSITY RESIDENTIAL (CLUSTER + TOWNHOMES) | 10.8 | 7.3 | 131 | 19.0 |
| SUBTOTAL | | | 223.7 | 145.2 | 1,215 | - |
| LOTS A, B + C | MDR/MD/R-2B(PUD) | HIGH DENSITY RESIDENTIAL | 19.3 | 15.6 | 507 | 32 |
| LOT D | MDR/MD/R-2B(PUD) | HIGH DENSITY RESIDENTIAL (RETAIL) | 5.1 | 4.5 | 25 | 32 |
| LOT E | MDR/MD/R-2B(PUD) | HIGH DENSITY RESIDENTIAL (SENIORS) | 11.6 | 9.6 | 250 | 30 |
| SUBTOTAL | | | 36.0 | 29.7 | 567 | - |
| LOT F | CNCO/CNGO/SC(PUD) | VILLAGE COMMERCIAL | 13.6 | 11.2 | - | - |
| LOT G | CNGO/CNGO/SC-2(PUD) | COMMUNITY COMMERCIAL | 17.2 | 16.3 | - | - |
| LOT H | LDR/ES/R-1(PUD) | ELEMENTARY SCHOOL | 11.2 | 10.0 | - | - |
| LOTS I - Q | PROS/P/R-1(PUD) | NEIGHBORHOOD PARK | 55.2 | 48.4 | - | - |
| LOTS R - U | R/OB/A-OS(PUD) | LAKE | 34.2 | 34.2 | - | - |
| LOTS V - Z | PROS/OB/A-OS(PUD) | OPEN SPACE/BUFFER | 24.5 | 24.0 | - | - |
| LOT AA | PROS/OB/A-OS(PUD) | LIGHT RAIL CORRIDOR | 0.2 | 0.2 | - | - |
| LOTS BB, CC, EE + FF | LDR/LD/R-1(PUD) | LIGHT RAIL CORRIDOR | 1.8 | 1.8 | - | - |
| LOTS GG + HH | R/OB/A-OS(PUD) | LIGHT RAIL CORRIDOR | 0.4 | 0.4 | - | - |
| LOT II | MDR/MD/R-2B(PUD) | LIGHT RAIL CORRIDOR | 0.6 | 0.6 | - | - |
| LOTS JJ + KK | MDR/MD/R-1A(PUD) | LIGHT RAIL CORRIDOR | 1.8 | 1.8 | - | - |
| LOTS LL - PP | - | LANDSCAPE CORRIDOR | - | 1.8 | - | - |
| LOTS QQ, RR + SSS - RRR | LDR/LD/R-1(PUD) | OPEN SPACE/PEDESTRIAN PASSE | - | 0.65 | - | - |
| LOTS SS - UUU + VVV | MDR/MD/R-1A(PUD) | OPEN SPACE/PEDESTRIAN PASSE | - | 1.95 | - | - |
| ELKHORN BOULEVARD + HESTER WAY LOCAL RESIDENTIAL STREETS | - | - | 12.0 | 12.0 | - | - |
| SUBTOTAL | | | 207.7 | 221.0 | - | - |
| TOTAL | | | 577.0 | 577.0 | 3,473 | - |

NOTES:
 1. LANDSCAPE CORRIDOR AND LANDSCAPE/PEDESTRIAN ACCESS TOTALS ALREADY INCLUDED IN GROSS ACREAGE OF ABOVE VILLAGES.
 2. DWELLING UNITS ON HDR - LOT D HAS BEEN CAPPED TO 25 DWELLING UNITS.
 3. PER THE NACP, RESIDENTIAL DWELLING UNITS ON HDR LOTS A, B, C + E WERE CALCULATED USING 0.8% OF THE NET ACREAGE MULTIPLIED BY THE TARGET DENSITY FOR EACH PARCEL.

LEGEND

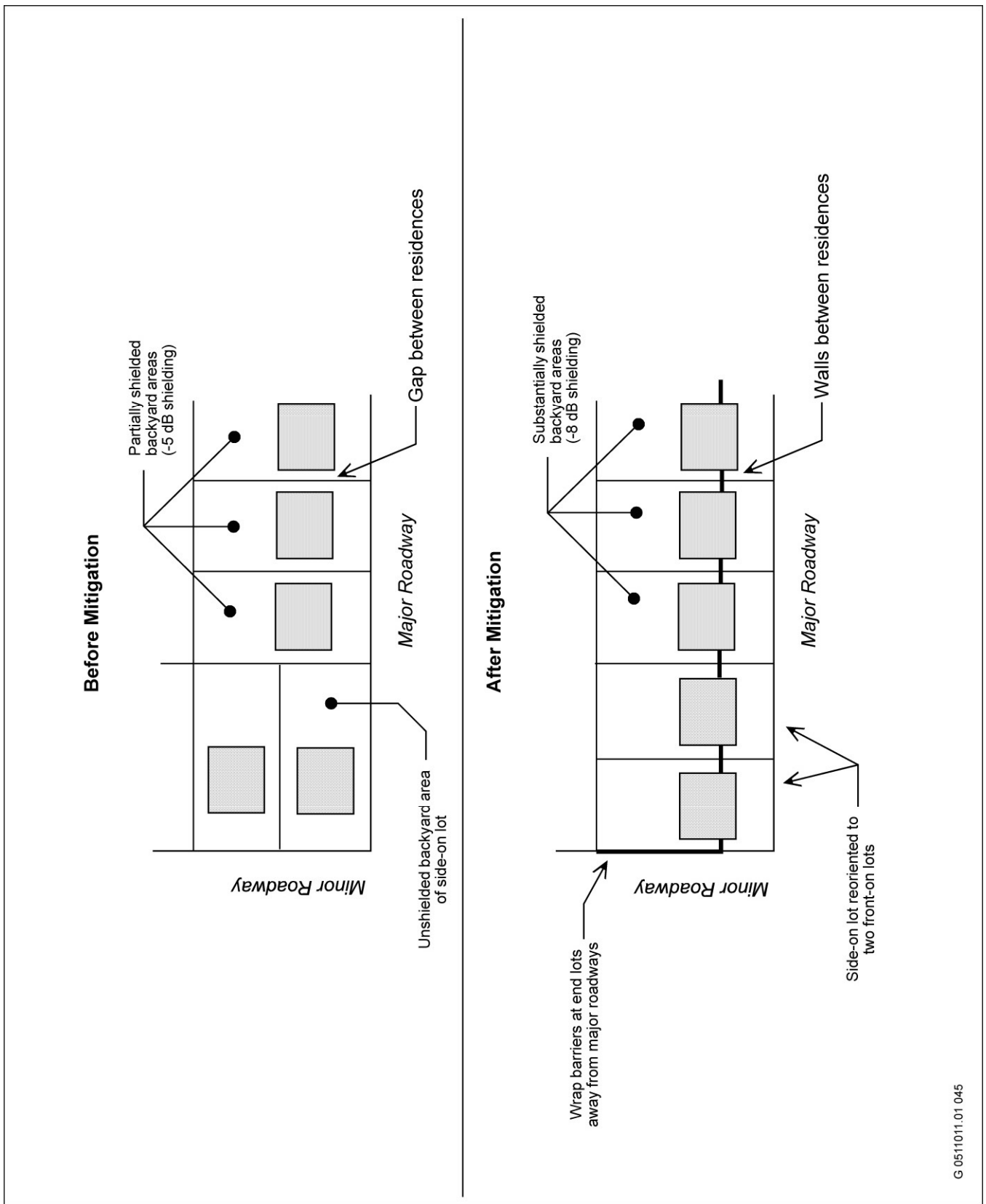
- Mitigation "C"
- Mitigation "D"
- Proposed Noise Barrier



Source: Wood Rodgers 2005, Bollard Acoustical Consultants, Inc. 2006

Noise Impact Study Areas and Mitigation

Exhibit 6.3-6



Source: Bollard Acoustical Consultants, Inc. 2006

Example Noise Mitigation for Lots Adjacent to Major Roadways

Exhibit 6.3-7

sound barrier, these homes would be exposed to exterior noise levels that exceed the City's maximum acceptable exterior noise level standard of 60 dBA L_{dn} for new residential development (Table 6.3-8). None of these homes, however, would be located within the 70 dBA L_{dn} /CNEL exterior noise contour that extends approximately 60 feet from the centerline of the road, which means that interior noise levels at these residences would not exceed the City's maximum acceptable interior noise level standard of 45 dBA L_{dn} .

Noise-sensitive land uses proposed on the site would also be exposed to traffic noise generated on local roads. As shown in Table 6.3-13 and Exhibit 6.3-5, the segment of Elkhorn Boulevard between Lone Tree Road and SR 70/99 would have a 60 dBA L_{dn} /CNEL contour that extends approximately 868 feet from the road. The back yards of the single-family homes proposed inside this noise contour would be exposed to traffic noise levels that exceed the City's maximum acceptable exterior noise level standard of 60 dBA L_{dn} for new residential development (Table 6.3-8), though noise levels 868 feet from the road may be lower because of attenuation provided by the homes closest to the road (see Exhibit 6.3-6 for H noise impact study area). The 70 dBA L_{dn} /CNEL of this segment of Elkhorn Boulevard would extend approximately 190 feet from the roadway centerline and would encompass all or some of the homes proposed along the north side of the project site. Because the noise reduction from common residential building construction provides a minimum exterior-to-interior reduction of 25 dBA (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002), interior noise levels inside these residences could exceed the City's maximum acceptable interior noise level standard of 45 dBA L_{dn} for new residential development (Table 6.3-8).

The segment of Lone Tree Road along the west side of the project site would have a 60 dBA L_{dn} /CNEL traffic noise contour that extends approximately 439 feet from the centerline of the roadway. Though single-family homes along the west side of the site would be separated by 250 feet from the road (because of Lone Tree Canal and the proposed conservation easement) some of their back yards would abut the conservation easement and be located inside the 60 dBA L_{dn} /CNEL traffic noise contour and therefore exposed to traffic noise levels that exceed the City's maximum acceptable exterior noise level standard of 60 dBA L_{dn} for new residential development (Table 6.3-8) (see Exhibit 6.3-6 for I noise impact study area). The exterior 70 dBA L_{dn} /CNEL traffic noise contour would not extend as far as the residential land uses (i.e., approximately 97 feet) and, therefore, they would not be exposed to noise levels that exceed the City's maximum acceptable interior noise level standard of 45 dBA L_{dn} for new residential development.

With implementation of the project, sensitive receptors (i.e., residences) proposed on the project site would be exposed to future noise levels generated by area traffic that exceed applicable noise standards. This would be a *significant* impact.

Light Rail Noise

The City of Sacramento General Plan's exterior noise standard at residential land uses for noise generated by rail activity is 60 dBA CNEL. A Sacramento Regional Transit light rail line is proposed to run along the south side of Meister Way on the project site. The tracks would be located in close proximity to the back yards of single family homes immediately to the south. As part of the light rail line, grade crossings with signal bells would be developed on the project site. Light rail service generally runs from 5:30 a.m. to 12:30 a.m. each day, every 15 minutes during the morning and evening commute hours, and every 30 minutes during the other operating hours.

Based on noise modeling previously conducted for the existing light rail line along the Sacramento Folsom Corridor, wayside noise levels generated by light rail trains average

approximately 60 dBA L_{dn} /CNEL at 50 feet (Sacramento Regional Transit 2000). Noise would also be generated by signal crossings. Signal bells used at grade crossings typically operate for periods of approximately 15 to 30 seconds and generate intermittent noise levels (i.e., less than 1 second in duration) of approximately 73 dBA L_{max} at 50 feet (Sacramento Regional Transit 2000). Thus, residential land uses located within 50 feet would be exposed to exterior noise levels generated by light rail trains that exceed the City's maximum acceptable exterior noise standard of 60 dBA L_{dn} for new residential development (Table 6.3-8).

Because the noise reduction from common residential building construction provides a minimum exterior-to-interior reduction of 25 dBA (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002), noise levels generated by light rail noise would not exceed the City's maximum acceptable interior noise level standards inside these residences, including the interior L_{dn} standard of 45 dBA, and the maximum instantaneous standards of 50 dBA in bedrooms and 55 dBA in other habitable rooms (Table 6.3-8). With implementation of the project, sensitive receptors proposed on the project site would be exposed to future exterior noise levels generated by light rail operations that exceed applicable noise standards. This would be a *significant* impact.

Aircraft Noise

The City of Sacramento General Plan's exterior noise standard at residential land uses for noise generated by aircraft activity associated with a metropolitan airport is 60 dBA CNEL (Table 6.3-8). As shown in Exhibit 6.3-3, the 60 dBA CNEL aircraft noise contour associated with implementation of the project does not encompass any portion of the project site and is located more than 1,900 feet away to the site's west boundary. Therefore, aircraft noise levels at all of the land uses proposed on the project site would be considered "normally acceptable" with respect to the City of Sacramento General Plan Land Use Compatibility Noise Levels (Table 6.3-7).

However, because CNEL noise levels essentially represent a weighted daily average, there is an argument that CNEL metrics may not adequately identify some aspects of noise exposure effects from individual flights such as speech interference and sleep disturbance (California Division of Aeronautics 2002). For instance, Tables 6.3-3 and 6.3-4 show maximum noise levels (L_{max}) measured on the project site from commercial and military aircraft that exceed the City of Sacramento's instantaneous noise level standards of 50 dBA L_{max} in bedrooms and 55 dBA L_{max} in other habitable rooms of both single-family and multi-family residences (Table 6.3-8). However, according to City of Sacramento General Plan, the interior noise level standards for residential dwellings only apply if the exterior L_{dn} exceeds 60 dBA (as explained by note 'b' to Table 6.3-8).

Because the project site is located more than 1,900 feet from the future projected 60 dBA CNEL contour for Sacramento International Airport, the proposed project is defined as compatible with the overall aircraft noise exposure from the airport, and under this criteria the proposed project is considered to be a *less-than-significant* impact. The exposure of residents on the project site to SENL from aircraft overflights and resulting annoyance, due to occasional speech interruption and sleep disturbance is discussed below in Impact 6.3-5.

Agricultural Operations

Agricultural activities near the northern and western boundaries of the project area include the use of various types of heavy equipment. Operation of heavy agricultural equipment typically generates noise levels of approximately 75 dBA L_{eq} at 50 feet (EPA 1971). The project has been designed with an open space buffer/conservation easement along the west side of the project site. The combined width of the conservation easement, Lone Tree Road, and the irrigation canal west of the project site provide a buffer that measures at least 300 feet between the nearest proposed residences

and agricultural land uses to the west. At this distance, noise generated by the operation of heavy agricultural equipment would attenuate to 59.4 dBA L_{eq} . The closest residences would not be exposed to this noise level for extended periods, given the mobile nature of agricultural operations (e.g., disking, plowing, haying). If, for instance, residences were exposed to for one full daytime hour in a day and ambient noise levels were 50 dBA L_{eq} during the rest of the day, then the 24-hour noise level would be 57.0 dBA CNEL, which is below the City of Sacramento's "normally acceptable" land use compatibility standard for residential land uses (Table 6.3-7).

The single-family homes that would be located along the north boundary of the project site would be separated from agricultural operations by the Elkhorn Boulevard, which would be widened to 125 feet with six traffic lanes, a median, bike lane, sidewalk, and landscaping, as recommended in Mitigation Measure 6.1-26 in Section 6.1, "Transportation and Circulation." At this distance, noise levels generated by agricultural operations would attenuate to 67.0 dBA L_{eq} . Just one hour of daytime exposure to this noise level would result in a 24-hour noise level of 58.3 dBA CNEL, which is below the City of Sacramento's "normally acceptable" land use compatibility standard for residential land uses (Table 6.3-7). As a result, the exposure of residential land uses located along the western and northern boundaries of the project site to noise generated by off-site agricultural operations would be a *less-than-significant* impact.

Proposed School

Agricultural activities would occur near the northern and western boundaries of the project area and not by the proposed school site in the southeast corner, and thus, are not included in the discussion below.

The City of Sacramento General Plan establishes 60 dBA L_{dn} as the exterior threshold at school grounds (Table 6.3-8). The City of Sacramento General Plan also establishes an interior noise threshold of 40 dBA L_{eq} for schools during the noisiest hour of the school day. Though compliance is only voluntary unless specified by a code, ordinance or regulation, the American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools (ANSI Standard 12.60-2002) also recommends a maximum 1-hour unsteady (e.g., transportation source noise) background noise level of 40 dBA L_{eq} (Acoustical Society of American 2002).

Predicted traffic noise levels, not attenuated by intervening structures, at the proposed elementary school site (see Exhibit 6.3-6 for G noise impact study area), which is located 545 feet from I-5 and 548 feet from SR 70/99, would range from approximately 60 dBA to 65 dBA L_{dn} /CNEL (Table 6.3-13 and Exhibit 6.3-5). However, the school would be protected by a minimum of two rows of residential buildings. The amount of noise protection provided by these intervening structures would include a 5 dBA reduction from the outer row of medium-density residential dwellings, and an additional 1.5 dBA from the second row of low-density residences. In addition, the school site would be protected by as many as four rows of residential buildings, which would provide a combined 9.5 dBA attenuation. These reductions would essentially reduce noise levels to below the "normally acceptable" 60 dBA L_{dn} /CNEL standard of the City of Sacramento General Plan. Because the noise reduction from common building construction provides a minimum exterior-to-interior reduction of 25 dBA (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002) and that the peak L_{eq} is typically 2-4 dBA lower than the L_{dn} /CNEL for high-traffic freeways, 67 dBA L_{dn} /CNEL is used to evaluate whether traffic noise levels would exceed the City's maximum acceptable interior noise level standard of 40 dBA L_{eq} for schools during their noisiest hour (Table 6.3-8). Thus, because traffic noise levels would be reduced to at least 58.5 dBA CNEL (~ 31.5 dBA L_{eq}) when considering the intervening buildings, an exceedance of

the City of Sacramento's noisiest-hour interior standard of 40 dBA L_{eq} would not be anticipated in any school buildings proposed on the elementary school site.

With respect to aircraft noise, as shown in Exhibit 6.3-3, the 55 dBA CNEL aircraft noise contour would be located just to the west of the proposed school site and would not exceed the 60 dBA L_{dn} as the exterior threshold at school grounds (Table 6.3-8). Because the noise reduction from common building construction provides a minimum exterior-to-interior reduction of 25 dBA (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002) and that the peak L_{eq} is typically 3-4 dBA higher than the L_{dn} /CNEL for operations where activities occur primarily during the daytime hours, 61 dBA L_{dn} /CNEL is used to evaluate whether aircraft noise levels would exceed the City's maximum acceptable interior noise level standard of 40 dBA L_{eq} for schools during their noisiest hour (Table 6.3-8). Thus, because aircraft noise levels would not exceed 55 dBA CNEL (~ 34.0 dBA L_{eq}) an exceedance of the City of Sacramento's noisiest-hour interior standard of 40 dBA L_{eq} would not be anticipated in any school buildings proposed on the elementary school site. The exposure of students on the project site to SENL from aircraft overflights and resulting annoyance, due to occasional speech interruption is discussed below in Impact 6.3-5.

Predicted rail noise levels at the proposed school site, which is located 900 feet from the proposed Sacramento Regional Transit would be less than 40 dBA L_{dn} /CNEL, based on the reference noise level of 60 dBA at 50 feet mentioned above, and would not exceed the 60 dBA L_{dn} as the exterior threshold at school grounds (Table 6.3-8). In addition, the school site would be protected by as many as four rows of residential buildings, which would provide a combined 9.5 dBA attenuation resulting in noise levels well below the 40 dBA mentioned above. In addition, based on the typical minimum exterior-to-interior reduction of 25 dBA (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002), noise from the proposed rail line would not exceed the applicable interior standard.

Though compliance is only voluntary unless specified by a code, ordinance or regulation, the ANSI Standard which recommends a maximum 1-hour unsteady (e.g., transportation source noise) background interior noise level of 40 dBA L_{eq} (Acoustical Society of American 2002) would also not be exceeded at the proposed school site based on the combination of all the hourly maximum noise levels (~36 dBA L_{eq}) discussed above from transportation sources. Likewise, the FAA standard which recommends a 45 L_{eq} (8-hour) interior standard for schools would also not be exceeded based on the peak hourly L_{eq} discussed above combined with the fact that this level would not occur for 8 hours of any given day. This would be a *less-than-significant* impact.

Mitigation Measure 6.3-4: (City of Sacramento and LAFCo)

The project shall implement the following measures before the occupancy of any proposed uses in the related impact areas, to reduce the exposure of sensitive receptors to significant noise associated with surface transportation (Bollard Acoustical Consultants, Inc. 2006):

- a. For noise impact/mitigation area A (see Exhibit 6.3-6), a solid (e.g., earth, concrete, masonry, wood, and other materials) noise barrier shall be constructed of 10 feet in height relative to backyard elevation at the residences located nearest to the southern boundary, stepping down linearly to 6 feet at its northwestern terminus. The wrapped portion of the barrier along the southeast corner shall also step down to 6 feet in height at its terminus.
- b. For noise impact/mitigation area B (see Exhibit 6.3-6), the drainage opening shall be shifted to the north by two lots to close the acoustic opening.
- c. For noise impact/mitigation area C (see Exhibit 6.3-6), the spaces between the residences shall be bridged with solid noise barriers (e.g., earth, concrete, masonry, wood, and other materials) of 6 feet in height, rather

than conventional wood privacy fences. Gates constructed for access into the rear yard spaces shall be constructed so as not to create appreciable acoustic leaks (e.g., constructed of solid wood, sealed to prevent sound and be continuous in length and height with minimal gap at the ground).

- d. For noise impact/mitigation area D (see Exhibit 6.3-6), all identified side-on residences shall be reoriented so that they face the roadways and the backyard spaces would be shielded by the residences. Following the reorienting of the side-on residences, the side space adjacent to the residences shall be bridged in same manner as specified above under c. Furthermore, the side yard privacy fences at end lots shall be replaced with solid noise barriers (e.g., earth, concrete, masonry, wood, and other materials) 7 feet in height to adequately shield backyard spaces.
- e. For noise impact/mitigation area E (see Exhibit 6.3-6), it would not be feasible to utilize the types of noise mitigation described above (e.g., walls between individual units), to achieve satisfaction with City noise standards due to the orientation and shape of the residences. As a result, a solid barrier (e.g., earth, concrete, masonry, wood, and other materials) consisting of a berm, a wall, or combination thereof, shall be constructed at the approximate location shown in Exhibit 6.3-6. The barrier shall be 10 feet in height relative to pad elevations of the residences behind the barrier.
- f. For noise impact/mitigation area F (see Exhibit 6.3-6), a solid noise barrier of 8 feet in height shall be constructed to adequately shield Meister Way traffic noise. In addition, because no discrete outdoor activity areas are identified with the higher density residential developments on the north and south sides of Meister Way near the eastern portion of the site, a solid barrier shall be constructed along both sides of Meister Way at these locations (see exhibit 6.3-6). Where Meister Way becomes elevated at the portion heading east over Highway 99, the barrier shall extend along the top of the cut (at the roadway elevation), to provide efficient shielding to the residences below.
- g. For noise impact/mitigation area H (see Exhibit 6.3-6), a solid noise barrier or berm/wall combination of 12 feet in height shall be constructed along Elkhorn Boulevard to adequately shield residences which back up to this roadway. In addition, because no discrete outdoor activity areas are identified with the higher density residential developments on the south side of Elkhorn at the northeast corner of the project site, a solid noise barrier or berm/wall combination of 12 feet in height shall be constructed along Elkhorn boulevard at these locations (see Exhibit 6.3-6). The barriers shall be extended inward along the project site access roads.
- h. For noise impact/mitigation area I (see Exhibit 6.3-6), a solid noise barrier of 6 feet in height shall be constructed along Lone Tree Road to adequately shield residences which back up to the canal east of and adjacent to this roadway.
- i. Prior to issuance of any building permits, site-specific acoustical analyses shall be conducted once construction plans are available for residential developments located with the 60 dBA L_{dn} contours (see Exhibit 6.3-5) to ensure satisfaction with the City of Sacramento interior noise level standards. The acoustical analyses shall evaluate exposure of proposed noise-sensitive receptors to noise generated by surface transportation sources, in accordance with adopted City of Sacramento interior noise standards (Table 6.3-8). These site-specific acoustical analyses shall also include site-specific design requirements to reduce noise exposure of proposed on-site receptors and all feasible design requirements shall be implemented into the final site design. Noise reduction measures and design features may include, but are not limited to the use of increased noise-attenuation measures in building construction (e.g., dual-pane, sound-rated windows; mechanical air systems; and exterior wall insulation). Given the predicted future traffic noise environment at the exterior facades of the residences nearest to Highway 99 and Interstate 5, upgrades to windows will likely be required at many residences, as well as the use of stucco siding or the acoustic equivalent. Implementation of these design measures would ensure interior noise levels meet the City's noise standards.

Significance After Mitigation

Noise barriers, as well any of the other above measures, would achieve an approximate 5 dB noise level reduction where the line-of-sight from the nearby roadways to the proposed residences would be broken and 1.5 dB of additional noise level reduction for each meter of barrier height beyond the line-of-sight. In addition, as shown in Exhibit 6.3-7, the partial shielding of backyards would result in an approximate 5 dB reduction; walls between residences an additional 3 dB, and the reorientation of side-on lots to front-on lots an 8 dB reduction.

Implementation of the above mitigation measures of items a through it would be effective in reducing interior and exterior noise levels of new development to *less-than-significant* levels (Bollard Acoustical Consultants, Inc. 2006).

IMPACT 6.3-5

Land Use Compatibility of Proposed Residences and School with On-site Aircraft SENL Noise Levels. *Exposure of the project site to SENLs generated by aircraft overflights could result in substantial annoyance to on-site sensitive receptors in the forms of speech interference and sleep disruption. Sleep disruption would be infrequent, and an overflight easement disclosing that the project would be subject to sleep and speech disruption would be required. This is a less-than-significant impact. However, students could be exposed to noise generated by aircraft overflights that would result in speech and classroom disruption; this would be a significant impact.*

As previously discussed, there is currently an on-going nationwide debate regarding the appropriateness of SENL criteria as a supplement or replacement for cumulative noise level metrics such as CNEL, a 24-hour noise descriptor. Because SENL describes a receiver's total noise exposure from a single impulsive event, SENLs are often used to characterize noise from aircraft takeoffs and flyovers. As shown in Tables 6.3-3, SENLs measurements from commercial aircraft on the project site ranged from 74.0 to 84.7 dBA SENL, and as shown in Table 6.3-4, multiple SENL measurements of military aircraft overflights exceeded 100 dBA SENL at a comparable location.

The City of Sacramento and County of Sacramento have not established any SENL standards and no definitive, widely-recognized, SENL guidelines currently exist nationwide. To the extent that there is any guidance regarding acceptable SENLs, the emphasis has been on physiological effects, not on land use planning (California Division of Aeronautics 2002). For example, the Federal Aviation Administration (FAA) has suggested that the threshold of speech interference is 60 dBA. Exposure to high SENLs, including those shown in Tables 6.3-3 and 6.3-4, would result in speech interference at proposed residential dwellings and school facilities. Similarly, the Federal Interagency Committee on Aviation Noise (FICAN) has provided estimates of the percentage of people expected to be awakened when exposed to specific SENLs inside a home (FICAN 1997). However, FICAN did not recommend a threshold of significance based on the percent of people awakened. One agency, the City of Los Angeles, adopted a significance threshold of 10 percent of the population being awakened once every 10 days (i.e., 1 percent of the population was awakened on any one day) for use in the LAX Master Plan EIR/EIS (City of Los Angeles 2004). However, the document specifically cautioned that the threshold was for use in the LAX EIR/EIS only and that the specific environment of LAX was used in the establishment of the thresholds. No other guidance or explanation of the rationale for this highly conservative threshold was provided.

According to the FICAN study, 10% of the population is estimated to be awakened when the SENL interior noise level of 81 dBA. An estimated 5 to 10 percent of the population is affected when the SENL interior noise level is between 64.8 and 81 dBA, and few sleep awakenings (less than 5 percent) are predicted if the interior SENL is less than 64.8 dBA.

Table 6.3-14 shows the percentage of sleep disturbance caused by aircraft type, represented as “awakenings.” The percentage of awakenings represents the maximum percent of the exposed sleeping population expected to be awakened, which is estimated using a formula devised by the Federal Interagency Committee on Aviation Noise (FICAN 1997). The number of awakenings is positively correlated with the SENL value. The analysis assumed that windows would be open. According to the City of Los Angeles EIR/EIS, interior noise levels with windows open are an estimated 13 dB less than outdoor noise levels (City of Los Angeles 2004); this same exterior-interior attenuation rate is assumed herein.

| Table 6.3-14 | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------|------------------|-------|------|
| Awakenings Associated with Measured Single Event Noise Levels | | | | | |
| Aircraft Model a | SENL (dBA) a | | Awakenings (%) b | | |
| | Exterior | Interior c | <10% | 5-10% | 0-5% |
| Commercial Aircraft | | | | | |
| BE58 | 74.0 | 61.0 | | | X |
| C501 | 77.1 | 64.1 | | | X |
| B737 | 82.6 | 69.6 | | X | |
| B737 | 77.6 | 64.6 | | | X |
| B733 | 79.0 | 66.0 | | X | |
| B733 | 73.9 | 60.9 | | | X |
| B733 | 76.2 | 63.2 | | | X |
| MD82 | 83.8 | 70.8 | | X | |
| MD82 | 84.7 | 71.7 | | X | |
| Military Aircraft (by agreement, military aircraft generally restrict their flights to 7:00am to 7:00 pm, so sleep disrupting events would be uncommon) | | | | | |
| C130 | 84.8 | 71.8 | | X | |
| C130 | 85.9 | 72.9 | | X | |
| C5 | 108.3 | 95.3 | X | | |
| C5 | 110.8 | 97.8 | X | | |
| KC10 | 76.3 | 63.3 | | X | |
| KC10 | 67.4 | 54.3 | | | X |
| KC10 | 68.0 | 55.0 | | | X |
| C5 | 108.3 | 95.3 | X | | |
| C5 | 101.0 | 88.0 | X | | |
| C5 | 83.5 | 70.5 | | X | |
| C5 | 79.5 | 66.5 | | | X |
| C5 | 108.1 | 95.1 | X | | |
| C5 | 100.5 | 87.5 | X | | |
| Notes: SENL measurements were collected in accordance with the American National Standards Institute acoustic standards (ANSI S12.9-2000/Part 6) using Larson Davis model 820 sound level meters. | | | | | |
| a The aircraft models and SENLs are the same as those in Table 6.3-3 (commercial) and Table 6.3-4 (military). | | | | | |
| b Awakenings represent the “maximum percent of the exposed population expected to be behaviorally awakened” while sleeping (FICAN 1997). EDAW calculated awakenings based on a mathematical curve established by the Federal Interagency Committee on Aviation Noise (FICAN 1997), which represents the upper limit of observed field data. | | | | | |
| c Assumes open windows. | | | | | |
| Source: SENL Data collected by EDAW on March 17, 2005 and January 9, 2006. | | | | | |

According to the data shown in Table 6.3-14, awakenings would be experienced by some occupants of residences proposed on the project site from aircraft activity, particularly during late evening and early morning hours. Furthermore, the number of average daily flights at Sacramento International Airport is projected to increase to 676 average daily flights in 2010 and 824 average daily flights in 2020 (Sacramento County Airport System Planning and Development Department 2004). Overflights are expected to increase in perpetuity over the project site (Newhouse, pers. comm., 2006).

As described in Table 6.3-14, military overflights would likely occur during the non-sleeping hours of 7:00 am to 7:00 pm, although they are not restricted from flying during nighttime hours.

Currently most flights occur between the hours of 6:00 a.m. and 11:00 p.m. each day, but some occur during late night and early morning hours and a similar distribution of flight activity throughout the 24-hour day is expected to continue in the future. Further, one aircraft not recorded during field visits is a Boeing 727 that flies each morning (delivery service) between 5:00 am and 6:00 am; according to airport staff, this aircraft is louder than any of the commercial aircraft recorded during field visits. (Newhouse, pers. comm., 2006)

While the data suggest that both awakenings and speech interference would be experienced by occupants of the proposed project, no government agency has suggested what frequencies of awakenings or speech disruption are acceptable (California Division of Aeronautics 2002). Furthermore, the threshold for sleep disturbance is less absolute because there is a high degree of variability from one person to another. Thus, the means of applying such research to land use decisions is not yet clear.

For these reasons, the Federal Interagency Committee on Noise (FICON) and the California Airport and Land Use Planning Handbook continue to use CNEL as the primary tool for the purpose of land use compatibility planning (California Division of Aeronautics 2002). In fact, the CNEL represents the cumulative exposure to all aircraft overflights; that is, the exposure of all SENLs taken together, weighed to add penalties for evening and nighttime occurrences, and averaged over a 24-hour period. Thus, it can be argued that the CNEL standards already account for the individual impacts associated with the SENLs. Even if the criteria used at LAX was applied here, it likely would suggest that significant impacts from overflights, as they relate to sleep disruption, would not occur because (with the exception of military overflights) aircraft operating at the project site does not appear to be producing sound levels that would awaken more than 10 percent of the population. Military overflights would be few to none during the nighttime period, so would not result in sleep disruption with any regularity.

Further, the applicant is proposing to dedicate an overflight easement over the entire project site. The exact wording of the easement is proposed to be agreed to by the applicant and SCAS. At a minimum, the overflight easement will grant a right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above an imaginary surface specified in the easement (usually set in accordance with Federal Aviation Regulation Part 77 criteria). The overflight easement will also grant a right to subject the property to noise and vibration associated with normal airport activity.

In addition, recorded deed notices are proposed to be required to ensure that initial and subsequent prospective buyers, lessees, and renters of property on the project site, particularly residential property, are informed that the project site is subject to routine overflights and associated noise by aircraft from Sacramento International Airport, that the frequency of aircraft overflights is routine and expected to increase through the year 2020 and beyond in accordance with the Sacramento International Airport Master Plan, and that such overflights could cause

occasional speech interference, sleep disruption that could affect more than 10 percent of all residents at any one time, and other annoyances associated with exposure to aircraft noise. The wording of the easement will also be agreed upon by the applicant and the SCAS. Furthermore, the applicant is proposing to require the posting of signs on all on-site real estate sales office and/or at key locations on the project site that alert the initial purchasers about the overflight easement and the required deed notices.

The overflight easement and recorded deed notices would not change the noise environment; however, they would notify people with above-average sensitivity to aircraft overflights (as well as all other prospective residents)—people who are highly annoyed by overflights—that they are choosing to live in a location where frequent overflights occur. This strategy involves making people more aware of an airport’s proximity and its current and future potential aircraft noise exposure before prospective buyers, lessees, and tenants move to the project site. The recorded deed notices (item b) also comply with California state real estate law, which requires that sellers of real property disclose “any fact materially affecting the value and desirability of the property” (California Civil Code, Section 1102.1(a)).

Thus, although residents on the project site will be exposed to annoyance from aircraft overflights, due to occasional speech interruption and sleep disturbance the relative low magnitude of these occurrences coupled with the proposed disclosure to future residents that they are subject to overflights would render this a *less-than-significant impact*.

Exposure of students to occasional overflights could result in speech disruption and classroom disturbance. Speech disturbance begins when the SENL exceeds 60 dBA. Given the typical exterior-interior noise reduction 25 dBA, any noise events above 85 SENL could result in speech disturbance at the site. As shown in Table 6.3-14, the site would be subject to several types of military aircraft that operate on occasion from the airport, and produce overflights during daytime hours where the noise would exceed 85 dBA SENL. Some overflights would be expected to generate noise as loud as 110 dBA SENL. This could adversely affect the learning environment. This is a *significant impact*.

Mitigation Measure 6.3-5: (City of Sacramento and LAFCo)

- a. Prior to issuance of any building permits, site-specific acoustical analyses shall be conducted once construction plans are available for the proposed school to ensure satisfaction with the City of Sacramento interior noise level standards. This site-specific acoustical analyses shall include site-specific design requirements to reduce noise exposure of proposed on-site receptors and all feasible design requirements shall be implemented into the final site design. Noise reduction measures and design features may include, but are not limited to the use of increased noise-attenuation measures in building construction (e.g., dual-pane, sound-rated windows; mechanical air systems; and exterior wall insulation). Implementation of these design measures would ensure interior noise levels meet the City’s noise standards and ANSI standard.

Significance After Mitigation

Although outdoor areas at proposed residential land uses and the proposed school would be exposed to occasional annoying noise events, the disclosure ensures that residents of the site are knowingly choosing to accept this annoyance. Further, noise standards would not be exceeded, including at schools. As a result, this impact would be mitigated to a *less-than-significant* level.

**IMPACT
6.3-6**

*Exposure of sensitive receptors or generation of excessive vibration levels. Short-term construction-generated vibration levels would exceed Caltrans recommended standard of 0.2 in/sec peak particle velocity (PPV) with respect to the prevention of structural damage for normal buildings and could exceed the federal transit administration's (FTA) maximum acceptable vibration standard of 80 velocity decibels (VdB) with respect to human response for residential uses (i.e., annoyance) at on-site residential dwellings that are developed and inhabited before nearby construction is completed. This would be a **potentially significant** impact.*

The long-term operation of the proposed project would not include any major sources of vibration. Construction activities, however, have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Table 6.3-15 displays vibration levels for typical construction equipment.

| Equipment | | PPV at 25 feet (in/sec) ¹ | Approximate L _v at 25 feet ² |
|----------------------|-------------|--------------------------------------|----------------------------------------------------|
| Pile Driver (impact) | Upper range | 1.518 | 112 |
| | Typical | 0.644 | 104 |
| Pile Driver (sonic) | Upper range | 0.734 | 105 |
| | Typical | 0.170 | 93 |
| Large Bulldozer | | 0.089 | 87 |
| Caisson Drilling | | 0.089 | 87 |
| Trucks | | 0.076 | 86 |
| Jackhammer | | 0.035 | 79 |
| Small Bulldozer | | 0.003 | 58 |

¹ Where PPV is the peak particle velocity
² Where L_v is the velocity level in decibels (VdB) and based on the root mean square (RMS) velocity amplitude.
Source: Federal Transit Administration 1995

As discussed above, construction activities at the proposed site would include site preparation (e.g., excavation, grading, and clearing), trenching, laying of concrete foundations, paving, frame erection, equipment installation, finishing, cleanup, and other miscellaneous activities. No pile driving or rock blasting would occur as part of project construction. The on-site equipment required is not known at this time but, based on similar projects, would be anticipated to include dozers, excavators, graders, loaders, haul trucks, and cranes.

According to the FTA, vibration levels associated with the use of such equipment would be approximately 0.089 PPV and 87 VdB at 25 feet, as shown in Table 6.3-13. Vibration levels would generally be lower for equipment not associated with heavy earth movement. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, the structural-damage threshold of 0.2 in/sec PPV would be exceeded by the operation of any construction equipment that occurs within 15 feet of a vibration-sensitive structure and, similarly, the human-response threshold would be exceeded by equipment operations that take place within 60 feet of a vibration-sensitive structure.

Therefore, the nearest off-site vibration-sensitive land uses, the farm houses located across Lone Tree Road 250 feet away, would not be exposed to vibration levels that exceed the structural-damage threshold or the human-response threshold. However, because project construction

would be completed in two phases over 5–10 years, some on-site residences may be built and inhabited while construction of other nearby residences and facilities continue to be developed. This means that some on-site receptors that are developed and/or inhabited on the project site could be exposed to groundborne vibrations generated by remaining construction activity. While it is unlikely that any heavy construction equipment would be operated within 15 feet of an on-site residence, resulting in an exceedence of the structural-damage threshold, it is possible that equipment operation would occur within 60 feet of such structures, resulting in an exceedence of the human-response threshold. This would be a *potentially significant* impact.

Mitigation Measure 6.3-6: (City of Sacramento and LAFCo)

Operation of heavy construction equipment (i.e., with engines greater than 50 horsepower) shall not be operated within 60 feet of inhabited residences or within 15 feet of uninhabited structures.

Significance After Mitigation

This mitigation measure is considered feasible because the order in which facilities are constructed and/or inhabited on the project site could be arranged such that operation of heavy construction equipment does not occur within the setbacks prescribed above. For instance, activities that require heavy construction equipment such as grubbing, grading, dozing, and excavation, could be performed before any nearby structures are erected and/or inhabited. Thus, this measure would ensure that construction operations are consistent with the both the structural-damage standards established by Caltrans and the human-response standards of the FTA, thereby reducing potential impacts to a *less-than-significant* level.

6.4 UTILITIES

6.4.1 INTRODUCTION

This section addresses potential environmental impacts associated with providing utility services to the project. Analysis provided in this section is based on information contained in the Greenbriar Water Study (Wood Rodgers 2005a, provided in Appendix H), Greenbriar Sewer Study (Wood Rodgers 2005b, provided in Appendix I), Greenbriar Master Drainage Study (Wood Rodgers 2005c, provided in Appendix J), the Water Supply Assessment for the project (EDAW 2005, provided in Appendix K), review of agency documents, and consultation with local utility services providers.

6.4.2 EXISTING SETTING

WATER SUPPLY AND CONVEYANCE

The project site does not currently receive municipal water supply. When the site was previously in active agricultural production (before publication of the NOP), groundwater was pumped from on-site groundwater wells to meet irrigation needs. At the time the NOP was published, no groundwater was pumped at the site. An historical accounting of groundwater volumes pumped at the site is not available.

The City of Sacramento (City) currently provides domestic water service from a combination of surface and groundwater sources including the American River, Sacramento River, and groundwater wells to nearly 132,000 customers within its service area (City of Sacramento 2005a). Water from the American River and Sacramento River is diverted by two water treatment plants including the Sacramento River Water Treatment Plant (SWTP) located at the southern end of Bercut Drive approximately 6 miles south of the project site and the Fairbairn Water Treatment Plant (FWTP) located at the northeast corner of State University Drive South and College Town Drive approximately 10 miles southeast of the project site (City of Sacramento 2005b). Water diverted from the Sacramento and American Rivers is treated, stored in storage reservoirs, and pumped to customers via a conveyance network.

The FWTP and the SWTP divert water from the American River and Sacramento River, respectively. In 2003, the City finished an expansion of the SWTP, increasing its maximum capacity from 110 mgd to 160 mgd. The expansion also included construction of a new intake structure on the Sacramento River. An expansion of the FWTP was completed in 2005, which increased the maximum capacity of the FWTP from 90 mgd to 200 mgd. In 2002–2003, the FWTP treated an average of 59.2 mgd of water and the SWTP treated an average of approximately 56.8 mgd (City of Sacramento 2005b).

The City holds five water rights permits: one for diversion of Sacramento River water and four for diversion of American River water. The City also holds a permanent water right settlement contract with the U.S. Bureau of Reclamation (USBR). Under this agreement, the USBR agreed to operate its Folsom and Shasta facilities to provide a reliable water supply to the City's downstream diversion intakes and the City agreed to limit total diversions under its Sacramento and American River water right permits to 326,000 acre-feet annually (AFA) (City of Sacramento 2005a). During extremely dry years, the Water Forum Agreement (WFA) limits annual withdrawal from the American River to 50,000 AFY; however, there are no diversion limitations on the Sacramento River. Therefore, entitled American River water may be diverted at the WTP below the confluence of the American and Sacramento Rivers and normal-year and dry-year water supplies are identical (EDAW 2005). The City currently (for the year 2005) has a water demand of 148,898 acre-feet per year and a surplus of deliverable water supply of 56,102 acre-feet per year during normal years.

The City maintains 34 wells for potable and non-potable use. Of these wells, 32 potable wells are north of the American River, and two are south of the American River (Peifer, pers. comm., 2005). The current groundwater system can supply up to 30 mgd and produce up to 33,600 AFY. Historical average annual groundwater use for the period 1997–98 through 2003–04 was 20,454 AFY. Although the City focuses on developing surface water as

its primary source of water supply, the groundwater well system provides flexibility in providing additional water supplies when there are low river flows (City of Sacramento 2005a).

The City operates ten storage reservoirs, each with a capacity of three million gallons (MG), except for the Florin Reservoir, which has a capacity of 15 MG for a systemwide 42 MG of storage. In addition to the reservoirs, the water treatment plants together maintain an on-site storage of over 43 MG. The stored water is used to meet the city's water demand for fire flows, emergencies, and peak hours. The City's current volume of storage capacity is adequate to meet the City's flow demands during emergency events, even under full buildout conditions (City of Sacramento 2005a).

An existing 30-inch water transmission main is located south of the project site across I-5. This main is located in South Bayou Road and supplies water to the North Natomas area west of I-5 (Wood Rodgers 2005b) (See Exhibit 3-5). A 24-inch water distribution main is currently planned to be constructed along Elkhorn Boulevard starting at Natomas Boulevard (approximately 2 miles east of the project site) and would extend to the northwest corner of the project site (See Exhibit 3-5).

WASTEWATER COLLECTION AND TREATMENT

The project site is not currently linked to any wastewater collection or treatment facilities. Sanitary sewer service (i.e., collection and conveyance) in the North Natomas area is provided by the County Sanitation District No. 1 (CSD-1) for local and trunk wastewater collection and the Sacramento Regional County Sanitation District (SRCSD) for inceptor conveyance.

CSD-1 collects wastewater flows from its service area and conveys them through SRCSD facilities to the Sacramento Regional Wastewater Treatment Plant (SRWTP) for treatment and disposal. The SRWTP is owned and operated by the SRCSD and provides sewage treatment for the City of Sacramento, City of Folsom, City of Rancho Cordova, City of Elk Grove, and unincorporated county areas. The project site is not currently located in SRCSD's service area and would require annexation into their service area for conveyance and treatment of the project's wastewater. The City would maintain on-site sewer facilities for the project. The SRWTP is a secondary treatment facility and is currently permitted to treat an average dry weather flow (ADWF) of 181 million gallons per day (mgd) and a daily peak wet weather flow of 392 mgd. Currently, ADWF is approximately 165 mgd (SRCSD 2005). The SRCSD has recently adopted its 2020 Master Plan (2004), which identifies projected future wastewater flows within its service area and the facilities necessary to treat these flows. The 2020 Master Plan projects a population-based flow of 218 mgd ADWF by 2030 and includes new facilities which would provide capacity to meet this flow level. An EIR was certified in 2004 for the Master Plan. The adequacy of the EIR has been challenged and the challenge is not expected to be resolved before the end of 2006.

The SRCSD also maintains the regional interceptors that convey sewage to the treatment plant. The SRCSD is currently implementing large-scale improvements to the interceptor system in anticipation of growth over the next 15 years and to help relieve existing deficiencies and constraints. These improvements would serve the City, the North Natomas Community Plan Area and ultimately the project site. These improvements include:

- ▶ Construction of a 60-inch diameter parallel force main that will run from the Arden pumping station along the American River Parkway to the south bank of the American River in the vicinity of California State University, Sacramento, and the Fairbairn Water Treatment Plant and is scheduled to be operational by 2010),
- ▶ Construction of the multi-year, multi-phase Bradshaw Sewer Project, which is an 18-mile large-diameter sewer pipeline, or interceptor, which will connect to the recently built Folsom interceptor and is scheduled for completion in 2006,
- ▶ Extension of the Laguna interceptor to the SRWTP, which is currently under construction,

- ▶ Construction of the Lower Northwest interceptor (LNWI) which is a regional pipeline that will provide sewer service for the growing northern Sacramento County area and West Sacramento and is scheduled to be operational by 2010, and
- ▶ Construction of the Upper Northwest interceptor which is currently under construction and is scheduled to be operational by 2010.

The CSD-1 service area is divided into ten trunk sheds which are based on the collection systems of the individual sewer districts from which CSD-1 was originally formed. The project site is located in the Natomas trunk shed. For the most part, each trunk shed consists of a number of hydraulically independent systems, each discharging into the SRCSD interceptor system. A 33-inch sewer main is located immediately east of the project site across SR 70/99 along Greg Thatch Circle.

No existing septic facilities are located on-site.

STORM DRAINAGE

The existing topography of the project site is relatively flat with minor slopes from northeast to southwest. Drainage facilities on the project site currently consist of several drainage/irrigation ditches that ultimately convey flows to the south. Project site elevations range from 5 to 25 feet above mean sea level.

The project site consists of three watersheds: east, north/northwest, and south/southwest. A narrow area of the eastern portion of the site drains to the existing Natomas Mutual channel under SR 70/99 then south towards the West Drainage Canal. The north/northwestern portion of the project site drains into the Lone Tree Canal and flows south under I-5 through three existing 5-foot by 8-foot box culverts. The stormwater is then conveyed to the south towards the West Drainage Canal. The south/southwestern portion also drains to the south under I-5. The West Drainage Canal drains to the south and terminates in the Natomas Main Drainage Channel which is pumped into the Sacramento River (Exhibit 6.4-1).

The project site is located within the North Natomas Basin which is served by a series of Reclamation District 1000 (RD 1000) canals and pump stations that collect stormwater and discharge it into the Sacramento River. RD 1000 operates and maintains the levees surrounding the Natomas Basin and the internal drainage system (i.e., canals and pump stations inside the Natomas Basin) to evacuate agricultural and urban runoff. The City is responsible for maintenance of internal conveyance, detention basins, and pump stations that discharge into the RD 1000 system. The City of Sacramento North Natomas Comprehensive Drainage Plan (CDP) identifies various basin areas, including detention basins and pumping facilities, to mitigate developed discharge to the existing RD 1000 system within the North Natomas Community Plan area.

The City of Sacramento's storm water drainage system consists of a network of natural channels, canals, levees, subsurface drains, and pumping stations that ultimately drain into the Sacramento and American rivers. Storm water in the City, specifically urban runoff, is disposed of via one of two methods: (1) conveyance to the Sacramento River and American River through sumps, pipelines and treatment facilities organized, primarily, by drainage basin; or (2) conveyance by the City's Combined Sewer Service System (CSS), along with sewage, to the SRWTP.

ELECTRICAL AND NATURAL GAS SERVICES

Pacific Gas and Electric (PG&E) provides natural gas service to the North Natomas community and surrounding areas through major transmission lines, distribution lines, and stations. Specifically, PG&E currently operates 8-inch main distribution lines to convey natural gas along Elkhorn Boulevard east of SR 70/99 and along East Commerce Way located southeast of the project site. PG&E also plans to extend natural gas lines to serve the future Metro Airpark project through an extension of an 8-inch main northward along the future Metro Airpark

Boulevard north to Elverta Road and along Elkhorn Boulevard westward to Power Line Road (Schlaht, pers. comm., 2005).

Sacramento Municipal Utility District (SMUD) provides electrical service throughout Sacramento County through transmission lines, distribution lines, and electrical stations. SMUD-operated electrical lines in the project area include a 12 kilovolt (Kv) electrical line that extends across the project site along Lone Tree Road and a 69 Kv single circuit line that extends north-south along Power Line Road approximately 1 mile west of the project site. SMUD plans to construct a new 69 Kv double circuit transmission line along Elkhorn Boulevard from an existing substation located at the intersection of Natomas Boulevard and Elkhorn Boulevard. This new transmission line would extend to the west to Lone Tree Road turning south along Meister Way and then traveling west to Power Line Road and the Metro Airpark development. This new 69 Kv transmission line would serve the project site and the Metro Airpark. SMUD also plans to reconfigure the existing line extending along Power Line Road from single circuit to double circuit. At the project site, SMUD is planning to construct a new substation on the parcel designated for community commercial or village commercial in the northeastern portion of the project site (Nakamoto, pers. comm., 2005). The applicant is also working with SMUD to identify feasible alternative locations both on-site and adjacent to the project site for a new substation. For purposes of this analysis, the substation is assumed to be located on-site. At the time a final location is selected, SMUD (as lead agency) will evaluate the environmental impacts associated with that location through a separate environmental process.

6.4.3 REGULATORY SETTING

WATER SUPPLY

SB 610

Senate Bills 610 and 221

SB 610 (Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code) requires the preparation of “water supply assessments” for large developments (e.g., more than 500 dwelling units or nonresidential equivalent). These assessments, prepared by “public water systems” responsible for service, address whether there are adequate existing or projected water supplies available to serve proposed projects, in addition to urban and agricultural demands and other anticipated development in the service area in which the project is located. Where a WSA concludes that insufficient supplies are available, the WSA must lay out steps that would be required to obtain the necessary supply. The content requirements for the assessment include, but are not limited to, identification of the existing and future water suppliers and quantification of water demand and supply by source in 5-year increments over a 20-year projection. This information must be provided for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not preclude project approval, but does require a lead agency to address a water supply shortfall in its project approval findings.

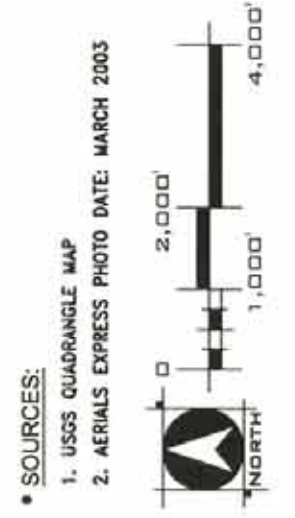
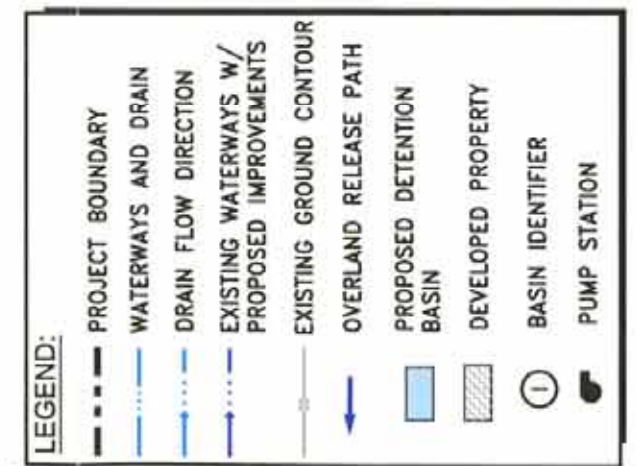
A WSA has been prepared for the project (EDAW 2005) and is included as Appendix J. The conclusions of the WSA are summarized in Section 6.4.4, “Impacts and Mitigation Measures.”

If the project is approved, additional complementary statutory requirements, created by 2001 legislation known as SB 221 (Government Code Section 66473.7) would apply to the approval of tentative subdivision maps for more than 500 residential dwelling units. This statute requires cities and counties to include, as a condition of approval of such Tentative Maps, the preparation of water supply verification. The verification is intended to demonstrate that there is a sufficient water supply for the newly created residential lots. The statute defines sufficient water supply as the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses. A number of factors must be considered in determining the sufficiency of projected supplies, including:



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Source: Wood Rodgers 2005



Proposed Drainage System

Exhibit 6.4-1

- ▶ The availability of water supplies over a historical record of at least 20 years;
- ▶ The applicability of an urban water shortage contingency analysis that includes action to be undertaken by the public water system in response to water supply shortages;
- ▶ The reduction in water supply allocated to a specific water-use sector under a resolution or ordinance adopted, or a contract entered into, by the public water system, as long as that resolution, ordinance, or contract does not conflict with statutory provisions giving priority to water needed for domestic use, sanitation, and fire protection; and
- ▶ The amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives, such as CALFED and Colorado River tentative agreements.

City of Sacramento General Plan

The City of Sacramento General Plan does not contain any policies applicable to the provision of water services to the project because the project is outside of the area covered by the City’s current general plan. If the project area is annexed to the City, it would be subject to the provisions of Section 11 of the City Charter which provides, in part, that “[Th]e supply of water for the City of Sacramento for municipal and domestic purposes shall always be owned and controlled as a municipal utility and shall be administered by the City government.”

LAFCo

The LAFCo Policies, Procedures, and Guidelines document includes the following standards related to the provision of urban services to annexed areas.

- ▶ The annexation must be consistent with the applicable Master Service Elements (Municipal Service Review). An annexation ... shall be approved only if the services element of the Spheres of Influence Plan of the affected agency or agencies demonstrates that adequate services will be provided within the time frame needed by the inhabitants of the annexed ... area. Proposed annexations for land areas that lie outside of the current and next five-year increments of projected service delivery in the services element are presumed not to comply with this standard unless the applicant clearly establishes that special and unique circumstances exist which ensure the provision of quality services during the applicable time frame for the affected area consistent with the other standards. (Section I, Standard Number 4)
- ▶ The annexation must provide the lowest cost and highest quality of urban services for the affected population. LAFCo will approve an annexation ... only if the Commission determines that the annexing agency possesses the capability to provide the most efficient delivery of applicable urban services for the affected population. (Section I, Standard Number 5)

WASTEWATER SERVICES

City of Sacramento General Plan

The City of Sacramento General Plan does not contain any policies applicable to the provision of wastewater services to the project site.

LAFCo

Please refer to LAFCo policies identified under Water Supply above.

STORMWATER SERVICES

City of Sacramento General Plan

The following City of Sacramento General Plan policies related to stormwater facilities are applicable to the project:

▶ **Drainage, Goal A**

- *Policy 1:* Ensure that all drainage facilities are adequately sized and constructed to accommodate the projected increase in stormwater runoff from urbanization

The project's consistency with these policies is discussed in Chapter 5.0, "Project Consistency with Plans and Policies."

LAFCo

Please refer to LAFCo policies identified under Water Supply above.

ELECTRICAL AND NATURAL GAS SERVICES

City of Sacramento General Plan

The City of Sacramento General Plan does not contain any policies applicable to the provision of electrical or natural gas services to the project.

LAFCo

Please refer to LAFCo policies identified under Water Supply above.

6.4.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

Analysis provided in this section is based on information contained in the Greenbriar Water Study (Wood Rodgers 2005a, provided in Appendix H), Greenbriar Sewer Study (Wood Rodgers 2005b, provided in Appendix I), Greenbriar Drainage Study (Wood Rodgers 2005c, provided in Appendix J), the Water Supply Assessment for the project (EDAW 2005, provided in Appendix K), review of agency documents, and consultation with local utility services providers.

THRESHOLDS OF SIGNIFICANCE

An impact related to the provision of utility services would be considered a significant environmental impact, as defined by the State CEQA Guidelines (Appendix G), if the proposed project would:

- ▶ Create a water supply demand in excess of existing entitlements and resources;
- ▶ Result in the determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- ▶ Exceed wastewater treatment requirements of the applicable RWQCB;

- ▶ Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
- ▶ Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- ▶ Exceed capabilities of electrical or natural gas service providers to serve the project.

IMPACTS AND MITIGATION MEASURES

IMPACT 6.4-1

Increased Demand for Water Supply and Facilities. *Water demands for the project would be met by the City of Sacramento through existing water supply entitlements available from the American River, Sacramento River, and the City's local groundwater well system. The City has sufficient water supplies to meet their existing and projected future demands in addition to the proposed project through 2030 under all water year types (e.g., normal, single-dry, and multiple-dry years). Further, other than construction of the necessary infrastructure to connect the project site to the City's existing water system, no additional water supply facilities would be needed to serve the project. Therefore, this would be a **less-than-significant** impact related to water supply.*

The project would properly close and abandoned all on-site water wells in accordance with City and County standards and would connect the project site to the City's existing water distribution system. No groundwater would be pumped at the project site for domestic, potable use. However, two groundwater wells would be constructed as part of the project to maintain in adequate levels in the lake/detention basin.

To maintain adequate water levels in the lake/detention basin throughout the year, additional water may be supplied by two groundwater wells which would be constructed adjacent to the lake/detention basin. Based on water balance calculations, the summer inflow to the lake/detention basin would generally balance with the evaporation and infiltration rates expected for the lake/detention basin. It is estimated that a total of 82 acre-feet of water would be lost to evaporation and infiltration while the project would result in approximately 117.4 acre-feet of inflow into the lake/detention basin. This would result in a positive water balance of 35.4 acre-feet. As such, it may not be necessary to use the groundwater wells to maintain water levels in the lake depending on the hydrologic conditions. Nonetheless, the proposed groundwater wells would be available for back up purposes in the event lake levels recede. Initially, the groundwater wells would be used to fill the lake/detention basin. A total of 200 acre-feet of water would be needed to fill the basin (Matthies, pers. comm., 2006).

A WSA was prepared for the project as part of this EIR (Appendix K). The WSA indicated that project development would result in an average daily water demand (ADD) of approximately 2.4 million gallons per day (mgd) at full project build out (EDAW 2006) which is equivalent to approximately 2,680 acre-feet per year (AFY) (Table 6.4-1).

The City of Sacramento recently completed a 2030 demand analysis for the Reclamation Sacramento River Water Reliability Study which evaluated existing and projected demands against existing and projected water supplies. The City of Sacramento's existing water demand was calculated to be 143,784 AFY with a maximum day demand of 218 mgd (EDAW 2006).

Based on the information provided in the WSA, sufficient water supplies are available to serve the project during normal, single-dry, and multiple-dry years (conference years) based on existing available water supply entitlements as shown in Tables 6.4-2 and 6.4-3 (EDAW 2006, Appendix K). Please refer to Appendix K for additional details regarding the WSA for the project.

| Table 6.4-1 Water Demand Projections for Greenbriar | | | | | | | |
|--------------------------------------------------------|--------------------------|----------------|-------------------|--------|---------------|-------------|---------------------|
| Land Use Designation | Total | | Unit Water Demand | | Demand | | |
| | Acres ¹ (net) | Dwelling Units | gpm/ac | gpm/du | Average Daily | | Average Annual (AF) |
| | | | | | gpm | mgd | |
| Low Density Residential | 81 | 671 | — | 0.44 | 295 | 0.42 | 476 |
| Medium Density Residential | 145 | 2,215 | — | 0.44 | 975 | 1.40 | 1,573 |
| High Density Residential | 30 | 587 | 2.48 | — | 74 | 0.11 | 119 |
| Commercial | 28 | — | 1.86 | — | 52 | 0.07 | 84 |
| Parks/Landscape | 51 | — | 2.6 | — | 133 | 0.19 | 215 |
| Schools | 10 | — | 1.55 | — | 16 | 0.02 | 26 |
| Subtotal | 345 | 3,473 | — | — | 1,545 | 2.22 | 2,493 |
| 7.5% System Losses | — | — | — | — | 116 | 0.17 | 187 |
| Totals | — | — | — | — | 1,661 | 2.39 | 2,680 |

Notes: gpm/ac = gallons per minute/acre, gpm/du = gallons per minute/dwelling unit
¹ Net acreage does not include street right-of-way.
Source: Wood Rodgers 2005a

| Table 6.4-2 Supply and Demand Comparison during Conference Years ^a | | | | | | | |
|----------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------------|--|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | |
| Surface Water Supply | | | | | | | |
| American River | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | |
| American River diverted from the Sacramento River | 73,200 | 95,700 | 120,200 | 146,200 | 172,200 | 179,000 ^c | |
| Sacramento River | 81,800 | 81,800 | 81,800 | 81,800 | 81,800 | 81,800 | |
| Total Surface Water Supply ^b | 205,000 | 227,500 | 252,000 | 278,000 | 304,000 | 310,800 | |
| Demand | 135,576 | 157,036 | 178,496 | 199,957 | 221,417 | 242,877 | |
| Project Demand | 0 | 2,680 | 2,680 | 2,680 | 2,680 | 2,680 | |
| Total Demand | 135,576 | 159,716 | 181,176 | 202,637 | 224,097 | 245,557 | |
| Additional Water Supply | 69,424 | 67,784 | 70,824 | 75,363 | 79,903 | 65,243 | |

Notes:
^a Total surface water supply shown is based on USBR contracted deliveries and not maximum dry year treatment and diversion capacity of 230,000 AFY
^b Dry/Conference year demand reduced because City does not provide water to SSWD in dry years.
^c Based on 160 mgd at SRWTP.
Source: City of Sacramento 2005b

| Table 6.4-3 Maximum Day Surface Water Supply and Demand Comparison during Normal Flow Conditions (mgd) | | | | | | |
|-------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Surface Water Supply | | | | | | |
| American River ^a | 200 | 200 | 200 | 200 | 200 | 200 |
| Sacramento River ^a | 160 | 160 | 160 | 160 | 160 | 160 |
| Total Surface Water Supply | 360 | 360 | 360 | 360 | 360 | 360 |
| Demand | | | | | | |
| Project Demand | - | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| Total Demand | 218 | 238 | 255 | 271 | 287 | 304 |
| Additional Water Supply | 142 | 122 | 105 | 89 | 73 | 56 |
| Notes: ^a Surface supply is based on plant capacity. Source: City of Sacramento 2005b | | | | | | |

Sufficient water supplies are available to meet existing and projected future water demands for the City in combination with the project. Therefore, this would be a **less-than-significant** water supply impact.

No mitigation is required.

**IMPACT
6.4-2**

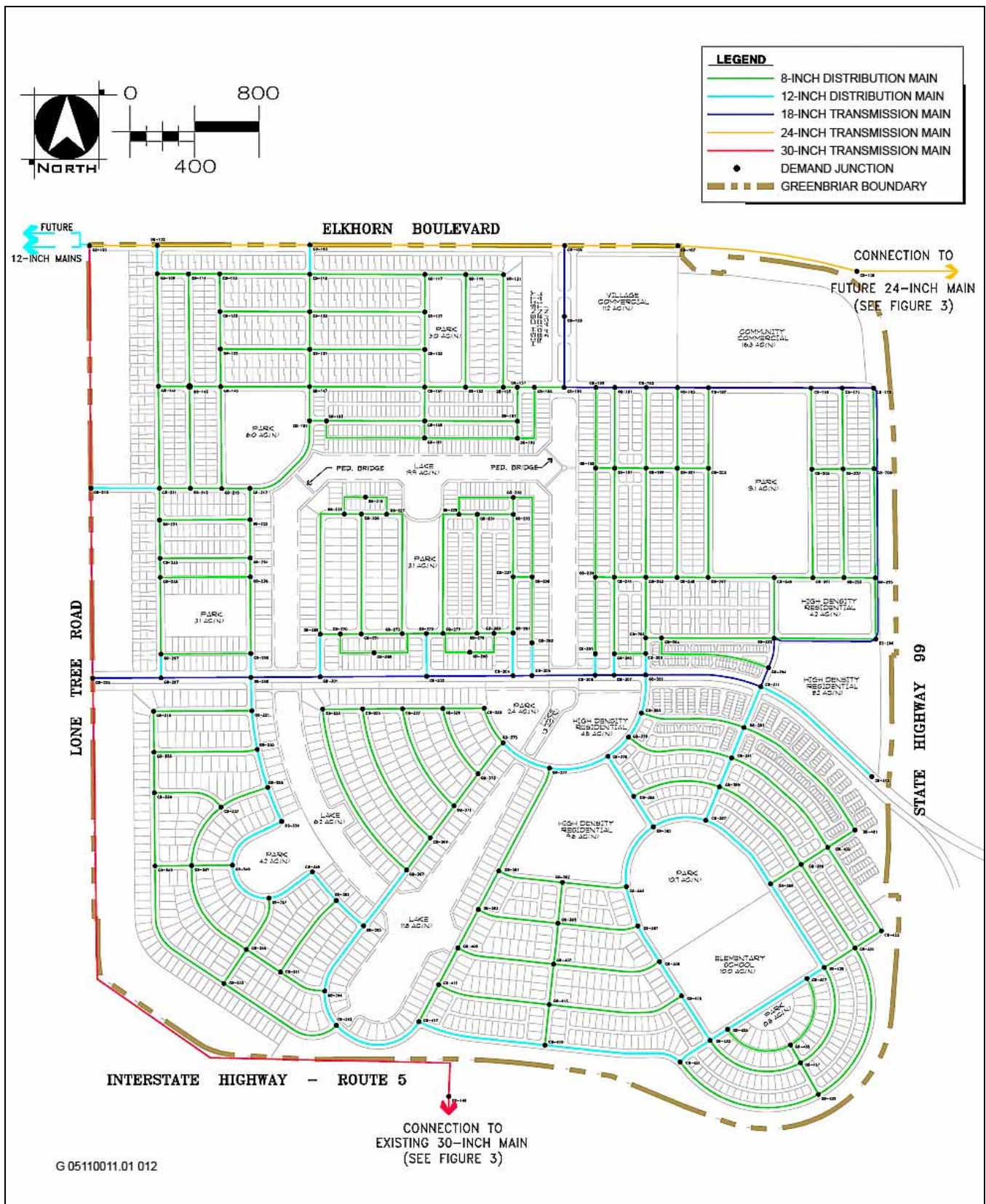
Increased Demand for Water Conveyance. *Water supply infrastructure is not currently available on the project site; therefore, water line extensions would be required to deliver water to the project site. Proposed water supply facilities would be sized to accommodate the project's water distribution and fire flow needs. Further, sufficient capacity is available within the city's off-site water distribution facilities to serve the project site. For these reasons, the provision of water to the project would result in less-than-significant water conveyance impacts.*

A preliminary water distribution system has been designed for the project and would consist of a grid of 8-inch and 12-inch distribution mains throughout areas designated for residential land uses (Exhibit 6.4-2). The proposed water distribution system would connect to off-site water distribution facilities including a 24-inch transmission pipeline in Elkhorn Boulevard and a 30-inch transmission pipeline in Lone Tree Road (Exhibit 6.4-2).

An 18-inch transmission main would run under Meister Way from the western edge of the project site to the east; it would then turn north between two parcels designated for high density residential land uses (near the eastern boundary) and run along the eastern edge of the site, and would terminate at a 24-inch transmission main located in Elkhorn Boulevard at the north (Exhibit 6.4-2).

The grid of water distribution mains on the project site and extension of transmission mains to the project site would be adequately sized to accommodate project-related water demands and fire-flow demands (Wood Rodgers 2005). Further, sufficient capacity is available within the City's water distribution system to serve the project and continue to meet the City's existing and projected future demands (Wood Rodgers 2005). Therefore, the project would result in **less-than-significant** impacts related to water conveyance.

No mitigation is required.



Source: Wood Rodgers 2005a

Water Distribution System

Exhibit 6.4-2

IMPACT
6.4-3

Increased Demand for Wastewater Collection and Conveyance. *Sufficient capacity within the SRCSD interceptor system would be available to accommodate the project's wastewater demand. This would be a less-than-significant impact.*

With approval of the project, annexation of the project site to the City, and amendment of the SOI's for SRCSD and CSD-1, wastewater collection services would be provided by CSD-1 and the SRCSD.

The proposed wastewater system for the project includes a combined gravity flow and force main system. Approximately one-quarter of the project site would be served by a gravity flow system that would connect to the existing 33-inch North Natomas interceptor located on the east side of SR 70/99 at the end of Greg Thatch Circle (Exhibit 3-6). Specific land uses to be served by the gravity flow system include the majority of high-density residential land uses, the elementary school, and portions of medium-density residential and low-density residential areas. The remaining portions of the project site would be served by gravity flow to a centrally located lift station. Flows from the lift station would be conveyed by an 18-inch sewer force main that would ultimately connect to a 33-inch sewer main extending under SR 70/99. Once across SR 70/99, the main would tie into the North Natomas interceptor located on the south side of I-5 (Exhibit 3-6). Minor extensions of wastewater infrastructure would occur off-site near Greg Thatch Circle, the construction-related impacts of which have been evaluated throughout this EIR.

Upstream wastewater flows from off-site developments including the Metro Airpark and Sacramento International Airport would be conveyed by two 16-inch force mains located within the green space buffer adjacent to Elkhorn Boulevard and SR 70/99 which tie into the 33-inch main that extends under SR 70/99 ultimately connecting to the North Natomas interceptor. Upstream flows would not be conveyed through on-site wastewater conveyance system. However, flows from the project and off-site areas would combine once they meet the 33-inch interceptor. Construction of the on-site wastewater facilities could result in construction-related environmental effects (e.g., increased air emission, construction noise), the impacts of which have been evaluated throughout this EIR.

Average projected wastewater flows for the project are approximately 3.05 mgd peak wet weather flow (PWWF) (Wood Rodgers 2005). Wastewater flows for off-site developments would generate 8.73 mgd PWWF. The project and off-site developments would generate a combined wastewater flow of 11.78 mgd PWWF before connecting with the North Natomas interceptor. The North Natomas interceptor currently has an available capacity of 15.28 mgd PWWF, which exceeds project demands (Wood Rodgers 2005). Staff of SRCSD have confirmed that adequate capacity currently is and would be available at the time of construction (i.e., 2007) and over the construction buildout period (i.e., 5–10 years) in the North Natomas interceptor as well as downstream facilities (Hedges, pers. comm., 2006). No new infrastructure would be required.

Because sufficient capacity within the CSD-1's and SRCSD's conveyance facilities would be available to serve the project, the project would result in *less-than-significant* impacts to wastewater collection services.

No new mitigation is required.

**IMPACT
6.4-4**

Environmental Impacts Associated with SRWTP Expansion. *The SRWTP would provide wastewater treatment services for the project. The SRWTP is currently undergoing expansion to accommodate wastewater treatment demands for future growth and development. As a result, the project would contribute to the need to expand the SRWTP. According to the EIR prepared for the SRWTP 2020 Master Plan Expansion, construction and operation of facility improvements could contribute to significant and unavoidable impacts related to construction-related air quality. Because the project would contribute to the need for expanding the SRWTP, and would contribute to the impacts assessed in the EIR for the SRWTP 2020 Master Plan Expansion would be a **significant** impact to wastewater facilities.*

The SRWTP would provide wastewater treatment for wastewater flows generated by the project. The SRWTP currently treats an average of 165 mgd of wastewater and is permitted to treat 181 mgd average dry weather flows (ADWF) and 392 mgd of daily peak wet weather flows. The SRCSD has determined that expansion of the SRWTP is necessary to meet increased demands over the next 20 years, a portion of which would be generated by the project. The SRCSD prepared and approved the SRWTP 2020 Master Plan Expansion Project in 2004, which would expand the plant in incremental steps on an as-needed basis to 218 mgd ADWF over the next 15 to 20 years. The SRCSD accommodate new development projects on a first-come-first-served basis. Phased facility expansion is currently on-going. The EIR prepared for the project (*Sacramento Regional Wastewater Treatment Plan 2020 Master Plan EIR, 2004*) indicated that the expansion project would result in one significant and unavoidable impact related to construction-related air quality (see discussion of cumulative air quality impacts in Chapter 7, “Other CEQA Sections”). All other impacts would be reduced to a less-than-significant level through implementation of mitigation measures recommended in the EIR. A copy of the EIR is available for review at the City of Sacramento, Planning Department, 915 I Street, Suite 300, Sacramento, California).

Although staff of SRCSD have indicated that wastewater treatment capacity is currently available to the serve the project (Hedges, pers. comm., 2006) and would account for less than 2% of the existing permitted wastewater treatment of the SRWTP under ADWF and less than 1% under daily peak wet weather flows, the project in combination with other development would contribute to the need for expansion of the SRWTP and would contribute to the impacts assessed in the EIR for the SRWTP 2020 Master Plan Expansion Project, one of which would remain significant and unavoidable. The SRCSD expects to resolve the CEQA challenge to its EIR in the near future and in time to expand the SRWTP in response to demand. Therefore, the project would contribute to a **significant** wastewater impact. No other feasible mitigation is available.

Mitigation Measure 6.4-4: (City of Sacramento)

The environmental impacts of expanding the SRWTP were appropriately evaluated in the EIR for the SRWTP 2020 Master Plan Expansion Project. All available mitigation was recommended to reduce the environmental impacts of this project where feasible. However, the EIR concluded that even with recommended mitigation, the project would result in a significant and unavoidable impact related to construction-related air quality, the cumulative effects of which are discussed in Section 7.2, “Cumulative Impacts,” of this Draft EIR.

Significance after Mitigation

Because all feasible mitigation has been recommended to reduce potentially significant impacts associated with the SRWTP expansion and no other feasible mitigation is available to reduce this impact, this impact would remain **significant and unavoidable**.

**IMPACT
6.4-5**

Increased Demand for Storm Drainage. *The project would increase the volume of stormwater generated at the project site. However, RD 1000's plant #3 does not have sufficient pumping capacity to pump stormwater generated from the project site. Therefore, development of the project would result in **significant** impact related to storm drainage.*

The project would increase the volume of stormwater generated at the project site. Stormwater modeling conducted for the project indicated that the project would generate approximately 912 cubic feet per second (cfs) of stormwater during a 100-year, 24-hour storm event and 609 cfs of stormwater during a 10-year, 24-hour storm event (Wood Rodgers 2005a). The proposed drainage system consists of gravity flow within underground pipes, a lake/detention basin, and discharge to the West Drainage Canal. The project site would be graded to create building pads and streets that would direct drainage to a proposed on-site lake/detention basin. Trunk lines within the project site would be sized from 24 to 54 inches to convey storm water to the lake/detention basin. Approximately 2 feet of freeboard (vertical distance) below proposed grading and from the maximum 10-day 100-year elevation in the lake/detention basin would be maintained in the lake (Wood Rodgers 2005a).

The detention basin/lake would use a gravity outfall to discharge flows into the West Drainage Canal through two 78-inch reinforced concrete pipes and three 8-foot by 5-foot box culverts at the I-5 undercrossing located in the southwestern portion of the project site (Exhibit 6.10-3). The lake/detention basin would be designed according to the City of Sacramento standards using the City of Sacramento method for quantifying 10-year and 100-year storm events and hydraulic grade lines (Wood Rodgers 2005a). However, the City of Sacramento Department of Utilities indicated that RD 1000's plant #3 does not have sufficient capacity to pump stormwater runoff generated by the project (Paxton, pers. comm., 2006). Therefore, the project could adversely affect the capacity of the RD 1000 system.

Developers of the future Metro Airpark would be responsible for improving the storm drainage canal at the I-5 undercrossing by adding two proposed 78-inch reinforced concrete pipes adjacent to the three existing 5-foot by 8-foot box culverts. The impacts of these improvements were evaluated in the EIR prepared for that project. Addition of the reinforced concrete pipes would result in more efficient flow of drainage from the project area including the project site because the culvert would not restrict flows going under I-5. However, if these pipes are not installed, sufficient drainage capacity is available to accommodate project-related storm water volumes.

The project would increase the volume of stormwater generated at the project site. However, RD 1000's plant #3 does not have sufficient pumping capacity to pump stormwater generated from the project site. Therefore, development of the project would result in **significant** impact related to storm drainage.

Mitigation Measure 6.4-5: (City of Sacramento and LAFCo)

The project applicant shall fully fund the installation of a new pump that would increase pumping capacity at the RD 1000's plant #3 by 75 cubic feet per second.

Significance after Mitigation

With implementation of Mitigation Measure 6.4-5, pumping capacity at RD 1000 plant #3 would be increased to sufficiently pump stormwater generated on the project site. Therefore, this storm drainage impact would be reduced to **less than significant**.

**IMPACT
6.4-6**

Increased Demand for Electric and Natural Gas Services. *The project area would be supplied with energy services by PG&E (i.e., natural gas) and SMUD (i.e., electricity). Energy services are currently being provided adjacent to the project site to the east and south and extension of these services to the site would not cause any physical disturbances beyond that already anticipated at the project site. For these reasons, the provision of energy services to the project site would result in **less-than-significant** impacts.*

The project would require extension of existing electricity and natural gas facilities adjacent to the project site. Extension of these facilities would not require any upgrades to either PG&E or SMUD's transmission system that are not currently planned for, nor would it result in any additional physical disturbances beyond that currently anticipated for the project. Further, staff of PG&E and SMUD has indicated that they would be able to serve the project and the project would not adversely affect their ability to provide services within the area (Schlaht, pers. comm., 2005; Hager, pers. comm., 2005). Therefore, the project would result in **less-than-significant** impacts to electrical and natural gas services.

No mitigation is required.

6.5 PUBLIC SERVICES

6.5.1 INTRODUCTION

This section addresses potential environmental impacts associated with providing public services to the project. Analysis provided in this section is based on review of agency documents and consultation with local public services providers. In addition, information was obtained from the Municipal Services Study prepared for the project by Wood Rodgers (2005).

6.5.2 EXISTING SETTING

LAW ENFORCEMENT

The project site is currently served by the Sacramento County Sheriff. The nearest sheriff's station is McClellan Station located at 6028 Price Avenue, McClellan, approximately 9 miles east of the project site. The McClellan Station is located within the Northwest Division which serves the communities of Antelope, Elverta, Foothill Farms, Garden Highway, McClellan Park, Natomas Industry, North Highlands, and Rio Linda in the northernwestern portions of Sacramento County. Public access to sheriff services is provided through the Northwest Service Center located at 7511 Watt Avenue in North Highlands, California.

If the project is approved by the City, the project site would be located within the City's jurisdiction and would be served by the Sacramento Police Department. The William J. Kinney Police Facility would serve the project site and it is located at 3550 Marysville Boulevard approximately 10 miles east of the project site. This station provides police protection services for the North Natomas community, which is located within Sector 1, District 10. Approximately 24 sworn officers, four non-patrol officers, three community service officers, one lieutenant, and one detective are dedicated to Sector 1 (Scruggs, pers. comm., 2005). The Sacramento Police Department proposes to construct a new police substation north of Del Paso Road between East Commerce Way and Natomas Boulevard, approximately 2 miles east of the project site. Details on the timing of construction of this substation are currently unknown.

The Sacramento Police Department does not have an adopted officer-to-resident ratio. The Sacramento Police Department uses a variety of data including geographic information system (GIS) based data, call and crime frequency information, and available personnel to rebalance its deployment on an annual basis to meet the changing demands of the city. Along with this, the Sacramento Police Department changes the size of patrol districts within four geographical patrol areas approximately every two years to reflect population growth, crime, and other factors which require boundary adjustments (City of Sacramento 2005). As of 2005, the Sacramento Police Department was funded for 1.7 officers per 1,000 residents (City of Sacramento 2005).

FIRE AND EMERGENCY MEDICAL RESPONSE

Although the project site is located in the unincorporated area of Sacramento County, the project site is currently served by the City of Sacramento Fire Department (SFD) via contract with County Board of Supervisors. Specifically, the project site is located within the North Natomas Fire Protection District, which contracted with the County of Sacramento since 1986. With implementation of the project, the project will detach from Natomas Fire Protection District. The City would provide fire protection and emergency response services to the project site. In total, the SFD currently has 587 employees, 31 fire companies, and 10 medic units housed in 23 stations. The nearest fire station to the project site is Fire Station 30, located at the northeast corner of Regency Park Circle and Club Center Drive approximately 3 miles east of the project site. The next closest station is Fire Station 3 located at 7208 West Elkhorn Boulevard approximately 4 miles west of the project site.

In 2003 (the most recent data available from SFD), the SFD responded to approximately 63,905 calls with the majority of calls for emergency medical service (43,308 calls or 68 percent of total). The SFD's optimal response

time for fire and emergency medical response is 4.5 minutes from the time a call is placed. Current fire and emergency medical response times for areas west of I-5, including the project area, are greater than 12 minutes from the time a call is placed (Wood Rodgers 2005). The City has planned, approved, and intends to construct a new fire station that would serve the project site and areas near the project site (Wood Rodgers 2005). This station would be located either in the northeast corner of the Northpointe subdivision (east of the project site) or would be located approximately 0.7 mile to the southeast of the project site within future developments in the North Natomas community (Wood Rodgers 2005). Timing of construction of this station is currently unknown.

SOLID WASTE

Solid waste disposal services for residential households in the unincorporated areas of Sacramento County are provided by the Sacramento County Department of Waste Management and Recycling. The Sacramento County Department of Waste Management and Recycling is responsible for maintaining a waste management system for residents and businesses in unincorporated Sacramento County. With implementation of the project, the project site would be annexed into the City of Sacramento and solid waste collection and recycling services would be provided by the City of Sacramento Department of Public Works Solid Waste Division. The project site would be incorporated into Solid Waste Collection Area 5.

Materials collected by the Solid Waste Division are sorted at the Sacramento Recycling and Transfer Station with the remaining refuse taken to Lockwood Landfill in Lockwood, Nevada. The Public Works Solid Waste Division does not use a specific calculation to determine the volume of solid waste that would be generated by development projects (Strauss, pers. comm., 2005). However, the California Integrated Waste Management Board (CIWMB) provides an average per capita disposal rate 0.36 tons per year per residence and a disposal rate of 0.3 (general merchandise) to 2.9 (grocery stores) tons per day for commercial uses for Sacramento County (CIWMB 2005a).

The Sacramento Recycling and Transfer Station is limited to accepting 2,000 tons of solid waste per day under their Solid Waste Facilities Permit and currently the transfer station accepts approximately 1,100 tons per day (Dunleavy, pers. comm., 2005). The remaining life expectancy of Lockwood Landfill is currently estimated to be 90 years (Dunleavy, pers. comm., 2005).

PUBLIC SCHOOLS

The project site is within the Rio Linda Union School District (RLUSD) and Grant Joint Union High School District (GJUHS). RLUSD provides education services for kindergarten through sixth grade students. GJUHS provides education services for junior high and high school students.

Regency Park Elementary is the closest elementary school to the project site and is located at 5901 Bridgecross Drive approximately 2.5 miles east of the project site. The school currently has an enrollment of 400 students with an estimated capacity for 700 students. The Rio Linda School District has established a goal of 20 students per classroom for kindergarten through 3rd grade students and a goal of 32 students per classroom for 4th through 6th grade students (Bonds, pers. comm., 2005).

Rio Linda Junior High School is the closest junior high school to the project site and is located at 1101 G Street in Rio Linda, approximately 6 miles east of the project site. Rio Linda Junior High School has a current enrollment of 587 students and an estimated capacity for 782 students (Taylor, pers. comm., 2005; Velasto, pers. comm., 2006).

Rio Linda High School is the closest high school to the project site and is located at 6309 Dry Creek Road in Rio Linda approximately 6 miles east of the project site. Rio Linda High School current enrollment is 2,011 students and has an estimated capacity of 2,093 students (Taylor, pers. comm., 2005; Velasto, pers. comm., 2006).

GJUHSD plans to construct a new joint use facility to serve junior high and high school students; located along East Levee Road approximately 3 miles east of the project site. This joint-use facility is planned to serve 1,000 junior high and 2,000 high school students starting in 2009.

LIBRARIES

The Sacramento Public Library currently operates a joint-use facility located in the Inderkum High School that provides temporary services to the North Natomas community, as well as the students, faculty, and staff of both Inderkum High School and the Natomas Center of American River College (Landers, pers. comm., 2005). The library opened to the public on September 13, 2004, and is located approximately 2 miles southeast of the project site at 2500 New Market Drive (Sacramento Public Library 2005). A separate 23,000-square-foot facility is planned to be built as part of an educational complex which includes Inderkum High School and Natomas Center of American River College when funding becomes available. The Sacramento Public Library recently received a grant for construction of the new facility; however a tentative date for commencement of construction and completion has not been determined (Landers, pers. comm., 2005).

The North Natomas Library features a diverse collection of materials serving the needs of the high school and community college students, a collection for children, recreational and informational reading for adults, magazines, newspapers, and a variety of media as well as public computer work stations. In addition to the local collection, items from any of the Sacramento Public Library branches can be delivered to the North Natomas Library for public use (Sacramento Public Library 2005).

The Sacramento Public Library is currently preparing their first Facilities Master Plan which will, among other things, identify the Sacramento Public Library's service goals. Currently the Sacramento Public Library does not have an established service goal for provision of library services to the community (Landers, pers. comm., 2005).

6.5.3 REGULATORY SETTING

STATE OF CALIFORNIA

Public Schools

California Code Section 17620 authorizes school districts to levy a fee, charge, dedication, or other requirement against any construction in their boundaries for the purpose of funding the construction or reconstruction of school facilities. The fee, charge, dedication, or other requirement may be applied to construction of new residential, commercial, and industrial construction. The maximum fee amount that school districts can assess is limited by statutes provided in Section 65995 of the California Code. Level 1 fee maximums are \$2.14 per square foot for residential development and \$0.34 per square foot for commercial and industrial development. The California Department of Education (DOE) permits local school districts to increase these fees, subject to DOE review, and approval of a nexus study from the school district that demonstrates that costs incurred by the school district for the provision of school facilities and services are higher than the Level 1 funding provides. In such an instance, a nexus must be demonstrated in the study between what the local school district wants to increase the fees to and the actual cost of provision of school facilities and service.

City of Sacramento General Plan

The City of Sacramento General Plan includes the following goals and policies related to fire protection services that would be applicable to the project.

- ▶ Provide adequate fire service for all areas of the City. (Goal A)

- ▶ Continue to support all efforts directed at providing the best fire protection services at the least cost. (Policy 1)
- ▶ Ensure that adequate water supplies are available for fire-fighting equipment in newly developing areas. (Policy 2)
- ▶ Promote greater coordination of land use development proposals with the Fire Department in order to ensure adequate on-site fire protection provisions. (Policy 4)

The City of Sacramento General Plan includes the following goals and policies related to the provision of law enforcement services that would be applicable to the project.

- ▶ Provide the highest possible level of police service to protect City residents and businesses. (Goal A)
- ▶ Continue Police Department participation in the review of subdivision proposals and in assisting the Public Works department with traffic matters. (Policy 1)

The City of Sacramento General Plan does not contain any policies specifically applicable to the provision of solid waste and school services to the project.

LAFCo

The LAFCo Policies, Procedures, and Guidelines document includes the following standards related to the provision of urban services to annexed areas.

- ▶ The annexation must be consistent with the applicable Master Service Elements. An annexation ... shall be approved only if the services element of the Spheres of Influence Plan of the affected agency or agencies demonstrates that adequate services will be provided within the time frame needed by the inhabitants of the annexed ... area. Proposed annexations for land areas that lie outside of the current and next five-year increments of projected service delivery in the services element are presumed not to comply with this standard unless the applicant clearly establishes that special and unique circumstances exist which ensure the provision of quality services during the applicable time frame for the affected area consistent with the other standards. (Section I, Standard Number 4)
- ▶ The annexation must provide the lowest cost and highest quality of urban services for the affected population. LAFCo will approve an annexation ... only if the Commission determines that the annexing agency possesses the capability to provide the most efficient delivery of applicable urban services for the affected population. (Section I, Standard Number 5)

6.5.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

Analysis provided in this section is based on consultation with local public service providers, review of policies for provision of public services, and comparison of the project’s public service ratios to goals established by service providers. Analysis of the project’s effect on park and open space resources is provided in Section 6.6, “Parks and Open Space.”

THRESHOLDS OF SIGNIFICANCE

As identified in the State CEQA Guidelines (Appendix G), an impact related to the provision of public services would be considered a significant environmental impact if the proposed project would:

- ▶ Result in substantial adverse physical impacts associated with the provisions of new or physically altered governmental facilities, or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
 - Fire protection
 - Law enforcement
 - Solid Waste
 - Schools

IMPACTS AND MITIGATION MEASURES

IMPACT 6.5-1

Increased Demand for Fire and Emergency Medical Services. *Although SFD is planning to construct a new fire station near the project site and with this facility SFD would provide services to the project site within acceptable standards, the timing of the construction of this facility is currently unknown. Because it is unknown whether adequate fire protection facilities would be in place at the time the first occupancy permit is issued, the project could result in residents living in an area where inadequate fire and emergency response services are provided. This would be a **potentially significant** impact.*

The City of Sacramento Fire Department’s optimal response time for fire and emergency medical calls is 4.5 minutes from the time the call is placed. Fire station 30 would provide primary response for emergencies at the project site. Current response time to the project site from fire station 30 is approximately 7 minutes (Chang, pers. comm., 2005). Because response times to the project site would exceed the SFD’s goal of 4.5 minutes, response times to fire and emergency medical calls would exceed acceptable standards. In addition, the SFD expressed concern with their ability to adequately provide fire and emergency medical services to the project site (Chang, pers. comm., 2005).

The City has planned and intends to construct a new fire station that would serve the project site and areas near the project site as described above (King, pers. comm., 2005). However, the timing of construction of this station is currently unknown, and it is not certain whether this facility would be in place at the time the first occupancy permit is issued for the site.

Because it is unknown whether adequate fire protection facilities would be in place at the time the first occupancy permit is issued, the project could result in residents living in an area where inadequate fire and emergency response services are provided. This would be a **potentially significant** impact.

Mitigation Measure 6.5-1: (City of Sacramento and LAFCo)

- a. The project applicant shall coordinate with the City of Sacramento to determine the timing of construction of a new fire station that would serve the proposed project. The project applicant shall enter into an agreement with SFD to ensure that adequate fire protection services would be in place before the issuance of the project’s first occupancy permit. Potential options for adequate services could include construction of a new fire station or an agreement for temporary dedicated services to serve the project site.
- b. The project’s Finance Plan shall identify necessary public facility improvements needed to serve the project, 100% of the costs required, and all the project’s fair-share costs associated with provision of these facilities and services. The project applicant shall pay into a fee program, as established by the Greenbriar Finance Plan, that identifies the funding necessary to construct needed public facilities (e.g., police, fire, water, wastewater,

library, and schools). The Draft Greenbriar Finance Plan is provided in Appendix C. The Finance Plan would be structured to ensure that adequate public facilities are in place as development occurs.

Significance after Mitigation

With implementation of the above mitigation, the project's impact to fire services would be reduced to a less-than-significant level. However, the mitigation proposed (i.e., construction of a new fire station) could result in construction-related environmental effects including increased air emissions, traffic trips, conversion of agricultural lands and open space areas, and impacts to special-status species and wildlife. Further, operation of the station could result in potential land use conflicts including increased noise associated with engine operations, increased roadway traffic volumes, and increased safety hazards. The proposed station would be located within the North Natomas area. Resources within the North Natomas area are generally similar to resources found within the project site. Mitigation recommended for the project would also substantially reduce impacts associated with construction and operation of this facility. However, it is unknown whether mitigation would reduce impacts to a less-than-significant level. Therefore, construction of the proposed new fire station, which would be required to provide adequate fire protection services at the project site, could result in significant and unavoidable environmental effects. Therefore, for purposes of CEQA, this would be a *significant and unavoidable* impact.

| |
|-----------------|
| IMPACT 6.5-2 |
|-----------------|

Increased Demand for Law Enforcement Services. *Although the project would increase demand for police personnel, the SPD has indicated that it could serve the project site, without the need to construct any new law enforcement facilities (McCray, pers. comm., 2005). Therefore, the project would have a less-than-significant impact on police services.*

Although the SPD does not have an adopted officer-to-resident ratio, the SPD currently provides service at a ratio of 1.7 sworn police officers per 1,000 residents. The project would generate an estimated 8,926 residents (based on U.S. Census 2000 data of 2.57 average household size in the City of Sacramento x 3,473 households in project), which would result in a demand for approximately six officers. Staff of the police department indicated that based on past police department policy and actions, sworn officers would be added on an as-needed basis to provide adequate public safety to Sacramento in response to continued growth of the North Natomas area (McCray, pers. comm., 2005). Ultimately, the project site would be served primarily by the new North Natomas Police Station located in the Town Center, approximately 1.9 miles east of the project site along Del Paso Road. However, the timing of construction of this facility is currently unknown. No new police facilities would be required to specifically serve the project (McCray, pers. comm., 2005). Further, as part of the project's finance plan (see Mitigation Measure 6.5-1b), the applicant would pay into a fee program that would support the funding of public facilities needed to serve all development within the project area. A copy of the Draft Greenbriar Finance Plan is included in Appendix C. The fee program would be structured to ensure that basic facilities are in place when needed for development, including police facilities (see Mitigation Measure 6.5-1).

Because the City would add personnel to the police department on an as-needed basis to meet service goals, the project would not result in the need to construct any new police facilities to serve the project (the construction of which could result in significant physical environmental impacts). The applicant's finance plan would ensure adequate funding is paid into a fee program that would ensure basic police services would be provided as development occurs; the project would not result in any substantial adverse impacts to police facilities and services. Therefore, this impact would be considered *less than significant*.

**IMPACT
6.5-3**

Increased Demand for Solid Waste Disposal Services. *Additional solid waste facilities would not be required with development of the proposed project. Therefore, there are **no impacts** related to provision of adequate solid waste collection and disposal services.*

The project would be served by the City of Sacramento Department of Utilities Solid Waste Division. The project site would be located within Solid Waste Collection Area 5. Residents and tenants of the project site would be provided trash cans or bins by the Public Works Department for disposal of solid wastes. The Utilities Department would be responsible for arranging garbage pick-up services at the project site. Staff of the Utilities Department indicated that additional garbage trucks or facilities would not be necessary to serve the project site and that the project could be accommodated by existing facilities and resources in the North Natomas area (Strauss, pers. comm., 2005).

Materials collected from the project site would be sorted at the Sacramento Recycling and Transfer Station with the remaining refuse taken to Lockwood Landfill in Lockwood, Nevada. A curbside recycling program would be required as part of the collection service to divert recyclable wastes from the waste stream. Because the Utilities Solid Waste Division does not use a specific calculation to determine the volume of solid waste that would be generated by development projects, calculations from the California Integrated Waste Management Board (CIWMB) are used. The CIWMB provides an average per capita disposal rate for Sacramento County of 0.36 tons per year per residence (CIWMB 2005a). The project would construct 3,473 residences which would result in the generation of 1,250 tons of refuse per year.

The project includes 13.6 gross acres of village commercial land uses, 17.2 gross acres of neighborhood commercial land uses, and 11.2 gross acres of educational uses, for a total of 42 gross acres. Business waste disposal rates are calculated by CIWMB to range from 0.3 tons per employee per year for general merchandise stores to 2.9 tons per employee per year for food stores (CIWMB 2005b).

The North Natomas Community Plan uses 30 employees per acre for estimating the total number of employees generated by commercial uses. For the purposes of this analysis, 30 employees per acre was used to estimate solid waste generation rates from the project's proposed commercial uses. It is estimated that proposed commercial land uses would generate a total of 924 employees. Assuming that the 13.6-gross-acre village commercial lot would be developed with a food store and the 17.2-gross-acre neighborhood commercial lot would be developed with a general merchandise store, the commercial land uses associated with the proposed project would result in the generation of 1,338 tons of refuse per year. In addition, the project includes a 11.2-acre (gross) school site for development of a future elementary school. School waste disposal rates are not provided by CIWMB; however, CIWMB's website (CIWMB 2004) provides an estimated solid waste generation rate at 1 pound per student per day as a general level of information for planning purposes. Assuming the project would generate 1,098 elementary school students that attend school approximately 185 days per year (based on Rio Linda Union School District 2005–2006 calendar), the elementary school would generate approximately 102 tons (203,130 pounds) of refuse per year.

Combining the residential and commercial land use solid waste disposal rates, the total solid waste generated by the project would be approximately 737 tons of refuse per day which accounts for approximately 0.4 percent of the solid waste accepted at the Sacramento Recycling and Transfer Station on a daily basis. This volume of waste is not substantial in relation to total available capacity and staff of the Department of Utilities Solid Waste Division have indicated that the transfer station would be able to accept solid wastes from the project (Strauss, pers.

comm., 2005). In addition, the City has determined through its General Plan that the Lockwood Landfill would have sufficient capacity to serve future needs of the City for the next 90 years.

Because existing solid waste facilities would have adequate capacity to serve the project into the foreseeable future, additional solid waste facilities would not be required. Therefore, the project would have a *less-than-significant* impact on solid waste services.

No mitigation is required.

**IMPACT
6.5-4**

Increased Demand for School Services. *School facilities currently serving the Natomas area, including the proposed elementary school site at the project site, would provide adequate school services to the project site. No additional facilities would be required. In addition, the project applicant would be required to pay development impact fees to Grant Union and Rio Linda Union school districts equal to \$2.24 per square foot for residential development and \$0.36 per square foot for commercial development. (Pollock, pers. comm., 2005) Payment of the development impact fees would provide the legally maximum required level of funding under State law, and would fully mitigate project-related school impacts. As a result, the project would result in less-than-significant impacts to school services.*

The project includes land reserved for the construction of a 10-acre (net) elementary school site within the southeastern portion of the project site. According to RLUSD, the site would have the capacity to serve approximately 800 students within a facility consisting of 38 classrooms (Porter 2006, Pollock, pers. comm., 2006).

Based upon the student generation rates provided in the NNCP and from RLUSD, the project would generate a total of 1,484 students, as detailed in Table 6.5-1. Of these students, 724 are anticipated to be in the elementary school grades. Students generated by the project would be enrolled at the on-site elementary school, Rio Linda Junior High School, or Grant Union High School.

**Table 6.5-1
Projected Student Generation, Greenbriar Project and Project Alternatives**

| Land Use | Elementary (K-6) | | Middle School (7-8) | | High School (9-12) | |
|-----------------------------------------------------------------------------------|----------------------------------------|----------|----------------------------------------|----------|----------------------------------------|--------------|
| | Student Generation Factor ¹ | Students | Student Generation Factor ² | Students | Student Generation Factor ² | Students |
| Proposed Project | | | | | | |
| Low-Density (671 du) | 0.32 | 215 | 0.09 | 60 | 0.156 | 105 |
| Medium-Density (2,215 du) | 0.20 | 443 | 0.09 | 199 | 0.156 | 346 |
| High-Density (332 du) | 0.20 | 66 | 0.08 | 27 | 0.069 | 23 |
| Subtotals | – | 724 | – | 286 | – | 474 |
| Total Proposed Project Student Generation | | | | | | 1,484 |
| du = dwelling unit | | | | | | |
| ¹ Obtained from Rio Linda Union School District (Porter 2006) | | | | | | |
| ² Obtained from North Natomas Community Plan (City of Sacramento 1994) | | | | | | |

As identified above, the elementary school proposed on-site would accommodate approximately 800 elementary school students. The project is anticipated to generate 724 elementary school students. As a result, the on-site elementary school would have sufficient capacity to meet demands generated by the project and no long-term shortfall of elementary school services and facilities would result.

Staff of Grant Joint Union School District indicated that Rio Linda Junior High School and High School has sufficient existing capacity to meet the project's junior high and high school demands (Brantley, pers. comm., 2005). In addition, Grant Union High School District plans to construct a new junior high and high school joint use facility on a 70-acre site located approximately 3 miles east of the project site. The junior high school is planned to serve 1,000 students and the high school is planned to serve 2,000 students. The joint use facility is planned to become operational in the year 2009 (Raymond, pers. comm., 2005). Therefore, sufficient high school and junior high school capacity exists and no long-term shortfall of high or junior high school services and facilities would result.

In addition, as allowed by State law, the project applicant has agreed to pay school impact fees, which would be allocated to Rio Linda Union and Grant Joint Union School Districts. These school districts would be responsible for constructing the facilities needed to serve this project. Although the school impact fees are often insufficient to fund 100 percent of new school facility construction and operation, the California State Legislature has declared the school impact fee to be full and adequate mitigation under CEQA. Under California Government Code Section 65996, the City is limited to charging the statutorily created fee to offset impacts to local school districts generated by proposed projects. Section 65996 does not provide for remediation of existing deficiencies in school services. Construction of the proposed elementary school and payment of school impact fees would result in a *less-than-significant* impact on school services and facilities as defined by CEQA. Further, the project applicant has come to an agreement with the Rio Linda Union School District to provide supplemental funding above and beyond the required school impact fees mandated by state law for construction of a new elementary school on the project site. Along with supplemental funding, the project applicant agreed to allow joint use of the adjacent 3.7-acre neighborhood park for elementary school outdoor activities and events.

No mitigation is required.

**IMPACT
6.5-5**

Increased Demand for Library Services. *The existing library located at 2500 New Market Drive would provide library services to the project. In addition, a new library is planned to be built next to Inderkum High School when funding is available. The project applicant would pay into a fee program that would contribute to the funding of this facility. No additional library facilities would be required to serve the project. Therefore, no impacts related to library services would occur.*

The Sacramento Library currently provides temporary library services in the North Natomas community area, including the project site, from Inderkum High School. The Sacramento Library recently received approval of grant funding from the State of California to construct a new library (approximately 23,000 square feet in size) at an educational complex which is adjacent to Inderkum High School. The Sacramento Library is currently in the process of formalizing the grant funding with the State of California. Additional funding would be required from new development to construct the new library. As part of the project's financing plan (Appendix C), the project applicant would pay into a fee program that would support the funding of public facilities that would serve all development within the project area (see Mitigation Measure 6.5-1a). The fee program would be structured to ensure that basic facilities are in place when needed for development, including library services.

Because the project would not result in the need to construct any new, unplanned library facilities, and the applicant would pay into a fee program that would contribute to funding of a new library facility currently proposed adjacent to Inderkum High School, the project would result in *no impact* on library services.

No mitigation is required.

6.6 PARKS AND OPEN SPACE

6.6.1 INTRODUCTION

This section generally describes existing recreational facilities in the Sacramento area and within the vicinity of the project site. It also provides a discussion of impacts of the proposed project on local and regional recreational facilities, and evaluates the adequacy of the recreational facilities included as part of the proposed project in meeting the recreational demand generated by the proposed Greenbriar development.

6.6.2 ENVIRONMENTAL SETTING

The project area is currently located within the jurisdictional boundaries of the County of Sacramento (County), but would be subject to annexation into the City with approval of the proposed project. Therefore, the City's existing park and recreation facilities and open space areas and policies and standards related to these facilities are described below. Because of the regional nature of park and open space facilities, and because open space resources are considered a key resource prior to annexation of the project site by the Sacramento LAFCo, County parkland and open space resources are also described below. No local or regional parks or bikeways are currently located within the project area, which is currently undeveloped land that supports agricultural land uses.

COUNTY OF SACRAMENTO PARKLAND AND OPEN SPACE

The Greenbriar project area is currently located within the jurisdiction of the County Department of Regional Parks, Recreation and Open Space. From 1975 to 1995, the total acreage managed by the County increased by 250%. The County currently maintains more than 14,000 acres of open space and recreation areas, among them the 23-mile-long American River Parkway; numerous parks, recreation, and river access points; the Effie Yeaw Nature Center; four golf courses; and various historic, cultural, and natural resources (County of Sacramento 2005). Discovery Park, at the west end of the Jedediah Smith Bike Trail in the American River Parkway, is approximately 6 miles south-southeast of the project site. The County manages three regional parks (Elk Grove Park, Gibson Ranch, and Mather Regional Park); the 345-acre Gibson Ranch County Park, located approximately 9 miles northeast of the site, is the closest of the County's regional parks to the project site. The County operates the Elkhorn Boat Launching Facility and picnic area along the Sacramento River west of Sacramento International Airport, approximately 6 miles west of the project site.

The project site is not located within the boundaries of any specific County park district (Sacramento LAFCo 2003).

The *County of Sacramento General Plan* (County General Plan) land use diagram identifies much of Sacramento County as open space. Major open space areas include the islands, waterways, and wetlands of the Sacramento–San Joaquin Delta (including the Stone Lakes complex); the extensive Cosumnes River floodplain; oak woodlands and grasslands extending from State Route 50 south to San Joaquin in the east county; agricultural lands in the North Natomas area; and the gentle swales of the East Vineyard and Douglas-Sunrise areas containing innumerable vernal pools. Within the urban area, the American River Parkway stands apart as the dominant open space feature. Other notable planned open spaces in the urban area include Del Paso, Hansen, and Land Parks in the city, Dry Creek in Rio Linda, and the buffer lands around the Sacramento Regional Wastewater Treatment Plant (County of Sacramento 1993).

Sacramento County has been among the top 10 urbanizing counties as well as in the top ranks for net loss of irrigated land as mapped between 1988 and 2002 by the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation's Division of Land Resource Protection. Growth in urban land has averaged more than 4,000 acres per biennial FMMP map update since 1988 (California Department of Conservation 2005). Between 1990 and 1998, the total area of agricultural lands in Sacramento County decreased from 419,000 acres to about 402,000 acres, a 4.2% decrease. During this same period, urban lands increased from 137,374 acres to more than 150,716 acres, a 9.7% increase. (Sacramento Environmental Commission 2000.) The

project vicinity is no exception to this trend of urbanization, as the project site is within a portion of Sacramento County that historically has been devoted to agriculture, but is seeing rapid urban development replace much of this open space. The North Natomas Community Plan (NNCP) area has a current population of 14,865 that is expected to grow to 45,040 by 2015 and 66,495 by 2025 (SACOG 2005).

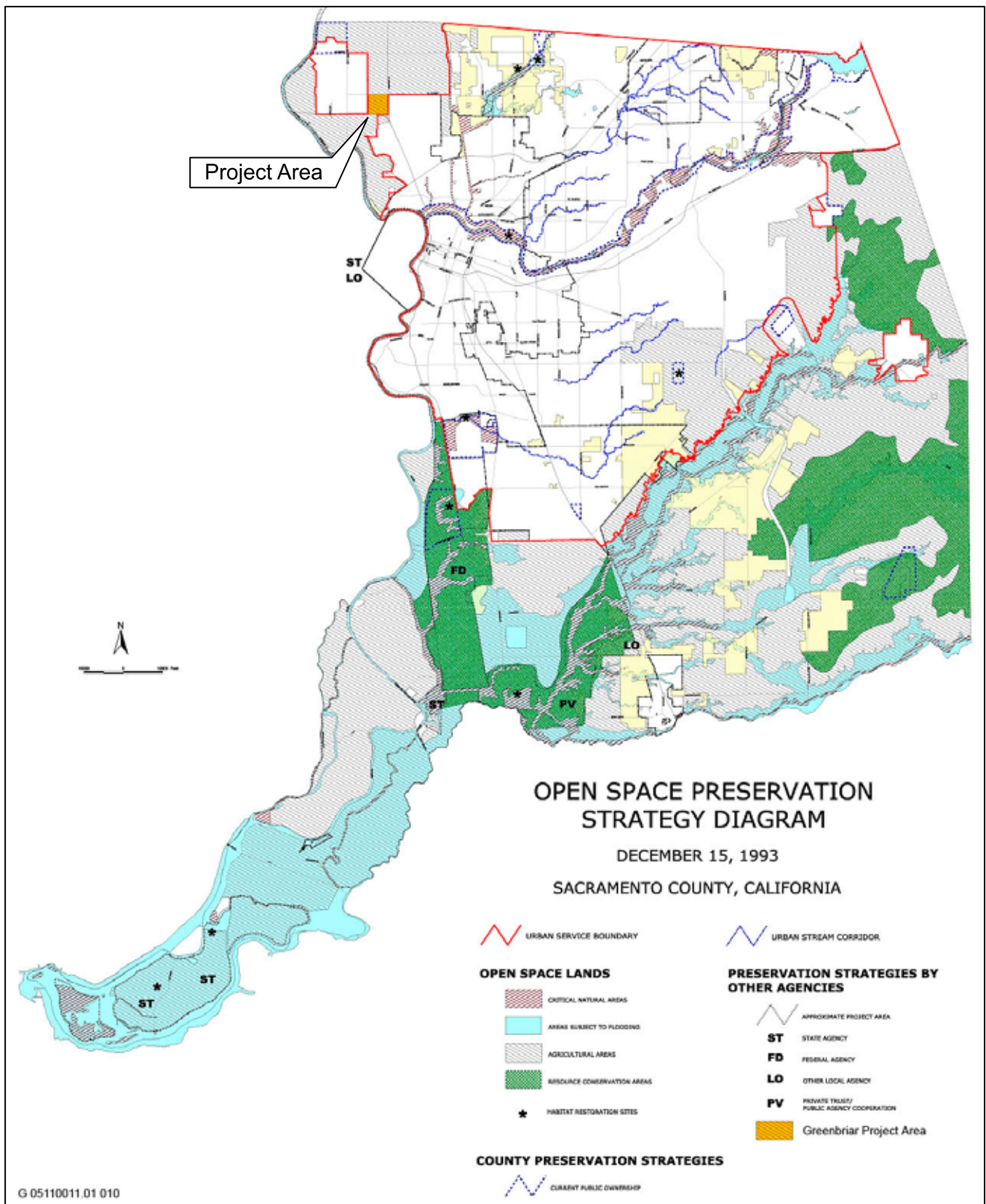
While Exhibit 6.6-1 depicts open space areas in Sacramento County at the time of the County General Plan (1993), a comparison of past, present, and projected open space areas within Sacramento County cannot be made with certainty for purposes of this EIR analysis. The County General Plan's open space map does not indicate land use acreages, and the County does not keep a detailed accounting of past, current, or projected countywide open space acreage and potential acreage loss (County of Sacramento 1993; Defanti, pers. comm., 2005). Furthermore, the Sacramento Area Council of Governments (SACOG) does not specifically monitor open space acreages within the jurisdictions it covers. Although SACOG completed a study of open space in 2001, the data from this 2001 analysis are questionable because each jurisdiction has its own definition of open space (Hossack, pers. comm., 2005), and the projections for Sacramento County in SACOG's Preferred Blueprint Scenario for year 2050 do not include open space acreage numbers (SACOG 2004).

CITY OF SACRAMENTO FACILITIES

Existing Facilities

The City currently owns and operates 204 park and recreational facility sites (including golf courses and Camp Sacramento, 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. (City of Sacramento 2004a.) With approval of the proposed project and annexation of the project site into the City, the site would be included in the Department of Parks and Recreation's North Natomas Community Planning Area. The City operates other types of recreational facilities including a senior center, 11 community centers, and four clubhouses (i.e., activity buildings available for rental by the public for small parties, gatherings, or meetings). The closest existing parks to the project site are the 7.2-acre Kokomo Park, 4.3-acre Westhampton Park, and 4.0-acre Egret Park (Phase 1), each located approximately 1 mile from the site within the NNCP area. Several future park sites are proposed just east of SR 70/99 and south of Interstate 5. (City of Sacramento 2004b, 2004c.) North Natomas Regional Park under phased construction in the NNCP area (located at Natomas Park Drive at Natomas Boulevard) and serves the project site; however, the 172-acre site is only partially developed with landscaping, walkways, and bikeways (City of Sacramento 2004a, 2005).

The *City of Sacramento General Plan Update: Technical Background Report* (City of Sacramento 2005) states that as of December 2004, approximately 12,946 acres of land in the City's Policy Area (i.e., the City boundaries and sphere of influence, plus additional areas to which adopted City policies may relate), or 12% of the existing land in this area, were in agricultural use, with a large portion of the existing agricultural land located in North Natomas. Open space areas comprised 122 acres (less than 1%) of land area within the City limits. Within the City's Policy Area, open space areas comprised 1,488 acres (1% of the land in this area) (City of Sacramento 2005). According to the *City of Sacramento Parks and Recreation Master Plan 2005–2010* (City Parks and Recreation Master Plan), the City has 657.4 acres of open space as part of its "Citywide/Regionally Serving" acreage (see "Provision of Recreation Areas" in Section 6.6.3, "Regulatory Setting," below); this acreage includes portions of City public golf courses and state/county parklands within City limits, but does not include lands that provide buffers between habitat areas and development or lands required for environmental mitigation (City of Sacramento 2004a). As described under "Provision of Recreation Areas" below, the City has goals to provide 8 acres per 1,000 residents of citywide/regionally serving park acres, including regional parks, linear parks/parkways and open spaces as part of the City's public parks and recreation system (City of Sacramento 2004a; Tindell, pers. comm., 2005).



Source: County of Sacramento 1993, data compiled by EDAW in 2005

Open Space in Sacramento County

Exhibit 6.6-1

Facilities Compared with Plan Standards

On the basis of the standards listed in the *City of Sacramento General Plan* (City General Plan) and the City Parks and Recreation Master Plan (see Section 6.6.3, “Regulatory Setting,” below), the City had a deficit in neighborhood and community parks acreage (considered together) of less than 20 acres and no deficit in citywide/regionally serving park acres, as of December 2004, when portions of public school sites in the City open to the public after school hours are considered to help meet service level goals for recreation facilities. With project population growth, however, through 2010, the City’s goal is to eliminate projected acreage deficiencies by year 2010, the end date of the current Master Plan. (City of Sacramento 2004a.) Areas underserved have been identified in older developed areas such as Land Park, North Sacramento, South Sacramento, and the Central City, while gaps in service have been identified at various undeveloped existing sites around the City, including in North Natomas. However, the City regularly takes steps to eliminate these gaps in service, such as encouraging joint use and joint development of school sites and private facilities; planning new community parks for existing neighborhoods; pursuing opportunities to develop parkland as new development occurs and funding sources are secured; and pursuing funding to complete development of regional parks such as North Natomas Regional Park (City of Sacramento 2004a).

6.6.3 REGULATORY SETTING

FEDERAL

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 (42 United States Code [USC] 12181) prohibits discrimination on the basis of disability in public accommodation and state and local government services. Under the ADA, the Architectural and Transportation Barriers Compliance Board issues guidelines to ensure that facilities, public sidewalks, and street crossings are accessible to individuals with disabilities. Typical ADA improvements include creating handicap parking spaces, restroom modifications, door hardware requirements, and lighting upgrades. Play areas, meeting rooms, park restrooms, and other buildings and park structures must comply with ADA requirements. Park facilities under the proposed project or any project alternative would be required to be ADA compliant.

STATE

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 in 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 city or county 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 collect Quimby Act in lieu fees. These fees contribute to a fund that would be used to acquire properties for parkland. Because the Greenbriar project site is currently located within the County but would be subject to annexation by the City if approved the City's standards for parkland dedication under the Quimby Act are provided in the discussion of local regulations below.

LOCAL

City Standards for Parkland Dedication

Chapter 16.64 of the City Code provides the City's standards 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 (Wackford, pers. comm., 2005), while the calculation factor for high-density housing is lower (0.0088). Lakes and open-space buffer areas required for habitat protection are not included in the overall calculation of parkland dedication requirements, although they could provide a recreational benefit.

City and County of Sacramento Joint Vision for Natomas

In the late 1990s, the City and County of Sacramento were each considering projects that would urbanize a substantial portion of the Natomas Basin. Both jurisdictions determined that it would be mutually beneficial to plan the area cooperatively. Starting in 2001, City and County staff met to discuss a process for planning the unincorporated Natomas area. This gave rise to the City/County Joint Vision for Natomas. The two jurisdictions coordinated and along with input from stakeholders created the basic principles for development in the area. On December 10, 2002, the Sacramento City Council and the County Board of Supervisors approved a Memorandum of Understanding (MOU) that outlined a joint vision for land use and revenue sharing principles for Natomas. The MOU recognizes the City as the agent of development and the County as the agent of permanent open space protection, including farmlands and habitat.

The MOU expresses the County's and City's desires for development within the Natomas Basin, but it does not provide binding land use policies for either agency. The following are among the principles to which the County and City agreed through the MOU (City of Sacramento, County of Sacramento 2002), and are applicable to consideration of open-space issues.

Principles on Open Space

1. Open space planning will rely on, and coordinate with, existing open space programs and will address linkage issues. Some specific areas will be designated for preservation as permanent open space to provide assurance that community separators are implemented. Other areas, such as west of Sacramento International Airport, may not require active preservation because of specific constraints related to inadequate infrastructure or public ownership.
2. Open space mitigation may be in conjunction with or distinct from any applicable criteria of the Natomas Basin Habitat Conservation Plan (NBHCP) and may, depending upon circumstances, exceed that of the NBHCP. A joint funding mechanism will provide funding for land and easement acquisitions.
3. Land to be preserved as farmland must not be restricted by nearby development and needs to have a secure supply of affordable water. Buffer areas will be derived from developing lands.

Principles on Future Growth

1. Consideration of new growth should be done in partnership with the preservation of open space. The urban form should include a well-integrated mixture of residential, employment, commercial, and civic uses,

interdependent on quality transit service with connections linking activity centers with streets, transit routes, and linear parkways with pedestrian/bike trails.

The open space principles provide an agreement regarding the size, location, and nature of open space preservation areas within the Natomas area, while the future growth principles provide a vision of the location, size, and nature of future growth. Regarding open space, the City and County have agreed to implement a principle that would require new development to preserve permanent open space in the Natomas area at a mitigation ratio of 1 acre of lost open space to 1 acre of preserved open space.

City of Sacramento General Plan

Recreation Policies

The Public Facilities and Services Element of the City General Plan (City of Sacramento 1988 as amended December 2004) includes several policies and standards related to recreation. With the proposed annexation of the project area into the City, the City standards would apply. The following policies are applicable to the proposed project.

- ▶ **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.

Natural Resources Policies

Preservation of Natural Resources

- ▶ **Goal A:** Implement the Master Plan for Parks and Recreation.
 - **Policy 4:** Establish a system of open space, buffers, and view sheds that act as neighborhood gateways, and as visual and physical community separators and greenbelts to define the limits of urban growth (City Council Resolution No. 2004-906, December 7, 2004).

Open Space Policies

The Conservation and Open Space Element of the City General Plan (City of Sacramento 1988) is also pertinent to the discussion of parks and open space in this EIR. Relevant policies from this section are listed below.

Conservation of, and Open Space Used for, the Managed Production of Resources

- ▶ **Goal A:** Retain land inside the City for agricultural use until the need arises for development, and support actions of Sacramento County to similarly conserve its land until needed for urban growth.
 - **Policy 1:** Phase the conversion of agricultural lands to urban uses while implementing the policies of the North Natomas Community Plan.

Recreation Area Types

The City General Plan identifies urban plaza/pocket parks, neighborhood parks, community parks, regional parks, parkways, dedicated open space, and joint use school sites (described in Table 6.6-1) as the types of parkland that would fulfill the active and passive recreation needs of the community as described in the public facilities policies.

Provision of Recreation Areas

The current City General Plan and the City Parks and Recreation Master Plan (City of Sacramento 2004a) include the following park acreage Service Level Goals:

- ▶ neighborhood serving areas, 2.5 acres per 1,000 residents;
- ▶ community serving areas, 2.5 acres per 1,000 residents; and
- ▶ citywide/regional serving areas, 8 acres per 1,000 residents.

The City General Plan formerly had a standard of 5 acres per 1,000 residents for regional parks, but the General Plan was formally amended in December 2004 for consistency with the Master Plan (Tindell, pers. comm., 2005).

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 “citywide/regionally serving” Service Level Goal are regional parks, linear parks/parkways, and open space. These three types of facilities are considered together toward the goal of 8 acres per 1,000 residents (City of Sacramento 2004a; Tindell, pers. comm., 2005).

On the basis of the standards listed in the *City of Sacramento General Plan* (City General Plan) and the City Parks and Recreation Master Plan (see Section 6.6.3, “Regulatory Setting,” below), the City had a deficit in neighborhood and community parks acreage (considered together) of less than 20 acres and no deficit in citywide/regionally serving park acres, as of December 2004, when portions of public school sites in the City open to the public after school hours are considered to help meet service level goals for recreation facilities. With project population growth, however, through 2010, the City’s goal is to eliminate projected acreage deficiencies by year 2010, the end date of the current Master Plan (City of Sacramento 2004a.).

The project’s consistency with the above City policies is evaluated in Chapter 5.0, “Project Consistency with Plans and policies.”

LAFCo

The Policies, Standards, and Procedures document (Sacramento LAFCo 1993) include standards regarding the Sacramento LAFCo’s powers to conserve agricultural land. LAFCo will approve a proposed change of

**Table 6.6-1
Park Category Descriptions**

| Park Category | Size Guidelines | Service Area Guidelines | Description |
|-------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Neighborhood Serving: | | | |
| Neighborhood Parks | 5 to 10 acres | ½ mile | A park intended to be used primarily by the people who live nearby, or within 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. |
| Urban plazas/ pocket parks | Less than 5 acres | ½ mile | A specialized neighborhood park or facility to be used primarily by persons living, working, or visiting nearby. Likely more appropriate for areas denser urban and mixed-use development. Amenities may include: smaller scale features such as community gardens, children’s play areas, sitting areas, tables, fountains, hardscape, public art, walkways and landscaping. |
| Primary Design Elements | | | Basic landscaping/irrigation/turf/trees; site furniture/walkways/entry improvements/signage/drinking fountain; children’s play area (tot lot and adventure area); picnic area with shade structure; sport court; sports field |
| Community Serving: | | | |
| Community Parks | 10 to 60 acres | 2–3 miles; drivable from several neighborhoods | 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, restroom, on-site parking, bicycle trail, a nature area, a dog park, lighted sport fields or sport courts. Specialized facilities may also be found in a community park including: a community center, a water play area and/or a swimming pool. Some of the smaller community parks may be dedicated to one use, and some elements of the park may be leased to community groups. |
| Primary Design Elements | | | All Neighborhood park primary design elements; water element; field lighting; sports complex; amphitheater; restroom; parking lot; nature area. |
| Citywide/Regionally Serving: | | | |
| Regional Parks | Varies; generally larger than community parks and/or have destination attraction(s) | Citywide & beyond | A park or facility developed with a wide range of amenities, which are not found in neighborhood or community parks to meet the needs of the entire City population. In addition to those amenities found in neighborhood and community parks, improvements may include: a golf course, marina, amusement area, zoo, and other region-wide attractions. Some facilities in the park may be under lease to community groups. |
| Open Space/ Parkways | | | Open spaces are natural areas that are set aside primarily to enhance the City’s environmental amenities. Recreational use of these areas may be limited to natural features of the sites, such as native plant communities or wildlife habitat. Parkways are similar to open space areas because they also have limited recreational uses. They are used primarily as corridors for pedestrians and bicyclists, linking residential areas to schools, parks and trail systems. Parkways are typically linear and narrow and may be situated along a waterway, abandoned railroad, or other common corridor. |

organization or reorganization (such as an annexation) that will result in the conversion to other uses of prime agricultural land in open space use only if it finds that the proposal will lead to the “planned, orderly, and efficient” development of an area. To be considered planned, orderly, and efficient, the proposal must meet the following criteria:

- ▶ The land to be reorganized must be contiguous to lands developed with an urban use or lands that have received all discretionary approvals for urban development.
- ▶ The proposed development must be consistent with the applicable jurisdiction’s Spheres of Influence Plan, including the Master Services Element.
- ▶ Development of all or a substantial portion of the land in question is likely to occur within 5 years. Annexation should be phased if the development is very large.
- ▶ Insufficient vacant nonprime lands exist within the applicable Spheres of Influence that are planned, accessible, and developable for the same general type of use.
- ▶ The proposal will have no significant adverse effect on the physical and economic integrity of other agricultural lands. In determining whether there will be a significant adverse effect, LAFCo will consider the agricultural significance and use of the land in question, as well as adjacent areas; potential for public facilities associated with the proposal to facilitate the conversion of adjacent or nearby agricultural land; natural or artificial barriers between adjacent agricultural land and the proposed development; and applicable policies regarding open space, land use, and growth management.

LAFCo will not find a proposed development consistent with a jurisdiction’s sphere of influence unless the applicable jurisdiction has:

- ▶ prepared and approved a Spheres of Influence Plan,
- ▶ identified all prime agricultural land within the sphere of influence,
- ▶ enacted measures to preserve such land, and
- ▶ adopted in its General Plan measures to encourage infill development as an alternative to development of agricultural lands.

The project’s consistency with LAFCo’s policies is evaluated in Chapter 5.0, “Project Consistency with Plans and Policies.”

6.6.4 IMPACTS AND MITIGATION

METHOD OF ANALYSIS

Analysis provided in this section is based on information obtained from the City General Plan, the *City of Sacramento General Plan Update: Technical Background Report* (City of Sacramento 2005), the City Parks and Recreation Master Plan (City of Sacramento 2004a), and the City Code. Existing and planned future recreational facilities were compared with relevant City General Plan policies and City Code requirements to determine whether the proposed facilities would be adequate to meet the demand created by the proposed project. The effects of construction of new recreational facilities proposed throughout the project footprint are evaluated throughout this EIR, and therefore are not discussed further in this section.

THRESHOLDS OF SIGNIFICANCE

The proposed project would result in a significant park and open space impact based on the State CEQA Guidelines (Appendix G), if it would:

- ▶ increase demand on existing neighborhood and community parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- ▶ result in the substantial loss of open space resources.

IMPACTS AND MITIGATION MEASURES

IMPACT 6.6-1

Increased Demand for City Neighborhood and Community Parks. *A prescribed formula in the City's Quimby Act land dedication ordinance is used to determine how much parkland must be provided by proposed developments to meet demand generated by new residents. Based on application of this formula, residential development under the proposed project would require 48.2 net acres of parks. The proposed project would provide approximately 48.4 net acres of neighborhood and community parks. Therefore, the proposed project would provide sufficient parkland to meet the City's standards for parkland dedication, and thus would provide sufficient park facilities to meet demand. This impact would be less than significant.*

The City's standard for parkland dedication under the City's Quimby Act land dedication ordinance (City Code Title 16, Chapter 16.64) is 5 acres of parkland per 1,000 residents. New developments that do not meet this acreage standard must pay an in-lieu fee to the City. The City uses a prescribed formula included in the Quimby Ordinance to determine how much parkland must be provided by proposed developments to meet demand generated by new residents. This formula multiplies the number of proposed housing units by specified factors (0.0149 for single-family [low-density] and medium-density housing and 0.0088 for high-density housing). The proposed project would have 671 low-density, 2,215 medium-density, and 587 high-density housing units. Therefore, based on application of the City's formula to the proposed project, to meet the City's Quimby Act standards for parkland dedication, the proposed development would be required to provide approximately 48.2 net acres of parkland.

Under the proposed project, there would be approximately 48.4 acres (net) of neighborhood and community parks. Therefore, the proposed project would slightly exceed the City's parkland dedication requirement of 48.2 acres. Because part of the proposed project would be located within an airport safety zone and the Sacramento International Airport Comprehensive Land Use Plan (CLUP) prohibits lighted parks and community parks in airport safety zones, the proposed project would not include community parks within the airport safety zone. The proposed 23-acre community park would be located in the northeastern portion of the site outside the airport safety zone and, therefore, could include facilities such as large picnic areas, on-site parking, lighted sport courts/fields, and a dog park. The CLUP also places restrictions on the types of amenities that can be provided at facilities within airport safety zones. As a result park and recreational facilities that are located in the western portion of the project site in the airport safety zone would not include facilities such as ball fields, picnic pavilions, or structured playgrounds. The proposed park facilities would likely include amenities such as tot lots, benches, trails, community gardens, and fountains.

The City General Plan and City Parks and Recreation Master Plan include parkland acreage service level goals of 2.5 acres of neighborhood parks and 2.5 acres of community parks per 1,000 City residents, and 8 acres of citywide/regionally serving park acres per 1,000 City residents. As described above in Sections 6.6.2, "Environmental Setting," and Section 6.6.3, "Regulatory Setting," the City is currently meeting these parkland acreage goals. Because the

proposed project would meet the City's parkland dedication requirement under the Quimby Ordinance as described above, the project would not exacerbate the City's parkland deficit and therefore would not result in substantial physical deterioration of existing facilities. Furthermore, the parkland acreage Service Level Goals in the City Parks and Recreation Master Plan are considered goals and not minimum standards; their application should allow for flexibility as areas change or the needs of the residents change, and should be related to economic feasibility and the nature of the community or neighborhood (City of Sacramento 2004a).

It should be noted that the project could receive a credit towards its required 48.2-net-acre land dedication requirement for privately owned and maintained open space or local recreation facilities because the project includes certain facilities that qualify for credits under the Quimby ordinance. These facilities include recreational swimming areas, recreation buildings, and other special areas (e.g., accessible lake/detention basin) each of which would qualify for up to 5% (2.4 acres) credit toward its land dedication requirement for a total credit of 15% or 7.2 acres. As such, the total park land acreage provided at the site could be reduced by 7.2 acres subject to the City's approval. Regardless, the project would continue to meet its Quimby Act requirements either through land dedication for park facilities, in lieu fees paid by the applicant, and/or with private facility credits for applicable facilities.

For the reasons described above, the proposed project would not increase demand for existing facilities such that the substantial physical deterioration of existing facilities would result. This impact would be *less than significant*.

No mitigation is required.

**IMPACT
6.6-2**

Substantial Loss of Open Space Resources. *The proposed project would result in the conversion of approximately 577 acres of agricultural land to nonagricultural use in an area that already is experiencing substantial development and loss of open space. The conversion of agricultural land to urban development would result in the permanent loss of open space resources. This impact would be significant.*

Agricultural lands within the North Natomas area are part of an assortment of other open space areas within Sacramento County. Sacramento County has been among the top 10 urbanizing counties in California and in the top ranks for net loss of irrigated land as mapped between 1988 and 2002 by the FMMP of the California Department of Conservation's Division of Land Resource Protection (California Department of Conservation 2005). The project site is within a portion of the county that historically has been devoted to agriculture, but rapid urban development is replacing much of this open space. As of December 2004, approximately 12% of the existing land in the City's Policy Area (approximately 12,946 acres) was in agricultural use, with a large portion of the existing agricultural land located in North Natomas (City of Sacramento 2005). The proposed project would result in the direct conversion of approximately 577 acres (gross) of agricultural land to nonagricultural use and urban development in an area that already is experiencing substantial development and loss of open space. Total open space land converted would actually be somewhat reduced through the provision of on-site open space features (e.g., open space corridors, lake/detention basins). The NNJV MOU requires that future development projects preserve permanent open space in the Natomas area through conservation easements at a 1:1 mitigation ratio (comprised of half-to-one ratio for habitat and half-to-one for open space). Because the project would result in the permanent conversion of open space resources and no conservation easements are proposed as an element of the project, the loss of open space would be a *significant* impact.

Mitigation Measure 6.6-2: (City of Sacramento and LAFCo)

- a. Consistent with the principles of the City/County Joint Vision Plan, the project applicant shall coordinate with the City to identify appropriate lands to be set aside in a permanent conservation easements at a ratio of one open space acre converted to urban land uses to one-half open space acre preserved and at a ratio of one habitat acre converted to urban land uses to one-half habitat acre preserved. The total acres of land conserved shall be based on final site maps indicating the total on-site open space and habitat converted. Conserved open space and habitat areas could include areas on the project site, lands secured for permanent habitat enhancement (e.g., giant garter snake, Swainson's hawk habitat), or additional land identified by applicant in consultation with the City. All conserved open space and habitat land shall be located in the NNJV area. Should the City and County change adopted mitigation ratios before issuance of any grading permits, the project applicant shall comply with the revised policy.

LAFCo

Prior to annexation, the city shall implement mitigation measure 6.6-2.

Significance After Mitigation

As described for Mitigation Measure 6.6-2, implementation of mitigation requiring preservation of open space and habitat land would substantially lessen significant impacts associated with the conversion of open space on the project site because conservation easements would assist the public and private sectors in protecting other open space from the pressures of development. However, preservation of existing open space resources would only partially offset conversions of open space associated with project impacts, no new open space would be made available.

For these reasons, and because no other feasible mitigation is available to reduce the impact associated with loss of open space in North Natomas, the project's impacts to open space resources would remain ***significant and unavoidable*** after mitigation.

6.7 AESTHETICS

6.7.1 INTRODUCTION

This section describes the existing aesthetic setting of the project site, the regulatory background that applies to the project and the potential visual impacts on aesthetic resources from implementation of the project.

6.7.2 EXISTING SETTING

The following text describes the existing visual character of the project site and surrounding land. The descriptions of existing conditions are accompanied by exhibits that provide photographs of representative views taken during a site visit on October 4, 2005. The locations of project site viewpoints are shown in Exhibit 6.7-1.

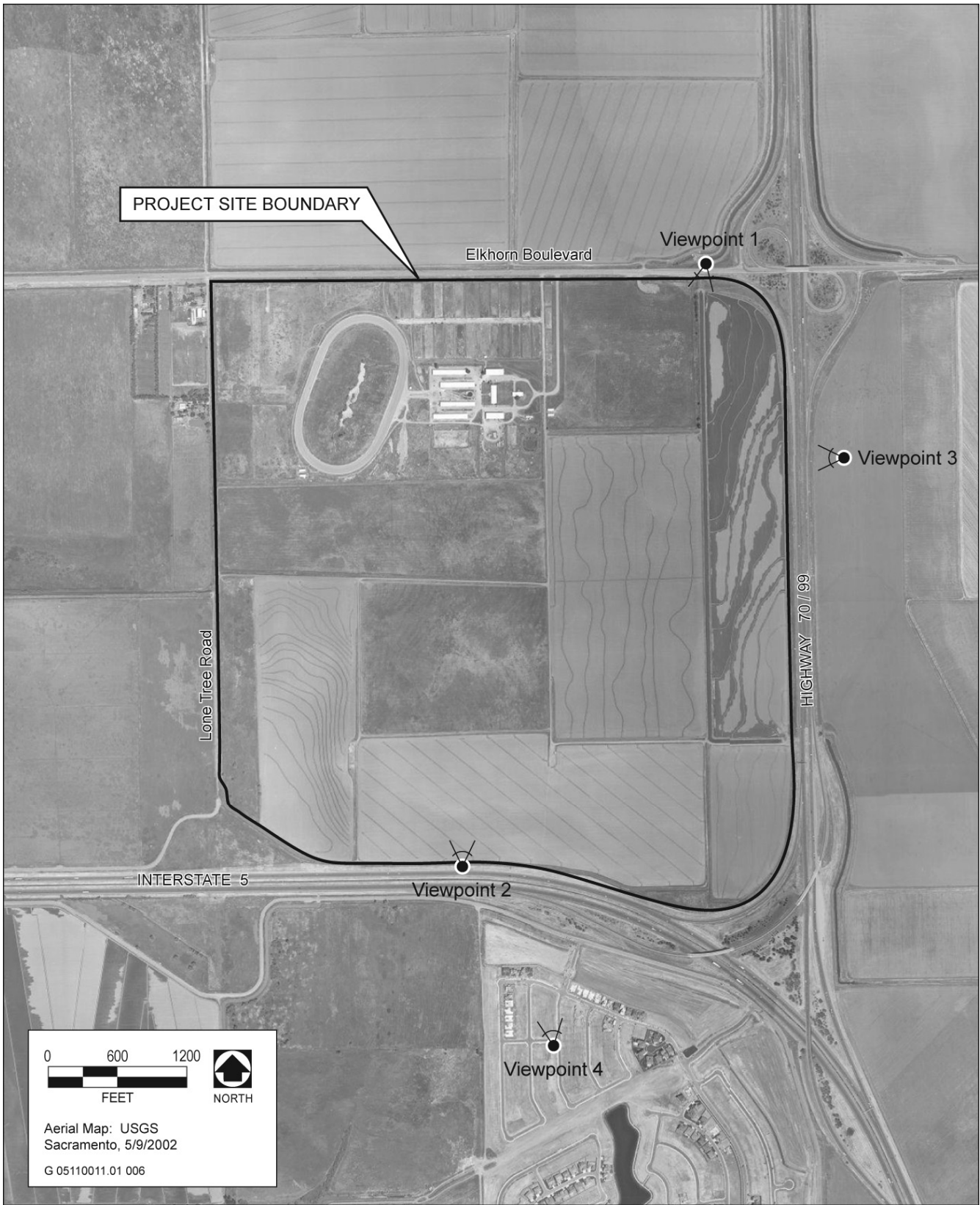
VISUAL CHARACTER OF THE PROJECT SITE

The Greenbriar site is generally flat with elevations at 5 to 25 feet above mean sea level. The plan area slopes gently from west to south. The project site is dominated by fallowed land that was historically used for cultivating crops. In general, the site consists of large open areas and canals/ditches. The northwestern and north-central portion of the project site consists of some remnant building foundations, a racetrack, and large unvegetated and graveled areas. Overall, the character of the project site is representative of agricultural properties that make up the Natomas Basin (Basin), but there are no distinguishing characteristics that set the site apart from other properties in the Basin.

VISUAL CHARACTER OF THE SURROUNDING AREA

The land surrounding the project site generally consists of agricultural properties left fallowed, used for grazing activities, or cultivated with crops. Residential subdivisions are currently in development to the east and south of the project site across State Route 70/99 (SR 70/99) and Interstate 5 (I-5), respectively. These developments consist of single-family homes, commercial areas, park and open space, and are typical of the developments and subdivisions present within the North Natomas Community. The area south of the site has been undergoing a visual transformation over the last 10 years, as the North Natomas Community Plan (NNCP) area has converted from predominantly agriculture to a suburbanized setting. The general character of the surrounding area is described below.

- ▶ **North:** Lands to the north of the project site consist of agricultural lands interspersed with farmsteads and large agriculture-related structures (e.g., silos, processing facilities). In general, areas north of the project site are relatively undeveloped and are representative of historic agricultural activities that dominated the Natomas Basin. On clear days, the Sutter Buttes can be seen in the distant background.
- ▶ **East:** SR 70/99, a 4-lane highway, borders the project site to the east. Further east, a residential subdivision is under construction. This area consists of single-family homes and associated amenities (e.g., yards, roadways) and large areas of graded land.
- ▶ **South:** I-5, a 4-lane interstate highway, borders the project site to the south. Similar to areas east of the site, areas south of I-5 are under development with residential land uses.
- ▶ **West:** Lands to the west of the project are dominated by agricultural lands interspersed with farmsteads and large agriculture-related structures. The Sacramento International Airport is visible in the distant background.



Source: EDAW 2005
 Note: This aerial photograph was taken prior to the demolition of all on-site buildings.

Viewpoint Locations

Exhibit 6.7-1

Views of the Project Site

Distant views of the project site are limited because of the relatively flat topography of the site and the presence of elevated features such as the I-5/SR 70/99 interchange and SR 70/99/Elkhorn Boulevard interchange. Views of the project site would primarily be available to people traveling along SR 70/99 and I-5 in the project vicinity. Travelers along SR 70/99 would have views of the project site for a brief time when passing directly in front of the project site. More distant views of the site are not available because the elevated interchanges (e.g., SR 70/99/Elkhorn and SR 70/99/I-5) block views from the north and south. Views of the site from I-5 are available when travelers pass in front of the site. Distant views from the east are not available because of the elevated SR 70/99/I-5 interchange which blocks views. However, distant views from the west are available.

Four viewpoint locations discussed below were chosen to represent areas that were most sensitive to visual change (Exhibit 6.7-1). The general nature of views of the project site is described from these locations.

Views from the Elkhorn Boulevard/SR 70/99 Interchange (Viewpoint 1)

This viewpoint is located at the northeast corner of the project site (Exhibit 6.7-1). As can be seen in Exhibits 6.7-2 and 6.7-3, foreground views are dominated by flat agricultural fields extending to the west. Highway activity associated with SR 70/99 and I-5 is also visible to the south along the boundaries of the project site.

Mid-distant views from this viewpoint also consist of large areas of agricultural fields with farmsteads interspersed throughout the agricultural fields extending westward. Large agriculture-related structures and water channels extending along the edges of agricultural fields can also be seen to the west and north. Views of new residential and office development can be seen south across I-5.

Distant views from this viewpoint are dominated by Sacramento International Airport. A linear formation of trees that line the edges of the Sacramento River is visible to the west of the airport. Urban development is visible to the south of the airport.

Views from Interstate 5 (Viewpoint 2)

This viewpoint is located at the southern edge of the project site (Exhibit 6.7-1). The foreground is dominated by flat agricultural fields extending northward and irrigation ditches extending along the western and southern boundary of the project site. The I-5/SR 70/99 interchange is visible in the foreground and is substantially taller than its surroundings to the east; therefore, no direct views are available from the south of I-5.

Mid-distant views also consist of large areas of fallow and active agricultural fields extending to the north and west. Vehicles traveling along SR 70/99 are visible along the eastern boundary of the project site and further to the north.

Background views also consist large agricultural fields interrupted by large agriculture-related structures. Structures associated with the Sacramento International Airport appear in the background views to the northwest. The Sutter Buttes can be seen in the far distant reaches to the north but are not prominent in this view.

View from Residences to the East (Viewpoint 3)

This viewpoint is located to the east of the project site across SR 70/99 (Exhibit 6.7-1). As can be seen in Exhibits 6.7-4 and 6.7-5, vehicles traveling along SR 70/99 to the north and south dominate the foreground. Flat agricultural fields extending to the west can be seen from this viewpoint. The I-5/SR 70/99 and SR 70/99/Elkhorn Boulevard interchanges are visible in the foreground to the southwest and northwest, respectively, and are both substantially taller than the surroundings.



View from SR 70/99/Elkhorn Boulevard interchange looking southeast



View from SR 70/99/Elkhorn Boulevard interchange looking southwest

Representative Photographs

Exhibit 6.7-2



View from SR 70/99/Elkhorn Boulevard interchange looking south



Wide view from SR 70/99/Elkhorn Boulevard interchange looking south

Representative Photographs

Exhibit 6.7-3



View from residences east of project site across SR 70/99 looking northwest



View from residences east of project site looking west

Representative Photographs

Exhibit 6.7-4



View from residences east of project site across SR 70/99 looking southwest

Representative Photographs

Exhibit 6.7-5

Mid-distant views are dominated by new residential and office development under construction to the southwest of the project site across I-5 (Exhibit 6.7-5). Vehicles traveling along I-5 are also clearly visible to the southwest.

The Sacramento International Airport dominates background views to the west. Views of trees lining the Sacramento River are visible beyond the airport. Large agricultural-related structures extend above the surrounding landscape and interrupt areas of open space and agricultural lands. The Sutter Buttes are visible to the northwest on clear days and are a distinctive element of the background view to the north.

View from Residences to the South (Viewpoint 4)

This viewpoint is located to the south of the project site across I-5. Vehicles traveling along SR 70/99/I-5 dominate foreground views. Ground level views beyond I-5 are blocked by shrubbery growing within the median of I-5.

At higher elevations, mid-distance views are dominated by large expanses of agricultural fields extending to the north and west. Slight elevation changes in the landscape are visible and appear as extensions of ditches or irrigation canals.

Background views (from higher elevations) are also dominated by large expanses of flat agricultural lands and agricultural-related structures. The Sacramento International Airport and trees lining the Sacramento River are also visible to the northwest. The Sutter Buttes are visible in the distant background and are a distinctive component of the background view on clear days.

6.7.3 REGULATORY SETTING

CALIFORNIA SCENIC HIGHWAY PROGRAM

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. There are no state-designated scenic highways in the vicinity of the project site (Caltrans 2005).

CITY OF SACRAMENTO GENERAL PLAN

The City of Sacramento General Plan does not have any relevant policies related to visual resources.

LAFCo

The LAFCo Policies, Procedures, and Guidelines document does not contain any policies related to aesthetic resources.

6.7.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

This visual impact analysis evaluated the visual changes that would occur at the project site using the standards of quality, consistency, and symmetry typically used for a visual assessment. The visual impacts were compared against the thresholds of significance discussed below. Visual impacts of the project were evaluated assuming full project buildout. This approach was taken because certain impacts, such as light and glare, would be greatest at full buildout.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact related to aesthetic resources, as defined by the State CEQA Guidelines (Appendix G), if it would:

- ▶ have a substantial adverse effect on a scenic vista;
- ▶ substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- ▶ substantially degrade the existing visual character or quality of the site and its surroundings; or
- ▶ create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

IMPACTS AND MITIGATION MEASURES

**IMPACT
6.7-1**

Impacts on Scenic Vistas. *Views on or near the project site are not considered scenic vistas. Therefore, development of the project site would not alter or obscure a scenic vista. This impact would be less than significant.*

A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. The project site itself does not provide any aesthetic resources that would be considered a scenic vista. The agricultural land that make up the project site do not

provide scenery of a remarkable character. In addition, the project site has been developed for agricultural production and other uses (i.e., race track) and it does not provide views of the indigenous natural landscape. Although the current land uses provide views of an agricultural landscape that is representative of the project region, the project site does not contain resources that are exemplary of the agricultural history of the area (i.e., historic structures or landmarks) (see Section 6.13, “Cultural Resources”). Views of the project site are not unique in the region.

Views of and from the project site are obscured by elevated features such as I-5/SR 70/99 interchange and Elkhorn Boulevard/SR 70/99 interchange, but overall the project site is easily visible from along I-5 and SR 70/99. Project facilities could obscure views of scenic vistas that may be located outside the project site. Depending on the height of buildings proposed under the project, development of the project site could briefly obscure existing views of the Sutter Buttes from I-5. However, because of the distance between the project site and the Sutter Buttes, the Sutter Buttes are not readily visible from the portions of I-5 near the project area and are not a prominent component of background views for motorists in this area. Because the proposed project would not have a substantial adverse effect on a scenic vista, this impact is considered *less than significant*.

No mitigation is required.

**IMPACT
6.7-2**

Damage to Scenic Resources within a State Scenic Highway. *The project site is not visible from a state scenic highway and would not damage scenic resources. The project would result in **no impacts** to scenic resources within a scenic highway.*

A scenic resource is generally a resource, landmark, or area that has been noted for its outstanding scenic qualities and is thereby protected because of those qualities. A scenic resource within a state scenic highway is a resource that is noted for its outstanding scenic qualities and is visible from a state-designated scenic highway. No scenic resources have been identified on the project site. Further, the project site is not located along nor is it visible from a scenic highway segment. Therefore, the project would have **no impact** on scenic resources within a State Scenic Highway.

No mitigation is required.

**IMPACT
6.7-3**

Degradation of Visual Character. *The visual character of the Natomas Basin has been gradually changing from agricultural to suburban development as development proceeds north in Sacramento. The project would convert a large area of land from visual open space to suburban development. This is a **significant** impact to the visual character of the area.*

As of the publication of the NOP, project site consisted primarily of fallowed agricultural land. Implementation of the project would result in the conversion of these uses to suburban development and supporting land uses (e.g., parks, school). Conversion from agricultural uses to suburban development would result in a substantial alteration of the visual character of the project area. Because I-5 and SR 70/99 border the project site, the altered visual condition of the project area would be visible to residents living in the area and travelers driving by the project site.

Residents living to the south and east of the project site across I-5 or SR 70/99 would be able to view development on the project site from their homes (Exhibits 6.7-4 and 6.7-5). After the project site is developed, views to the north and east would be consistent with views of the other residential development in the area. Implementation of design, architectural, development, and

landscaping standards as part of the project would ensure that the general visual quality and character of development would be consistent with other development projects in the area. However, the conversion of agricultural land to suburban development on the project site would remove visual open space from these views.

Where the project site is visible from I-5 or SR 70/99, the plan area consists of a common agricultural viewshed found in many locations in Sacramento County. After development of the project, visual conditions of the project site would be similar to existing views of suburban settings found in the project vicinity. Thus, the ongoing visual conversion of the North Natomas Community, as seen predominantly from I-5 and SR 70/99, from open space to suburban development would be extended. Open space, especially in an urbanizing setting is valued for its visual relief. Implementation of design, architectural, development, and landscaping standards as part of the project would ensure that the general visual quality and character of development in the area would be consistent with other suburban development in the area. Although many travelers on this highway segment may not perceive this as a substantial degradation of the visual character or quality of the site because one common type of viewshed found in the area (agriculture) would be replaced by another common local viewshed (urban), others would view the change as adverse.

Individuals may also consider the conversion of agricultural land to urban development on this scale (577 acres) as a loss of an aesthetically pleasing and valuable viewshed. Because agricultural lands can be considered a valuable aesthetic resource and this resource is diminishing in the project area, and because of the size and visual prominence of the site (577 acres), the change in visual character would be considered a *significant* impact.

Mitigation Measure 6.7-3: (City of Sacramento)

Because of the scale and location of the project, there is no feasible mitigation available to address aesthetic resource impacts associated with the conversion of agricultural land to urban development. Although design, architectural, development, and landscaping standards through the proposed Planned Unit Development (PUD) Guidelines would provide an urban development on the project site that remains within certain aesthetic guidelines, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to urban development. Impacts related to the degradation of the local viewshed through conversion of agricultural lands to urban development are considered *significant and unavoidable*.

| |
|-------------------------|
| IMPACT 6.7-4 |
|-------------------------|

Impacts from Lighting and Reflective Surfaces. *The project would require lighting of new development and could construct facilities with reflective surfaces that could inadvertently cause light and glare for motorists on I-5 and SR 70/99 under day and nighttime conditions. In addition, the degree of darkness in the City of Sacramento and on the project site would diminish as a result of development. This impact would be significant.*

Under current conditions the project site does not generate any significant sources of light, glare, or light trespass into the night sky. Development of the project would require lighting of roadways, parks, schools, and other facilities associated with proposed land uses. A substantial increase in the amount of nighttime light and glare would result from the development of the project, substantially obscuring views of stars and other features of the night sky. In addition, nighttime lighting in the commercial areas, or the presence of reflective surfaces on buildings in this area (e.g., reflective window glazing), could result in light and glare shining onto motorists on SR 70/99 in day and nighttime conditions. However, lighting guidelines established by the City of Sacramento focus on balancing the safety of residents with the value of darkness.

Because the project would create a substantial new source of light in the project area and could develop facilities with reflective surfaces, this is considered a *significant* impact.

Mitigation Measure 6.7-4: (City of Sacramento and LAFCo)

- a. The project applicant shall install light fixtures that have light sources aimed downwards and install shielded lighting outside to prevent glare or reflection or any nuisance, inconvenience, and hazardous interference of any kind on adjoining streets or property.
- b. The project applicant shall adhere to all requirements of the City of Sacramento design guidelines regarding appropriate building materials, lighting, and signage in the office/commercial areas to prevent light and glare from adversely affecting motorists and adjacent land uses. All proposed development plans shall be approved by the City.

By directing light sources away from adjacent properties and directing light downward and adhering to the City's design guidelines for building materials (e.g., reflective surfaces), implementation of Mitigation Measure 6.7-4 would substantially reduce impacts related to light and glare to a *less-than-significant* level because proposed lighting sources would not substantially obscure views of the night sky.

6.8 PUBLIC HEALTH AND HAZARDS

6.8.1 INTRODUCTION

This section of the EIR addresses potential impacts related to hazardous materials and hazards associated with historic and current land use of the project site and surrounding uses, including hazards associated with operations at Sacramento International Airport, which is located approximately 1 mile west of the project site. The potential for impacts on emergency response plans is also addressed in this section; service levels by fire personnel and other emergency responders are addressed in Section 6.5, “Public Services,” of this EIR. Potential hazards and associated impacts related to toxic air contaminant emissions are discussed in Section 6.2, “Air Quality” and potential impacts on groundwater are discussed in Section 6.10, “Hydrology, Drainage, and Water Quality.”

6.8.2 ENVIRONMENTAL SETTING

DEFINITIONS OF TERMS

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined in the Code of Federal Regulations (CFR) as “a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

“Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

“Hazardous wastes” are defined in California Health and Safety Code Section 25141(b) as wastes that:

... because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [, or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

LAND USES AND CONDITIONS ON THE PROJECT SITE

Introduction and Historical Context

At the time of the Notice of Preparation (NOP) for this EIR, the project site consisted of undeveloped fallowed farmlands. Wallace Kuhl & Associates completed a Phase 1 Environmental Site Assessment (ESA) for the site in January 2004 (Wallace Kuhl & Associates 2004). During completion of the Phase 1 ESA, Wallace Kuhl & Associates reviewed historical U.S. Geological Survey (USGS) topographic maps dated 1903–1910, 1950, and 1980 with coverage of the project area. No evidence was observed on the maps to suggest that the property was disturbed by human activities such as quarrying, subsurface or surface mining or dredging, or construction of agricultural water wells or historical buildings. Wallace Kuhl & Associates also reviewed historic aerial photos of the property dating back to 1961. As early as the 1961 photo the property appeared to be farmed in rice; the photos taken before 1981 showed no aboveground storage tanks (ASTs) or underground storage tank (UST) fueling islands.

In 1981 a facility known as Two Jakes Park was constructed on approximately 162 acres in the northern portion of the project site. Two Jakes Park was used to train horses for harness racing and included a dirt racetrack and

facilities where the public could board horses. At the time that Wallace Kuhl & Associates conducted the Phase 1 ESA (January 2004) this facility was still located on the site (Exhibit 3-3). However, by the date of the NOP for this EIR (June 17, 2005), all buildings and the on-site septic system formerly on-site had been demolished and removed from the site, although the gravel access road from Elkhorn Boulevard, foundations of some of the buildings, and the dirt racetrack were visible during a June 2005 field reconnaissance by EDAW staff. All ASTs associated with the facility had also been removed from the site. Miscellaneous abandoned or discarded items (e.g., tires, small appliances) could be found in this general area and appeared to have been illegally dumped at the site. There was no obvious evidence of soil contamination during the June 2005 visit.

Although the buildings associated with the Two Jakes Park site had been removed at the time of the Notice of Preparation for this EIR, land uses associated with Two Jakes Park and conditions throughout the site at the time of the Phase 1 ESA are described here to allow evaluation of the potential for residual effects related to hazardous materials. Conditions at Two Jakes Park are discussed first, and are followed by a discussion of conditions elsewhere on the project site and conditions noted throughout the site. Except where otherwise noted, the conditions described below are based on the evaluation included in the Phase 1 ESA (Wallace Kuhl & Associates 2004).

Two Jakes Park

Located at 3822 West Elkhorn Boulevard, Two Jakes Park contained at least 14 structures at the time of the Phase 1 ESA, including horse and storage barns, groomer's quarters, a shop building, a single-story residence, and a mobile home. The single-story residence was connected to a septic system tied to two septic ponds. No waste fluids from vehicle maintenance were generated at the shop building, with the exception of occasional unauthorized oil changes by groomers. There were two ASTs, one containing gasoline and the other diesel, on metal stands. A recreational vehicle (RV) dump and septic sump area were also located on the site; the sump collected waste from the facility and a pump moved the waste into the first of two holding ponds, which were operated under Central Valley Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements Order No. 5-00-061. There were also two groundwater wells. Wallace Kuhl & Associates encountered two 1-quart plastic bottles containing waste oil, but the bottles were capped and did not appear to be leaking, and the soil beneath the bottles was clean and did not contain spilled oil.

Remainder of Property

At the time of the Phase 1 ESA (January 2004), the remaining portion of the property was fallow and agricultural land. The agricultural land was planted in rice; the rice fields contained irrigation canals and dirt roads. During their assessment, environmental specialists from Wallace Kuhl & Associates did not observe any agricultural supply wells on this portion of the property, nor did they encounter areas that would have been used to store pesticides or that would have been used for equipment maintenance. Wallace Kuhl & Associates did not notice any stained or odoriferous soils or areas of stressed vegetation on the property surface or within the canals. This portion of the property had no history of prior development.

Wallace Kuhl & Associates observed three pole-mounted electrical transformers along Elkhorn Boulevard in conjunction with a 12-kilovolt electrical line originating west of the property; however, the transformers were tagged "non-PCB," indicating that they did not contain polychlorinated biphenyls (PCBs) (see "Regulation of PCBs" in Section 6.8.3, "Regulatory Setting," below). These transformers remained in place at the time of the site visit by EDAW staff in June 2005. There were no capacitors or overhead high-voltage electrical transmission lines on steel towers on, adjacent to, or near the project site.

Overall Site Observations

No farm operations hubs, farm or earthwork equipment staging areas, tractor maintenance areas, agricultural chemical mixing or storage locations, old building foundations, evidence of USTs, mechanic's pits, oil/water separators, or hydraulic lifts were observed on the project site by Wallace Kuhl & Associates. (As mentioned previously, however, in June 2005 EDAW staff observed foundations from the buildings at Two Jakes Park,

which by that time had been demolished.) Similarly, Wallace Kuhl & Associates (2004) observed no surface manifestations of dry wells, septic tank lids, leaking aboveground pipes, noxious odors from surface waters, or agricultural burn or scrap piles. No signs, vent pipes, or other surface evidence of buried liquid petroleum pipelines, hazardous materials, or hazardous waste pipelines were observed on or within 1,500 feet of the property (Wallace Kuhl & Associates 2004).

USE OF AGRICULTURAL CHEMICALS ON THE PROJECT SITE

The Sacramento County (County) Agricultural Commissioner's Office has Pesticide Use Reports on file for 1994 through the present. Wallace Kuhl & Associates discussed past agricultural operations on the Greenbriar property with County Agricultural Commissioner's Office biologist Daniel Sarracino. The property vicinity has historically supported rice and possibly sugar beets, but only rice has been grown on the property for at least the past 10 years. No cease and desist orders or notices of violation in reference to pesticide use were on file for the Greenbriar property at the time that the Phase 1 ESA was completed (Wallace Kuhl & Associates 2004). In addition, based on review of pesticide use reports for the project site for the past several years, Mr. Sarracino concluded that the chemicals that were used on the property are not considered persistent in the soil (Sarracino, pers. comm., 2004); that is, they do not leave residues that remain in the environment without breaking down.

Wallace Kuhl & Associates (2004) found Mr. Sarracino's determination to be consistent with other rice crop properties assessed by Wallace Kuhl & Associates within the vicinity of the project site. Because of concern about the potential for residual concentrations of persistent pesticides (e.g., organochlorine pesticides such as dichlorodiphenyltrichloroethane [DDT]) in the soil in portions of Natomas undergoing development, Wallace Kuhl & Associates had been retained previously to conduct soils sampling and testing programs on hundreds of acres in the Natomas area. These soils sampling and testing programs in the project region showed insignificant to nondetectable concentrations of persistent pesticide residuals (Wallace Kuhl & Associates 2004). Wallace Kuhl & Associates noted that rice and sugar beets (the crops believed to have been historically farmed on the project site) and dry-farmed crops generally require little to no applications of persistent pesticides. In addition, Wallace Kuhl & Associates encountered no definitive evidence that the Greenbriar property contained any agricultural chemicals manufacturing, warehousing, mixing, storage, or disposal facility, where pesticide residuals could accumulate in soils at concentrations greater than those that can occur as a result of normal cultivated field applications (Wallace Kuhl & Associates 2004).

To confirm any activity occurring between January 2004 and June 2005 and confirm the findings of the Phase 1 ESA (Wallace Kuhl & Associates 2004), EDAW consulted the U.S. Environmental Protection Agency's (EPA's) Envirofacts database and EnviroMapper. The Envirofacts database contains a variety of environmental information maintained by EPA, such as the locations of releases of more than 650 toxic chemicals; EDAW used the EnviroMapper to depict graphically whether EPA maintains any information in Envirofacts regarding the project site. No records of any toxic releases, hazardous waste, or other violations were found (EPA 2005).

RESULTS OF RECORDS SEARCH FOR HAZARDOUS MATERIALS

To determine the potential for hazardous materials contamination on or near the project site, Wallace Kuhl & Associates (2004) reviewed databases regarding hazardous materials prepared by the following agencies:

- ▶ EPA,
- ▶ California Environmental Protection Agency (Cal/EPA),
- ▶ Cal/EPA Department of Toxic Substances Control (DTSC),
- ▶ Cal/EPA Office of Environmental Health Hazard Assessment,
- ▶ Central Valley RWQCB,
- ▶ California Integrated Waste Management Board,
- ▶ California Department of Health Services (DHS),
- ▶ DHS Office of Drinking Water,

- ▶ California Division of Oil and Gas (DOG), and
- ▶ County Environmental Management Department (EMD).

No potential or confirmed, state or federal “Superfund” sites were identified within 1 mile of the property and the site was not listed on any county, state, or federal government lists as a contaminated site. There were no known contaminated municipal groundwater wells, active or inactive landfills, or producing California Division of Oil and Gas (DOG) petroleum wells located on, adjacent to, or within 0.5 mile of the proposed site. Three abandoned DOG wells were found to exist within 0.5 mile of the proposed site (one to the north and two to the west), but they had been abandoned in accordance with DOG environmental guidelines. A review of various state databases, including the County Environmental Management Department’s (EMD’s), revealed that no registered USTs are located within 0.5 mile of the proposed project site.

As mentioned previously, EDAW consulted EPA’s Envirofacts database and used the EnviroMapper to confirm any activity occurring between January 2004 and June 2005. No records of any toxic releases, hazardous waste, or other violations were found (EPA 2005).

HAZARDS ASSOCIATED WITH SURROUNDING LAND USES

Sacramento International Airport is located approximately 1 mile west of the proposed project site. The airport is located 12 miles north of downtown Sacramento off Interstate 5. The airport was constructed in 1967. The County owns approximately 5,407 acres of land surrounding the airport. Of this amount, approximately 2,940 acres are considered to be part of the airport’s day-to-day activities and operation; the remaining acreage is buffer area, most of it in agricultural use (Sacramento County Airport System 2004). The airport currently has two primary passenger terminals (plus a renovated commuter terminal now used for international arrivals) and two runways, each 8,600 feet long by 150 feet wide, which are oriented in a north-south direction. The project site is located 1.22 miles (approximately 6,440 feet) east of the departure end of the eastern runway (Leonard, pers. comm., 2005). Further, the site is directly below the flight training pattern for the airport. This area receives overflights from northbound commercial flights as well as overflights from military training flights, some of which can be as low as 500 feet above ground level (Newhouse, pers. comm., 2005).

The Sacramento Airport Land Use Commission (ALUC) prepared a Comprehensive Land Use Plan (CLUP) in 1984 (last amended January 1994). The CLUP establishes planning boundaries for the airport and defines compatible types and patterns of future land use. The purpose of the CLUP is to provide the Sacramento International Airport land area with compatibility guidelines for height, noise, and safety. As described in the CLUP, the Greenbriar property lies within an airport safety zone, where population densities are restricted because of the statistical likelihood of aircraft accidents in the area. The CLUP and airport safety zones are discussed in more detail in Section 6.8.3, “Regulatory Setting.”

Hazards associated with being within the Sacramento International Airport’s overflight zone generally involve the remote potential for emergency aircraft landings or crashes. Other hazards include features that would attract wildlife (e.g., rice fields), which could increase the potential for aircraft bird strikes. Historically, the project site has been devoted to rice cultivation, which is a water-intensive use that generally serves as an attractant to birds and other waterfowl. As much as 100% of the site has been in rice production at one time over the past 7 years. As such, the project site, in its historical context, has occasionally been an attractant to birds and other waterfowl, which would have increased the hazard potential to aircraft compared with other, non-rice farmed/urban areas located within the Sacramento International Airport’s safety overflight zone.

HAZARDS ASSOCIATED WITH MOSQUITOES

The project site historically has been devoted to rice crop cultivation, which is a water intensive land use that has resulted in large pools of standing water that could serve as breeding grounds for mosquitoes. In addition to being

a nuisance pest, mosquitoes are vectors (i.e., carriers) of many diseases including West Nile virus, malaria, and dengue.

Mosquitoes are blood-sucking insects whose biting habits can create irritating and unpleasant conditions for outdoor activities. In addition, some types of mosquitoes have the ability to transmit organisms that cause diseases in humans. To reduce mosquito populations and, consequently, the likelihood of disease transmission to humans, the Sacramento-Yolo Mosquito and Vector Control District (MVCD) uses a combination of various abatement procedures, each of which may have maximum effectiveness under specific habitat conditions or periods of the mosquito life cycle. Mosquito control methods used by the MVCD can include use of biological agents (e.g., mosquito fish which are predators on mosquito larvae) in mosquito breeding areas, source reductions (e.g., drainage of water bodies that produce mosquitoes), pesticides, and ecological manipulations of mosquito breeding habitat.

In the project area, mosquito abatement efforts are primarily focused on controlling mosquitoes that can transmit malaria and several types of encephalitis or cause a substantial nuisance in surrounding communities. The encephalitis mosquito (*Culex tarsalis*) breeds in areas that pond fresh water. This species is the primary carrier in California of western equine encephalitis, St. Louis encephalitis, and California encephalitis, and is considered the most important disease vector in the state (USACE 1998).

Mosquito control in the United States has evolved from reliance on insecticide application for control of adult mosquitoes (adulticide) to integrated pest management programs that include surveillance, source reduction, larvicide, and biological control, as well as public relations and education (CDC 2006). Biological control includes use of many predators (dragonfly nymphs and other indigenous aquatic invertebrate predators such as predacious mosquitoes) that eat larvae and pupae; however, the most commonly used biological control adjuncts are mosquito fish (CDC 2006). Mosquito fish are easily reared and therefore have become the most common supplemental biological control agent used in mosquito control (CDC 2006).

All species of mosquitoes require standing water to complete their growth cycle; therefore, any body of standing water represents a potential mosquito breeding area. Water quality also affects the productivity of a potential mosquito breeding areas. Typically, greater numbers of mosquitoes are produced in water bodies with poor circulation, higher temperatures, and higher organic content (i.e., poor water quality) than in water bodies having good circulation, lower temperatures, and lower organic content. In addition, irrigation and flooding practices may influence the level of mosquito production associated with a water body. Typically, greater numbers of mosquitoes are produced in water bodies with water levels that slowly increase or recede than in water bodies with water levels that are stable or that rapidly fluctuate. Mosquito larvae prefer stagnant water and the protected microhabitats provided by stems of emergent vegetation (USACE 1998).

FIRE PROTECTION, EMERGENCY RESPONSE, AND DISASTER PLANNING

Fire Protection and Emergency Response Services

The City of Sacramento Fire Department (SFD) provides fire protection and emergency response services within the City of Sacramento. The City Fire Department also provides service to the Natomas Fire Protection District, the Fruitridge Fire Protection District, and the Pacific Fire Protection District (City of Sacramento 2005). The project site is located within the unincorporated area of Sacramento County, within the City Fire Department's Natomas District. Although the site is outside the City limits, the City Fire Department has a contractual agreement to provide fire protection to the North Natomas area.

Fire protection services for the project site and surrounding areas are provided primarily by City Fire Department Station 30, which opened in June 2005 at Regency Park Circle and Club Center Drive in North Natomas, approximately 3 miles east of the project site. The next closest station, City Fire Department Station 3, located at 7208 West Elkhorn Boulevard just west of Sacramento International Airport and approximately 4 miles west of

the project site, could also provide service to the project area. A mutual aid agreement exists between the City Fire Department, the Sacramento Metropolitan Fire District, and the Sacramento International Airport Emergency Response Unit. In addition to City Fire Department Stations 30 and 3, Engine 111 from the Sacramento Metropolitan Fire District would also respond to calls in the vicinity of the project area (King, pers. comm., 2005).

The City Fire Department has three Hazardous Materials Response Teams (HMRTs) and one Decontamination Team, each staffed with four specialists. These teams respond to hazardous materials incidents in addition to other calls. Through contractual agreements, the HMRTs and Decontamination team provide 24-hour emergency response to incidents within the City of Sacramento and unincorporated Sacramento County, incorporated cities within Sacramento County, and the City of West Sacramento. One of the fire stations housing HMRT and Decontamination team specialists is Station 30 (City of Sacramento 2005). As mentioned above, Station 30 is the first responder to the project site.

Disaster Planning

The City's Office of Emergency Services, a division of the City Fire Department, is responsible for disaster planning. It provides intra- and interagency coordination for disaster planning; presentations on disaster preparedness to public service organizations; and coordination for the preparation and execution of disaster exercises, such as an exercise simulating a smallpox outbreak. (Sacramento City Fire Department 2003).

6.8.3 REGULATORY SETTING

HAZARDOUS MATERIALS MANAGEMENT

Federal

U.S. Environmental Protection Agency

EPA is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained mainly in CFR Titles 29, 40, and 49. Hazardous materials, as defined in the CFR (see "Definitions of Terms" above), are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws:

- ▶ Resource Conservation and Recovery Act of 1976 (RCRA) (42 U.S. Code [USC] 6901 et seq.);
- ▶ Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also called the Superfund Act) (42 USC 9601 et seq.); and
- ▶ Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499).

These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. EPA provides oversight and supervision for federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards.

Hazardous Substances

Hazardous substances are a subclass of hazardous materials. They are regulated under CERCLA and SARA (and the federal Clean Water Act for water resources; see Section 6.10, "Hydrology, Drainage, and Water Quality"). Under CERCLA, EPA has authority to seek the parties responsible for releases of hazardous substances and ensure their cooperation in site remediation. CERCLA also provides federal funding (the "Superfund") for

remediation. SARA Title III, the Emergency Planning and Community Right-to-Know Act, requires companies to declare potential toxic hazards to ensure that local communities can plan for chemical emergencies. EPA maintains a National Priority List of uncontrolled or abandoned hazardous waste sites identified for priority remediation under the Superfund program. EPA also maintains the CERCLIS database, which contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities across the nation.

Hazardous Wastes

Hazardous wastes, although included in the definition of hazardous materials and hazardous substances, are regulated separately under RCRA. A waste can legally be considered hazardous if it is classified as ignitable, corrosive, reactive, or toxic. Title 22, Section 66261.24 of the California Code of Regulations (CCR) (i.e., 22 CCR 66261.24) defines characteristics of toxicity. Under RCRA, EPA regulates hazardous waste from the time that the waste is generated until its final disposal (“cradle to grave”). RCRA also gives EPA or an authorized state the authority to conduct inspections to ensure that individual facilities are in compliance with regulations, and to pursue enforcement action if a violation is discovered. EPA can delegate its responsibility to a state if the state’s regulations are at least as stringent as the federal ones. RCRA was updated in 1984 by the passage of the federal Hazardous and Solid Waste Amendments, which required phasing out land disposal of hazardous waste.

Regulation of Pesticides

The federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 USC 136 et seq.) provides federal control of pesticide distribution, sale, and use. EPA was given authority under FIFRA not only to study the consequences of pesticide usage but also to require users (farmers, utility companies, and others) to register when purchasing pesticides. Later amendments to the law required users to take exams for certification as applicators of pesticides. All pesticides used in the United States must be registered (licensed) by EPA. Registration assures that pesticides will be properly labeled and that if used in accordance with specifications, they will not cause unreasonable harm to the environment.

Regulation of Polychlorinated Biphenyl (PCBs)

The Toxic Substances Control Act of 1976 (15 USC 2605) banned the manufacture, processing, distribution, and use of PCBs in totally enclosed systems. PCBs are considered hazardous materials because of their toxicity; they have been shown to cause cancer in animals, along with effects on the immune, reproductive, nervous, and endocrine systems, and studies have shown evidence of similar effects in humans (EPA 2004). The EPA Region 9 PCB Program regulates remediation of PCBs in several states, including California. 40 CFR Section 761.30(a)(1)(vi)(A) states that all owners of electrical transformers containing PCBs must register their transformers with EPA. Specified electrical equipment manufactured between July 1, 1978, and July 1, 1998, that does not contain PCBs must be marked by the manufacturer with the statement “No PCBs” (Section 761.40[g]). Transformers and other items manufactured before July 1, 1978, containing PCBs must be marked as such.

Occupational Health and Safety Administration

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor is responsible for enforcement and implementation of federal laws and regulations pertaining to worker health and safety. Workers at hazardous waste sites must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations (29 CFR 1910.120).

State

California Environmental Protection Agency

The DTSC, a division of Cal/EPA, has primary regulatory responsibility over hazardous materials in California, working in conjunction with the federal EPA to enforce and implement hazardous materials laws and regulations. DTSC can delegate enforcement responsibilities to local jurisdictions.

The hazardous waste management program enforced by DTSC was created by the Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.), which is implemented by regulations described in CCR Title 26. The state program thus created is similar to, but more stringent than, the federal program under RCRA. The regulations list materials that may be hazardous and establish criteria for their identification, packaging, and disposal.

Environmental health standards for management of hazardous waste are contained in CCR Title 22, Division 4.5. In addition, as required by California Government Code Section 65962.5, DTSC maintains a Hazardous Waste and Substances Site List for the state, called the Cortese List. The project site is not included on this list (DTSC 2005).

California's Secretary for Environmental Protection has established a unified hazardous waste and hazardous materials management regulatory program (Unified Program) as required by Senate Bill 1082 (1993). The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental programs:

- ▶ hazardous waste generator and hazardous waste on-site treatment programs;
- ▶ Underground Storage Tank program,
- ▶ hazardous materials release response plans and inventories;
- ▶ California Accidental Release Prevention Program (CalARPP);
- ▶ Aboveground Petroleum Storage Act requirements for spill prevention, control, and countermeasure plans; and
- ▶ California Uniform Fire Code (UFC) hazardous material management plans and inventories.

The six environmental programs within the Unified Program are implemented at the local level by local agencies—Certified Unified Program Agencies (CUPAs). CUPAs carry out the responsibilities previously handled by approximately 1,300 state and local agencies, providing a central permitting and regulatory agency for permits, reporting, and compliance enforcement (Cal/EPA 2003). The Hazardous Materials Division of the County EMD is the designated CUPA in Sacramento County. The County EMD's service area includes not only the unincorporated parts of the county, but incorporated cities as well (Chu, pers. comm., 2005).

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) has primary responsibility to protect water quality and supply. The Greenbriar site is located within the jurisdiction of the RWQCB. As described in Section 6.10, "Hydrology, Drainage, and Water Quality," the RWQCB is authorized by the Porter-Cologne Water Quality Control Act of 1969 to protect the waters of the state. The RWQCB provides oversight for sites where the quality of groundwater or surface waters is threatened. Extraction and disposal of contaminated groundwater due to investigation/remediation activities or due to dewatering during construction would require a permit from the RWQCB if the water were discharged to storm drains, surface water, or land (see Section 6.10, "Hydrology, Drainage, and Water Quality").

California Department of Industrial Relations, Division of Occupational Health Administration

The California Department of Industrial Relations, Division of Occupational Safety and Health Administration (Cal/OSHA), assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are more stringent than federal OSHA regulations, and are presented in CCR

Title 8. Standards for workers dealing with hazardous materials include practices for all industries (General Industry Safety Orders); specific practices are described for construction, and hazardous waste operations and emergency response. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Local

County of Sacramento Enforcement

The County enforces state regulations governing hazardous substance generators, hazardous substance storage, and the inspection, enforcement, and removals of USTs in both the City of Sacramento and Sacramento County. The *Area Plan for Emergency Response to Hazardous Materials Incidents in Sacramento County* (County of Sacramento Environmental Management Department 2003) was published by the County EMD as required under Chapter 6.95, Section 25500 et seq. of the California Health and Safety Code. The area plan details the duties and responsibilities of governmental and other responsible agencies in a hazardous materials incident.

In 1983, the County adopted the Hazardous Material Disclosure Ordinance. This ordinance requires firms using or handling significant amounts of hazardous materials to disclose to the County the nature, quantity, and location of those chemicals. This information is provided to fire crews responding to emergencies. The Hazardous Materials Division of the County EMD regulates the storage, use, and disposal of hazardous materials in Sacramento County by issuing permits, monitoring regulatory compliance, and investigating complaints. EMD oversees remediation of certain contaminated sites resulting from leaking USTs, reviews technical aspects of hazardous substance site cleanups, and provides assistance to public and private operations seeking to minimize the generation of hazardous substances. The project site was not included on the County's list of facilities with potentially hazardous materials (EMD 2005).

The County Agricultural Commissioner regulates agricultural uses and issues use permits for pesticides on agricultural land. The commissioner's staff conducts routine inspections to ensure that farm operations are in compliance with the requirements set forth in the Hazardous Material Disclosure Ordinance and FIFRA (see "Regulation of Pesticides" in the discussion of federal regulations above).

City of Sacramento Enforcement

The City has established a Toxic Substances Commission whose task it is to develop long-range plans for issues related to toxic substances (hazardous materials) in the City of Sacramento. The Sacramento County Hazardous Waste Management Plan is considered a part of the *City of Sacramento General Plan* (City General Plan) (City of Sacramento 1988) (see below) to ensure that suitable locations are available for needed hazardous waste facilities and that land uses near the facilities, or proposed sites for facilities, are compatible with their operation.

AIRSPACE SAFETY

Federal

Obstructions and Airport Land Use Compatibility

Part 77 of the Federal Aviation Regulations (FAR), "Objects Affecting Navigable Airspace," has been adopted as a means of monitoring and protecting the airspace required for safe operation of aircraft and airports. Objects that exceed certain specified height limits constitute airspace obstructions. FAR Section 77.13 requires that FAA be notified of proposed construction or alteration of certain objects within a specified vicinity of an airport, among them the following:

- (1) Any construction or alteration of more than 200 feet in height above the ground level at its site.
- (2) Any construction or alteration of greater height than an imaginary surface extending outward and upward

at [a slope of] 100 to 1 for horizontal distance of 20,000 feet from the nearest point of the nearest runway of each [public-use airport, public-use airport under construction, or military airport] with at least one runway more than 3,200 feet in actual length, excluding heliports.

Wildlife Hazards

FAA is responsible for enforcement of 14 CFR 139, which prescribes rules regarding operation of airports used by aircraft with seating capacity of more than 30 passengers. FAA roles and responsibilities relating to wildlife hazards and their associated human health and safety concerns are addressed in 14 CFR 139.337, “Wildlife Hazard Management.” An ecological study must be prepared by the certificate holder and submitted to FAA when multiple birds or other wildlife are struck by aircraft or ingested into aircraft engines, or if sufficient birds or other wildlife are present in an airport flight pattern as to result in such hazards. FAA determines whether a wildlife hazard management plan is needed. FAA’s Office of Airport Safety and Standards has published Advisory Circulars and Program Policy and Guidance Directives that further clarify this information. An Advisory Circular dated July 27, 2004, titled “Hazardous Wildlife Attractants on or Near Airports,” provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. FAA recommends the following separations when siting wildlife attractants (e.g., waste disposal operations, wastewater treatment facilities, wetlands) (FAA 2004):

- ▶ 5,000 feet from airports serving piston-powered aircraft,
- ▶ 10,000 feet from airports serving turbine-powered aircraft, and
- ▶ 5 statute miles from airports where the wildlife attractant may cause hazardous wildlife movement into or across the approach or departure airspace.

Hazardous wildlife species or groups expected to use the project site for foraging include rock pigeon, blackbirds, European starling, sparrows, hawks, geese, and egrets. These species and groups have been identified by FAA as among those that present the highest risk for aircraft-wildlife strikes in the United States (FAA 2003). Other hazardous wildlife species could also be present on-site. Species considered hazardous are expected to be present throughout the year, but the diversity and abundance of hazardous wildlife is likely to be highest between October and April, when the inactive agricultural fields, grasslands, and wetlands on the project site provide foraging habitat for a wide diversity of resident and migratory birds.

State

The state regulates airports under the authority of the Airport Land Use Commission Law, Section 21670 et seq. of the California Public Utilities Code. *The California Airport Land Use Planning Handbook* published by the California Department of Transportation (Caltrans) Division of Aeronautics (Caltrans 2002) supports this law by providing compatibility planning guidance to ALUCs, counties and cities having jurisdiction over airport area land uses, and airport proprietors.

The Airport Land Use Commission Law is implemented through ALUCs, which are required in every county with a public use airport or with an airport served by a scheduled airline. Under the provisions of the law, the ALUC has certain responsibilities conferred upon it and specific duties to perform. Among these are preparing airport land use plans for each of the airports within its jurisdiction (California Public Utilities Code Sections 21674[c] and 21675[a]). The Sacramento Area Council of Governments (SACOG) has been designated the ALUC for Sacramento County (see discussion of local regulations below).

The *California Airport Land Use Planning Handbook* (Caltrans 2002) describes six airport safety compatibility zones. These airport safety zones have been developed to reflect the geographic pattern of aircraft accident risks. One of the airport safety zones described by Caltrans, Zone 6 (Traffic Pattern Zone), is applicable to the proposed project. The risk factors and basic compatibility qualities of the Traffic Pattern Zone are summarized below.

- ▶ *Risk Factors/Runway Proximity:* Areas of regular traffic patterns and pattern entry routes. Generally low likelihood of accident occurrence; risk concern primarily is with uses for which potential consequences are severe. On a long general-aviation runway (i.e., with a runway length of 6,000 feet or more) like the ones at Sacramento International Airport, this zone extends 6,000 feet from each side of the runway, and somewhat smaller distances on either end of the runway.
- ▶ *Basic Compatibility Qualities:* Residential uses and most nonresidential uses allowed; outdoor stadiums and similar uses with very high intensities are prohibited.

Local

Sacramento International Airport Comprehensive Land Use Plan

The Sacramento International Airport CLUP (Airport Land Use Commission 1994) establishes planning boundaries for the airport and defines compatible types and patterns of future land use. The purpose of the CLUP is to provide the Sacramento International Airport land area with compatibility guidelines for height, noise, and safety. The current Sacramento International Airport CLUP is more than 11 years old; in the time since publication of the CLUP, the level of growth in North Natomas and expansion of operations at the airport has indicated the need for an update to the plan. An updated version of the CLUP is expected by 2006 or 2007, following environmental review for the airport (Chew, pers. comm., 2005).

The CLUP outlines airport area height restrictions necessary to ensure that objects will not impair flight safety or decrease the operational capability of the airport. The ALUC has adopted FAR Part 77 imaginary surfaces (see the description of federal airspace safety regulations above) to determine height restrictions for natural and artificial objects. Penetration of these imaginary surfaces by permanent structures would endanger pilots and passengers of aircraft operating at the airport and would pose a hazard to persons occupying those structures.

The CLUP also outlines the State of California noise standards. Airport land use compatibility regarding noise standards is discussed in this EIR in Section 6.3, "Noise."

Additionally, the CLUP designates airport safety zones to the land surrounding the airport to minimize the number of people exposed to aircraft crash hazards. This is accomplished by enforcing land use restrictions in the safety zones. The CLUP designates three safety zones:

- ▶ the clear zone, which is near the runway and is the most restrictive;
- ▶ the approach/departure zone, which is located under the takeoff and landing slopes and is less restrictive; and
- ▶ the overflight zone, which is the area overflown by aircraft during the normal traffic pattern and is the least restrictive.

These areas are identified generally in Exhibit 6.8-1. As shown more specifically in Exhibit 6.8-2, about 75% of the project site is within the overflight zone. Certain uses are compatible with the overflight zone only if they do not result in a large concentration of people. The CLUP defines a large concentration of people as "a gathering of individuals in an area that would result in an average density of greater than 25 persons per acre per hour during any 24-hour period ending at midnight, not to exceed 50 persons per acre at any time." Among the land uses prohibited from the overflight zone are regional shopping centers, elementary and secondary schools, hospitals, communitywide and regional parks, theaters, and stadiums and arenas. (Airport Land Use Commission 1994.)

It should be emphasized that the risk of any type of aircraft accident at the project site is extremely low. The safety zone represents the general area in proximity to an airport where, if an accident were to occur, there would be an elevated chance of the accident happening compared to areas more distant from the airport.

Because the project site is located within the airport overflight zone, the City would be required to submit the project's application to the ALUC for a determination of the project's consistency with the CLUP. ALUC would review the application for height, noise, and safety issues related to operations at the Sacramento International Airport and would issue a consistency determination to the City. If the ALUC determines that the project would be inconsistent with certain standards or provisions of the CLUP, the City can review the determination and decide whether it intends to override the decision. If a decision to override is made, the City will send notice to ALUC of the proposed override. ALUC would then review the City's notice to override and would issue findings on the matter. The override decision would then be subject to two-thirds approval by the City Council.

Sacramento International Airport Master Plan

The County has developed a Master Plan for Sacramento International Airport (Sacramento County Airport System 2004). This plan represents the first full-scale master planning effort for the airport since the mid-1970s. The Master Plan includes an evaluation of current conditions; definition of objectives, obstacles, and alternatives; an extensive public involvement program; and an implementation plan. The Master Plan is intended to guide airport development for at least the next 20 years. Among the future plans for the airport described in the Master Plan are the following (Sacramento County Airport System 2004):

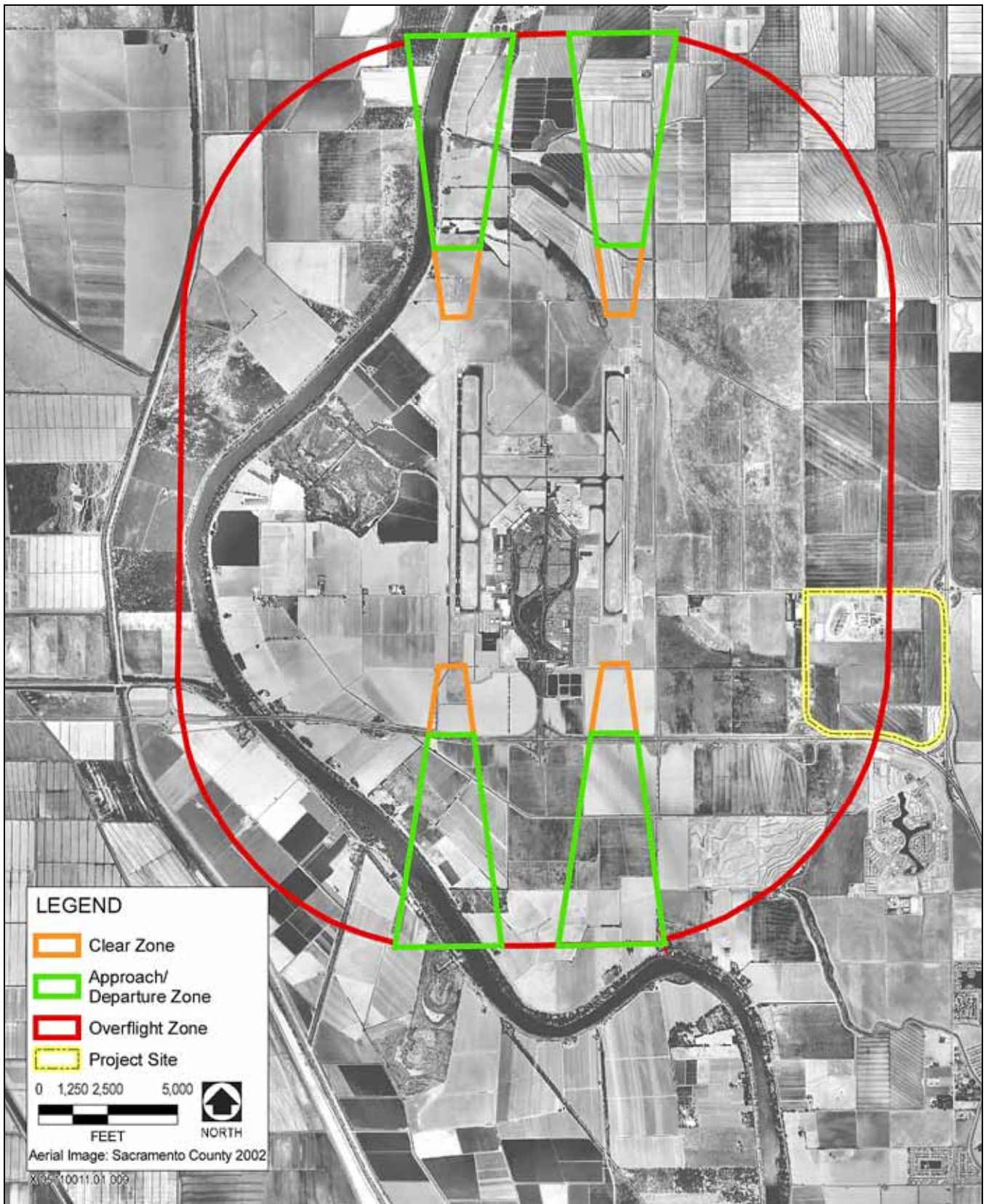
- ▶ extension of the east runway (i.e., the runway closest to the proposed project area) from the current 8,600 feet to 11,000 feet to accommodate nonstop transcontinental flights;
- ▶ construction of a new, 8,600-foot-long north-south runway 1,200 feet to the west of the current west runway;
- ▶ construction of additional taxiways;
- ▶ replacement of the existing Terminal B;
- ▶ construction of a new concourse from the replacement Terminal B, with a capacity of 23 contiguous gates;
- ▶ improvement of off-airport roadway access to the airport, including extension of Elkhorn Boulevard to the airport, where it would connect to the airport road system;
- ▶ extension of the proposed Downtown-Natomas-Airport light rail line to the airport (through the proposed project area), with a light rail stop at one of the airport terminals; and
- ▶ construction of new airport support facilities, such as a new air traffic control tower.

MOSQUITO ABATEMENT DISTRICTS

Local

In 1915, the California Legislature adopted the "Mosquito Abatement Act" (now incorporated into the State Health and Safety Code, Chapter 5 of Division 3) which formed the basis for the creation, function, and governing powers of Mosquito Abatement Districts. In 1946, the Sacramento County-Yolo County Mosquito Abatement District was formed. The motivating force for the formation of the District was the desire of the people for protection against mosquito-borne diseases and relief from serious pest nuisance (Sacramento-Yolo Mosquito and Vector Control District [MVCD] 2006). In 1990, the district changed names to MVCD to better reflect the expanded services and responsibilities the District assumed regarding ticks, yellow jackets, and other vectors. The project area is in the jurisdiction of MVCD.

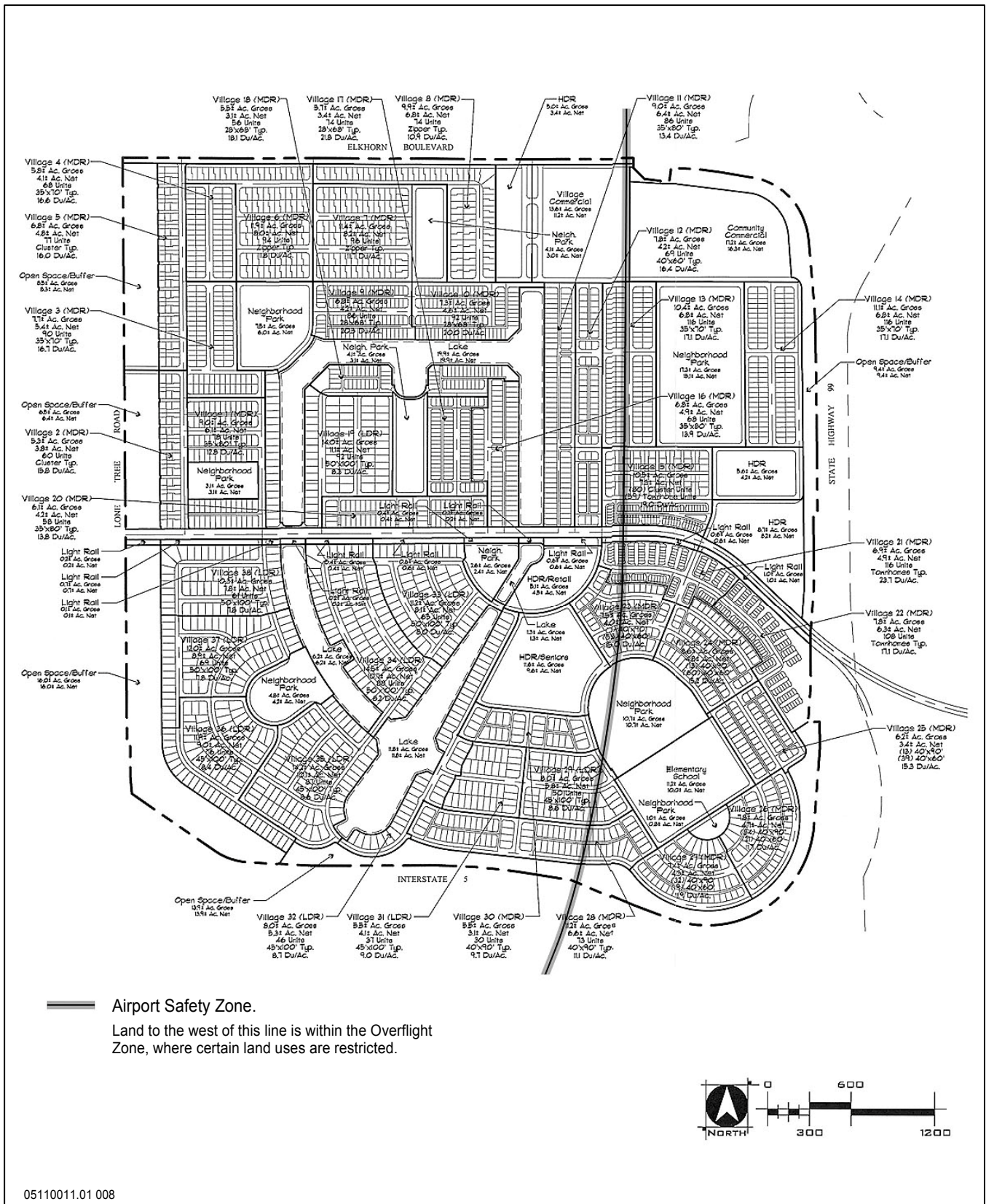
Mosquito abatement districts are governmental organizations formed at the local level that are responsible for controlling specific disease vectors within their jurisdiction. These districts receive most of their revenue from



Sources: Airport Land Use Commission 1994, data compiled by EDAW in 2005

Sacramento International Airport CLUP Airport Safety Zones

Exhibit 6.8-1



Sources: Airport Land Use Commission 1994, information provided by Wood Rodgers in 2005

Airport Safety Zone and Proposed Land Uses in the Project Area

Exhibit 6.8-2

property taxes and are primarily responsible for controlling mosquitoes as pest species and as disease vectors. California law requires that if a problem source of mosquito production exists as a result of human-made conditions, the party responsible for those conditions is liable for the cost of abatement. The law is enforced at the discretion of the responsible mosquito abatement districts (California Health and Safety Code Section 2000 et seq.).

OTHER HAZARDS AND EMERGENCY RESPONSE PLANS

State

OES issued the *State of California Multi-Hazard Mitigation Plan* (Multi-Hazard Mitigation Plan) (OES 2004) in September 2004. The federal Disaster Mitigation Act required all state emergency services agencies to issue such plans by November 1, 2004, for the states to receive federal grant funds for disaster assistance and mitigation under the Stafford Act (44 CFR 201.4). The overall intent of the Multi-Hazard Mitigation Plan is to reduce or prevent injury and damage from natural hazards in California, such as earthquakes, wildfires, and flooding. The plan identifies past and present hazard mitigation activities, current policies and programs, and mitigation goals, objectives, and strategies for the future (OES 2004).

Local

County of Sacramento

The County's principal emergency response plan is the *Sacramento County Multi-Hazard Mitigation Plan* (County of Sacramento 2004). The purpose of the plan is to meet the requirements of the Disaster Mitigation Act and thereby maintain continued eligibility for certain hazard mitigation (or disaster loss reduction) programs from the Federal Emergency Management Agency (FEMA). The plan lays out the strategy that will enable Sacramento County to become less vulnerable to future disaster losses. The plan reviews the County's capabilities with regard to reducing impacts of natural hazards (e.g., flooding, dam failure, wildfires, drought) and includes recommended action items to reduce vulnerability to these hazards. The plan includes the unincorporated County as well as the City, plus other incorporated cities and special districts within the County.

City of Sacramento

Similar to the County, the City operates under a Multi-Hazard Emergency Plan. The City Fire Department updated this plan during fiscal year 2004–05, adding a new section to this document to address response to events involving weapons of mass destruction. On May 17, 2005, the City Council adopted a resolution to adopt the *Sacramento County Multi-Hazard Mitigation Plan* as an official plan for updating existing plans and/or completing or creating new activities that mitigate or limit the impact of natural disasters (Action No. CC2005-327).

Most planning documents related to emergency response in Sacramento pertain to flooding potential and utilities. For example, the *City of Sacramento Comprehensive Flood Management Plan* (February 1996) includes flood emergency evacuation plans for levee failure scenarios in 17 evacuation areas. This plan provides guidance for development within the 100-year floodplain. Other emergency management plans published by the City Department of Utilities include the *Water Distribution Emergency Management Plan*, *Multi-Hazard Emergency Management Plan*, *Water Sewer Overflow Emergency Response Plan*, and *Water Production Emergency Management Plan*, and *Business Recovery Plan* (County of Sacramento 2004).

Section 17.56.050 of the City Code states that new subdivisions in flood areas (as defined in the *City of Sacramento Comprehensive Flood Management Plan*) shall have two or more vehicular ingress and egress points designed to facilitate evacuation and other emergency services where geographically feasible.

6.8.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

This analysis is based primarily on review of the Phase 1 ESA conducted by Wallace Kuhl & Associates (2004), review by Wallace Kuhl & Associates of the Sacramento County Agricultural Commissioner's Pesticide Use Reports, review by EDAW of the CLUP for Sacramento International Airport (Airport Land Use Commission 1994), and consultation with the City Fire Department.

THRESHOLDS OF SIGNIFICANCE

An impact is considered significant, as identified by the State CEQA Guidelines (Appendix G), if the proposed project or alternatives would:

- ▶ expose people (e.g., residents, pedestrians, construction workers) to hazardous contamination during construction activities and after construction;
- ▶ result in an airport safety hazard for people residing or working in the project area or introduce a safety hazard to airport operations; or
- ▶ impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

IMPACTS AND MITIGATION MEASURES

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| IMPACT 6.8-1 |
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Potential for Health Hazards Caused by Contaminated Soil. *Although the project site has historically been used for agricultural purposes and there is the potential that soil on the site has been contaminated by the on-site use of agricultural pesticides, chemicals used on the project site are not considered to be persistent in the soil, and no evidence of high concentrations of pesticides in on-site soils was found. The potential for health hazards associated with past use of pesticides at the project site would be **less than significant**.*

The project site has been used for agricultural purposes as early as 1961. During that time period pesticides have been applied to the project site in conjunction with rice production. Given the length of time that the site has been used for agriculture, there is the potential that soil on the site has been contaminated by agricultural chemicals. Soil-disturbing activities during construction could expose workers to contaminated debris, elevated levels of chemicals that could be hazardous, or hazardous substances that could inadvertently spread.

EDAW consulted EPA's Envirofacts database to confirm any activity occurring between January 2004 and June 2005. No records of any toxic releases, hazardous waste, or other violations were found (EPA 2005).

Based on review of Pesticide Use Reports for the property that are available at the County Agricultural Commissioner's Office, however, agricultural chemicals used on the proposed project site are not believed to persist in site soils (Sarracino, pers. comm., 2004). In addition, the Phase 1 ESA for the project site concurred with this determination, indicating that soils sampling and testing programs elsewhere in Natomas showed insignificant to nondetectable concentrations of persistent pesticide residuals and that the crops historically farmed on the site generally require little to no applications of persistent pesticides (Wallace Kuhl & Associates 2004). Further, Wallace Kuhl & Associates (2004) found no definitive evidence of any agricultural chemicals manufacturing, warehousing, mixing, storage, or disposal facility, where pesticide residuals

could accumulate at greater concentrations. Therefore, potential persistent pesticide residuals at the Greenbriar site are not expected to exceed health-based criteria for unrestricted future development or the “hazardous waste” criteria for soils disposal contained in 22 CCR 66261.24. For these reasons, the potential for health hazards associated with past use of pesticides at the project site would be *less than significant*.

No mitigation is required.

**IMPACT
6.8-2**

Potential for Health Hazards from Soils Contaminated by Previously Unknown USTs or by Other Sources at Former Two Jakes Park Site. *According to the Phase 1 ESA performed for the project site, there are no registered USTs, ASTs, or records of hazardous materials on-site, and no evidence of soil contamination was found at the horse training facility, Two Jakes Park. However, unknown USTs could be discovered during construction, potentially resulting in exposure to contaminated soils. While no soil contamination was immediately evident during a June 2005 site visit, the scope of the examination was limited. Search of an EPA database by EDAW revealed no contamination, but it is possible that some residual soil contamination could be present on the former site of Two Jakes Park, resulting in the potential for exposure of construction workers to associated health hazards. For these reasons, this impact would be potentially significant.*

The January 2004 Phase 1 ESA conducted at the proposed project site (Wallace Kuhl & Associates 2004) found that there are no registered USTs or ASTs, business plan submittals, or records of hazardous materials stored at the project site. However, given the site’s agricultural history, unknown and undocumented USTs may exist that could be discovered during construction and grading activities. Uncovering an undocumented UST could expose construction workers to contaminated soils, potentially resulting in health hazards.

In addition, while activities at Two Jakes Park included the storage and spreading of horse manure and storage ponds, no evidence of soil contamination was found at the horse training facility when the Phase 1 ESA was completed. However, buildings associated with Two Jakes Park had been demolished and removed from the site by the time the Notice of Preparation for this EIR was issued in June 2005; only the gravel access road from Elkhorn Boulevard, some building foundations, and the dirt racetrack remained visible. No soil contamination was immediately evident during a June 2005 site visit by EDAW staff; however, the scope of the visit was limited to site reconnaissance, with no detailed exploration of the condition of site soils. In addition, miscellaneous abandoned or discarded items such as tires and small appliances appeared to have been illegally dumped in the area. Although these items would be removed from the site before construction begins, it is not known how long they have been on the site, and they have the potential to result in contamination of site soils. As mentioned above, EDAW consulted EPA’s Envirofacts database to confirm any activity occurring between January 2004 (the date of the Phase 1 ESA) and June 2005 (when the Notice of Preparation for this EIR was issued). No records of any toxic releases, hazardous waste, or other violations were found (EPA 2005). However, it is possible that some residual soil contamination could be present on the former site of Two Jakes Park, and soil-disturbing activities could result in health hazards for construction workers. For the reasons described above, this impact would be *potentially significant*.

Mitigation Measure 6.8-2: (City of Sacramento)

In the event of discovery of an undocumented or unknown UST or residual soil contamination (e.g., stained or odiferous soil) on the project site, construction activities adjacent to the UST or in the area of the soil contamination shall cease and the County EMD shall be contacted immediately. Any USTs discovered during

construction shall be removed and any contaminated soils shall be excavated and treated according to County EMD procedures before the resumption of construction.

Significance After Mitigation

Implementation of this mitigation measure would remove any unknown UST's and contaminated soil from the site in accordance with County standards and would reduce the potential hazards associated with unknown USTs and potential residual contamination at the former Two Jakes Park to a *less-than-significant* level.

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| IMPACT 6.8-3 |
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Potential for Safety Hazards from Proximity of Airport to Proposed Land Uses. *The project's residential land uses would be compatible with safety standards outlined in the Sacramento International Airport CLUP. However, the proposed parks and light rail station located within the overflight zone (a safety zone of the Sacramento International Airport) could result in densities that exceed 50 persons per acre at any one time, which would exceed density standards allowed by CLUP. Therefore, this impact would be considered significant.*

The western boundary of the project site is located 1.22 miles (approximately 6,440 feet) east of the departure end of the eastern runway of the Sacramento International Airport (Leonard, pers. comm., 2005). Sacramento County Airport System (SCAS) staff reviewed the Greenbriar development for consistency with the Sacramento International Airport CLUP height and safety policies and determined that about 75% of the property is located within the existing CLUP aircraft overflight zone (Exhibit 6.8-2). The overflight zone is one of three safety zone designations in the CLUP. Safety zone designations are assigned to lands surrounding the airport to minimize the number of people exposed to aircraft crash hazards. Although the overflight zone is the least restrictive of the CLUP safety zones, the risk of aircraft crash hazard is inherently considered greater within the overflight zone than outside of the CLUP safety zones. Therefore, potential aircraft crash hazards are considered greater within the 75% of the property located within the overflight zone than within the 25% of the project site located entirely outside of the CLUP safety zones (Exhibit 6.8-2). Although, the potential for a crash to occur is still considered extremely remote.

Certain land uses are compatible with the overflight zone only if they do not result in a large concentration of people. The CLUP defines a large concentration of people as “a gathering of individuals in an area that would result in an average density of greater than 25 persons per acre per hour during any 24-hour period ending at midnight, not to exceed 50 persons per acre at any time.”) Elementary schools are among the land uses prohibited from the overflight zone (Airport Land Use Commission 1994); however, the proposed elementary school would be located within the portion of the project site that is outside of the overflight zone, so there would be no conflict with the CLUP. The proposed residential and commercial land uses within the overflight zone total approximately 405 acres. The project is estimated to generate an average of 4,823 residents within this portion of the project site and an average occupation rate of 3,545 persons for the commercial areas (Appendix L). The CLUP allows an average density of 25 persons per acre or a total of 10,125 persons (25 x 405 acres) within the overflight zone. The project would result in an average density of 21 persons per acre, which is below the CLUP standard. Similarly, the project would result in a maximum density of 6,431 residents and a maximum occupancy of 6,112 persons within the commercial areas resulting in a maximum density of 31 persons per acre, which is below the CLUP's maximum allowable density of 50 persons per acre. See Appendix L for detailed calculations.

The proposed project would include right-of-way for a light rail line, including a passenger station that would be located within the overflight zone (Exhibit 6.8-2). The light rail line and

station could result in a density of more than 50 persons per acre during peak commute periods. The CLUP states that passenger light rail lines are compatible with the overflight zone, and it contains no restrictions on the density associated with this use; therefore, the light rail line itself would not be incompatible with the overflight zone. However, the CLUP specifies that passenger terminals and stations are incompatible with the overflight zone. (Airport Land Use Commission 1994.) The passenger light rail station has been proposed within the overflight zone because existing siting constraints make it infeasible to site the station further to the east. The light rail line would be located along the proposed Meister Way shortly after this roadway reaches ground level from the overpass to the east. Regional Transit standards for siting of passenger terminals require that the station be located on a straight path at ground level. The proposed location of the projected light rail station would provide the minimum straight-line distance needed for safe operation. Therefore, the light rail station could not be relocated farther east (i.e., outside the overflight zone) without jeopardizing the ability of trains to stop safely. As a result, the light rail station would be incompatible with the CLUP.

The project would also construct seven neighborhood parks either partially or wholly within the overflight zone and a community park outside the safety zone. Outdoor activities associated with parks could result in a concentration of people that exceeds 50 persons per acre. While the proposed parks would serve the surrounding neighborhoods and the proposed residential uses would not result in an exceedance of the CLUP's maximum density standard of 50 persons per acre, it is likely that events could occur at the parks, which could attract residents within the community and could result in an exceedance of the 50-persons-per-acre density standard at any one time. Therefore, the location of neighborhood parks within the overflight zone would be incompatible with the CLUP.

Because of the incompatibility of the proposed project's park uses and the proposed light rail station with the Sacramento International Airport CLUP, this impact would be *significant*.

Mitigation Measure 6.8-3: (City of Sacramento and LAFCo)

- a. Prior to City pre-zoning and prior to annexation, the City shall request a consistency determination of proposed land use with the CLUP from Sacramento County ALUC. The consistency determination shall describe the specific land uses that would be allowable and consistent with the CLUP in accordance with ALUC standards.
- b. Prior to City pre-zoning and prior to annexation, if the consistency determination by ALUC comes to the conclusion that certain proposed land uses would be inconsistent with the CLUP the City shall review the decision of the ALUC and determine whether to override the ALUC's decision. The City shall submit its notice to override the consistency to the ALUC for review before approving the override.

Because of the nature of activities that occur at park facilities and light rail stations (i.e., gathering of people attracted to the particular use), there is no feasible mitigation available to restrict the number of persons gathering at these proposed land uses to less than 50 persons per acre. Restricting the number of persons or relocating park facilities and/or the light rail station could affect the overall viability (e.g., low revenue for commercial uses, low ridership numbers on light rail, and lack of facility use for park facilities) of proposed facilities and would not meet the applicant's, City's, SRTD's objectives for these facilities. Therefore, this would remain a *significant and unavoidable* impact.

Significance After Mitigation

Because no feasible mitigation is available to restrict the maximum density of individuals at the park facilities and light rail station to less than 50 persons per acre, this impact would remain *significant and unavoidable*.

IMPACT 6.8-4

Potential for Airspace Safety Hazards Associated with Project Water Feature. *The proposed project would include an on-site lake/detention basin, which could attract large numbers of birds, thereby potentially creating a flyway between the site and the Sacramento River and interfering with existing aircraft flight routes. Birds are recognized by the Sacramento International Airport CLUP as a potential hazard to aircraft because of the remote potential for high-speed collisions with birds, as well as the ingestion of birds into aircraft engines. This impact would be significant.*

Hazards to existing flight operations at Sacramento International Airport could result from project features that could attract birds. The proposed project would include a 39-acre lake/detention basin that could attract birds to the area, thereby potentially affecting existing aircraft flight routes. This facility would be located approximately 1.5 miles (7,920 feet) east of the aircraft runways, which is short of the FAA's recommended siting distance for such facilities (i.e., 10,000 feet). As mentioned under "Surrounding Land Uses Associated with Hazards" in Section 6.8.2, "Environmental Setting," wildlife species or groups expected to use the project site for foraging include rock pigeon, blackbirds, European starling, sparrows, hawks, geese, ducks, and egrets. These species and groups have been identified by the FAA as among those that present the highest risk for aircraft-wildlife strikes in the United States (FAA 2003). SCAS has expressed concern that locating the lake/detention basin on the property would cause a flyway between the site and the Sacramento River, which would create a very high safety concern for the airport system (Newhouse, pers. comm., 2005). The Sacramento International Airport CLUP does not support any land uses that could attract large numbers of birds, recognizing birds as a potential hazard to aircraft. In addition to damage resulting from high-speed collisions with birds, the ingestion of birds into aircraft engines is a hazard. Damage caused by birds and other wildlife is termed a "strike" or "strike hazard." To reduce strike hazards, the CLUP has placed restrictions on the land uses in the influence area of Sacramento International Airport, or the area within the compatibility zones defined by the CLUP. The CLUP states that any uses that attract large flocks of birds shall not be permitted within the airport's influence area.

As stated previously, the FAA discourages land uses that could potentially increase aircraft strike hazards by attracting birds into airport overflight zones. Urban lakes, such as those being constructed as part of urban developments in the Natomas Basin, have the potential to attract waterfowl including geese, gulls, and other species known to be involved in aircraft strikes. However, the Natomas Basin has historically supported waterfowl because of its low position in the watershed and its tendency to flood (Berryman Ecological 2006).

To gain a greater understanding of the numbers of waterfowl in the Natomas Basin, Berryman Ecological surveyed three man-made lakes and three rice fields between the dates of January 2, 2006 and January 17, 2006 (Appendix M). The surveys consisted of an observer surveying both the lakes and rice fields and recording the number of birds observed for each species at specific observation points. The number of birds observed per observation point was significantly higher for rice fields as compared to urban lakes. For rice fields, the total number of birds observed per point ranged between 1 and 2,652, and for urban lakes the total number of birds observed per point ranged between 0 and 37. Overall, the study resulted in a mean number of birds per observation point of 224.12 birds for rice fields and 12.12 birds for urban lakes (Berryman Ecological 2006). The study suggests that rice fields likely serve as a greater attractant to birds and waterfowl than lakes. The project would convert former rice fields (sometimes, but not

always, in rice production) to urban development. Thus, the project would not introduce a new hazard to aircraft, and would reduce the density of expected waterfowl compared with historic use of the site. The project would, nonetheless, result in the construction of a lake/detention basin at a location less than the minimum FAA-recommended siting distance for such facilities and could result in potential airspace hazards to aircraft.

Because of the potential for airspace safety hazards from birds attracted to the project site because of the on-site lake/detention basin, this impact would be *significant*.

Mitigation Measure 6.8-4 (City of Sacramento and LAFCo)

- a. To ensure that the final location and design of the lake/detention basin is consistent with the recommendations of the ALUC regarding wildlife hazards to aviation, the project applicant shall prepare a design and management plan for this proposed water feature. This plan shall be prepared in coordination with the Sacramento International Airport Operations Manager before commencement of construction. The plan shall determine an appropriate size for the lake/detention basin and incorporate specific design measures deemed sufficient by SCAS and the ALUC to minimize bird strikes and other wildlife-related airspace safety hazards in the vicinity of the project area. The plan shall include information sufficient to satisfy requirements for preparation of a Wildlife Hazard Management Plan and shall be prepared by a qualified wildlife hazard damage biologist. The project applicant shall submit a detailed design drawing of the proposed lake/detention basin to SCAS for review.
- b. To reduce bird attractants associated with the lake/detention basin, the Wildlife Hazards Management Plan for the lake/detention basin and surrounding landscape shall include the following:
 - i. To minimize growth of aquatic vegetation that attracts waterfowl, the lake shall be sufficiently deep to prevent growth of cattails and other aquatic plants. Lake edges shall be lined and maintained to prevent vegetation growth;
 - ii. Concrete bulkheads approximately 1 to 2 feet high shall be constructed along the lake's perimeter. A detailed description of the design of the bank edge shall be submitted to SCAS for review;
 - iii. Any vegetation planted in the vicinity of the lake shall consist of plant species that do not provide birds with opportunities for cover, nesting, perching, or feeding. A detailed design plan for landscaping surrounding the lake/detention basin shall be submitted to SCAS for review;
 - iv. Barriers (e.g., walls, fences) shall be constructed a minimum of 48 inches high and be located between the lake and nearby grassy areas to dissuade geese or other waterfowl from walking to the lake.
 - v. Signs shall be placed at regular intervals around the perimeter of the lake prohibiting the public from feeding birds. The project proponent shall maintain such signs in good order and replace such signs as necessary. This responsibility shall transfer to the Homeowner's Association (HOA) and shall be articulated in the covenants, conditions, and restrictions (CC&Rs).
 - vi. Trash receptacles with covers shall be placed at regular intervals around the lake and be designed to prevent access to refuse by birds. The CC&Rs shall specify that the project proponent and HOA shall be responsible for ensuring trash receptacles with covers are provided and properly emptied on a regular basis and replaced as necessary.
 - vii. Installation of structures near the lake that could serve as perches for gulls and other birds shall be minimized. The CC&Rs shall prohibit the future installation of such structures.

- viii. The project applicant shall prohibit all activities and uses that could conflict with implementation of the wildlife hazard management program.
- c. An Adaptive Management Plan shall be prepared and incorporated into the Wildlife Hazard Management Plan. The Adaptive Management Plan shall provide for the long-term management of nuisance birds around the lake. The management plan shall involve perpetual monitoring and employment of various techniques for controlling birds using adaptive information and bird control products. The Homeowner's Association shall be responsible for ensuring the implementation and continued enforcement of the Adaptive Management Plan and provision of adequate funding. This requirement shall be specified in the CC&Rs. The Adaptive Management Plan shall include the following components:
- i. Bird control program that involves use of the most efficient and effective bird control techniques available that are practicable and compatible with surrounding land uses and recreational uses of the lake,
 - ii. Monitoring program that involves patrolling of the lake and assessment of the effectiveness of bird control measures, the presence of potential bird attractants, and the need for modifying or increasing bird control measures,
 - iii. Funding mechanism such as use of an endowment fund or assessment district to fund the long-term monitoring and adaptive management program.
 - iv. Any use of the lake that conflicts with the wildlife control program shall be prohibited.
- d. The Adaptive Management Plan shall include the best available information on various bird control techniques, an explanation of the situations in which various techniques are best employed, and instructions for implementing such techniques. The entity responsible for implementing the management plan shall employ a qualified and experienced Wildlife Damage Biologist/Manager (Manager) who shall be responsible for determining which bird control techniques to implement based on information provided in the management plan and the best scientific and commercial information available. The Manager shall be trained in bird control techniques by the U.S. Department of Agriculture-Wildlife Services (USDA). The initial cost of such training shall be borne by the project proponent. The cost of subsequent training shall be borne by the HOA. The Manager shall have the discretion to use new technologies or information regarding bird control provided they are practicable and within the management budget, and do not conflict with surrounding land uses or the recreational and flood control functions of the lake.
- e. The monitoring and maintenance portion of the Adaptive Management Plan shall include the following:
- i. patrol to ensure the lake area is kept clean and free of refuse and other such material that may attract birds;
 - ii. patrol to ensure the public is abiding by rules prohibiting feeding of birds;
 - iii. control of vegetative growth around the lake to minimize any vegetation that would attract birds for purpose of cover, nesting, perching, or food;
 - iv. remove all nesting material prior to completion of nest if any birds attempt to nest in areas surrounding the lake. All nest removal activities must comply with provisions of the Migratory Bird Treaty Act, the California Endangered Species Act, and the federal Endangered Species Act;
 - v. inspect the lake area to determine whether additional measures are needed to reduce bird use of the lake; and

- vi. aggressively haze wildlife to discourage use of the lake.
- f. If monitoring efforts reveal that additional control efforts are necessary, the Bird Control Program Manager may implement one or more control techniques outlined in the Adaptive Management Plan, or other techniques based on best available scientific and commercial information. Bird control techniques currently being used at airports, on agricultural lands, and in other areas where birds pose a hazard or nuisance shall be described in the Adaptive Management Plan. The Bird Control Program Manager shall have discretion of using any one or more of the techniques based on the need, practicability, and land use compatibility. These techniques may include, but are not limited to:
 - i. Allowing grass to grow over 20 centimeters in height (currently being employed at some airports).
- g. In addition to these control techniques, the Adaptive Management Plan shall outline an education program for the Homeowner's Association to implement ensuring that the public is aware of the importance of eliminating bird attractants from the area around the lake. The public shall be prohibitive from feeding birds around the lake and engaging in any other activities within the boundaries of the development project which may attract wildlife hazards to aircraft operations. The public shall be made aware of the purpose and importance of various bird control measures being implemented by the Bird Control Program Manager.
- h. Prohibited Uses of Lake: all activities and uses of the lake/detention basin that may conflict with the wildlife control program shall be expressly prohibited.
- i. Post signs prohibiting swimming in the lake/detention basin.
- j. Review by Sacramento County Airport System: If the SCAS determines that conditions in the Greenbriar/Arbor Landing Development are not consistent with the above listed Management Program, SCAS may take the following actions:
 - i. notify the property owner that the wildlife control measures are out of compliance;
 - ii. that the County Airport System may, at its option, initiate control measures at the site, with the costs of such measures billed to the owner; and
 - iii. in the event of an immediate threat to aircraft safety, County Airport System personnel can take immediate action to remedy the air hazard emergency.
- k. To reduce attractants for Canada geese, American coots, or gulls associated with the lake/detention basin and surrounding landscape the Management Plan shall include the following:
 - i. Signs shall be posted and identify that feeding birds is prohibited.
 - ii. A 30-foot barrier strip of tall grass (6 inches or more) adjacent to the lakeshore; or a fence or other barrier (e.g., dense hedges) shall be constructed between the lakeshore and surrounding grasslands.
 - iii. Any nest building activity associated with birds shall be removed including all nesting materials.
- l. To prevent the establishment of resident populations of Canada geese on the project site, the Bird Control Program Manager shall take the following, but not limited to, actions:
 - i. Chase birds from site,
 - ii. Use of noise generators (e.g., pyrotechnic devices, blank cartridges),
 - iii. Use of visual devices (e.g., flags, scarecrows, water sprays)
 - iv. Use of chase dogs,

- v. Live trapping or netting, and/or
- vi. Use of chemical repellants.

Significance After Mitigation

With implementation of this mitigation measure, potential hazards associated with the lake/detention basin and its potential to attract hazardous wildlife would be reduced to the maximum extent practicable and consistent with FAA guidelines. Therefore, this impact would be reduced to a *less-than-significant* level.

**IMPACT
6.8-5**

Interference with an Adopted Emergency Response or Emergency Evacuation Plan. *Development of the proposed project would not interfere with emergency plans. Sufficient ingress and egress routes would be provided to ensure public safety in the event of an emergency. Moreover, residential areas for the proposed project would be designed in a grid street pattern, which would reduce the potential for adverse effects on access to the site by emergency service vehicles. This impact would be less than significant.*

The Greenbriar development would be required to obtain permits through the City that ensure that the project provides sufficient fire water flow, hydrant locations, street width, circulation, and project access for fire and emergency response units. One of the City Fire Department’s four fire stations housing Hazardous Materials Response Team (HMRT) and Decontamination team specialists is Station 30, the station with first-responder status to the project site.

The proposed project would not conflict with any adopted emergency response plans or evacuation plans; of the area’s primary emergency plans, the County *Multi-Hazard Mitigation Plan* mostly discusses following National Flood Insurance Program standards about where subdivisions are built (while the Project area is not located in a designated flood hazard area), and the City’s *Multi-Hazard Emergency Plan* does not address specifics related to evacuation from subdivisions (King, pers. comm., 2005).

Section 17.56.050 of the City Code states that new subdivisions in flood areas (i.e., those with less than 100-year flood protection as identified in the *City of Sacramento Comprehensive Flood Management Plan* [February 1996]) shall have two or more vehicular ingress and egress points designed to facilitate evacuation and other emergency services where geographically feasible. The proposed project area is not in a 100-year flood zone as defined by FEMA (see Section 6.10, “Hydrology, Drainage, and Water Quality”) and therefore is not a flood area as defined by the City’s flood management plan. Further, ingress to and egress from the proposed Greenbriar development would be available from both Elkhorn Boulevard and Meister Way. Moreover, residential areas for the proposed project would be designed in a grid street pattern, which would reduce the potential for adverse effects on access to the site by emergency service vehicles. This impact would be *less than significant*.

**IMPACT
6.8-6**

Potential for Public Health Hazards from Mosquitoes Associated with Project Water Feature. *The proposed project would include an on-site lake/detention basin, which could attract mosquitoes and other water-borne vectors, thereby potentially creating a public health hazard. This impact would be potentially significant.*

Hazards to public health could result from project features that could perpetuate mosquito populations. The project is designed to develop urban uses around a 39-acre lake/detention basin that could provide suitable habitat for breeding of mosquitoes. The lake/detention basin would be designed to provide continuous circulation and positive flow in all portions of the lake/detention basin. Design features of the lake/detention basin would include:

- ▶ Maintaining a depth of between 8 and 12 feet which would keep water temperatures low and discourage growth of algae.
- ▶ Long and narrow shape of the lake/detention basin would encourage water circulation and flow.
- ▶ Change in depth of the lake/detention basin from the north end (highest elevation, lowest depth) to the southern outfall (lowest elevation, highest depth) to induce water circulation.
- ▶ Construction and operation of two groundwater wells adjacent to the lake/detention basin to maintain adequate water levels (minimum 8-foot depth) throughout the year.

To reduce the threat from mosquito-borne threats to human health, the MVCD requests projects designed with permanent wetlands to incorporate best management practices (BMPs) or other preventive biological measures to reduce mosquito populations, production rates, or the timing of mosquito hatching. The project does not incorporate any BMPs that would control mosquitoes. Because the potential for mosquito-borne health hazards would occur with development of the project and the project does not include any mosquito prevention BMPs, this impact would be *potentially significant*.

Mitigation Measure 6.8-6 (City of Sacramento)

- a. To ensure that operation and design of the lake/detention basin is consistent with the recommendations of the MVCD regarding mosquito control, the project applicant shall prepare a Vector Control Plan. This plan shall be prepared in coordination with the MVCD and shall be submitted to the MVCD for approval before issuance of the grading permit for the lake/detention basin. The plan shall incorporate specific measures deemed sufficient by MVCD to minimize public health risks from mosquitoes. The plan shall include the following:
 1. Description of the project
 2. Description of lake/detention basin and all facilities that would control on-site water levels
 3. Goals of the plan
 4. Description of the water management elements and features that would be implemented:
 - a. Best management practices that would implemented on-site
 - b. Public education and awareness
 - c. Sanitary methods used (e.g., disposal of garbage)
 - d. Mosquito control methods used (e.g., fluctuating water levels, biological agents, pesticides, larvacides, circulating water)
 - e. Stormwater management (consistent with Stormwater Management Plan)
 5. Long-term maintenance of the lake/detention basin and all related facilities (e.g., specific ongoing enforceable conditions or maintenance by a homeowner's association)
- b. To reduce the potential for mosquitoes to reproduce in the lake/detention basin, the project applicant shall coordinate with the MVCD to identify and implement BMPs based on their potential effectiveness for

project site conditions. Potential BMPs that the applicant could implement include, but not limited to, the following:

- ▶ Stock the lake/detention basin with mosquito fish, guppies, backswimmers, flatworms, and/or other invertebrate predators.
- ▶ Maintain a stable water level the lake/detention basin to reduce water level fluctuation resulting from evaporation, transpiration, outflow, and seepage.

Significance After Mitigation

With implementation of this mitigation measure, potential health hazards associated with the lake/detention basin serving as an attractant to mosquitoes would be reduced to the maximum extent practicable and consistent with MVCD guidelines. Therefore, this impact would be reduced to a *less-than-significant* level.

6.9 GEOLOGY AND SOILS

6.9.1 INTRODUCTION

This section describes the existing geologic and soil conditions at the project site and provides an analysis of the potential geologic hazards associated with development of the proposed project. Water quality effects during construction are addressed in Section 6.10, “Hydrology, Drainage, and Water Quality.”

Impacts related to landslides and the incapability of project site soils to support the use of septic tanks or alternative wastewater disposal are not analyzed in this section as detailed in Section 1.7, “Effects Found to be Less Than Significant.”

6.9.2 ENVIRONMENTAL SETTING

REGIONAL AND LOCAL GEOLOGY

The project site is located in the Sacramento Valley, in unincorporated Sacramento County immediately to the north and west of the City of Sacramento. This area is located within the central portion of the Great Valley geomorphic province of California, which includes most of Sacramento County. The Great Valley is an alluvial plain approximately 50 miles wide and 400 miles long that lies between the mountains and foothills of the Sierra Nevada to the east and the Coast Ranges to the west. It was once an arm of the ocean that became isolated by new mountains and eventually rose above sea level. As a result, the valley is underlain by an asymmetrical depression (formed by intersecting, downward sloping folds of bedrock) in which various sedimentary deposits have accumulated in a sequence of units (known as the Great Valley Sequence) for more than 100 million years.

Formation of the Great Valley Sequence began with marine sediments from the receding ocean and was followed more recently by river deposits (alluvial deposits) washing down from the Sierra Nevada, Klamath, Cascade, and Coast Ranges. The U.S. Geological Survey (USGS) *Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California* shows the project area to be underlain by undivided Holocene basin deposits and the lower member of the Riverbank Formation (Helley and Harwood 1985, cited in Wallace Kuhl & Associates 2004). The Holocene basin deposits (occurring within the last 10,000 years) consist of fine-grained silt and clay derived from the nearby mountain ranges and deposited by the Sacramento and American Rivers. The lower member of the Riverbank Formation consists of red semiconsolidated gravel, sand, silt, and clay derived from the nearby mountain ranges and deposited by the Sacramento and American Rivers.

The project site is a flat, low-lying alluvial plain. Based on review of the USGS *Topographical Map of the Taylor Monument Quadrangle, California*, Wallace Kuhl & Associates (2002) found topography to vary from approximately 15 to 20 feet above mean sea level. However, more recently Wood Rodgers (2005), in its drainage study for the proposed project, found topography to vary from 5 to 25 feet. The site was historically part of a larger area of marshland until the Sacramento River levee system was completed around 1915. Eventually the site was drained by a network of canals and pumping stations and converted to farmland (in the 1930s).

SITE SOILS

Review of the April 1993 U.S. Department of Agriculture, Soil Conservation Service (SCS) *Soil Survey of Sacramento County, California* (SCS 1993) indicates that near-surface soils on the property are as follows:

- ▶ Clear Lake clay, hardpan substratum, drained, 0 to 1% slopes;
- ▶ Cosumnes silt loam, partially drained, 0 to 2% slopes;
- ▶ Durixeralfs, 0 to 1% slopes;
- ▶ Jacktone clay, drained, 0 to 2% slopes;

- ▶ San Joaquin-Durixeralfs complex, 0 to 1% slopes;
- ▶ San Joaquin silt loam, leveled, 0 to 1% slopes; and
- ▶ San Joaquin-Xerarents complex, leveled, 0 to 1% slopes.

Exhibit 6.9-1 shows the location of the soils at the project site. As shown in Exhibit 6.9-1, Clear Lake clay, and to a lesser extent Jacktone clay and San Joaquin-Durixeralfs complex, comprise the majority of the soils on the property. All of these soil units formed as alluvium derived from mixed-rock sources and are reportedly used for rangeland and dry-farmed crops. These soil types can be described as follows (Wallace Kuhl & Associates 2002):

- ▶ The Clear Lake clay soil profile typically consists of 15-inch-thick dark gray clay over a 19-inch-thick dark gray and yellowish brown clay with segregated lime concentrations over silica cemented hardpan that extends to 64 inches below the surface.
- ▶ The Cosumnes silt loam soil profile typically consists of a surface layer of pale brown silt loam about 8 inches thick. The next layer is a pale brown silty clay loam and clay about 13 inches thick. Below this to a depth of 43 inches is a buried surface layer of gray clay. The next layer, to a depth of 60 inches, is gray and pale brown clay loam.
- ▶ The Durixeralfs soil profile typically consists of a 20-inch layer of brown clay over strongly silica cemented hardpan to a depth of 55 inches over an indurated (i.e., firm) hardpan.

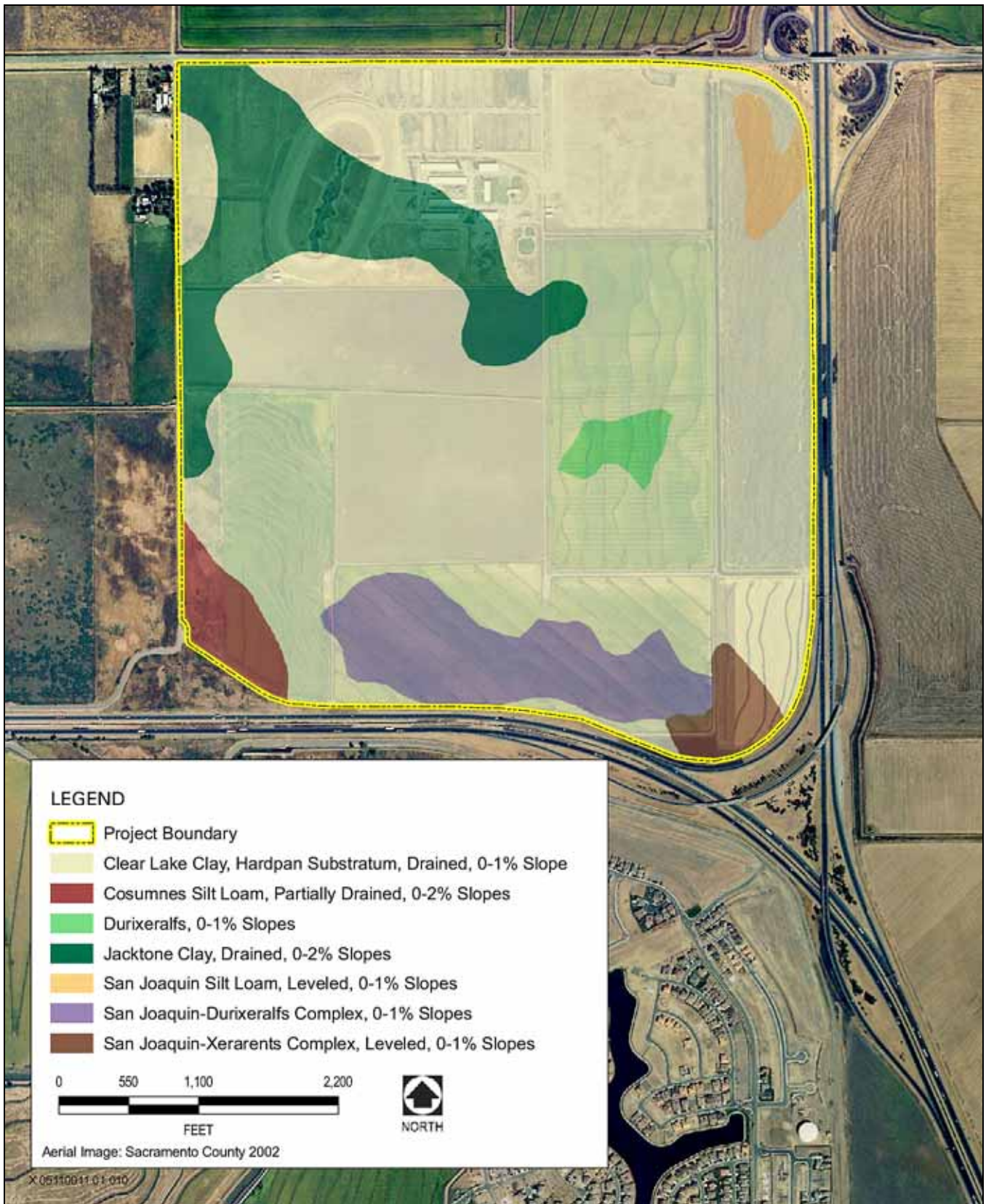
The Jacktone clay soil profile typically consists of a surface layer of very dark gray clay about 11 inches thick. The underlying material is a very dark clay about 23 inches thick. The next layer is a light brownish gray and light gray weakly silica cemented hardpan about 18 inches thick. The underlying material, to a depth of 60 inches, is light yellowish brown sandy loam.

- ▶ The San Joaquin Series soil profile typically consists of a 23-inch-thick brown silt loam over a 5-inch-thick yellowish-red clay loam, underlain by a 5- to 11-inch-thick indurated hardpan over strongly silica cemented hardpan.

The characteristics of these soils are summarized in Table 6.9-1. These soils are generally characterized by their high shrink-swell potential, low strength, generally slow permeability and runoff, and in some cases, their tendency to drain (flooding potential). These factors can limit the urban uses suitable for these soils, such as building foundation types. The project site is generally flat, so the tendency of soils to pond water would be greater than on a sloped site with the same soils. The seasonal high-water table can reach a height of 48–60 inches in Clear Lake clays, and water is perched above the claypan in San Joaquin soils for short periods after heavy winter and early spring rainfall (SCS 1993). The Sacramento County groundwater map (published March 2002) indicated that groundwater was located 10–15 feet below the surface in spring 2000, but Wallace Kuhl & Associates (2002), in its preliminary geotechnical investigation for the site in August 2002, noted groundwater at approximately 5–7 feet below the surface. In its subsequent Phase 1 Environmental Site Assessment (ESA) for the site, conducted in January 2004, Wallace Kuhl & Associates (2004) noted that groundwater is estimated to have historically varied from approximately 6.3 to 19.6 feet below the ground surface.

SUBSIDENCE

Subsidence is a gradual settling or sinking of the earth's surface with little or no horizontal motion. This lowering of the ground surface can be caused by the compaction or loss of unconsolidated soils by earthquake shaking; compaction by heavy structures; the erosion or oxidation of peat (organic) soils; or the extraction of groundwater, gas, oil, or geothermal energy resources. Subsidence (and its opposite, uplift) can also be triggered by seismic activities. The pumping of water from subsurface water tables causes the greatest amount of subsidence in



Source: SSURGO, NRCS 2004

Soils on the Project Site

Exhibit 6.9-1

| Table 6.9-1 Summary of Project Site Soil Characteristics | | | | | |
|------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Soil Profile | Soil Type | Texture | Shrink-Swell Potential | Wind/Water Erosion Potential | Flooding Tendency |
| Clear Lake clay | Clear Lake clay, hardpan substratum, drained, 0 to 1% slopes | Clay underlain by clay loam | High | - Slow permeability - Very slow runoff - Negligible to slight erosion hazard | Rare |
| Cosumnes silt loam | Cosumnes silt loam, partially drained, 0 to 2% slopes | Silt loam underlain by silty clay loam and clay | High | - Slow permeability - Slow runoff - Slight erosion hazard | Occasional during prolonged, high-intensity storms |
| Durixeralfs | Durixeralfs, 0 to 1% slopes | Clay; sometimes underlain by sandy clay loam or clay loam | N/A | - Slow to very slow permeability - Very slow runoff - Negligible to slight erosion hazard | N/A |
| | San Joaquin-Durixeralfs complex, 0 to 1% slopes | Silt loam underlain by clay loam and loam | High | - Slow to very slow permeability - Very slow runoff - Negligible to slight erosion hazard | N/A |
| Jacktone clay | Jacktone clay, drained, 0 to 2% slopes | Clay underlain by sandy loam or clay loam | High | - Slow permeability - Very slow runoff - Negligible to slight erosion hazard | Rare |
| San Joaquin Series | San Joaquin silt loam, leveled, 0 to 1% slopes | Silt loam underlain by clay loam and loam | High | - Very slow permeability - Very slow runoff - Negligible to slight erosion hazard | Perching of water for short periods after heavy rainfall in winter and early spring and when soil is over irrigated |
| | San Joaquin-Xerarents complex, leveled, 0 to 1% slopes | Silt loam underlain by clay loam and loam (San Joaquin); sandy loam and sandy clay loam underlain by loamy sand, sandy loam, and loam (Xerarents) | High (San Joaquin); low to high (Xerarents) | <i>San Joaquin:</i> - Very slow permeability - Very slow runoff - Negligible to slight erosion hazard <i>Xerarents:</i> - Moderate to very slow permeability - Very slow runoff - Negligible to slight erosion hazard | Rare |
| Source: U.S. Department of Agriculture, Soil Conservation Service 1993 | | | | | |

Sacramento County (County of Sacramento 1993). Although the project site is not located in a known subsidence area as denoted by the *County of Sacramento General Plan* (County General Plan), it is located on soils that exhibit the potential to subside because of their high shrink-swell potential and low strength.

EXPANSIVE SOILS

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried. Because of this effect, building foundations may rise during the rainy season and fall during the dry season. If this expansive movement varies underneath different parts of a single building, foundations may crack, structural portions of the building may be distorted, and doors and windows may become warped so that they no longer function properly (County of Sacramento 1993). While the California Geological Survey (formerly the California Division of Mines and Geology) indicates a low rating of expansive soils for the overall Sacramento area, expansive soils are found to exist in approximately 75% of the Natomas area (City of Sacramento 1988). In addition, Wallace Kuhl & Associates (2002) conducted tests on the surface and near-surface clays on sites adjacent to the Greenbriar project site, and found them to be medium to highly plastic (that is, capable of being molded or deformed continuously and permanently by relatively moderate pressure into various shapes). Wallace Kuhl & Associates concluded that the clay soils are expected to experience volume changes with increasing or decreasing soil moisture content, and that they are capable of exerting significant expansion pressures on building foundations and concrete slabs-on-grade (Wallace Kuhl & Associates 2002).

SEISMICITY

Seismically induced hazards include damage resulting from ground shaking, surface rupture, and liquefaction. These potential hazards are described in more detail below.

Ground Shaking

Ground shaking, motion that occurs as a result of energy released during faulting, could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock, the building materials used, and the workmanship of the structure.

Although the entire state of California is subject to ground shaking from numerous active fault systems that cross the state, earthquake occurrence in the Sacramento area over the last 150 years is considered minor, based on records kept over this time period. No major active faults transect Sacramento County. The nearest known faults are located generally west to southwest of Sacramento. However, similar to most of the Sacramento area, the project site is located on alluvium, which increases the amplitude of the earthquake wave. Structures located on alluvium typically suffer greater damage than those located on solid rock (County of Sacramento 1993).

The nearest potentially active faults (defined as faults that have been active in historic time, suggesting that future displacement may be expected) are shown in Table 6.9-2, which also displays the maximum credible earthquake, in Richter scale magnitude, that these faults could produce. The Richter scale is a logarithmic scale that expresses the magnitude of an earthquake in terms of the amount of energy generated, with 1.5 indicating the smallest earthquake that can be felt, 4.5 an earthquake causing slight damage, and 8.5 a very damaging earthquake.

The San Andreas, Green Valley, Concord, and Hayward Faults are considered to be active as defined by the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act), meaning they have experienced activity within the last 11,000 years. In addition to the faults listed above, which are considered active, inactive faults lie beneath the surface. For example, the Midland Fault, which is buried under alluvium and has been only approximately located from natural gas exploration work, is believed to extend north of Bethel Island in the Sacramento–San

Joaquin Delta. This fault is considered inactive but possibly capable of generating an earthquake measuring near 7.0 on the Richter Scale (County of Sacramento 1993, City of Sacramento 2005).

**Table 6.9-2
Faults Affecting the Project Area**

| Fault | Approximate Distance (miles) from Sacramento | Maximum Credible Earthquake (Richter Scale Magnitude) ¹ |
|--------------------------------|-------------------------------------------------|-----------------------------------------------------------------------|
| San Andreas Fault | 100 | 8.3 |
| Hayward Fault | 80 | 7.0 |
| Calaveras Fault | 70 | 7.0 |
| Rodgers Creek Fault | 70 | 7.0 |
| Greenville Fault | 48 | 6.9 |
| Concord-Green Valley Fault | 38 | 6.9 |
| Hunting Creek–Berryessa Fault | 38 | 6.9 |
| Great Valley Fault (segment 4) | 27 | 6.8 |
| West Napa Fault | 48 | 6.5 |
| Foothills Fault System | 25 | 6.5 |
| Great Valley Fault (segment 3) | 26 | 6.5 |
| Dunnigan Hills Fault | 30 | 6.25 ² |

Note:

¹ The term “maximum credible earthquake” is defined as the largest earthquake that is likely to be generated along an active fault zone (Stemmons and Chung 1982). The magnitude of the maximum credible earthquake is estimated from the geologic character and earthquake history of the fault. Most workers, when calculating the maximum credible earthquake for the strike-slip faults of the Coast Ranges, estimate the potential length of surface rupture, then use empirical relations that equate rupture length with earthquake magnitude. As a minimum, the maximum credible earthquake must equal the largest historic earthquake on a fault.

² Source: Wesnouski 1986.

Sources: *Probabilistic Seismic Hazard Assessment for the State of California* (Petersen et al. 1996), cited in City of Sacramento 2005; County of Sacramento 1993; information compiled by EDAW 2005

The Modified Mercalli Scale, presented in Table 6.9-3, is a scale used to illustrate the effects of earthquake intensity. Table 6.9-4 shows the approximate relationships between earthquake magnitude (Richter scale) and intensity (Modified Mercalli Scale).

Although Sacramento has experienced relatively little seismic activity, as shown in Table 6.9-2 ground motion originating from neighboring regions such as the San Francisco Bay Area and the Sierra Nevada region could affect the Sacramento area. Records indicate that occasional ground shaking and slight structural damage caused by earthquakes has occurred on several occasions. A series of earthquakes occurring in April 1892, which were thought to have originated in Yolo County between Winters and Vacaville, measured VI and VII on the Modified Mercalli Intensity Scale and caused some structural damage to buildings in Sacramento (statuary falling from building tops, cracks in chimneys). These earthquakes and the May 1983 Coalinga earthquake are both noteworthy, however, in that they occurred on previously unmapped faults (City of Sacramento 2005). The 1906 San Francisco earthquake caused minimal impacts in Sacramento, as did the 1989 Loma Prieta earthquake (7.1 Richter magnitude at its epicenter in the Santa Cruz Mountains). Other earthquakes felt in the Sacramento area occurring in 1869, 1954, and 1966 were centered in Western Nevada.

**Table 6.9-3
Modified Mercalli Scale of Earthquake Intensity**

| Scale | Effects |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I. | Not felt except by a very few under especially favorable conditions. |
| II. | Felt only by a few persons at rest, especially on upper floors of buildings. |
| III. | Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated. |
| IV. | Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. |
| V. | Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop. |
| VI. | Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. |
| VII. | Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. |
| VIII. | Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. |
| IX. | Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. |
| X. | Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. |
| XI. | Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. |
| XII. | Damage total. Lines of sight and level are distorted. Objects thrown into the air. |

Source: U.S. Geological Survey 2005

**Table 6.9-4
Approximate Relationships between Earthquake Magnitude and Intensity**

| Richter Scale Magnitude | Maximum Expected Intensity (Modified Mercalli Intensity Scale) | Distance Felt (Approx. Miles) |
|-------------------------|----------------------------------------------------------------|-------------------------------|
| 3.0 – 3.9 | I – III | 15 |
| 4.0 – 4.9 | IV – V | 30 |
| 5.0 – 5.9 | VI – VIII | 70 |
| 6.0 – 6.9 | VII – VIII | 125 |
| 7.0 – 7.9 | IX – X | 250 |

Source: OES 2005

The California Geological Survey identifies low, medium, and high severity zones within California. Although Sacramento lies in a low severity zone, the probable maximum intensity of an earthquake could be as high as VII on the Modified Mercalli scale; some structural damage could occur at that intensity (City of Sacramento 1988).

The California Geological Survey has found that the western portion of Sacramento County is in a relatively moderate ground shaking zone (City of Sacramento 1988). For purposes of this EIR, the California Geological Survey's Probabilistic Seismic Hazards Mapping Ground Motion Page (California Geological Survey 2005a) was consulted to estimate site-specific probabilistic ground acceleration for the project site. Based on the latitude and longitude for Sacramento International Airport (approximately 1 mile west of the project site), peak horizontal ground acceleration (the level of ground shaking) with 10% probability of being exceeded in 50 years was calculated for firm rock, soft rock, and alluvium in percentage of gravity (g) (or percentage of the earth's normal gravitational strength). These calculations found that there is a 1-in-10 probability that an earthquake will occur within 50 years that will result in a peak horizontal ground acceleration on alluvium (on which the project site is located) exceeding 0.209g (California Geological Survey 2005a). By comparison, the California Geological Survey peak ground acceleration map for the state (California Geological Survey 2005b) shows corresponding peak horizontal ground acceleration in areas in the immediate vicinity of the San Andreas Fault to be approximately 0.8g, nearly four times greater.

Surface Rupture

Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over an active fault can be torn apart if the ground ruptures. The project site is not located within an earthquake fault zone as designated by the Alquist-Priolo Earthquake Fault Zone Act (California Geological Survey 2005c) (see Section 6.9.3, "Regulatory Setting," below) and would not likely be subject to surface ruptures. However, as described above, several active earthquake faults are located within 100 miles of Sacramento.

Liquefaction

Liquefaction is a type of ground deformation associated with unconsolidated soils. Water in such soils is subjected to pressure, usually produced by ground motion, which causes the soil to behave like quicksand and to literally flow out from underneath buildings. Earthquake shaking is the major cause of such ground motion. A combination of factors contributes to the potential for liquefaction including the intensity of ground shaking, the soil type and density, and the depth to groundwater.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in insufficient bearing capacity to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. The possibility that liquefaction will occur is greatest in very loose, clean sands with the groundwater level near the ground surface. The Sacramento area is located on a broad alluvial plain with areas of low lying, poorly consolidated to unconsolidated sediments that are often water-saturated. It is these areas that are potentially subject to liquefaction as a result of seismic activity. The potential for damage from liquefaction exists in Sacramento, and North Natomas is listed as an area that especially exhibits this potential (City of Sacramento 1988).

In addition, as mentioned previously, the groundwater table at the Greenbriar site is shallow; Wallace Kuhl & Associates (2002) noted groundwater at approximately 5–7 feet below the surface. The upper foot or so was relatively loose from agricultural use, and in hand augered holes the soils were found to be moist just a few feet below the surface.

6.9.3 REGULATORY SETTING

FEDERAL

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States. To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990

by the National Earthquake Hazards Reduction Program Act (NEHRPA) by refining the description of agency responsibilities, program goals, and objectives.

The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through postearthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and USGS.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as “Earthquake Fault Zones” 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 efforts. Local agencies must regulate most development projects within the zones, including all land divisions and most structures for human occupancy.

The project site is not located within an earthquake fault zone as designated by the Alquist-Priolo Act (California Geological Survey 2005c).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act, passed by the California legislature in 1990, addresses earthquake hazards from nonsurface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards.

National Pollutant Discharge Elimination System Permit

In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations [CFR] 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System (NPDES). In turn, the SWRCB’s jurisdiction is administered through nine regional water quality control boards. Under these federal regulations, an operator must obtain a General Permit through the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or more. The General Permit requires the implementation of best management practices (BMPs) to reduce sedimentation into surface waters and control erosion. One element of compliance with the NPDES permit is preparation of a Storm Water Pollution Protection Plan (SWPPP) that addresses control of water pollution, including sediment, in runoff during construction. (See Section 6.10, “Hydrology, Drainage, and Water Quality,” for more information about the NPDES and SWPPPs.)

California Uniform Building Code

The State of California provides minimum standards for building design through the California Building Standards Code (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The California Uniform Building Code (UBC) also applies to building design and construction in the state and is based on the national UBC used widely throughout the

country (generally adopted on a state-by-state or district-by-district basis). To reflect California conditions, the California UBC has numerous regulations that are more detailed or more stringent than those in the national UBC.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the California UBC. The California UBC identifies seismic factors that must be considered in structural design.

Chapter 18 of the California UBC regulates the excavation of foundations and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control, and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

LOCAL

City of Sacramento General Plan

The following goal and policies from the Health and Safety Element of the *City of Sacramento General Plan* (City General Plan) are applicable to the proposed project:

- ▶ **Goal A:** Protect lives and property from unacceptable risk of hazards due to seismic and geologic activity to the maximum extent feasible.
 - **Policy 1:** Prohibit construction of structures for permanent occupancy across faults, should any be designated.
 - **Policy 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.
 - **Policy 3:** Continue to implement the Uniform Building Code requirements that recognize State and federal earthquake protection standards in the construction or repair of buildings.
 - **Policy 7:** Cooperate with and encourage the federal, State, and other local jurisdictions to investigate seismic and other hazards and to develop mitigation measures.

Current construction standards in Sacramento require that all new structures be sufficiently built to withstand seismic activity designated for Zone 3 of the UBC's Seismic Zone Map of the United States. Zone 3 is defined as a major damage area corresponding to an intensity of VIII or and higher on the Modified Mercalli scale (City of Sacramento 1988). Analysis of the project's consistency with these City of Sacramento General Plan goals and policies is provided in Chapter 5.0 "Project Consistency with Plans and Policies" of this DEIR.

City of Sacramento Grading, Erosion, and Sediment Control Ordinance

The City Grading, Erosion, and Sediment Control Ordinance (Chapter 15.88 of the City Code) requires 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. The ordinance requires that a soils report be completed before issuance of a building permit in areas where the potential for expansive soils is present.

LAFCo

The LAFCo Policies, Procedures, and Guidelines document does not contain any policies related to geology or soils.

6.9.4 IMPACTS AND MITIGATION

METHOD OF ANALYSIS

This analysis is based on review of the preliminary geotechnical engineering report and Phase 1 ESA prepared by Wallace Kuhl & Associates in 2002 and 2004, respectively. This analysis also relies on review of the April 1993 U.S. Department of Agriculture, Soil Conservation Service *Soil Survey of Sacramento County, California* (SCS 1993); review of the County and City General Plans and the *City of Sacramento General Plan: Technical Background Report* (City of Sacramento 2005); and a site visit conducted by EDAW staff on June 21, 2005.

THRESHOLDS OF SIGNIFICANCE

An impact is considered significant, as defined by the State CEQA Guidelines (Appendix G), if the proposed project or alternatives would:

- ▶ expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - the rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault;
 - strong seismic ground shaking;
 - seismic-related ground failure, including liquefaction; or
 - landslides;
- ▶ result in substantial soil erosion or the loss of topsoil;
- ▶ be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse; or
- ▶ be located on expansive soil, as defined in Table 18-1-B of the UBC, creating substantial risks to life or property; or
- ▶ have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

IMPACTS AND MITIGATION MEASURES

| |
|-----------------|
| IMPACT 6.9-1 |
|-----------------|

Risks to People and Structures Caused by Seismic Hazards, Including Strong Ground Shaking and Liquefaction. *The project site is not located within an earthquake fault zone. Surface rupture from faulting is therefore not expected to occur on the project site. However, the project site is located in an area considered by the California Geological Survey to be a relatively moderate ground shaking zone. Ground shaking, as a result of seismic activity from nearby or distant earthquake faults, could cause seismic-related ground failure. The water-saturated alluvial soils occurring on the project site are considered to possess low strength and could potentially liquefy during a seismic event. Thus, development of the project site with homes and other structures has the potential to expose people to substantial adverse effects from seismic hazards, including ground shaking and liquefaction. This impact would be **potentially significant**.*

The project site is not located within an earthquake fault zone as designated by the Alquist-Priolo Earthquake Fault Zone Act (California Geological Survey 2005c). The nearest active fault is the Dunnigan Hills fault, approximately 30 miles west/southwest of the project site; this fault is estimated to have a maximum credible earthquake of 6.25 on the Richter scale. Because no known faults are located on the project site, the potential for surface rupture (cracking or breaking of the ground during an earthquake) would be less than significant.

The project site is classified as being within Seismic Zone 3 in the 1997 edition of the UBC; as such, the level of anticipated ground shaking is lower than in many areas within the state of California. The project would comply with City of Sacramento policies related to Health and Safety, as identified in the City's General Plan. In addition, the project would not construct any structures across faults and would implement all requirements of the UBC in design and construction of buildings.

Strong ground shaking may still occur at the site, however, as a result of large, distant earthquakes. The California Geological Survey indicates that the project area is located in a region of moderate maximum earthquake intensity, corresponding with a zone of VII to VIII on the Modified Mercalli scale (City of Sacramento 1988). Earthquakes in this region would cause general alarm and moderate damage. As required by current City of Sacramento construction standards as well as standard engineering practices, project facilities would be designed in accordance with seismic standards of the UBC for structures located within Seismic Zone 3. These construction standards would minimize the effects of seismic ground shaking on developed structures. However, the alluvial soils occurring on the project site are considered to possess low strength and could potentially liquefy during a seismic event. A preliminary geotechnical report for the proposed project has been prepared (Wallace Kuhl & Associates 2002) that provides an overview of geotechnical engineering aspects of and considerations for development at the project site. Preliminary conclusions and recommendations were made regarding soil-related aspects of development at the property with residential and commercial uses. However, specific design recommendations were beyond the scope of this report. Thus, development of the project site with homes and other structures has the potential to expose people to substantial adverse effects from seismic hazards, including ground shaking and liquefaction. This impact would be *potentially significant*.

Mitigation Measure 6.9-1. (City of Sacramento)

- a. Before issuance of a grading permit, a geotechnical report shall be prepared by a qualified geotechnical engineer. This report shall be completed to assess the extent to which the recommendations are appropriate and sufficient for construction of the buildings described in the final project design plans. The geotechnical engineer shall prepare a comprehensive site-specific geotechnical report with specific design recommendations sufficient to ensure the safety of soil conditions (e.g., percent subsidence/expansive soils impacts), project structures, and site occupants.
- b. All water supply and wastewater pipelines shall be designed per City standards to minimize the potential for damage in the event of strong ground shaking and potential liquefaction.
- c. During project design and construction, all measures outlined in the preliminary geotechnical report for the project (Wallace Kuhl & Associates 2002) as well as specific design measures included in the geotechnical report shall be implemented, at the direction of the City engineer, to prevent significant impacts associated with seismic activity. A geotechnical engineer shall be present on-site during earthmoving activities to ensure that requirements outlined in the geotechnical reports are adhered to for proper fill and compaction of soils.
- d. Should the construction schedule require continued work during the wet weather months (e.g., October through April), the project applicant shall consult with a qualified civil engineer and implement any additional recommendations provided, as conditions warrant. These recommendations would include but not

be limited to (1) allowing a prolonged drying period before attempting grading operations at any time after the onset of winter rains; and (2) implementing aeration or lime treatment, to allow any low-permeability surface clay soils intended for use as engineered fill to reach a moisture content that would permit the specified degree of compaction to be achieved (Wallace Kuhl & Associates 2002; Perry, pers. comm., 2005).

Significance After Mitigation

Review of construction plans and onsite supervision by a geotechnical engineer and consultation with a civil engineer, if needed, would reduce significant impacts under the proposed project associated with seismic hazards to a *less-than-significant* level.

| |
|-------------------------|
| IMPACT 6.9-2 |
|-------------------------|

Construction-Related Erosion Hazards. *Excavation and grading of soil could result in localized erosion during project construction. Further, dewatering may be required during some excavation activities as a result of high groundwater levels, which could increase the potential for construction-related erosion. This would be a **potentially significant** impact.*

Project construction activities would involve excavation and grading of soil and would remove all vegetative cover on-site exposing on-site soils to wind and water erosion. In addition, high groundwater levels could result in the need for dewatering during excavation activities deeper than 5 feet (Wallace Kuhl & Associates 2002), increasing the potential for erosion.

Although excavation activities, grading, and construction would be conducted according to standard construction practices and building codes, construction activities associated with project site development have the potential to create substantial localized erosion during wind and rain events. Therefore, this impact would be a *potentially significant* impact.

Mitigation Measure 6.9-2: (City of Sacramento)

- a. A grading and erosion control plan shall be prepared by a California Registered Civil Engineer and submitted to the City of Sacramento Department of Public Works for approval prior to issuance of the first building permits. The plan shall be consistent with the California Building Standards Code grading requirements and shall identify the site-specific grading to be used for new development. All grading shall be balanced on-site, where feasible.
- b. To ensure soils do not directly or indirectly discharge sediments into surface waters as a result of construction activities, the project applicant shall develop a Stormwater Pollution Prevention Plan (SWPPP) as discussed in Section 6.10, "Hydrology, Drainage, and Water Quality." The SWPPP shall identify Best Management Practices that would be used to protect stormwater runoff and minimize erosion during construction. The project applicant shall prepare plans to control erosion and sediment, shall prepare preliminary and final grading plans, and shall prepare plans to control urban runoff from the project site during construction, in compliance with the City of Sacramento Grading, Erosion, and Sediment Control Ordinance.

Significance After Mitigation

Preparation and approval of a grading and erosion control plan that would require measures to prevent on- and off-site erosion and SWPPP would reduce significant impacts related to construction erosion hazards to a *less-than-significant* level.

**IMPACT
6.9-3**

Potential for Subsidence or Compression of Unstable Soils. *Although the project site is not located in a known subsidence area as denoted by the County General Plan, it is located on soils that exhibit the potential to subside because of their high shrink-swell potential and low strength. This impact would be **potentially significant**.*

Subsidence, the sinking of land, is caused by compaction of unconsolidated soil units during a seismic event, compaction by heavy structures, erosion of peat soils, or groundwater depletion. Subsidence usually occurs over a broad area and is therefore not detectable at the ground surface. This normally occurs in areas underlain by alluvium soils. Because the project site is underlain by these soils, there is potential for subsidence or soil compression and consolidation. Further, the pumping of water from subsurface water tables causes the greatest amount of subsidence in the local area, and dewatering may be required during some excavation activities as a result of high groundwater levels, which could also increase the potential for subsidence. This would be a **potentially significant** impact.

Mitigation Measure 6.9-3: (City of Sacramento)

The project applicant shall implement Mitigation Measure 6.9-1, described above, to reduce the risks to people and structures from subsidence or compression of unstable soils at the project site.

Significance After Mitigation

Review of construction plans and onsite supervision by a geotechnical engineer would reduce significant impacts under the proposed project associated with subsidence or compression of unstable soils to a **less-than-significant** level.

**IMPACT
6.9-4**

Potential for Damage Associated with Expansive Soils. *Soils on portions of the project site are moderately susceptible to expansive soil behavior. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to overlying structures. In addition, the groundwater table is shallow, which enhances the potential for shrink and swell. This impact would be **potentially significant**.*

Approximately 75% of the Natomas area contains soils that are considered to be expansive (City of Sacramento 1988). Expansive soils comprise mainly clays that increase in volume when water is absorbed and shrink when dry. All of the soil types occurring on the project site contain various levels of clay in their compositions. Most of the soils (including Clear Lake and Jacktone clay soils, which comprise the majority of the site soils) exhibit a high shrink-swell potential (SCS 1993). In addition, Wallace Kuhl & Associates (2002) conducted tests on the surface and near-surface clays on sites adjacent to the project site, and found them to be medium to highly plastic (that is, capable of being molded or deformed continuously and permanently by relatively moderate pressure into various shapes). Wallace Kuhl & Associates concluded that the clay soils are expected to experience volume changes with increasing or decreasing soil moisture content, and that they are capable of exerting significant expansion pressures on building foundations and concrete slabs-on-grade (Wallace Kuhl & Associates 2002). Development at the project site has the potential to expose people and structures to adverse effects associated with soils that expand during the rainy season and shrink during the dry season. Structural damage, warping, and cracking of roads and sidewalks, and rupture of utility lines may occur if the potential expansive soils are not considered during design and construction. This impact would be **potentially significant**.

Mitigation Measure 6.9-4: (City of Sacramento)

The project applicant shall implement Mitigation Measure 6.9-1, described above, to reduce the potential for damage associated with expansive soils.

Significance After Mitigation

Implementation of this mitigation measure would properly design on-site features and would reduce significant impacts under the proposed project associated with expansive soils to a *less-than-significant* level.

6.10 HYDROLOGY, DRAINAGE, AND WATER QUALITY

6.10.1 INTRODUCTION

This section addresses potential hydrology and water quality impacts that would result with implementation of the proposed project. Issues related to the availability of water supply and potential environmental impacts related to the use of existing and planned supplies are addressed in Section 6.5, “Utilities.”

6.10.2 ENVIRONMENTAL SETTING

HYDROLOGY AND DRAINAGE

Regional Setting

Sacramento Area

The City of Sacramento is located at the confluence of the Sacramento River and American River in the Sacramento River Basin. The Sacramento River Basin encompasses approximately 26,500 square miles and is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Sacramento–San Joaquin Delta (Delta)/Central Sierra Nevada area to the south. Six small tributaries of the Sacramento River (Dry Creek, Magpie Creek, and Arcade Creek in the northern area of the city, and Morrison Creek, Elder Creek, and Laguna Creek to the south) pass through and provide drainage for the Sacramento area. Forty miles to the south, the Sacramento River joins the San Joaquin River, which drains into the Delta and San Francisco Bay.

Average annual rainfall in the Sacramento area is 17.22 inches; most of this rain occurs during the months of November through March. Major storm events can produce high flows throughout the Sacramento and American River systems. Flood control facilities along these rivers consist of a comprehensive system of dams, levees, overflow weirs (diversion structures intended to ensure a maximum flow in the river), drainage pumping plants, and flood control bypass channels. Such facilities control flood flows by regulating the amount of water passing through a particular reach of the river. Specifically, the City of Sacramento’s (City’s) stormwater drainage system consists of a network of natural channels, canals, levees, subsurface drains, and pumping stations that ultimately drain into the Sacramento and American Rivers. Urban runoff is disposed of via one of two methods: (1) conveyance to the Sacramento and American Rivers through sumps, pipelines, and treatment facilities organized, primarily, by drainage basin; or (2) conveyance by the City’s Combined Sewer Service System, along with sewage, to the Sacramento Regional Wastewater Treatment Plant (SRWTP).

The volume of water flowing past the levee system that protects Sacramento from flooding is controlled by Folsom Dam on the American River, approximately 25 miles east of the project area, and the reserve overflow area of the Yolo Bypass on the Sacramento River. The majority of the City’s corporate limits and the project area could be subject to flooding from failure along the Sacramento and American River levee systems. Folsom Dam was completed in 1956 and was designed to reduce flood flows in the American River to a flow rate that could be safely carried by the downstream levees. A dam is designed to contain a flood that has a certain probability of occurring in any given year. If a larger flood occurs, then that structure will either release water through its spillway or be overtopped. There have been no dam failures in Sacramento County since 1950 (County of Sacramento 2004, cited in City of Sacramento 2005).

Folsom Dam was designed to provide flood control for Sacramento up to a 500-year level storm (i.e., a storm with 0.2% chance of occurring in a given year). However, after the dam became operational, a series of record storms and flood flows resulted in downgrading the dam’s projected design flood. In 1986 Folsom’s performance was downgraded to about a 60-year storm (SAFCA 2005a). An initial reconnaissance report, American River Investigation, January 1988, concluded that Folsom Dam and the American River levees were only capable of

handling a 70-year flood event (County of Sacramento 1993). Nonetheless, Folsom Dam has stopped three potentially catastrophic floods from occurring. In February 1986, the levee system passed a volume of water generated by the 80- to 100-year flood event. The 1986 storm exceeded Folsom's design for flooding by almost 20% (County of Sacramento 1993). Although the storm caused some flooding in certain areas, the major levee systems that protect the city from disaster withstood record water flows.

In the wake of the 1986 storm, efforts were undertaken to reduce the Sacramento area's vulnerability to catastrophic flooding. In 1989 the Sacramento Area Flood Control Agency (SAFCA), a joint powers agency established by the City of Sacramento, the County of Sacramento, the County of Sutter, the American River Flood Control District, and Reclamation District 1000 (RD 1000), was formed with the goal of providing at least 100-year flood protection for the area, and ultimately 200-year flood protection (SAFCA 2005b). In 1994, SAFCA and the U.S. Bureau of Reclamation agreed to adjust and coordinate operations at Folsom Dam so that upstream reservoirs could assist in flood control measures. Congress approved the funding of American River levee improvements in 1996. In 1999, Congress again approved significant flood control projects, including the enlargement of the outlets in Folsom Dam (City of Sacramento 2005). More recently, Congress authorized funding for additional improvements, including raising the height of Folsom Dam by 7 feet, in the Energy and Water Development Appropriations Act of 2004 (Public Law 108-357) to provide 200-year flood protection for Sacramento (SAFCA 2005c). Construction of this "mini-raise" has not yet begun, and at this time it is not known when construction would begin.

The Yolo Bypass is part of the Sacramento River Flood Control Project which includes six weirs, three flood control relief structures, and an emergency overflow roadway. Weirs located along the Sacramento River are lowered sections of levees that allow flood waters to flow in excess of the downstream channel capacity to escape into a bypass basin or channel (e.g., Yolo Bypass). The Yolo Bypass is a flood bypass area that primarily protects the City of Sacramento and surrounding communities from flooding along the Sacramento River. The Yolo Bypass conveys 80 percent of the Sacramento River's floodwaters through Yolo and Solano Counties until rejoining the Sacramento River a few miles upstream of Rio Vista. The Fremont Weir, located approximately 9 miles northwest of the project site and approximately 2 miles in length, marks the northern extent of the Yolo Bypass. The Fremont Weir is the main water input to the Yolo Bypass by allowing floodwaters to flow by gravity after water levels in the Sacramento River reach an overflow water surface elevation. The Sacramento Weir, located approximately 5 miles south of the project site, has a primary purpose to protect the City of Sacramento from excessive flood stages in the Sacramento River channel downstream of the American River. The Sacramento Weir is 1,920 feet long and consists of 48 gates that divert Sacramento and American River floodwaters to the Yolo Bypass. The Sacramento Weir uses gates located on top of the overflow section to hold back floodwaters until opened manually (DWR 2003a).

Natomas Basin

The Natomas Basin is a low-lying area east of the Sacramento River, north (upstream) of its confluence with the American River. The basin is served by a series of canals and pump stations. In the undeveloped areas of Natomas, canals and drains serve the dual purpose of providing flood control and irrigation water. Irrigation water is provided in the area by Natomas Central Mutual Water Company (Natomas Mutual), a private water company whose service area includes the entire Natomas Basin. Natomas Mutual diverts water from the Sacramento River and the Natomas Cross Canal to provide irrigation water for agricultural uses and habitat preservation. Drainage and flood control for the Natomas Basin is provided by RD 1000, a public agency that has a coinciding service area and several joint-use facilities with Natomas Mutual. RD 1000 operates the primary drainage canals within the Natomas Basin and is responsible for conveying and pumping urban and non-urban stormwater runoff from the basin. Runoff from developed and existing agricultural lands within the Natomas Basin flows into numerous local drainage ditches that ultimately drain into the primary RD 1000 canals. RD 1000's primary system of interior drains includes the following:

- ▶ The *East Drainage Canal* conveys drainage water from the northern and eastern Natomas Basin to its confluence with the Main Drainage Canal northwest of the Interstate 80 (I-80)/Interstate 5 (I-5) interchange. At its closest point the East Drainage Canal is approximately 1.8 miles east of the project site.
- ▶ The *West Drainage Canal* conveys drainage water from the western Natomas Basin northwest of Sacramento International Airport to its confluence with the Main Drainage Canal. Fisherman’s Lake, a natural slough, is a portion of the West Drainage Canal. The West Drainage Canal is approximately 3,000 feet (0.6 mile) south of the project site at its closest point across I-5, just before the drainage canal turns south toward Fisherman’s Lake.
- ▶ The *Main Drainage Canal* conveys the combined flows of the East and West Drainage Canals from their confluence northwest of the I-80/I-5 interchange through South Natomas west of I-80. Drainage water from the Main Drainage Canal is pumped into the Sacramento River approximately 5 land miles to the south (downstream) of the project site.
- ▶ The *North Drainage Canal* is an interior canal that conveys drainage water from the Sutter County portion of the Natomas Basin northward, where it is pumped into the Natomas Cross Canal.
- ▶ The *Cross Canal* conveys drainage water from central portions of Sutter County westward to the Sacramento River. The Cross Canal connects with the Sacramento River approximately 7.1 miles north of the project site.
- ▶ The *Natomas East Main Drainage Canal* conveys drainage water from Dry Creek, Arcade Creek, and a large portion of the Natomas area north of the confluence with Dry Creek. The Natomas East Main Drainage Canal is also referred to as Steelhead Creek. The Natomas East Main Drainage Canal outfalls to the Sacramento River at the northern edge of Discovery Park and near the confluence of the Sacramento River and American River approximately 5.2 miles south of the project site.

Exhibit 6.10-1 graphically depicts this primary drainage system.

The City is responsible for maintenance of internal conveyance, detention basins, and pump stations that discharge into the system; RD 1000 is responsible for maintenance of the canal system. The North Natomas Comprehensive Drainage Plan (CDP) (see the discussion of local regulations in Section 6.10.3, “Regulatory Setting”) identifies various basin areas including detention basins and pumping facilities to convey discharge to the existing RD 1000 system within the North Natomas Community Plan area. Developed flow discharges to the RD 1000 system are limited to approximately 0.1 cubic foot per second (cfs) per acre, which is generally the standard for development in North Natomas.

Historically, the flood control system within the Natomas Basin was adequate for agricultural use, but the urbanization of the basin has resulted in the need for an increased level of flood protection. The North Natomas CDP is among the flood control efforts which created or modified storm water detention basins, detention basin pump stations, and trunk lines. As part of the North Natomas CDP, the North Area Local Project, a flood control project begun in 1993 under the direction of the Sacramento Area Flood Control Agency (SAFCA), was completed in 1998. As a result, North and South Natomas (including the project site) were deemed to have a “100-year” level of flood protection by the Federal Emergency Management Agency (FEMA). (The “100-year” flood is defined as having a one in 100 chance (1%) of occurring in any given year). The levees were found to meet FEMA criteria for 100-year flood protection under a previous system of levee evaluation. However, the levees have recently been found to require additional improvements under the current evaluation criteria which includes an underseepage analysis. As part of its Natomas Levee Evaluation Program, in March 2006 SAFCA completed a draft report of erosion, underseepage, and levee failure issues along the Natomas levee system during a 200-year storm event. In addition, the study also evaluated the potential for levee failure from seepage during a 100-year storm event. The study concluded that several flood control facilities in the Natomas area do not provide sufficient freeboard (i.e., distance between the water surface and the top of the levee) during a 200-year storm event and some facilities are susceptible to underseepage and erosion during 100-year flood events (SAFCA 2006). SAFCA staff presented the results of the Natomas Levee Evaluation Program to the SAFCA Board of

Directors (Board). The Board directed that staff commence with preparation of the necessary studies, analysis, and environmental documents to implement levee improvements to ensure that 200-year storm protection is provided within the Natomas area. In April 2006, the SAFCA Board approved the consultant contracts that would evaluate and ultimately implement the necessary levee improvements. The consultants will evaluate the needed levee improvements, make recommendations based on cost, design, associated with the recommended alternative, establish a funding program to implement the improvements, and will ultimately construct the improvements. SAFCA anticipates that improvements would be constructed within the next 2 to 5 years.

Project Site

Surface Water Hydrology

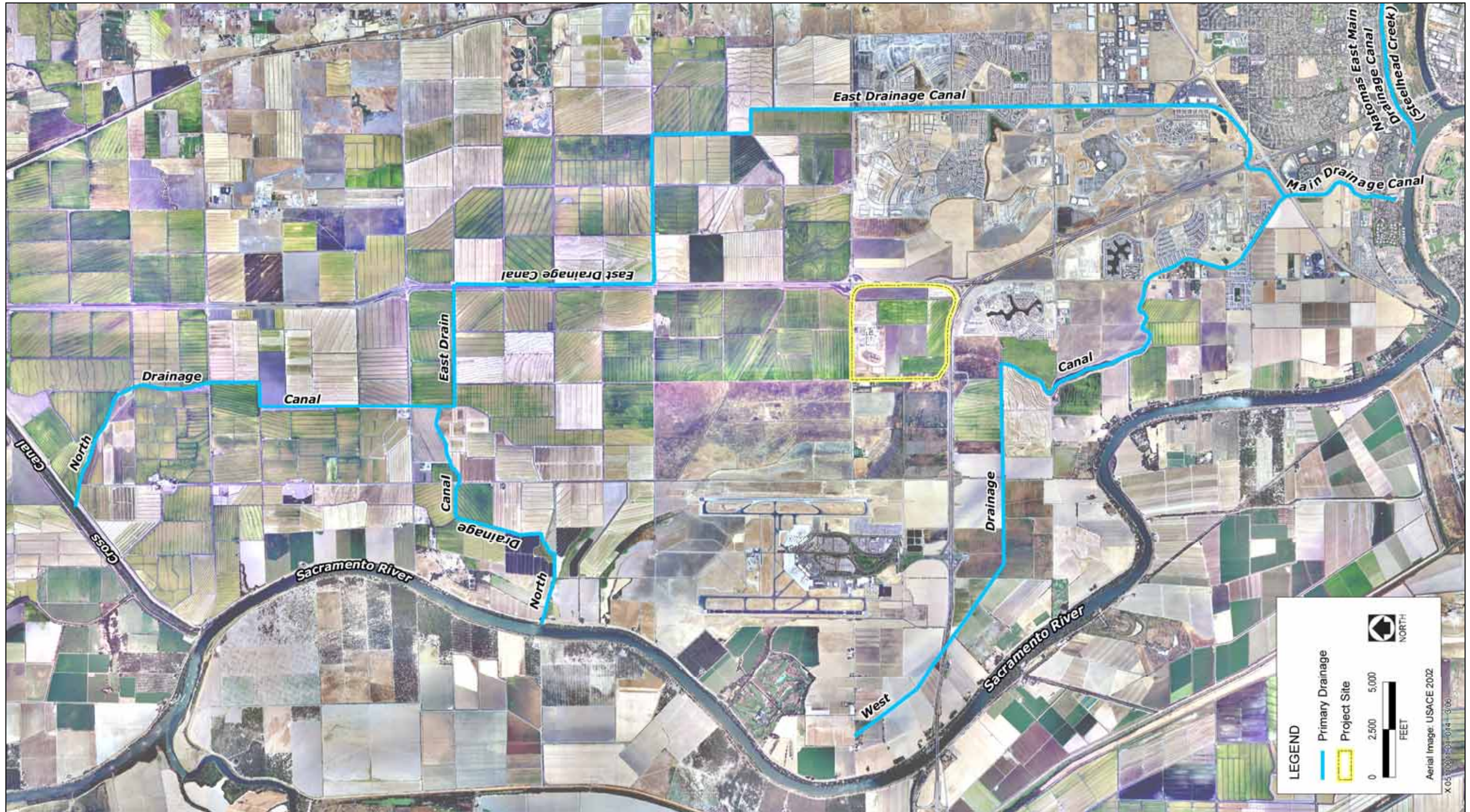
The project site is located in the southwestern portion of the Natomas Basin, within the Sacramento River Hydrologic Basin as defined by the California Department of Water Resources (DWR). The site occupies 577 acres of low-lying land approximately 2 miles northeast of the Sacramento River and 5 miles northwest (upstream) of the American River at their closest points. The project site is currently vacant undeveloped land supporting agricultural uses. The existing topography of the project site slopes from east to west in a southwesterly direction with elevations ranging from 5 to 25 feet. Because the site is generally flat, soils on the site may be susceptible to ponding. Soils on the project site are described further in Section 6.10, "Geology and Soils."

As discussed above, the North Natomas area was granted 100-year flood protection in 1998 as a result of local flood protection projects. Consequently, the project area was redesignated in Flood Zone X on the FEMA Flood Insurance Rate Map (FIRM) for the City of Sacramento dated July 6, 1998 (060262-0045E) (FEMA 1998). Based on this redesignation, the project area is considered to be protected from flooding from a 100-year storm event, including flooding from backwater effects. (The "backwater effect" refers to the rise in surface elevation of flowing water upstream of and resulting from an obstruction to flow, such as a narrow bridge opening, buildings, or fill material, that limits the area through which the water must flow.) As a result, there are currently no restrictions on development caused by flooding concerns. However, as described above, SAFCA has conducted a study that determined that some flood control facilities (i.e., levees) could be subject to flooding as a result of erosion and underseepage during a 100-year storm event. SAFCA has initiated a program of studies and activities that would provide improvements to flood control facilities within the Natomas area to provide protection from a 200-year storm event. At this time, it is unknown whether SAFCA will request that FEMA's flood designation be changed; however, at this time the project site and surrounding area currently is considered to be protected from a 100-year storm event.

Drainage on the project site consists of several drainage/irrigation ditches that ultimately convey flows south. As shown in Exhibit 6.10-2, the project site consists of three major watersheds:

- ▶ The north/northwestern part of the site drains into the Lone Tree Canal, which parallels the western boundary of the site. The canal drains from north to south and joins runoff from the south/southeastern part of the site before flowing under I-5 through three existing 5-foot by 8-foot box culverts into an RD 1000 canal outside the project area. This canal, in turn, flows toward the RD 1000 West Drainage Canal. The 100-year peak flow through the three culverts, considered together, is 904 cfs (Wood Rodgers 2005).
- ▶ The eastern shed drains into the existing Natomas Mutual channel in the eastern portion of the site, then under SR 70/99, then southward toward the West Drainage Canal. The West Drainage Canal drains south and, as mentioned above, terminates in the Main Drainage Canal, which is pumped into the Sacramento River.

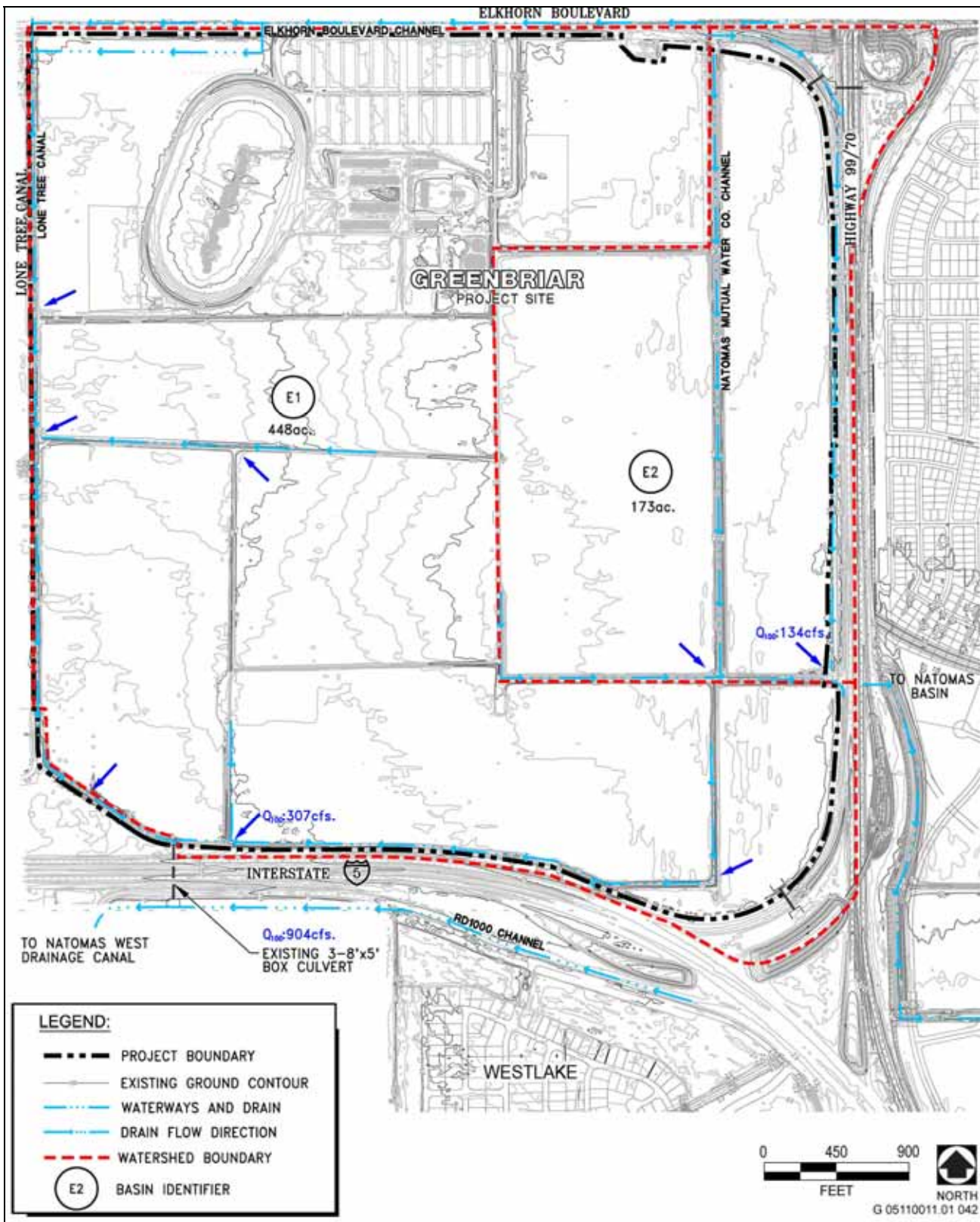
Runoff from the 540-acre-foot off-site watershed north of the project site discharges into the Lone Tree Canal during storms. The Lone Tree Canal measures approximately 12 feet wide at bottom and is 6 feet deep. The capacity of the Lone Tree Canal for a 100-year peak flow is 355 cfs (Wood Rodgers 2005). Sheet flow from the off-site watershed will cross Elkhorn Boulevard and enter the project site. This flow re-enters the Lone Tree Canal on-site.



Sources: City of Sacramento 2002, EDAW 2005

Primary Drainage System in the Natomas Basin

Exhibit 6.10-1



Sources: Wood Rodgers 2005, EDAW 2005

Major Watersheds on the Project Site

Exhibit 6.10-2

Groundwater Hydrology

Groundwater is defined by the Central Valley Regional Water Quality Control Board (RWQCB) *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) as subsurface water that occurs beneath the ground surface in fully saturated zones within soils and other geologic formations. The Natomas area is located within the North American Groundwater Subbasin of the Sacramento Valley Groundwater Basin, as delineated in DWR Bulletin 118, *California's Groundwater* (2003 update) (DWR 2003b, cited in City of Sacramento 2005). The eastern boundary of the North American subbasin is a north-south line extending from the Bear River south to Folsom Lake and represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada. The western portion of the North American subbasin consists of nearly flat flood basin deposits from the Bear, Feather, Sacramento, and American Rivers, and several small eastside tributaries (DWR 2003b).

Groundwater occurs in unconfined to semiconfined states throughout the subbasin. Semiconfined conditions occur in localized areas; the degree of confinement typically increases with depth below the ground surface. Groundwater in the upper aquifer formations is typically unconfined. However, because of the mixed nature of the alluvial deposits, semiconfined conditions can be encountered at shallow depths in the upper aquifer (City of Sacramento 2005).

Groundwater levels in the city of Sacramento are reported to be stable at 20–40 feet above mean sea level (msl) (Sacramento Groundwater Authority 2003, cited in City of Sacramento 2005). In the Natomas Basin, groundwater levels vary seasonally with precipitation and runoff in this area and may rise closer to the ground surface during wet years. In addition, groundwater levels are influenced locally by pumping as the groundwater is withdrawn regularly during spring and summer for irrigation, and throughout the year for general use by most of the local growers; as a result, groundwater is generally higher in March and lower in October. Regional groundwater flow direction can be affected, at least temporarily, by agricultural groundwater pumping, time of year, and stage fluctuation of local creeks, drainage canals, and the nearby Sacramento River. The direction of groundwater flow is predicted to be easterly to southeasterly. (Wood Rodgers 2005.)

The current Sacramento County groundwater map (published March 2002) indicates that the groundwater in the vicinity of the project site is located at an elevation of approximately 0 feet to +5 feet relative to msl, or roughly 10–15 feet below the surface (County of Sacramento 2002). This level, measured in spring 2000, is lower than the 5–7 feet below the surface later observed by Wallace Kuhl and Associates in August 2002 and cited in its preliminary geotechnical report for the proposed project (Wallace Kuhl & Associates 2002). In its Phase I Environmental Site Assessment (ESA) for the site, conducted in January 2004, Wallace Kuhl & Associates (2004) noted that groundwater is estimated to have historically varied from approximately 6.3–19.6 feet below the ground surface. Wallace Kuhl & Associates (2002) noted that excavations at the site deeper than 5 feet could encounter groundwater seepage.

WATER QUALITY

Surface Water

“Receiving waters” is a general term typically used to describe any surface water body, such as a creek, river, lake, bay, or ocean that receives runoff. As mentioned previously, the Natomas Main Drainage Canal conveys drainage water from the East and West Drainage Canals to the Sacramento River. Therefore, the Sacramento River is receiving water for much of the drainage from the Natomas Basin (including agricultural drainage). Agricultural drainage water contributes salts, nutrients, pesticides, trace elements, sediments, and other byproducts that could affect the water quality of the Sacramento River.

Water quality in the Sacramento River is regulated primarily by the Central Valley RWQCB. The Central Valley RWQCB has established narrative and numeric standards for the Sacramento River in its Basin Plan (Central

Valley RWQCB 2004). The Basin Plan designates beneficial uses for Sacramento River water that include agricultural supply, contact water recreation, noncontact water recreation, warm freshwater habitat, cold freshwater habitat, and wildlife habitat. The Sacramento River also has the potential beneficial use of coldwater spawning, reproduction, and/or early development. Table 6.10-1 defines these beneficial uses, among others.

| Table 6.10-1 Applicable Beneficial Use Designations | | | |
|----------------------------------------------------------------|------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Beneficial Use Designation | Applicable to | | Definition |
| | Sacramento River | Groundwater | |
| Municipal and Domestic Supply | | X | Community, military, or individual water supply systems including, but not limited to, drinking water supply |
| Agricultural Supply | X | X | Farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing |
| Industrial Process Supply | | X | Industrial activities that depend primarily on water quality |
| Industrial Service Supply | | X | Industrial activities that do not depend primarily on water quality including, but not limited to mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization |
| Contact Water Recreation | X | | Recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs |
| Noncontact Water Recreation | X | | Recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities |
| Warm Freshwater Habitat | X | | Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. |
| Cold Freshwater Habitat | X | | Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. |
| Wildlife Habitat | X | | Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources |
| Spawning, Reproduction, and/or Early Development | potential | | Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish |
| Source: Central Valley RWQCB 2004 | | | |

In accordance with the requirements of the federal Clean Water Act (see Section 6.10.3, “Regulatory Setting”), the State Water Resources Control Board has determined that beneficial uses in the Sacramento River are impaired by high concentrations of diazinon (a pesticide related to agricultural and urban runoff), mercury (related to mining in the upper watershed), and unknown toxicity. Specific beneficial uses and impairments to those uses have not been identified for the system of agricultural canals and drains internal to the Natomas Basin.

Groundwater

The Basin Plan (Central Valley RWQCB 2004) considers all groundwater in the Central Valley Region as suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial process supply, and industrial service supply, unless otherwise designated by the Central Valley RWQCB. These beneficial uses are defined in Table 6.10-1.

Groundwater quality data were collected between 1991 and 1999 from groundwater wells operated by Sacramento Groundwater Authority agencies, and analyzed for levels of total dissolved solids (TDS) (the measurement of minerals in water, derived from contact from rock and soil) and other constituents of concern affecting drinking water. None of the wells with water quality data provided are in the project area; the nearest are located approximately 3.5 miles east of the site. Therefore, no data specific to the project site are available.

However, results of wells closest to the project site showed levels of the various constituents of concern in the groundwater wells sampled to be within primary and secondary drinking water standards (Sacramento Groundwater Authority 2002) (see the discussion of water quality regulations in Section 6.10.3, “Regulatory Setting”).

As mentioned above under “Groundwater Hydrology,” the Natomas Basin is located within the North American Groundwater Subbasin of the Sacramento Valley Groundwater Basin, as delineated in DWR Bulletin 188, *California’s Groundwater* (2003 update) (DWR 2003b, cited in City of Sacramento 2005). An area along the Sacramento River (approximately 6 miles west/northwest of the project site) extending from Sacramento International Airport northward to the Bear River has been found to have high levels of TDS, chloride, sodium, bicarbonate, manganese, and arsenic. However, the groundwater in the southern part of the groundwater subbasin is otherwise generally characterized as good quality (DWR 2003b).

Other than in the area described above, groundwater in the Natomas Basin and in the vicinity of the project site is generally of good quality. None of the sites within the Sacramento area with significant groundwater contamination issues (the former McClellan and Mather Air Force Bases, an abandoned Pacific Gas and Electric Company site on Jibboom Street near Old Sacramento, the former Southern Pacific/Union Pacific Railroad rail yards along the American River, and the Aerojet Superfund site) are located in the Natomas Basin (City of Sacramento 2005). Furthermore, as described under “Results of Records Search for Hazardous Materials” in Section 6.9, “Public Health and Hazards,” Wallace Kuhl & Associates (2004) found no records of on-site contamination, including contaminated groundwater wells, during its Phase I ESA for the project site; EDAW also consulted the U.S. Environmental Protection Agency’s (EPA’s) Envirofacts database and found no records of any regulated water dischargers, impaired water bodies or streams, or other indicators of surface or groundwater quality impairment (EPA 2005).

6.10.3 REGULATORY SETTING

HYDROLOGY (DRAINAGE AND FLOODING)

Federal

Federal Emergency Management Agency

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. FEMA administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. FEMA also issues FIRMs that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. FEMA has established a minimum level of flood protection for new development as the 1-in-100 Annual Exceedance Probability (AEP) (i.e., 100-year flood event). The City and County of Sacramento are participating communities in the NFIP, and therefore all new development must comply with the minimum requirements of the NFIP.

State

There are no state policies related to hydrology that are applicable to the proposed project.

Local

City of Sacramento General Plan

The following goal and policy from the Health and Safety Element of the *City of Sacramento General Plan* are applicable to the proposed project:

Flood Hazards

- ▶ **Goal A:** Protect against flood related hazards wherever feasible.
 - **Policy 1:** Prohibit development of areas subject to unreasonable risk of flooding unless measures can be implemented to eliminate or reduce the risk of flooding.

The following goal and policies from the Public Service and Facilities Element are also applicable to the proposed project:

Drainage

- ▶ **Goal A:** Provide adequate drainage facilities and services to accommodate desired growth levels.
 - **Policy 1:** Ensure that all drainage facilities are adequately sized and constructed to accommodate the projected increase in stormwater runoff from urbanization.
 - **Policy 2:** Coordinate efforts with County Public Works Department and other agencies as appropriate to provide adequate and efficient drainage facilities and connector lines to service the Rio Linda, North Natomas and Laguna Creek areas of the City.
 - **Policy 4:** Require the private sector to form assessment districts and/or utilize other funding mechanisms to cover the cost of providing drainage facilities.

The project's consistency with the City's policies is evaluated in Chapter 5.0, "Project Consistency with Plans and Policies."

LAFCo Policies

The LAFCo Policies, Procedures, and Guidelines document does not contain any policies related to hydrology and water quality.

WATER QUALITY

Federal

EPA is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality. These are discussed below. Wetland protection elements of the CWA administered by the U.S. Army Corps of Engineers are discussed in Section 6.13, "Biological Resources."

Water Quality Criteria/Standards

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations below, the State Water Resources Control Board (SWRCB) and its nine RWQCBs have designated authority in California to identify beneficial uses and adopt applicable water quality objectives.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff.

Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

"Nonpoint source" pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges associated with industrial activities including construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES permit system (see the discussion of state regulations below).

Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still be in compliance

with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. EPA must either approve a TMDL prepared by the state or disapprove the state's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

State

In California, the SWRCB has broad authority over water quality control issues, exercising the powers delegated to the state by the federal government under the CWA. Regional authority for planning, permitting, and enforcement is delegated by the SWRCB to the nine RWQCBs as described below. The City and County of Sacramento are located within the jurisdiction of the Central Valley RWQCB.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is California's statutory authority for the protection of water quality. The act sets forth the obligations of the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

Water Quality Control Plan for the Sacramento and San Joaquin River Basins

The Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins adopted by the Central Valley RWQCB (2004) identifies the beneficial uses of water bodies and provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River basins, including the Delta. State and federal laws mandate the protection of designated "beneficial uses" of water bodies. Beneficial uses applicable to the proposed project are listed in Table 6.10-1 in Section 6.10.2, "Environmental Setting."

The Basin Plan contains specific narrative and numeric water quality objectives for a number of physical properties (e.g., temperature, turbidity, suspended solids), biological constituents (e.g., coliform bacteria), and chemical constituents of concern including inorganic parameters and trace metals and organic compounds. Water quality objectives for toxic priority pollutants (i.e., select trace metals and synthetic organic compounds) are included in the Basin Plan and the CTR.

National Pollutant Discharge Elimination System Permits

The SWRCB and Central Valley RWQCB have required specific NPDES permits for a variety of activities that have potential to discharge pollutants to waters of the state and adversely affect water quality. To receive an NPDES permit a Notice of Intent to discharge must be submitted to the Central Valley RWQCB and design and operational best management practices (BMPs) must be implemented to reduce the level of contaminated runoff. BMPs can include the development and implementation of regulatory measures (local authority of drainage facility design) and structural measures (filter strips, grass swales, and retention basins). All NPDES permits also have inspection, monitoring, and reporting requirements.

General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit)

The SWRCB adopted the statewide NPDES General Construction Permit in August 1999. The state requires that projects disturbing 1 acre or more of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Construction Permit include clearing,

grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include BMPs designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (General Order for Dewatering)

Dewatering during construction is sometimes necessary to keep trenches or excavations free of standing water when improvements or foundations/footings are installed. Clean or relatively pollutant-free wastewater that poses little or no threat to water quality may be discharged directly to surface water under certain conditions. The Central Valley RWQCB has adopted a general NPDES permit, the General Order for Dewatering, for short-term discharges of small volumes of wastewater from certain construction-related activities. Discharges may be covered by the General Order for Dewatering provided either that they are 4 months or less in duration or that the average dry-weather discharge does not exceed 0.25 million gallons per day. Construction dewatering, and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit.

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

EPA has delegated to the California Department of Health Services (DHS) the responsibility for California's drinking water program. DHS is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

Title 22 of the California Administrative Code (Article 16, Section 64449) defines secondary drinking water standards, which are established primarily for reasons of consumer acceptance (i.e., taste) rather than for health issues.

Local

City of Sacramento General Plan

The following goal and policy from the Public Services and Facilities Element of the *City of Sacramento General Plan* are applicable to the proposed project:

- ▶ **Goal A:** Provide and improve water supply facilities to meet future growth of the City and assure a continued supply of safe potable water.
 - **Policy 5:** Provide water service meeting or exceeding State and federal regulatory agency requirements.

The project's consistency with City goals and policies is evaluated in Chapter 5.0, "Project Consistency with Plans and Policies."

City of Sacramento Stormwater Management and Control Code

The City Stormwater Management and Control Code (Chapter 13.16 of the City Code) is intended to control nonstormwater discharges to the stormwater conveyance system; eliminate discharges to the stormwater conveyance system from spills, dumping, or disposal of materials other than stormwater; and reduce pollutants in urban stormwater discharges to the maximum extent practicable. Nonstormwater discharges are prohibited except where the discharge is regulated under a NPDES permit (see the descriptions of the NPDES in the discussions of federal and state water quality regulations above). Discharges from specified activities that do not cause or contribute to the violation of any plan standard, such as landscape irrigation and lawn watering and flows from fire suppression activities, are also exempt from this prohibition. Discharges of pumped groundwater not subject to a NPDES permit may be permitted to discharge to the stormwater conveyance system upon written approval from the City and in compliance with the City's conditions of approval.

City of Sacramento Grading, Erosion, and Sediment Control Ordinance

The City Grading, Erosion, and Sediment Control Ordinance (Title 15, Chapter 15.88 of the City Code) sets forth rules and regulations to control land disturbances, landfill, soil storage, pollution, and erosion and sedimentation resulting from construction activities. With limited exceptions, grading approval must be received from the City Department of Utilities before construction. All project applicants, regardless of project location, are required to prepare and submit separate erosion and sediment control plans applicable to the construction and postconstruction periods. The ordinance also specifies other requirements, such as written approval from the City for grading work within the right-of-way of a public road or street, or within a public easement.

City of Sacramento Stormwater Quality Improvement Plan (2004)

The City of Sacramento Stormwater Management Program is a comprehensive program comprised of various program elements and activities designed to reduce stormwater pollution to the maximum extent practicable and eliminate prohibited non-stormwater discharges in accordance with federal and state laws and regulations. These laws and regulations are implemented through NPDES municipal stormwater discharge permits. In 1990, the County of Sacramento and the Cities of Sacramento, Folsom, and Galt applied for and received one of the first areawide NPDES stormwater permits in the country and began development of core stormwater management program elements and activities to address local urban runoff water quality problems (City of Sacramento 2004).

An element of the program, the Construction Element (CE), was designed to reduce the discharge of stormwater pollutants to the maximum extent practicable by requiring construction sites to reduce sediment in site runoff and reduce other pollutants such as litter and concrete wastes through good housekeeping procedures and proper waste management.

The CE strategy includes the following components:

- ▶ Ensure each grading permit or improvement plan includes an erosion and sediment control plan detailing erosion, sediment, and pollution control measures to be used during construction of the project.
- ▶ Ensure applicable projects obtain a State General Construction Permit and prepare a SWPPP containing:
 - 1) a vicinity map.
 - 2) a site map.
 - 3) a site-specific listing of potential sources of stormwater pollution.
 - 4) the type and location of erosion and sediment control BMPs to be employed.
 - 5) the name and telephone number of the person responsible for implementing the SWPPP, and
 - 6) a certification/signature by the landowner or authorized representative.

- ▶ Inspect and enforce the project's erosion and sediment, the Grading, Erosion, and Sediment Control Ordinance, and the Stormwater Discharge Control Ordinance.

Another element of the program, the New Development Element (NDE), was designed to specifically control postconstruction urban runoff pollutants from new development or redeveloped areas. The NDE strategy for reducing stormwater pollutants from new development includes (City of Sacramento and County of Sacramento 2000):

- ▶ Employing applicable source controls on all projects.
- ▶ Employing regional water quality treatment control measures, such as water quality detention basins, for areas of large development (i.e., areas generally greater than 20 acres), where the opportunity exists,
- ▶ Employing on-site treatment control measures for commercial, industrial, and multifamily residential land uses of one acre or more in areas not served by regional water quality control measures.

LAFCo

- ▶ The LAFCo Policies, Procedures, and Guidelines documented does not contain any policies related to water quality.

6.10.4 IMPACTS AND MITIGATION

METHOD OF ANALYSIS

Analysis provided in this section is based on information obtained from a drainage study prepared for the proposed project (Wood Rodgers 2005) and the *Guidance Manual for On-Site Stormwater Quality Control Measures* (City of Sacramento and County of Sacramento 2000). Background information from the Sacramento Groundwater Authority's *Summary of Basin Conditions* (Sacramento Groundwater Authority 2002) is also included.

Because the project would not rely on groundwater to serve the proposed development and modeling indicates that the Lake would require little, if any, support by on-site wells (see Section 6.5, Utilities) impacts to the underlying groundwater basin are not analyzed further in this EIR. The project site is not located near the ocean and as a result would not be subject to flood-related effects associated with a tsunami. Although the project would construct an on-site lake/detention basin, this body of water would be of minimal depth (i.e., 2 to 8 feet) and limited size (i.e., 39 acres) such that the potential for a seismically induced seiche would be limited and would not result in a substantial flooding on- or off-site. These impacts are not evaluated further in this EIR.

THRESHOLDS OF SIGNIFICANCE

An impact is considered significant, as identified by the State CEQA Guidelines (Appendix G), if the proposed project or alternatives would:

- ▶ violate any water quality standards or waste discharge requirements;
- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding on- or off-site;
- ▶ create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- ▶ otherwise substantially degrade water quality;

- ▶ place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map;
- ▶ place within a 100-year flood hazard area structures that would impede or redirect floodflows;
- ▶ expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

IMPACTS AND MITIGATION MEASURES

IMPACT 6.10-1

Construction-related and Operational Water Quality and Erosion Impacts. *Operation of the project would not result in any water quality or erosion impacts because the project would implement design features that would be consistent with the City of Sacramento Stormwater Quality Standards for Development Projects. However, project construction activities (grading, excavation, etc.) could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater, which could drain to off-site areas degrading local water quality. Further, on-site earthmoving and soil stockpiling activities could result in sheet erosion during rain events. This would be a **potentially significant** impact.*

Grading, earthmoving, excavation and utility installation, infrastructure development, and building construction under the proposed project would disturb the existing vegetation cover, soil, and drainage systems over the entire project site and some off-site areas (e.g., Meister Way overpass, Elkhorn Road, water and wastewater infrastructure). Construction activities would occur on portions of the project site throughout the year over a period of 5 to 10 years. Therefore, the site would be subject to exposure to wind erosion, rain, and winter stormwater runoff events depending on the season.

Localized erosion hazards are regarded as relatively low because the project site is generally flat and the soil types on the site are known to have little erosion hazard (see Impact 6.10-2 in Section 6.10, “Geology and Soils”). However, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Further, the compaction of soils by heavy equipment may reduce the infiltration capacity of soils and increase the potential for runoff and erosion.

Construction activities could result in substantial stormwater discharges of suspended solids, turbidity, and other pollutants from the project construction site as contaminated runoff or direct discharges to drainage channels. Construction-related chemicals (fuels, paints, adhesives, etc.) could be washed into surface waters by stormwater runoff. The deposition of pollutants (gas, oil, carbons) onto the ground surface by construction vehicles could similarly result in the transport of pollutants to surface waters by stormwater runoff or in seepage of such pollutants into groundwater. Increased turbidity could result in adverse impacts on fish and wildlife, reduced water pump life because of abrasion, and increased municipal water treatment costs for sediment removal. Long-term effects could include increased flooding hazards caused by reduced drainage facility and channel capacity.

Nonstormwater discharges could result from activities such as construction dewatering procedures, or discharge or accidental spills of hazardous substances such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials. Because of the shallow groundwater conditions on-site, construction dewatering activities are likely to be necessary during excavation activities deeper than 5 feet (Wallace Kuhl & Associates 2002). Potential disposal options for the dewatering discharges include land application with subsequent evaporation and percolation back to the groundwater, use for dust control practices, or direct discharge to the existing or

constructed stormwater drainage channels. Dewatering discharges may contain elevated levels of suspended sediment or other construction-related contaminants.

Water quality would not deteriorate post-construction or during operation of site-specific land uses as a result of implementation of required City of Sacramento Stormwater Quality Standards for Development Projects (May 18, 2006). Specifically, stormwater quality source controls, such as storm drain signage at outdoor storage areas and within loading/unloading areas, would be implemented on-site by individual development projects to prevent the degradation of the water quality runoff. With implementation of required source controls, water quality impacts during operation of the project would be less than significant.

Because the project could result in the substantial increase in stormwater discharges and could result in the discharge of pollutants to on-site stormwater from proposed construction activities, the project would result in *potentially significant* construction-related erosion and water quality impacts.

Mitigation Measure 6.10-1: (City of Sacramento)

- a. The project applicant shall demonstrate compliance through its grading plans with all requirements of the City's Grading, Erosion, and Sediment Control Ordinance (Title 15, Chapter 15.88 of the City Code) including preparing erosion, sediment, and pollution control plans for each construction phase and postconstruction, if necessary. The project's grading plans shall be approved by the City of Sacramento, Department of Utilities.
- b. The project applicant shall demonstrate compliance through its grading plans with all requirements of the City's Stormwater Management and Control Code (Chapter 13.16 of the City Code), which regulates stormwater and prohibits nonstormwater discharges except where regulated by an NPDES permit. The project applicant shall implement measures including the use of soil stabilizers, fiber rolls, inlet filters, and gravel bags to prevent pollutants from being carried off-site in stormwater generated on the project site. These measures shall be designed to accommodate stormwater discharges associated with proposed measures that would be implemented to control on-site dust generation (e.g., wheel washing, active watering).
- c. The project applicant shall consult with the Central Valley RWQCB to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, SWRCB statewide NPDES stormwater permit for general construction activity, Central Valley RWQCB NPDES permit for construction dewatering activity, and any other necessary site-specific waste discharge requirements.
- d. As required under the NPDES stormwater permit for general construction activity, the project applicant shall prepare and submit the appropriate Notice of Intent and prepare the SWPPP and other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other appropriate plans shall identify and specify the use of erosion sediment control BMPs, means of waste disposal, implementation of approved local plans, nonstormwater management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities. The SWPPP would also specify the pollutants that are likely to be used during construction and that could be present in stormwater drainage and nonstormwater discharges. A sampling and monitoring program shall be included in the SWPPP that meets the requirements of SWRCB Order 99-08-DWQ to ensure the BMPs are effective.
- e. Construction techniques shall be identified that would reduce the potential runoff, and the plan shall identify the erosion and sedimentation control measures to be implemented. The SWPPP shall also specify spill prevention and contingency measures, identify the types of materials used for equipment operation, and identify measures to prevent or clean up spills of hazardous materials used for equipment operation and hazardous waste. Emergency procedures for responding to spills shall also be identified. BMPs identified in the SWPPP shall be used in subsequent site development activities. The SWPPP shall identify personnel training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation

and performance inspection methods for BMPs specified in SWPPP. The SWPPP shall also identify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP. All construction contractors shall retain a copy of the approved SWPPP on the construction site.

- f. The project applicant shall prepare and submit a Notice of Intent and acquire authorization for a Central Valley RWQCB NPDES permit for construction dewatering activities that may be necessary for foundation and utility installations within the project site.

Significance After Mitigation

With implementation of the above measures, the project's construction-related water quality and erosion impacts would be reduced to a **less-than-significant** level because sufficient measures would be in place to prevent the release of pollutants in stormwater off-site and would minimize to the maximum extent practicable erosion of on-site soils.

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|--------------------------|
| IMPACT 6.10-2 |
|--------------------------|

Potential Exceedance of Drainage System Capacity. *The proposed project includes a lake/detention basin component that has been sized to meet the stormwater drainage needs of the project. Proposed stormwater discharges would exceed the pumping capacity of RD 1000's drainage network. However, improvements to RD 1000's pumping capacity have been required by this DEIR which would increase RD 1000's pumping capacity sufficiently to serve project generated stormwater drainage. (See Mitigation Measure 6.5-5) Therefore, this impact would be less than significant.*

The proposed project would include a 39-acre lake/detention basin, outfall structure, and gravity storm drain systems. A preliminary design of the on-site storm drainage system was developed consistent with City requirements. The project site would be graded to create building pads and streets that would provide positive drainage to the lake/detention basin. The drainage system would allow drainage to flow under I-5 through three existing 5-foot by 8-foot box culverts and two proposed 78-inch reinforced concrete pipes that are to be constructed under the Metro Air Park project into an RD 1000 canal outside the project area and, from there, into the West Drainage Canal (Exhibit 6.5-2). With this drainage system, outfall runoff to the existing RD 1000 drain system would have a peak discharge value, set by RD 1000, of 0.1 cfs/acre (Wood Rodgers 2005). Pipes associated with the on-site storm drainage system would be of sufficient size to provide approximately 2 feet of freeboard (vertical distance) below the proposed grading and from the maximum 100-year elevation in the lake/detention basin (Wood Rodgers 2005).

Under the proposed project, existing culverts in the northeastern and southeastern corners of the site would remain in place. In addition, the Lone Tree Canal would remain on the western boundary of the site. With construction of the lake/detention basin, Lone Tree Canal would no longer serve as one of the primary drainage outlets for the project area; however, it would continue to carry runoff from the 540-acre off-site watershed north of the project site. Because the Lone Tree Canal would pass within 250 feet of the nearest houses on the west side of the project area, Wood Rodgers (2005) modeled the hydraulic capacity of the canal under project conditions. Following construction of the future Metro Air Park project immediately to the west of the project site, it is expected that Metro Air Park would discharge to Lone Tree Canal near the southwestern corner of the project site. Therefore, outflow from the future Metro Air Park was included in the modeling of hydraulic capacity of the Lone Tree Canal under the proposed project, using the 100-year peak pump outflow (270 cfs). The modeling showed the 100-year storm flows from the off-site watershed north of the project site and from Metro Air Park, west of the project site. Using the 100-year peak pump outflow from Metro Air Park in the modeling was a conservative approach that generated higher water surface elevation than would likely occur (Wood Rodgers 2005). Nonetheless, even under these conditions, sufficient freeboard (2.5 feet)

would be provided between the Lone Tree Canal and housing pads on the west side of the project site (Wood Rodgers 2005).

Further, as indicated above, the future Metro Air Park plans to improve storm drainage at the I-5 undercrossing by adding two 78-inch reinforced concrete pipes adjacent to the three existing 5-foot by 8-foot box culverts. Addition of these reinforced concrete pipes would result in more efficient flow of drainage from the project area. Even if these pipes are not installed, drainage would be sufficient for the project site; modeling by Wood Rodgers (2005) of the 100-year storm without the proposed pipes indicated that the water surface would be higher than under existing conditions in the area immediately upstream of the I-5 undercrossing, but that hydraulic conditions on the project site and in the Lone Tree Canal would not change (Wood Rodgers 2005).

The proposed lake/detention basin would be designed to City and RD 1000 standards in accordance with the requirements set forth in the North Natomas CDP. Further, the applicant would be required to increase the pumping capacity of RD 1000's Plant #3 (see Mitigation Measure 6.5-5). Therefore, runoff from the project site would not have an adverse effect on the capacity of the RD 1000 system. (Wood Rodgers 2005.)

For these reasons, the project's drainage system impacts would be *less than significant*.

No mitigation is required.

**IMPACT
6.10-3**

On-Site Flooding Risk from Potential for Levee or Dam Failure. *The project site is not located within a designated 100-year floodplain as currently delineated by FEMA. Because the project site is currently certified for 100-year flood protection, the project would result in less-than-significant flooding impacts.*

The site is protected by a series of reservoirs including Shasta, Oroville, Black Butte, New Bullards Bar, and Folsom Dam, which were designed to reduce flood flows in the American River and Sacramento River to a rate that could be safely carried by the downstream levees. Over the years coordinated reservoir operations and Folsom Dam outlet enlargement projects have been pursued and authorization of funds for a planned "mini-raise" of the dam has been secured to ensure that Folsom Dam can continue to safely manage runoff from the Sierra Nevada during winter storms.

The levees protecting the Natomas area were found to meet FEMA criteria for 100-year flood protection under a levee evaluation conducted by USACE in 1998. SAFCA recently completed a draft report (Natomas Levee Evaluation Report) which updates previous studies and evaluates the flood protection level of the Natomas levee system. Although previous studies of these levees concluded that they provided sufficient protection against 100-year storm events, the new SAFCA draft report concludes that some portions of the levee system would be subject to underseepage and erosion hazards during a 100-year storm event while awaiting the USACE and DWR review of this draft report, SAFCA has initiated the preparation of studies and environmental documents that would accomplish two objectives: (1) address specific threats to levee integrity to preserve 100-year flood protection designations; and, (2) eventually provide protection from a 200-year storm event. These improvements include levee raising for certain segments of the levee system, construction of slurry walls, and toe rock and bank vegetation. In addition, SAFCA is evaluating whether to construct installation of a new secondary setback levee approximately 1,000 feet from the existing levee located along the upper 5 miles of the east levee of the Sacramento River.

Although the project site is located within the flooding area of concern as identified in the SAFCA Natomas Levee Evaluation Report, the project site is not currently located within a FEMA designated 100-year floodplain. For purposes of full disclosure, this DEIR has presented the latest information available regarding the status of flood protection studies within the Natomas Basin. However, these studies and the recommendations contained therein are ongoing and subject to change and further refinement. As such, this DEIR relies upon existing adopted information (e.g., FEMA certifications) As currently described in those studies, SAFCA is proceeding with implementation of necessary levee improvements to correct existing deficiencies within portions of the levee system, which are anticipated to be constructed within the next 2 to 5 years. With implementation of these improvements it is expected that superior flood protection (i.e., protection from 200-year storm events) would be provided at the site.

Because the project is currently certified for 100-year flood protection by FEMA, the project would result in *less-than-significant* flooding impacts.

Mitigation Measure 6.10-3 (City of Sacramento and LAFCo)

Although the project would result in less-than-significant flooding impacts, the applicant has agreed to implement the following mitigation to further ensure that adequate flood protection would be provided at the project site.

- a. In the event that levees currently providing adequate flood protection to the project site are decertified and can no longer provide 100-year flood protection as determined by FEMA, the applicant shall implement one of the following mitigation measures. This mitigation measure shall terminate upon the first recertification of the levees by FEMA.
- b. Raise the building pads of all buildings with the project to a level high enough to remove structures from the 100-year floodplain as identified by FEMA in any such decertification; or
- c. Participate in a funding mechanism established for the purpose of implementing measures that would provide no less than 100-year flood protection for the project site, or for that portion of the Natomas Basing requiring re-certification for 100-year flood protection including the project site provided that such funding mechanism is (1) based on a nexus study; (2) is regional in nature; and (3) is proportionate, fair, and equitable; and (4) complies with all applicable laws and ordinances.

Significance After Mitigation

The project's flooding impacts would be *less than significant* with or without implementation of the above mitigation measure. The proposed mitigation measure would further reduce this less-than-significant impact and would ensure that adequate flood protection would be provided at the project site in the event that portions of the local levee network are decertified by FEMA.

IMPACT 6.10-4

Result in an On-site Flooding Hazard. *Project implementation would increase the amount of impervious surfaces on-site and would increase surface runoff and the need for discharge to the West Drainage Canal. However, the proposed project includes a stormwater runoff collection system sufficient to protect the project site during a 24-hour and 10-day 100-year flood event and avoid increases in off-site flooding. Therefore, development of the project site would not result in an on-site flooding hazard. This impact would be less than significant.*

Project development would increase the amount of impervious surfaces (e.g., buildings, paved roadways, parking surfaces), which would increase both the total volume and peak discharge rate of runoff generated on the project site, thus requiring the installation of a high-capacity storm drain system. Project development would increase the rate of stormwater discharges to the

Natomas West Drainage Canal. The project would also receive stormwater flows from lands to the north of the project site, which would need to be conveyed through the project's stormwater system.

The proposed project includes a stormwater runoff collection system sufficient to protect the project area during a 24-hour and 10-day 100-year flood event (Wood Rodgers 2005). This system would be built in accordance with City standards and, as described in Impact 6.10-2 above and depicted in Exhibit 6.10-3, would have adequate capacity to safely convey stormwater runoff through and off the project site without resulting in on-site or off-site flooding. Site grading would achieve a site balance while providing an overland release for storm drainage that exceeds the capacity of the underground storm drainage system. Residential lots and street drainage runoff would be directed to drain inlets while providing overland release points. Residential pads would be set above the 100-year surface elevation to prevent drainage from reaching the building pad envelope (Wood Rodgers 2005). Further, the project would not result in the construction of any large buildings that would have the potential to impede or re-direct flood flows. Lands to the north of the project site would convey stormwater flows to the project site; however, because of capacity constraints in Lone Tree Canal north of Elkhorn Boulevard, during a 100-year storm event spillage of stormwater flows on to the project site could occur resulting in localized flooding. This impact would be *potentially significant*.

Mitigation Measure 6.10-4: (City of Sacramento and LAFCo)

- a. The project applicant shall submit grading plans to the City Department of Utilities that demonstrate that Elkhorn Boulevard has been sufficiently raised to provide 1 foot of freeboard above Lone Tree Canal during a 100-year storm event. Approximately 1,800 linear feet of Elkhorn Boulevard would need to be raised to provide sufficient localized flood protection.
- b. The project applicant shall submit drainage and infrastructure plans to the City Department of Utilities that provide for the installation of a 48-inch culvert in Lone Tree Canal at Elkhorn Boulevard. Construction of this improvement could result in impacts to riparian and other native habitat; impacts to biological resources including giant garter snake habitat, and construction-related air quality (NO_x, PM₁₀), noise, transportation, and stormwater quality impacts. These impacts would be mitigated to less-than-significant levels with implementation of mitigation recommended for the project and presented in this Draft EIR. As a result, no new significant environmental impacts would occur with implementation of this improvement.

Significance After Mitigation

With implementation of the above mitigation measure, the project's on-site flooding impacts would be reduced to a less-than-significant level because the project site would be graded to ensure that all stormwater flows would be conveyed to appropriate drainage facilities and these drainage facilities would be sized to accommodate on- and off-site stormwater flows.

6.11 AGRICULTURE

6.11.1 INTRODUCTION

This section includes an explanation of the various criteria and methods used to evaluate the significance and quality of agricultural land, a description of the previous and existing agricultural uses of the project site, and an evaluation of the effect the Greenbriar project would have on agricultural resources.

6.11.2 EXISTING SETTING

The Sacramento County General Plan designates the project site as Agricultural Cropland. The majority of the project site is currently in a fallow agricultural condition. The northwestern-most area of the project site, an approximately 115-acre rectangular shape, contains remnants of previous foundations that supported agricultural-related structures and paved areas related to a previous horse training track and roads. Historically, the majority of the site and surrounding vicinity has been used for irrigated row crop rice production for at least the past 35 years; however, at the time of the NOP, no crop cultivation was occurring on the project site. The project site is bordered on the west by an irrigation ditch adjacent to Lone Tree Road, which collects runoff and provides irrigation for crop production and is bordered to the east by SR 70/99 (SR 70/99). I-5 borders the project site to the south and agricultural lands and the approved Metro Air Parkway development project exist to the north and west of the project site. Agricultural lands to the north and west of the project site appear to be in fallow condition or are used for grazing activities rather than growing and harvesting irrigated feed or food crops.

In 2000, Sacramento County was estimated to have 227,931 acres of Important Farmland: 115,389 acres of Prime Farmland, 63,536 acres of Farmland of Statewide Importance, 15,476 acres of Unique Farmland, and 33,530 acres of Farmland of Local Importance (CDC 2004). The project site contains a total of approximately 518 acres of Important Farmland which accounts for approximately 0.2% of Important Farmland in Sacramento County. Over the past decade, the availability of Important Farmland has been consistently declining by small increments from year to year primarily because of conversions to urban and other developed land uses. Table 6.11-1 identifies the acreages of Important Farmland in Sacramento County inventoried by the California Department of Conservation (CDC) from 1994 through 2002. A decline in acreages occurred for Prime Farmland and Farmland of Statewide Importance over the last decade while acreages for Unique Farmland and Farmland of Local Importance increased.

| Important Farmland Category | 1994 | 1996 | 1998 | 2000 | 2002 |
|----------------------------------|---------|---------|---------|---------|---------|
| Prime Farmland | 123,201 | 123,094 | 121,974 | 116,116 | 111,984 |
| Farmland of Statewide Importance | 76,217 | 74,256 | 67,713 | 62,650 | 60,773 |
| Unique Farmland | 11,306 | 11,332 | 13,521 | 15,609 | 15,834 |
| Farmland of Local Importance | 28,259 | 28,422 | 33,732 | 39,745 | 37,885 |
| Total | 238,983 | 237,104 | 236,940 | 234,120 | 226,476 |

Source: CDC Farmland Conversion Reports at http://www.consrv.ca.gov/dlrp/FMMP/stats_reports/farmland_conv_reports.htm

6.11.3 REGULATORY SETTING

WILLIAMSON ACT CONTRACTS

In 1965, the California Legislature passed the California Land Conservation Act, which is commonly referred to as the Williamson Act. The act is a voluntary land conservation program that is administered by counties and cities, with technical assistance from the California Department of Conservation. The objectives of the act are as follows:

- ▶ To preserve farmland for a secure food supply for the state and nation, and for future generations;
- ▶ To maintain agriculture's contribution to local and state economic health;
- ▶ To provide economic relief to tax-burdened farmers and ranchers;
- ▶ To promote orderly city growth, and discourage leapfrog development and premature loss of farmland; and
- ▶ To preserve open space for its scenic, social, aesthetic, and wildlife values.

Landowners enrolled in the Williamson Act are taxed at a lower rate using a value based on the agricultural use of the land under contract. In turn, landowners commit to restricting the use of their land to agriculture and open space uses for 10 years. The term of the contract is essentially indefinite and it is automatically renewed on the anniversary date of which the contract was entered. To exit the contract, landowners must initiate the non-renewal process, which allows the remainder of the contract term to lapse (the remaining 9 years), thereby rendering the contract null and void at the end of the term. Goal A and Policy 2 of the City of Sacramento General Plan Conservation and Open Space Element (discussed below) outlines the City's goals to work with the County of Sacramento regarding the conservation of agricultural resources.

No portions of the project site are subject to Williamson Act contracts. However, adjacent parcels located to the north of the project site are identified as Williamson Act Parcels by the City of Sacramento (Sacramento 2005).

CITY OF SACRAMENTO GENERAL PLAN

The City of Sacramento General Plan Conservation and Open Space Element outlines the City's goals and policies pertaining to agricultural resources. The following list includes the policies relevant to the project. The project's consistency with these policies is evaluated in Chapter 5.0, "Project Consistency with Plans and Policies."

- **Policy 1:** Phase the conversion of agricultural lands to urban uses while implementing the policies of the NNCP (North Natomas Community Plan)
- **Policy 2:** Work with Sacramento County to explore the feasibility of an agricultural preservation plan.

LAFCo POLICIES

LAFCo has adopted policies and standards related to agricultural land conversion. The following policies and standards are applicable to the project. The project's consistency with these policies and standards are evaluated in Chapter 5.0, "Project Consistency with Plans and Policies."

- ▶ LAFCo will approve a change of organization or reorganization that will result in the conversion of prime agricultural land in open space use to other uses only if the Commission finds that the proposal will lead to the planned, orderly, and efficient development of an area. For purposes of this standard, a proposal leads to the planned, orderly, and efficient development of an area only if all of the following criteria are met:
 - The land subject to the change of organization or reorganization is contiguous to either lands developed within an urban use or lands that have received all discretionary approvals for urban development.

- The proposed development of the subject lands is consistent with the Spheres of Influence Plan, including the Master Services Element of the affected agency or agencies.
- Development of all or a substantial portion of the subject land is likely to occur within 5 years. In the case of very large developments, annexation should be phased wherever feasible. If the Commission finds phasing infeasible for specific reasons, it may approve annexation if all or a substantial portion of the subject land is likely to develop within a reasonable period of time.
- Insufficient vacant nonprime lands exist within the applicable Spheres of Influence that are planned, accessible, and developable for the same general type of use.
- The proposal will have no significant adverse effect on the physical and economic integrity of other agricultural lands. In making this determination, LAFCo will consider the following factors: (1) the agricultural significance of the subject and adjacent areas relative to other agricultural lands in the region; (2) the use of the subject and adjacent areas; (3) whether public facilities related to the proposal would be sized or situated so as to facilitate the conversion of adjacent or nearby agricultural land, or will be extended through or adjacent to, any other agricultural lands that lie between the project site and existing facilities; (4) whether natural or human-made barriers serve to buffer adjacent or nearby agricultural land from the effects of the proposed development; (5) applicable provisions of the General Plan open space and land use elements, applicable growth-management policies, or other statutory provisions designated to protect agriculture (LAFCo Standards, pgs. IV-5 and IV-6).

6.11.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The environmental analysis in this section is based on a review of the goals and policies contained in the Sacramento County and City of Sacramento general plans; the NNCP; site reconnaissance; and a review of the City of Sacramento General Plan 2025 Technical Background Report. As part of the analysis, this EIR examines three land classifications systems that are used to determine the agricultural significance of the lands within Sacramento County which include the following:

- ▶ Important Farmland Maps of the Farmland Mapping and Monitoring Program (FMMP);
- ▶ U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Land Capability Class System and Storie Index Ratings; and
- ▶ California Agricultural Land Evaluation and Site Assessment (LESA) Model.

FARMLAND MAPPING AND MONITORING PROGRAM

The FMMP monitors and documents land use changes that specifically affect California's agricultural land. The program, administered by the California Department of Conservation, produces maps, referred to as Important Farmland Maps, and statistical data that are used for assessing the significance and quality of agricultural lands. Agricultural land is rated according to soil quality, based on the NRCS soil survey maps, and irrigation status. Maps are updated every 2 years, with current land use information gathered from aerial photographs, a computer mapping system, public review, and field reconnaissance (California Department of Conservation 2005).

The FMMP land classification system is cited by the State CEQA Guidelines as the preferred information source for determining the agricultural significance of a property (CEQA Guidelines, Appendix G). The California Department of Conservation has characterized Prime Farmland as land with the best combination of physical and chemical characteristics for the production of agricultural crops. Prime Farmland has the soil quality, growing

season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Farmland of Statewide Importance is characterized as land with a good combination of physical and chemical characteristics for agricultural use, having only minor shortcomings, such as less ability to store soil moisture, compared to Prime Farmland (California Department of Conservation 2005).

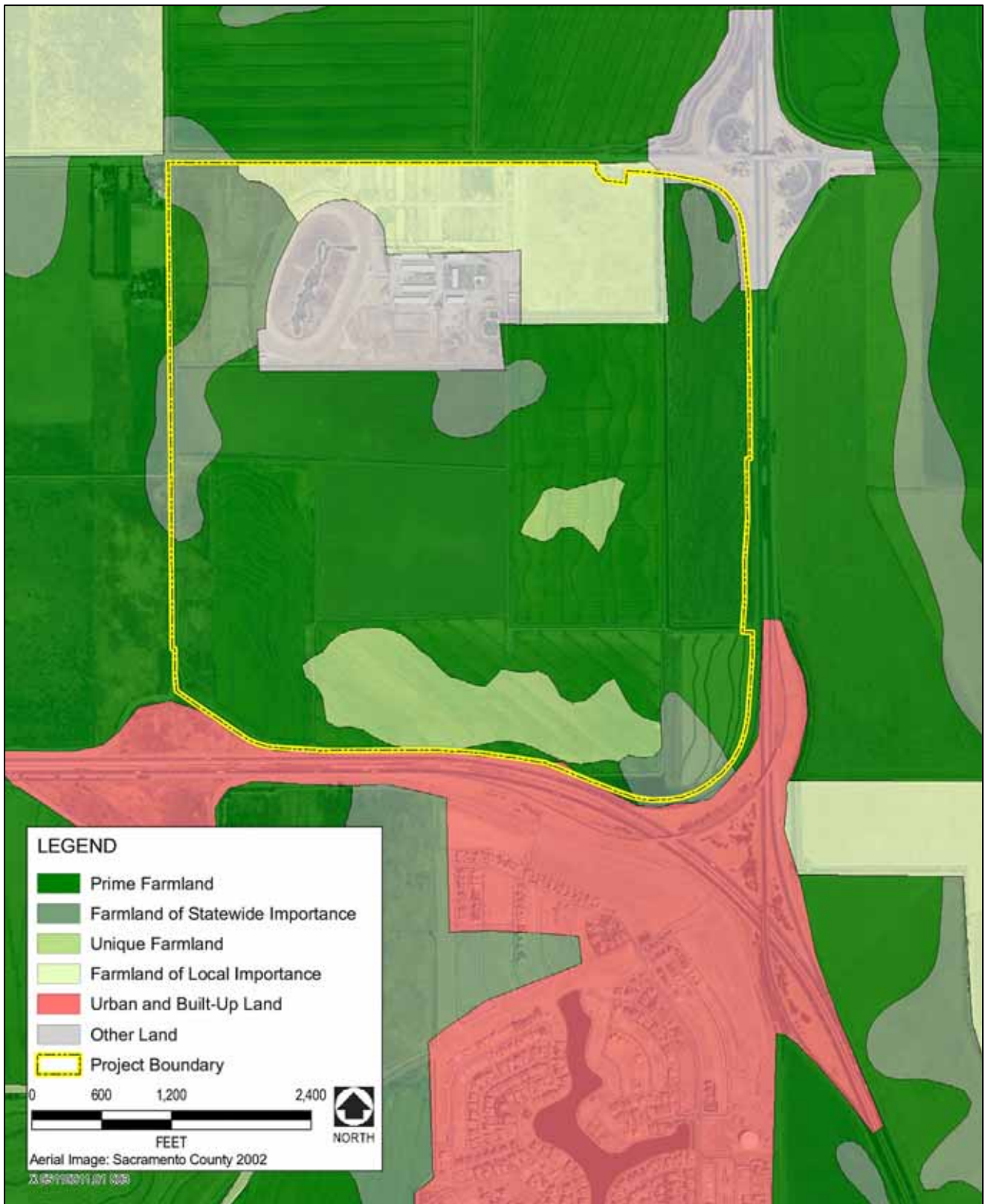
The California Department of Conservation, Division of Land Resource Protection, Sacramento County Important Farmland Map has designated the project site as Prime Farmland (329 acres) interspersed with areas designated as Farmland of Statewide Importance (68 acres), Farmland of Local Importance (68 acres), Unique Farmland (53 acres), and other land (59 acres) (Exhibit 6.11-1). Areas designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance are included under the umbrella definition in CEQA of “Agricultural Land” that is afforded consideration as to its potential significance (see CEQA Section 21060.1 [a]). Thus, the project site contains 518 acres of “Agricultural Land,” as defined by CEQA.

NATURAL RESOURCES CONSERVATION SERVICE

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (California Government Code Section 56000 et seq.) defines Prime Agricultural Land according to several criteria, which include the NRCS’s Land Capability Class System and the Storie Index. The NRCS has prepared a soil survey for Sacramento County that includes the project site (Soil Conservation Service 1993). The 1993 NRCS soil survey includes the Land Capability Classification system, which places soils into agricultural suitability categories. The Land Capability Classes reflect the soil’s ability to support common crops and pasture plants without compromising the soil’s quality over the long term. The Land Capability Classification system uses eight Land Capability Classes (I through VIII) to rank soils. Prime farmlands generally correspond to Land Capability ratings of Class I or Class II and soils that are less suitable for farming are assigned to classes with higher numbers.

The 1993 NRCS soil survey identifies the following soil series on the project site: Clear Lake clay, Jacktone clay, Cosumnes silt loam, Durixeralfs, San Joaquin-Durixeralfs complex, and the San Joaquin-Xerarents complex. Among these series, the majority of the project site consists of Clear Lake clay. Table 6.11-2 identifies the soils on the project site based on this survey and provides the Land Capability Class ratings associated with these soils when irrigated and non-irrigated. As shown in Table 6.11-2, all non-irrigated soils in the project area are rated Class III or Class IV. When the soils are irrigated, only Cosumnes silt loam and Clear Lake clay are rated Class II and the remaining soils are rated Class III or higher.

The NRCS also assigns Storie Index Ratings, which rank soil characteristics according to their suitability for agriculture from Grade 1 soils (80 to 100 rating), which have few or no limitations for agricultural production, to Grade 6 soils (less than a rating of 10), which are not suitable for agriculture. Under this system, soils identified as less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or completely removed. Storie Index Ratings for the project site soils are also included in Table 6.11-2. Soils graded class 3 are only fairly well suited to intensively grown irrigated crops. Soils in grades 4 and 5 are generally only used for rangeland. Grade 6 soils are generally unsuited for any agricultural purpose. Soils on the project site generally range from grade 2 to grade 4. Index scores for soils on the project site range from 12 to 68; no scores approach the LAFCo prime soils guideline of 80–100 Storie Index score.



Sources: Berryman 2005, FMMP 2002

Important Farmland Map

Exhibit 6.11-1

| Table 6.11-2 Agricultural Ratings of Soils on the Greenbriar Project Site | | | | |
|--------------------------------------------------------------------------------------|-----------------------|-----------|--------------|-------|
| Name and Characteristics | Land Capability Class | | Storie Index | |
| | Non-irrigated | Irrigated | Rating | Grade |
| Clear Lake clay Partially drained, 0 to 2 percent slopes, frequently flooded | III | II | 25 | 4 |
| Cosumnes silt loam Partially drained, 0 to 2 percent slopes | III | II | 68 | 2 |
| Durixeralfs Well drained, 0 to 1 percent slopes | IV | IV | 12 | 5 |
| Jacktone clay Drained, 0 to 2 percent slopes | III | III | 20 | 4 |
| San Joaquin-Durixeralfs complex Moderately well drained, 0 to 1 percent slopes | IV | IV | 21 | 4 |
| San Joaquin-Xerarents complex Leveled, 0 to 1 percent slopes | III | III | 31 | 4 |

Source: Soil Conservation Service (now NRCS), Soil Survey of Sacramento County, California 1993.

CALIFORNIA AGRICULTURAL LESA MODEL

The California Agricultural LESA Model provides lead agencies with an optional methodology to ensure that potentially significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process. This model evaluates measures of soil resource quality, project size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in one Land Evaluation (LE) subscore and one Site Assessment (SA) subscore. The subscores are combined to determine a single numeric score. A project's single numeric score becomes the basis for making a determination of a project's potential significance. Table 6.11-3 provides a breakdown of California LESA model scoring thresholds.

| Table 6.11-3 California LESA Model Scoring Thresholds | |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Total LESA Score | Scoring Decision |
| 0 to 39 Points | Not Considered Significant |
| 40 to 59 Points | Considered Significant only if LE and SA subscores are each greater than or equal to 20 points |
| 60 to 79 Points | Considered Significant unless either LE or SA subscore is less than 20 points |
| 80 to 100 Points | Considered Significant |

Source: California Department of Conservation, Division of Land Resource Protection 2005.

THRESHOLDS OF SIGNIFICANCE

An impact to agricultural resources is considered significant based on the State CEQA Guidelines if the proposed project would:

- ▶ Convert Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.

- ▶ Conflict with existing zoning for agricultural use, Williamson Act contract, or result in conflicts with off-site agricultural areas.
- ▶ Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to nonagricultural use.

IMPACTS AND MITIGATION MEASURES

IMPACT 6.11-1

Conversion of Important Farmlands. *The project would result in the conversion of 518 acres of important farmlands to urban land uses. Conversion of important farmland to nonagricultural use would be a significant impact.*

Based on the FMMP map for Sacramento County, the project site consists of approximately 329 acres Prime Farmland, 68 acres of Farmland of Statewide Importance, 68 acres of Farmland of Local Importance, and approximately 53 acres Unique Farmland as shown in Exhibit 6.11-1. These acreages are based on the estimated coverage of the six soil mapping units occurring on the project site. The NRCS Soil Candidate Listing for Prime Farmland, Farmland of Statewide Importance, and Unique Farmland lists the soil mapping units that qualify for these designations based on the criteria outlined in the U.S. Department of Agriculture’s Land Inventory Monitoring Project. The project site supports six soil mapping units within one of these three designations and, therefore, it supports land considered to be of moderately significant to significant agricultural value.

The project site was also analyzed under the California Agricultural LESA model and Storie Index to determine agricultural significance. The project site was calculated to have an LE subscore of 15.49, a Site Assessment (SA) subscore of 30, and a single numeric LESA score of 45.49. Calculations are shown in Appendix N. Scoring thresholds contained in the California Agricultural Land Evaluation and Site Assessment Instruction Manual (Department of Conservation 2005) indicate that with this score the project site consists of agricultural land not considered significant. Further, project site soils result in a Storie Index rating between 12 and 68 (Table 6.11-2), which is less than the rating needed by LAFCo to qualify as prime soil (i.e., 80–100).

Although the project site was determined to consist of agricultural land considered insignificant according to the LESA model and Storie Index, the project site has been in agricultural production in the past and development of urban uses would permanently remove 518 acres of Important Farmland, as defined by CEQA and the FMMP from agricultural production. Further, proposed off-site infrastructure facilities (e.g., Meister Way, water and wastewater pipelines) also could result in the temporary or permanent removal of Important Farmland, increasing this impact by 1–2 acres. Because the project would result in the loss of Important Farmland, this impact would be considered *significant*.

Mitigation Measure 6.11-1:(City of Sacramento)

- The project applicant shall implement Mitigation Measure 6.6-2.

LAFCo

- Prior to annexation the applicant shall implement Mitigation Measure 6.6-2.

Significance After Mitigation

Implementation of Mitigation Measure 6.11-1 would substantially lessen significant impacts associated with the conversion of farmland on the project site because LAFCo would only approve the conversion of agricultural land where it is consistent with its conservation policies. Further, the project would conserve open space and habitat lands some of which would be used for agricultural practices at a ratio consistent with the mitigation ratio identified in the City/County Joint Vision Plan MOU. Because the conservation easements are purchased for land exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands, the mitigation would not be applied exclusively to agricultural lands. Therefore, this mitigation would only partially offset conversions of farmland associated with the project impacts. In addition, no new farmland would be made available, and the productivity of existing farmland would not be improved as a result of the HCP mitigation. The City and LAFCo do not have any other adopted policies that address farmland conservation. Therefore, full compensation for losses of farmland would not be achieved. Impact 6.11-1 would remain **significant and unavoidable** after mitigation.

IMPACT 6.11-2

Conflict with Agricultural Zoning and Williamson Act Contracts. *The project site is currently not under a Williamson Act contract but the project site is currently zoned for agricultural land uses. The project would rezone the site from an agriculture designation to residential, commercial, and open space designations. Therefore, development of the project site as proposed would not result in any conflicts with Williamson Act contracts or agricultural zoning designations and no impacts would result.*

According to the City of Sacramento General Plan 2025 Technical Background Report (2005), the project site is not identified as a Williamson Act parcel. However, the City of Sacramento identified adjacent parcels located to the north of the project site as Williamson Act parcels (City of Sacramento 2005). The project would change the zoning designation from agriculture to residential, commercial, and open space designations to allow for urban development on the project site. The project would not construct any land uses (e.g., residences, infrastructure, or Meister Way overpass) that would conflict with any existing agricultural contracts or proposed zoning designations. Therefore, **no impact** would occur.

No mitigation measures are required.

IMPACT 6.11-3

Conflict with Off-site Agricultural Operations. *The project site is located adjacent to agricultural operations to the north and development of the project could result in conflicts between adjacent agricultural activities and proposed residential land uses, which could lead to the abandonment of agricultural operations on lands to the north of the project site and could potentially result in the ultimate conversion of this land to non-agricultural land uses. This would be considered a significant impact.*

The project site is located adjacent to existing agricultural operations to the north and west. Agricultural lands to the west would be phased out as part of the approved Metro Air Park project while agricultural operations occurring to the north of the project site would continue into the foreseeable future. Agricultural operations to the north of the project site appear to be in fallow condition or used for grazing activities rather than growing and harvesting irrigated feed or food crops. Aerial spraying of pesticides in these fields is not anticipated to occur. However, use of agricultural lands could change, and the possibility of use of pesticides on these adjacent lands can not be ruled out.

The project would result in the construction of residential uses along the northern boundary of the project site placing them directly across Elkhorn Boulevard approximately 200 feet south of existing agricultural operations. Residential uses are considered a sensitive land use and would require adequate buffers to prevent conflicts with agricultural operations. Policies and regulations

in the City of Sacramento General Plan related to agriculture are aimed at retaining agricultural land uses from converting to urban development and to conserving agricultural land until required for urban growth.

The project would develop urban land uses to the southern edge of Elkhorn Boulevard. Development of these urban land uses along Elkhorn Boulevard would potentially create long-term conflicts with agricultural activities occurring to the north including impacts related to air quality and noise.

The project would develop in two phases with the first phase of development occurring in the northern half of the site starting at Elkhorn Boulevard and proceeding south to the proposed alignment of Meister Way and the second phase occurring in the southern portion of the project site proceeding to I-5. Because the intensity of agricultural activities to the north of the project site could change over time and residential land uses would be constructed in close proximity (i.e., 200 feet) to active agricultural areas, potential conflicts could occur. Over time, these conflicts could lead to the abandonment of agricultural operations north of the site and could potentially result in the ultimate conversion of this land to non-agricultural land uses. This impact is considered *significant*.

Mitigation Measure 6.11-3: (City of Sacramento)

The project applicant shall notify all prospective residents and tenants located within 500 feet of existing agricultural uses north of Elkhorn Boulevard of the types of existing agricultural operations that could occur within close proximity of their homes or businesses. Notification provided to residents and tenants shall include information on the types of land use conflicts that could occur (e.g., noise, dust) and the appropriate means by which to address these conflicts. The City shall approve the content of this notification and this notification shall be included in all residential deed and tenant agreements at the time of sale or lease.

Significance After Mitigation

Implementation of this mitigation measure would notify prospective residents of potential land use conflicts associated with agricultural activities that occur north of the project site; however, it would not remove or substantially reduce potential conflicts. Other than precluding development adjacent to agricultural lands, no other feasible mitigation is available to eliminate potential urban/agricultural land use conflicts. Further, because of the developing nature of the City and the fact that current plans for development to the north of the project site (e.g., North Natomas Joint Vision Plan) are under contemplation by the City, it is unknown whether lands to the north would remain in agricultural production indefinitely. It is reasonable to anticipate that these lands would likely convert to urban development within the next 10 to 20 years. As such, it would not be reasonable for the City for preclude development near these agricultural lands unless it knew that development would not occur. For these reasons, this impact would remain *significant and unavoidable*.

6.12 BIOLOGICAL RESOURCES

6.12.1 INTRODUCTION

This section addresses biological resources that could be affected by implementation of the project. The information presented is based on multiple field surveys and research of existing documentation.

Reconnaissance-level biological surveys of the project site were conducted by EDAW biologists on March 10, 17, October 30, 2005, and June 2006. The purpose of the EDAW field surveys was to characterize the existing biological resources and to evaluate the potential for sensitive biological resources to occur on the project site. A jurisdictional wetland delineation of the project site, conducted by Foothill Associates, is based on 2004, 2005, and 2006 field surveys.

The research conducted for this section included review of environmental documents that discuss biological resources in the region, including the USFWS Draft Recovery Plan for the Giant Garter Snake (USFWS 1999), the *Natomas Basin Habitat Conservation Plan* (NBHCP) (City of Sacramento 2003), Natomas Basin Conservancy (NBC) Annual Monitoring Reports for Swainson's Hawk and the Giant Garter Snake as conducted for the NBHCP (NBC 2003; USGS 2004; Jones and Stokes 2005), the California Natural Diversity Database (CNDDDB 2005), the Sacramento County Code, and the City of Sacramento Municipal Code.

6.12.2 EXISTING SETTING

The majority of the project site has been in agricultural use for at least the last 20 years. A horse race track, training facility, and an irrigated polo field were present in the northern portion of the site from approximately 1980 to the early 2000s (Foothill Associates 2006). The horse training facility has since been demolished and only the dirt racetrack remains. Other buildings that were located near the training facility, including agricultural outbuildings and greenhouses, have also been demolished and removed.

Surrounding land uses include agricultural land uses to the north and southwest, new residential development in the North Natomas community to the east and south, and the recently approved Metro Air Park development currently under construction to the west. The Metro Air Park development consists of existing and proposed commercial, hotel, and recreational (i.e., golf course) land uses. The North Natomas Community Plan area is located adjacent to the eastern and southern boundaries of the project site across SR 70/99 and I-5, respectively.

HABITAT TYPES

The habitat types described below and shown in Exhibit 6.12-1 reflect conditions documented by EDAW biologists during the 2005 growing season.

UPLAND HABITATS

In 2005, approximately 380 acres on the project site were planted with wheat and approximately 115 acres were left idle. The remainder of the upland habitat is categorized as disturbed annual grassland, consisting of formerly developed or otherwise disturbed areas located primarily in the northern portion of the project site. These areas are characterized by herbaceous plant species typically associated with nonnative annual grasslands, interspersed with patches of bare ground where ground disturbance associated with prior land uses remains present. Plant species associated with disturbed annual grassland on the project site include soft brome (*Bromus hordeaceus*), wild oat (*Avena* sp.), mouse-tail grass (*Vulpia myuros*), medusahead (*Taeniatherum caput-medusae*), long-beaked filaree (*Erodium botrys*), woodland geranium (*Geranium molle*), chick weed (*Stellaria media*), milk thistle (*Silybum marianum*), star thistle (*Centaurea solstitialis*), barley (*Hordeum murinum* ssp. *leporinum*), clover (*Trifolium* sp.), shepherd's purse (*Capsella bursa-pastoris*), tarplant (*Holocarpha virgata*), and Fitch's tarweed (*Centromadia fitchii*) (Foothill Associates 2005).



Source: EDAW 2006

Project Site Habitat Map

Exhibit 6.12-1

WETLAND AND OTHER WATERS OF THE UNITED STATES

Wetlands and other waters of the United States on the project site identified by Foothill Associates (2006) include seasonal wetlands, farmed wetlands, seasonal marsh, ditch/canal, and excavated ponds. These habitats are not natural, but rather, have resulted from land use and hydrological changes associated with agricultural conversion and prior development on the project site. A total of 14.15 acres of waters of the United States were delineated by Foothill Associates in 2006 (Appendix O). This included 10.77 acres of wetlands and other waters of the United States subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), and 3.38 acres of non-jurisdictional wetlands. The delineation has not been verified by USACE.

In addition to the jurisdictional areas described above, a total of 11.80 acres of wetlands were determined by Foothill Associates (2006) to be non-jurisdictional. Non-jurisdictional wetlands included 9.33 acres of irrigation and drainage ditches, and 1.47 acres of isolated wetlands. In addition, Foothill reviewed an additional 8.56 acres of features at the request of the USACE. (See Exhibit 6.12-2.) Foothill determined that these features are not wetlands because, while they support some hydrophytic vegetation, wetland hydrology is absent; therefore, do not satisfy the USACE three-parameter test.

Seasonal Wetlands

A total of 0.29 acre of seasonal wetlands was delineated in the northern-central portion of the site. Seasonal wetlands are defined by a hydrologic regime characterized by saturation rather than inundation (Foothill Associates 2006). Seasonal wetlands were identified on the site as topographic depressions with a hydrologic regime characterized by saturation and capable of supporting hydrophytic plant species and hydric soils. Plant species in seasonal wetlands are adapted to withstand short periods of saturation or saturated soil conditions but will not withstand prolonged periods of inundation. The seasonal wetlands on the site support wetland soils, vegetation, and hydrology; however, they were determined by Foothill Associates (2006) to be isolated features exempt from USACE jurisdiction because they do not connect to waters of the United States.

Farmed Wetlands

A total of 10.96 acres of farmed wetlands have been delineated by Foothill Associates. Similar to seasonal wetlands, farmed wetlands are defined by a hydrologic regime characterized by saturation rather than inundation and support wetland soils, vegetation, and hydrology (Foothill Associates 2006). Farmed wetlands are located in the northern and western portions of the site. Foothill Associates determined that 9.43 acres of farmed wetlands on the project site were under USACE jurisdiction. The remaining 1.53 acres of farmed wetlands was determined to be non-jurisdictional (Foothill Associates 2006).

Seasonal Marsh

Foothill Associates delineated 1.65 acres of seasonal marsh on the project site. Seasonal marshes are wetlands that are seasonally inundated or saturated, but inundation/saturation persists through the majority of the warm season. The persistence of inundation/saturation into the warm season permits the growth of primarily perennial herbaceous plant species capable of withstanding extended periods of inundation or saturated soil conditions. Foothill Associates determined that 1.34 acres of seasonal marsh on the project is under USACE jurisdiction.

Ditch/Canal

A total of 12.71 acres of ditch/canal have been delineated on the site by Foothill Associates (2006). A total of 3.38 acres of ditch/canal habitat was identified as jurisdictional by Foothill Associates. The remainder of the ditch/canal habitat was identified as non-jurisdictional. Ditch/canal habitat identified as non-jurisdictional included roadside ditches and ditches that are no longer used to convey irrigation water to interior portions of the project site because agricultural use is currently limited to dry-farmed wheat.

Most of the ditches/canals on the project site were constructed as part of a complex system of canals and ditches designed to maximize water conveyance and storage developed by The Natomas Mutual Water District (NMWD) and RD 1000. NMWD is responsible for maintaining the water delivery ditches/canals, while the RD 1000 maintains ditches/canals for agricultural drainage and flood control. There are also ditches on the site that are maintained by the landowner. Water pumped through the irrigation ditches from a lift station located north of the site provided irrigation water to support rice farming until 2004, when rice production ceased.

Lone Tree Canal, which is located along the western border of the site (Exhibit 6.12-1 and Exhibit 6.12-3), was the major canal identified by Foothill Associates (2006) as a jurisdictional water of the United States. Lone Tree Canal is physically connected to the Western Drainage canal, a tributary to the Sacramento River, via a series of culverts. Water in Lone Tree Canal flows southward into a cement culvert along the southwestern border of the site and passes under I-5 before reaching the Western Drainage Canal. The banks of Lone Tree Canal are approximately 6 feet deep; the width of the canal varies from 10 to 25 feet (Exhibit 6.12-2). During March 2005 and June 2006 surveys, EDAW biologists estimated that water in Lone Tree Canal exceeded 12 inches deep in some locations, although at other times, including a field observation in July, biologists observed the canal to have less than 12 inches in some locations. The source of water in Lone Tree Canal in June 2006 appeared to be irrigation run-off coming from fields located north of the project site.

Vegetation in Lone Tree Canal and ditches on the project site include patches of freshwater marsh, but the site is generally devoid of trees and shrubs. Vegetation on the ditch banks mostly consists of a mixture of nonnative grasses and leafy nonnative weedy vegetation such as woodland geranium, milk thistle, and mustard (*Brassica* sp.). The channel bottoms support varying densities of nonnative grasses and freshwater marsh habitat dominated by patches of cattails (*Typha latifolia*). A few isolated willow trees (*Salix* sp.) are present along the agricultural ditch located along the southern border of the site. The lack of well-developed riparian and freshwater marsh vegetation associated with the ditches on the project site is indicative of prior vegetation management activity to facilitate conveyance of agricultural water.

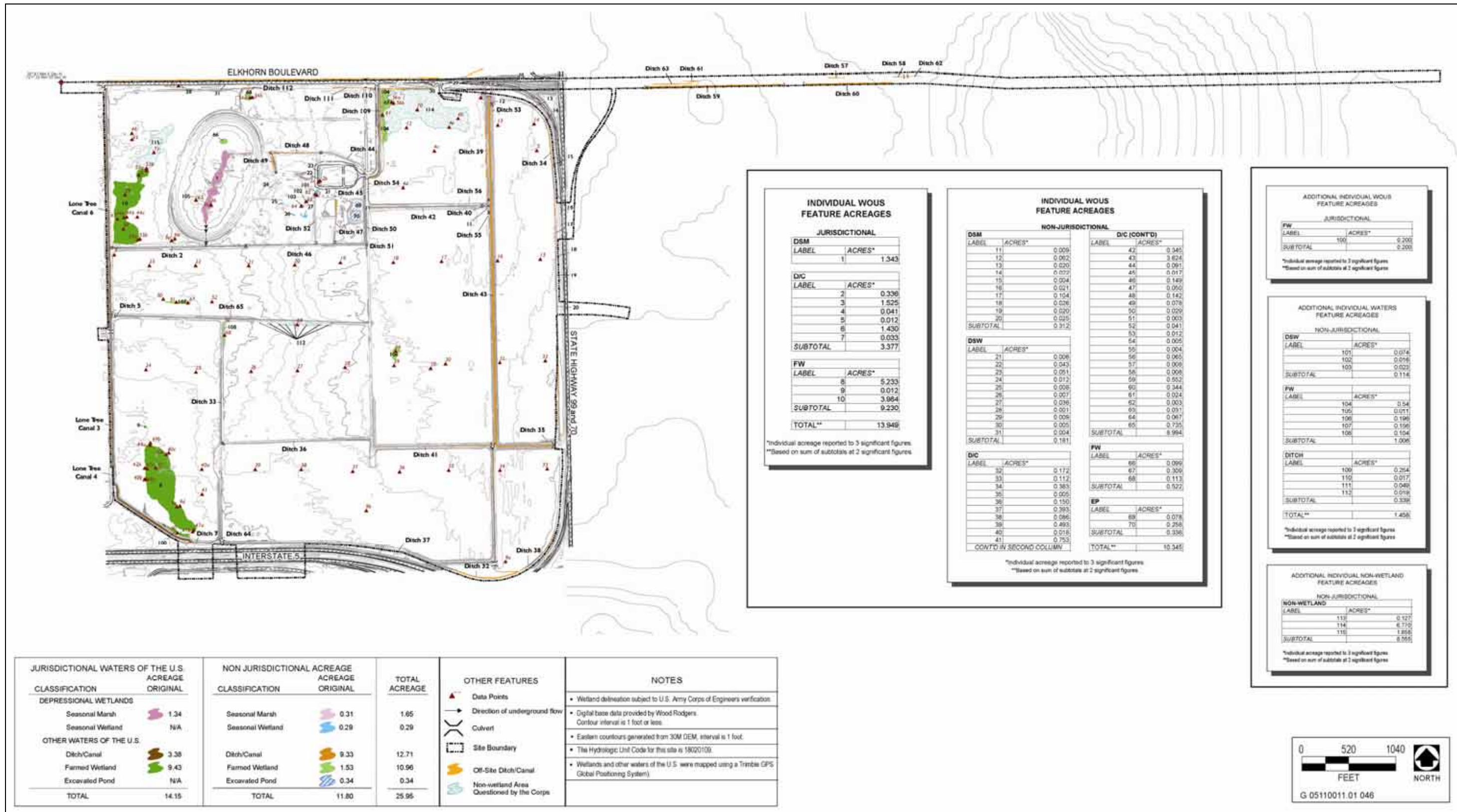
Excavated Pond

There are two small, isolated excavated ponds in the north-central portion of the site, totaling 0.34 acre. The ponds on the site are excavated in upland; they are not the result of an impoundment of a natural drainageway or tributaries to or from any waterways. The hydrology of the ponds appears to be supplied by seasonal precipitation and, potentially, seasonal groundwater fluctuations. The excavated ponds are surrounded by a 5-foot tall berm covered with disturbed grassland vegetation. Vegetation along the edges of the ponds is dominated by cattails. During March 2005 surveys, floating aquatic vegetation covered shallow water in both ponds.

WILDLIFE

Prior to European settlement, the Sacramento River floodplain, which includes the Natomas Basin, supported a wide diversity and large numbers of wildlife species associated with its riparian habitats, permanent and seasonal wetlands, and oak woodlands and savannas. Much of this habitat was lost after levees were built to prevent flooding on the Sacramento and American Rivers. The subsequent conversion of natural habitat to agricultural uses reduced the abundance of many native wildlife species. However, remnant native habitat patches and created habitat associated with the drainage and agricultural supply ditches in the Basin have allowed the majority of native wildlife species to persist.

The combination of vegetation types on the project site provide nesting, feeding, and movement habitat for a wide diversity of species commonly found on agricultural land in the Natomas Basin. Cattails and dense weedy vegetation along the ditches provide potential nesting habitat for red-winged blackbird (*Agelaius phoeniceus*) and other common birds with similar habitat requirements. The disturbed grasslands provide potential nesting habitat for common grassland birds such as western meadowlark (*Sturnella neglecta*). The wheat fields and grasslands



INDIVIDUAL WOUS FEATURE ACREAGES

JURISDICTIONAL

| DSM LABEL | ACRES* |
|-----------|--------|
| 1 | 1.343 |

| DIC LABEL | ACRES* |
|-----------------|--------------|
| 2 | 0.336 |
| 3 | 1.525 |
| 4 | 0.041 |
| 5 | 0.012 |
| 6 | 1.430 |
| 7 | 0.033 |
| SUBTOTAL | 3.377 |

| FW LABEL | ACRES* |
|-----------------|--------------|
| 8 | 5.233 |
| 9 | 0.012 |
| 10 | 3.984 |
| SUBTOTAL | 9.230 |

| TOTAL** | ACRES |
|---------|---------------|
| | 13.948 |

*Individual acreage reported to 3 significant figures.
**Based on sum of subtotals at 2 significant figures.

INDIVIDUAL WOUS FEATURE ACREAGES

NON-JURISDICTIONAL

| DSM LABEL | ACRES* |
|-----------------|--------------|
| 11 | 0.008 |
| 12 | 0.002 |
| 13 | 0.020 |
| 14 | 0.032 |
| 15 | 0.004 |
| 16 | 0.021 |
| 17 | 0.104 |
| 18 | 0.026 |
| 19 | 0.020 |
| 20 | 0.035 |
| SUBTOTAL | 0.312 |

| DSW LABEL | ACRES* |
|-----------------|--------------|
| 21 | 0.006 |
| 22 | 0.043 |
| 23 | 0.051 |
| 24 | 0.012 |
| 25 | 0.006 |
| 26 | 0.007 |
| 27 | 0.036 |
| 28 | 0.001 |
| 29 | 0.008 |
| 30 | 0.005 |
| 31 | 0.004 |
| SUBTOTAL | 0.181 |

| DIC LABEL | ACRES* |
|-----------------|--------------|
| 32 | 0.172 |
| 33 | 0.112 |
| 34 | 0.383 |
| 35 | 0.005 |
| 36 | 0.150 |
| 37 | 0.393 |
| 38 | 0.086 |
| 39 | 0.493 |
| 40 | 0.016 |
| 41 | 0.753 |
| SUBTOTAL | 2.558 |

| DIC (CONT'D) LABEL | ACRES* |
|--------------------|--------------|
| 42 | 0.340 |
| 43 | 3.824 |
| 44 | 0.061 |
| 45 | 0.017 |
| 46 | 0.149 |
| 47 | 0.050 |
| 48 | 0.142 |
| 49 | 0.078 |
| 50 | 0.029 |
| 51 | 0.003 |
| 52 | 0.041 |
| 53 | 0.012 |
| 54 | 0.005 |
| 55 | 0.004 |
| 56 | 0.065 |
| 57 | 0.006 |
| 58 | 0.008 |
| 59 | 0.552 |
| 60 | 0.344 |
| 61 | 0.024 |
| 62 | 0.003 |
| 63 | 0.031 |
| 64 | 0.067 |
| 65 | 0.735 |
| SUBTOTAL | 8.994 |

| FW LABEL | ACRES* |
|-----------------|--------------|
| 66 | 0.099 |
| 67 | 0.309 |
| 68 | 0.113 |
| SUBTOTAL | 0.522 |

| EP LABEL | ACRES* |
|-----------------|--------------|
| 69 | 0.078 |
| 70 | 0.258 |
| SUBTOTAL | 0.336 |

| TOTAL** | ACRES |
|---------|---------------|
| | 10.348 |

*Individual acreage reported to 3 significant figures.
**Based on sum of subtotals at 2 significant figures.

ADDITIONAL INDIVIDUAL WOUS FEATURE ACREAGES

JURISDICTIONAL

| FW LABEL | ACRES* |
|-----------------|--------------|
| 100 | 0.200 |
| SUBTOTAL | 0.200 |

*Individual acreage reported to 3 significant figures.
**Based on sum of subtotals at 2 significant figures.

ADDITIONAL INDIVIDUAL WATERS FEATURE ACREAGES

NON-JURISDICTIONAL

| DSW LABEL | ACRES* |
|-----------------|--------------|
| 101 | 0.014 |
| 102 | 0.016 |
| 103 | 0.003 |
| SUBTOTAL | 0.114 |

| FW LABEL | ACRES* |
|-----------------|--------------|
| 104 | 0.54 |
| 105 | 0.011 |
| 106 | 0.196 |
| 107 | 0.156 |
| 108 | 0.104 |
| SUBTOTAL | 1.006 |

| DITCH LABEL | ACRES* |
|-----------------|--------------|
| 109 | 0.264 |
| 110 | 0.017 |
| 111 | 0.046 |
| 112 | 0.019 |
| SUBTOTAL | 0.336 |

| TOTAL** | ACRES |
|---------|--------------|
| | 1.458 |

*Individual acreage reported to 3 significant figures.
**Based on sum of subtotals at 2 significant figures.

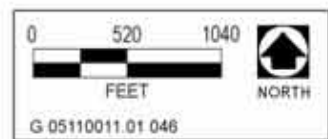
ADDITIONAL INDIVIDUAL NON-WETLAND FEATURE ACREAGES

NON-JURISDICTIONAL

| NON-WETLAND LABEL | ACRES* |
|-------------------|--------------|
| 113 | 0.127 |
| 114 | 6.710 |
| 115 | 1.856 |
| SUBTOTAL | 8.693 |

*Individual acreage reported to 3 significant figures.
**Based on sum of subtotals at 2 significant figures.

| JURISDICTIONAL WATERS OF THE U.S. ACREAGE | | NON JURISDICTIONAL ACREAGE | | TOTAL ACREAGE | OTHER FEATURES | NOTES |
|-------------------------------------------|--------------|----------------------------|--------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLASSIFICATION | ORIGINAL | CLASSIFICATION | ORIGINAL | | | |
| DEPRESSIONAL WETLANDS | | | | | | |
| Seasonal Marsh | 1.34 | Seasonal Marsh | 0.31 | 1.65 | <ul style="list-style-type: none"> Data Points Direction of underground flow Culvert Site Boundary Off-Site Ditch/Canal Non-wetland Area Questioned by the Corps | <ul style="list-style-type: none"> Wetland delineation subject to U.S. Army Corps of Engineers verification. Digital base data provided by Wood Rodgers. Contour interval is 1 foot or less. Eastern contours generated from 30M DEM, interval is 1 foot. Title Hydrologic Unit Code for this site is 18020109. Wetlands and other waters of the U.S. were mapped using a Trimble GPS (Global Positioning System). |
| Seasonal Wetland | N/A | Seasonal Wetland | 0.29 | | | |
| OTHER WATERS OF THE U.S. | | | | | | |
| Ditch/Canal | 3.38 | Ditch/Canal | 9.33 | 12.71 | | |
| Farmed Wetland | 9.43 | Farmed Wetland | 1.53 | 10.96 | | |
| Excavated Pond | N/A | Excavated Pond | 0.34 | 0.34 | | |
| TOTAL | 14.15 | TOTAL | 11.80 | 25.95 | | |



Source: Foothill Associates 2006

Wetland Delineation Map

Exhibit 6.12-2



Lone Tree Canal — Looking southeast across southern portion of the project site, March 10, 2005 (EDAW 2005)



Lone Tree Canal — Location described above, June 30, 2006 (EDAW 2006)

Representative Photographs

Exhibit 6.12-3

provide foraging habitat for raptors such as white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*). The Swainson's hawk is state listed as a threatened species. During the winter, the crop fields provide potential foraging habitat for migratory waterfowl, raptors, and passerines.

The diversity of fish, reptiles, amphibians, and mammals on the project site is relatively low compared to avian diversity. Lone Tree Canal and ditches that support permanent or intermittent aquatic habitat provide potential habitat for common and adaptable species such as mosquitofish (*Gambusia affinis*), bullfrog (*Rana catesbeiana*), and Pacific tree frog (*Hyla regilla*). These areas also provide potential habitat for the giant garter snake (*Thamnophis gigas*), which is federally and state listed as a threatened species. Mammals expected on the project site include raccoon (*Procyon lotor*), coyote (*Canis latrans*), and California vole (*Microtus californicus*).

REGULATORY SETTING

Many sensitive biological resources in California are protected and/or regulated by federal and state laws and policies. Prior to implementation, it would be necessary for the proposed project to be in compliance with these regulations. As discussed below, the project site is located within the boundaries of the Natomas Basin Habitat Conservation Plan (NBHCP), which provides protections for a number of species, including giant garter snake and Swainson's hawk. Habitat associated with these species is also found on the Greenbriar site. Although Greenbriar is located within the NBHCP boundaries, it is outside of the area within the HCP that is covered under the Incidental Take Permits (ITP) issued for development within the Natomas Basin (see discussion of ITPs below). Consequently and as further explained below, the project applicant is proposing to seek an ITP specific to the Greenbriar project, and this will require the preparation of an HCP or an amendment to the NBHCP.

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA), USFWS has regulatory authority over federally listed species. Under the ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under Section 9 of ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Giant garter snake, a federally listed threatened species, is known to occur at the site and the project has the potential to affect the species.

The USACE will consult with the USFWS regarding the giant garter snake during the Section 404 permitting process of this project. Issuance of a 404 permit under the Clean Water Act (CWA) is a federal action triggering the requirements of Section 7 of the ESA. Section 7 requires all federal agencies to consult with the USFWS to insure that actions are not likely to "jeopardize the continued existence" of any listed species or "result in the destruction or adverse modification" of designated critical habitat. If issuance of a 404 permit for this project is found not likely to jeopardize the continued existence of the giant garter snake, the USFWS will issue a no-jeopardy biological opinion including any reasonable and prudent measures necessary to minimize impacts to the species and any terms and conditions for implementing these measures. The biological opinion will be accompanied by an incidental take statement authorizing take of the species incident to an otherwise lawful activity.

In addition, the project applicant has committed to seeking coverage under Section 10(a) of the ESA for incidental take of giant garter snake. Take of other listed species known to occur in the Natomas Basin is not anticipated. Section 10(a) of the ESA allows USFWS to permit the incidental take of listed species if such take is accompanied by a habitat conservation plan (HCP) that includes components to minimize and mitigate impacts associated with the take. The permit is known as an incidental take permit, or ITP.

California Endangered Species Act

There is potential for the project to adversely affect two state-listed threatened species, Swainson's hawk and giant garter snake. Pursuant to the California Endangered Species Act (CESA), take is prohibited without a permit. A take of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include "harm" or "harass" as is included in the federal act. As a result, the threshold for a take under CESA is generally considered higher than under ESA (i.e., habitat modification is not necessarily considered take under CESA). No take of Swainson's hawk is expected. As will be described later in this analysis, there is the potential for take of giant garter snake.

Upon receiving authorization to take giant garter snake under the federal ESA, the project applicant plans to seek take authorization from the California Department of Fish & Game (DFG) under Section 2080.1 of the CESA. When an ITP is issued under the federal ESA for the giant garter snake, which is both federally listed and state-listed, no further state authorization is required for take. However, the project applicant must receive concurrence from DFG that the federal permit issued is consistent with CESA.

Written notice and a copy of the federal permit must be provided to the director of DFG. The director will determine then whether federal permit is consistent with the requirements of the CESA. Under Section 2081, CESA requires: (1) that take is incidental to an otherwise lawful activity; (2) that the impacts of the authorized take have been minimized and fully mitigated, (3) that the permit is consistent with regulations adopted pursuant to Sections 2112 and 2114 of the CESA Recovery Strategy Pilot Program, and (4) that the applicant has ensured adequate funding to implement minimization and mitigation measures and monitor these measures for compliance and effectiveness.

Natomas Basin Habitat Conservation Plan

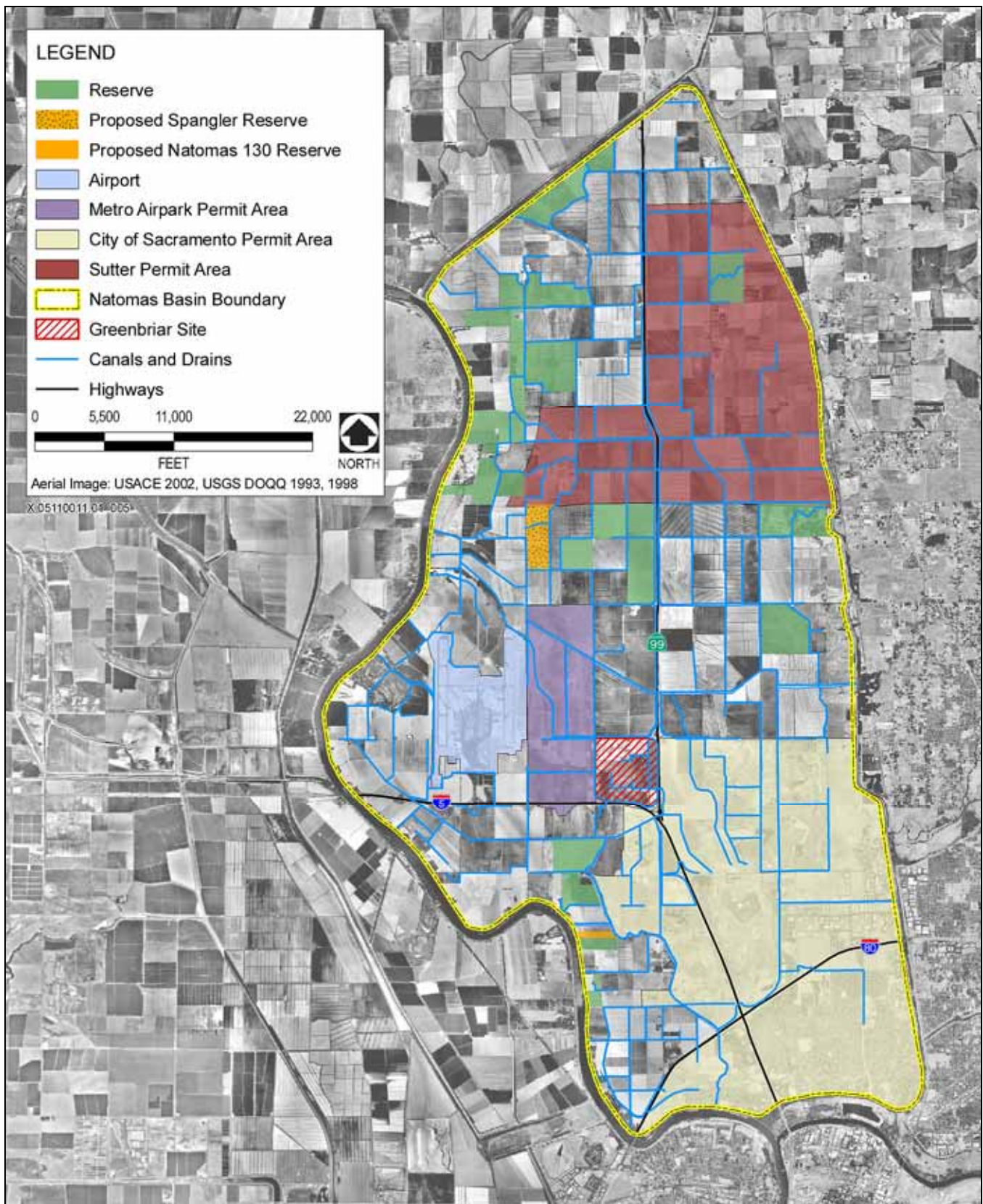
The project site and Off-site Conservation Lands are within the Plan Area for the Natomas Basin Habitat Conservation Plan (NBHCP), a regional conservation plan for minimizing and mitigating impacts to multiple species from urbanization in the Natomas Basin. USFWS has approved the NBHCP and has issued Incidental Take Permits (ITPs) to the City and Sutter County for take of federally listed species to result from urban development in the Natomas Basin. Sacramento County is not a permittee under the NBHCP, and the NBHCP does not cover urban development for unincorporated portions of Sacramento County, although the NBHCP does provide for land acquisition in these unincorporated areas on a willing-seller basis for conservation purposes. The NBHCP currently authorizes take associated with 17,500 acres of urban development in southern Sutter County and within the City and Sacramento County (i.e., 1,983 acres of the MAP area).

The project site is currently within an unincorporated portion of Sacramento County. Although the project site is within the boundaries of the NBHCP, urban development on this site is not covered under an incidental take permit (ITP) issued in conformance with the NBHCP. Even if the project is approved and annexed to the City, it would not be covered by the NBHCP and the City's ITP. The Biological Opinion for the NBHCP specifies that because the NBHCP's Operating Conservation Plan (OCP) is based upon the City limiting total development to 8,050 acres within the City's Permit Area, approval by the City of future urban development beyond the 8,050 acres or outside of its Permit Area would constitute a significant departure from the NBHCP's OCP and would trigger a reevaluation of the NBHCP, a new effects analysis, potential amendments and/or revisions to the NBHCP and ITPs, a separate conservation strategy and the need to obtain a new ITP by the Permittee for that additional development, and/or possible suspension or revocation of the City's ITP in the event the City were to violate such limitations without having completed the required reevaluation, amendments or revisions, or obtained a new permit (USFWS 2003).

This EIR includes an analysis of the 22 special-status species covered under the NBHCP as well as analysis of effects on the NBHCP that could result from implementation of the proposed project. The following NBHCP goals and objectives are considered relevant to the proposed project.

- ▶ Overall Goal 1. Establish and manage in perpetuity a biologically sound and interconnected habitat reserve system that mitigates impacts on Covered Species resulting from Covered Activities and provides habitat for existing, and new viable populations of Covered Species. (NBHCP page I-15)
- ▶ Overall Goal 3. Preserve open space and habitat that may also benefit local, non-listed and transitory wildlife species not identified within the NBHCP. (NBHCP page I-16)
- ▶ Overall Goal 4. Ensure that direct impacts of Authorized Development upon Covered Species are avoided or minimized to the maximum extent practicable. (NBHCP, page I-16)
- ▶ Overall Objective 1. Minimize conflicts between wildlife and human activities, including conflicts resulting from airplane traffic, roads and automobile traffic, predation by domestic pets, and harassment by people. (NBHCP, page I-16)
- ▶ Overall Objective 3. Ensure connectivity between TNBC reserves to minimize habitat fragmentation and species isolation. Connections between reserves will generally take the form of common property boundaries between reserves, waterways (primarily irrigation and drainage channels) passing between reserves, and/or an interlinking network of water supply channels or canals. (NBHCP, page I-16)
- ▶ Wetland Species/Habitat Goal/Objective 1. Acquire, enhance and create a mosaic of wetland habitats with adjacent uplands and connecting corridors to provide breeding, wintering, foraging, and cover areas for wetland species in the Plan Area. (NBHCP, page I-17)
- ▶ Wetland Species/Habitat Goal/Objective 2. Provide habitat to maintain, attract and sustain viable populations of the Covered Species. The habitat areas should be configured to encompass natural species migration areas, minimize species isolation, and prevent future habitat fragmentation. (NBHCP, page I-17)
- ▶ Upland Species/Habitat Goal/Objective 1. Acquire, enhance and create a mosaic of upland habitat types for breeding, foraging, and cover for species dependent on upland habitats. (NBHCP, page I-17)
- ▶ Upland Species/Habitat Goal/Objective 2. Ensure reserve land connectivity with travel corridors for upland-dependent species. The habitat areas should encompass grasslands, agricultural croplands, riparian habitats, and shelter and nesting habitat areas (fence rows, clusters of shrubs and small trees), as well as wetland areas to provide a year-round source of water for upland species. The upland areas should be configured to enhance natural species migration, minimize species isolation, and prevent future habitat fragmentation. (NBHCP, page I-17)

The project site is bordered by the City of Sacramento permit area on the east and by the area permitted for development under the Metro Air Park Habitat Conservation Plan (MAP HCP) to the west. As part of the Metro Air Park HCP (see discussion below), a 25-foot buffer was included on the Metro Air Park site along the west side of Lone Tree Canal, and provisions were included to assure that sufficient water to support habitat requirements for giant garter snake would be provided in the canal. Exhibit 6.12-4 depicts the locations of reserves that have, to date, been established as part of the NBHCP. As shown, reserves are located both north and south of the Greenbriar site. Although reserves are present north and south of the Greenbriar project site, the NBHCP makes no special provisions for long-term connectivity between reserves. The NBHCP does, however, generally describe the importance of maintaining habitat connectivity for giant garter snake. Greenbriar appears to be assumed as a site that will support rice farming, (rice was grown on the site at the time the NBHCP was adopted, but was discontinued in 2004) (see Figure 11 in the NBHCP), but there are no specific provisions related to land use on the Greenbriar project site in the NBHCP.



Source: EDAW 2006

Location of Greenbriar Project in Natomas Basin

Exhibit 6.12-4

Analysis of Effects on the Natomas Basin Habitat Conservation Plan

To assess the potential for the project to conflict with the provisions of the NBHCP, EDAW conducted an evaluation of the effects of the Greenbriar project on each species covered by the Natomas Basin Habitat Conservation Plan (NBHCP), and on attainment of the NBHCP's goals and objectives (Appendix P). The following attributes were selected by EDAW to measure if the project would substantially affect covered species or attainment of NBHCP goals and objectives:

- ▶ construction-related effects on survival and reproduction,
- ▶ zones with human-wildlife conflicts (i.e., areas adjacent to developed lands and roads),
- ▶ acreage of habitat in Natomas Basin,
- ▶ quality of habitat in the Natomas Basin,
- ▶ connectivity of habitat in Natomas Basin,
- ▶ connectivity of existing TNBC reserves,
- ▶ habitat value of existing TNBC reserves,
- ▶ water availability at TNBC reserves, and
- ▶ opportunities to establish additional TNBC reserves.

For each of these attributes, alterations resulting from the project were analyzed. The assessment of effects on covered species and NBHCP goals and objectives was subsequently based on the results of these analyses. The methodologies used were based on EDAW's interpretations of effects on covered species and NBHCP goals and objectives. The analyses of effects on covered species were also based on available information on the distribution of these species in the Natomas Basin and on their ecology. These analyses and interpretations were produced by a team of EDAW biologists as an extension of the preparation of DEIR.

Metro Air Park Habitat Conservation Plan

The MAP HCP plan area, which covers 1,892 acres adjacent to the western edge of the project site (plus additional acreage for off-site infrastructure for a total of 1,983 acres according to the NBHCP), specifies Lone Tree as a critical transit corridor for giant garter snake, and requires a 25-foot buffer along the west side of Lone Tree Canal. In addition to the buffer, the MAP HCP includes provisions for maintaining water in the canal under specific conditions, and defines "Changed Circumstances" that pertain to this issue. A Changed Circumstance is generally defined as any number of instances that result in water levels dropping below an average of 12 inches in any segment of the canal for more than 48 hours between April and October. If a Changed Circumstance were to occur, the HCP requires MAP to prepare a report that: explains the effects of the Changed Circumstance and identifies and implements alternative means for maintaining water in the canal "...such that the basic habitat requirements of the protected species are being met." The report would be required to address funding, including the levying of assessments on MAP property owners. During field surveys conducted by EDAW biologists, Lone Tree Canal has at times been observed to have sufficient water, and at other times has been observed to have limited amounts of surface water (i.e., less than 12 inches), although there are no longer term observations (48 hour observations) with respect to whether Changed Circumstance conditions have occurred (water levels dropping below an average of 12 inches in any segment of the canal for more than 48 hours between April and October).

Sacramento County Policies and Ordinances

Chapter 16.130 of Title 16 of the Sacramento County Code addresses the reduction in Swainson's hawk foraging habitat within the urban services boundary of the City of Sacramento. A mitigation fee is required for development projects within an established mitigation fee boundary. The project site lies outside of the mitigation fee boundary and the urban services boundary. In addition, if the project is approved, it would no longer be within the unincorporated lands of Sacramento County. For these reasons, the County's Swainson's hawk ordinance would not apply to the proposed project.

Chapter 19.12 of Title 19 of the Sacramento County Code addresses the protection of native oak trees within Sacramento County. The County tree preservation ordinance outlines specific boundaries within the county where native oak trees are to be protected. The proposed project lies outside the boundaries of the tree preservation ordinance.

Sacramento City Code

Chapter 12.56 of Title 12 of the Sacramento City Code addresses the general protection of trees within the City boundaries. The project lies outside the City tree preservation ordinance boundary; therefore, the City tree ordinance would not apply to the proposed project.

Jurisdictional Waters of the United States (Including Wetlands)

Waters of the United States are defined as waters where use, degradation, or destruction could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are somehow connected to any of these waters or their tributaries. Most wetland habitats meet the definition of waters of the United States. USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Waters of the United States are subject to Section 404 of the CWA. Section 404 establishes a requirement to obtain a permit prior to any activity that involves any discharge or fill material in waters of the United States. A jurisdictional wetland delineation has been completed for the project (Foothill Associates 2006), but has not been verified by USACE.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, “waters of the state” fall under the jurisdiction of RWQCB. Under the act, RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control non-point and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification under Section 401 of the CWA.

Section 1602 of the Fish and Game Code

Rivers, streams, or lakes in California are subject to regulation by DFG, pursuant to Section 1602 of the California Fish and Game Code. Activities regulated by DFG include diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake. Section 1602 states that it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by DFG, or use any material from the streambed, without first notifying DFG of such activity. DFG defines a stream as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. Areas that support permanent or intermittent aquatic habitat on the project site may be subject to Section 1602 of the California Fish and Game Code.

Section 3503-3503.5 of the Fish and Game Code

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the Fish and Game Code specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs.

SENSITIVE HABITATS

Sensitive habitat types include those that are of special concern to DFG, or that are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, and/or Section 404 of CWA.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

Special-status species include plants and animals in the following categories:

- ▶ species listed or proposed for listing as threatened or endangered under ESA or CESA;
- ▶ species considered as candidates for list as threatened or endangered under ESA or CESA;
- ▶ species identified by DFG as California Species of Special Concern;
- ▶ animals fully protected in California under the California Fish and Game Code;
- ▶ plants on CNPS List 1B (plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere) or List 2 (plants considered rare, threatened, or endangered in California but more common elsewhere).

Special-status Plants

A total of seven special-status plant species have been documented in the vicinity of the project site (Table 6.12-1). The project site includes potential habitat for two of these species: Sanford's arrowhead (*Sagittaria sanfordii*) and Delta tulle pea (*Lathyrus jepsonii jepsonii*). More information on these two plants is provided below.

Sanford's Arrowhead

Sanford's arrowhead is a rhizomatous emergent herb in the water plantain family (*Alismataceae*). This CNPS List 1B species (plants considered rare, threatened, or endangered in California and elsewhere) blooms from May to October. Suitable habitats include marshes and swamps, vegetated drainage ditches, and other shallow freshwater habitats. This species has not been documented on the project site but the freshwater marsh habitat within the ditch/canal network and wetlands on the project site provides potentially suitable habitat.

Delta Tulle Pea

Delta tulle pea is a perennial herbaceous member of the bean family (*Fabaceae*). This CNPS List 1B species occurs in both freshwater and brackish marshes and swamps. Delta tulle pea produces attractive pink to purple flowers from May to September. Delta tulle pea has not been identified on the project site but the freshwater marsh habitat within the ditch/canal network and wetlands on the project site provides potentially suitable habitat.

Sensitive Wildlife

A total of 21 special-status wildlife species have been documented in the vicinity of the project site (Table 6.12-2). Potential habitat exists on-site for six of these species: Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), giant garter snake (*Thamnophis gigas*), and northwestern pond turtle (*Emys marmorata marmorata*). More information on Swainson's hawk, burrowing owl, loggerhead shrike, and northwestern pond turtle is provided below. White-tailed kite and tricolored blackbird are not discussed further because the project site is not expected to provide suitable nesting, or otherwise, important habitat for either species.

| Table 6.12-1 Special-status Plant Species Known to Occur in the Project Vicinity | | | |
|---------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Common Name | Scientific Name | Status | Potential for Occurrence On-site |
| Sanford's Arrowhead | <i>Sagittaria sanfordii</i> | CNPS: 1B NBHCP: covered | Could occur. This herbaceous perennial plant occurs in marshes and swamps. Potential habitat exists in Lone Tree Canal. |
| Sacramento Orcutt Grass | <i>Orcuttia viscida</i> | Fed: Endangered CA: Endangered CNPS: 1B NBHCP: covered | Not expected to occur. This annual plant occurs in vernal pools. No suitable habitat is present on-site. |
| Slender Orcutt Grass | <i>Orcuttia tenuis</i> | Fed: Threatened CA: Endangered CNPS: 1B NBHCP: covered | Not expected to occur. This annual plant occurs in vernal pools. No suitable habitat is present on-site. |
| Legenere | <i>Legenere limosa</i> | CNPS: 1B NBHCP: covered | Not expected to occur. This annual plant occurs in vernal pools. No suitable habitat is present on-site. |
| Colusa Grass | <i>Neostapfia colusana</i> | Fed: Threatened CA: Endangered CNPS: 1B NBHCP: covered | Not expected to occur. This annual plant occurs in vernal pools. No suitable habitat is present on-site. |
| Bogg's Lake Hedge-hyssop | <i>Gratiola heterosepala</i> | CA: Endangered CNPS: 1B NBHCP: covered | Not expected to occur. This annual plant occurs in vernal pools and along the margins of lakes. No suitable habitat is present on-site. |
| Delta Tule Pea | <i>Lathyrus jepsonii jepsonii</i> | CNPS: 1B NBHCP: covered | Could occur. This herbaceous perennial plant occurs in freshwater and brackish marsh habitats. Potential habitat exists in Lone Tree Canal. |

| Table 6.12-2 Special-status Wildlife Species Known to Occur in the Project Vicinity | | | |
|------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Common Name | Scientific Name | Status | Potential for Occurrence On-Site |
| Birds | | | |
| Swainson's Hawk | <i>Buteo swainsoni</i> | CA: Threatened NBHCP: covered | Expected to occur. Suitable foraging habitat present on-site. Two active nests documented within 1 mile of the project site in 2004 (Natomas Basin Conservancy 2004). |
| White-tailed Kite | <i>Elanus leucurus</i> | CA: Fully Protected NBHCP: not covered | Expected to occur. Suitable foraging habitat is present on-site. Not expected to nest on-site because no suitable nesting trees are present. |
| Tricolored Blackbird | <i>Agelaius tricolor</i> | CA: Species of Special Concern NBHCP: covered | Not expected to nest on-site. No suitable nesting habitat present on-site and no active nesting sites in the project vicinity. |
| Aleutian Canada Goose | <i>Branta canadensis leucopareia</i> | NBHCP: covered | Not expected to occur. No recent records from the project vicinity. |

**Table 6.12-2
Special-status Wildlife Species Known to Occur in the Project Vicinity**

| Common Name | Scientific Name | Status | Potential for Occurrence On-Site |
|-----------------------------|------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| White-faced Ibis | <i>Plegadis chihi</i> | CA: Species of Special Concern NBHCP: covered | Not expected to occur. This species is typically associated with flooded agricultural fields and, large freshwater marshes. |
| American Peregrine Falcon | <i>Falco peregrinus anatum</i> | CA: Endangered and fully protected NBHCP: covered | Not expected to occur. Marginal foraging habitat present. No suitable nesting habitat present on-site. |
| Greater Sandhill Crane | <i>Grus canadensis tabida</i> | CA: Threatened and Fully Protected NBHCP: covered | Not expected to occur. No recent records from the project vicinity. |
| Burrowing Owl | <i>Athene cunicularia</i> | CA: Species of Special Concern NBHCP: covered | Known to occur. Observed in March and September 2005. Field edges, culverts, and upland areas that are not frequently cultivated represent potential nesting and foraging habitat. |
| Loggerhead Shrike | <i>Lanius ludovicianus</i> | CA: Species of Special Concern NBHCP: covered | Known to occur. Suitable foraging habitat and marginal nesting habitat is present on-site. |
| Bank Swallow | <i>Riparia riparia</i> | CA: Threatened NBHCP: covered | Not expected to occur. No suitable nesting habitat is present on-site. |
| Reptiles | | | |
| Giant Garter Snake | <i>Thamnophis gigas</i> | Fed: Threatened CA: Threatened NBHCP: covered | Expected to occur. Previously documented in Lone Tree Canal. |
| Northwestern Pond Turtle | <i>Emys marmorata marmorata</i> | CA: Species of Special Concern NBHCP: covered | Potential to occur. Lone Tree Canal provides marginal habitat. |
| Amphibians | | | |
| California Tiger Salamander | <i>Ambystoma californiense</i> | Fed: Threatened CA: Species of Special Concern NBHCP: covered | Not expected to occur. No vernal pools or other potential breeding habitat present on-site. |
| Western Spadefoot | <i>Spea hammondi</i> | CA: Species of Special Concern NBHCP: covered | Not expected to occur. No vernal pools or other potential breeding habitat present on-site. |
| Fish | | | |
| Sacramento Splittail | <i>Pogonichthys macrolepidotus</i> | Fed: Threatened CA: Species of Special Concern | Not expected to occur. No suitable habitat is present. |

**Table 6.12-2
Special-status Wildlife Species Known to Occur in the Project Vicinity**

| Common Name | Scientific Name | Status | Potential for Occurrence On-Site |
|--------------------------------------|--------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------|
| Invertebrates | | | |
| Valley Elderberry Longhorn Beetle | <i>Desmocerus californicus dimorphus</i> | Fed: Threatened NBHCP: covered | Not expected to occur. Requires elderberry shrubs for all life stages. No suitable habitat is present. |
| Longhorn Fairy Shrimp | <i>Branchinecta longiantenna</i> | Fed: Endangered NBHCP: covered | Not expected to occur. This invertebrate occurs in vernal pools. No suitable habitat is present on-site. |
| Vernal Pool Tadpole Shrimp | <i>Lepidurus packardii</i> | Fed: Endangered NBHCP: covered | Not expected to occur. This invertebrate occurs in vernal pools. No suitable habitat is present on-site. |
| Midvalley Fairy Shrimp | <i>Branchinecta mesovallensis</i> | NBHCP: covered | Not expected to occur. This invertebrate occurs in vernal pools. No suitable habitat is present on-site. |
| Vernal Pool Fairy Shrimp | <i>Branchinecta lynchi</i> | Fed: Threatened NBHCP: covered | Not expected to occur. This invertebrate occurs in vernal pools. No suitable habitat is present on-site. |
| Conservancy Fairy Shrimp | <i>Branchinecta conservation</i> | Fed: Endangered NBHCP: covered | Not expected to occur. This invertebrate occurs in vernal pools. No suitable habitat is present on-site. |

Giant Garter Snake

The giant garter snake is federally and state listed as threatened and is a primary covered species under the NBHCP. This species formerly ranged throughout the wetlands of California's Central Valley, from Buena Vista Lake near Bakersfield in Kern County north to the vicinity of Chico in Glenn and Butte Counties (Hansen and Brode 1980). They appear to have been extirpated from the San Joaquin Valley south of Mendota in Fresno County (Hansen and Brode 1980, USFWS 1999) and have suffered serious declines in other parts of their former range. The primary cause of decline, aquatic habitat loss or degradation caused by agricultural development, has been compounded by the loss of upland refugia and bankside vegetation cover (Thelander 1994).

Several regional habitat conservation planning efforts are underway that allow for development, while setting aside, enhancing, and protecting habitat for the giant garter snake. The adopted NBHCP proposes to protect, manage, and monitor large tracts of rice fields currently occupied by the giant garter snake in the Natomas Basin and to create managed rice habitat where none exists. The strategy of the Draft Giant Garter Snake Recovery Plan, released by the USFWS in 1999, involves a set of recovery tasks. Recovery tasks emphasized in the plan are (1) habitat protection, (2) public participation, outreach, and education, (3) habitat management and restoration, (4) surveying and monitoring, and (5) research. Protection of giant garter snake habitat on private lands in the Southern American Basin, which specifically includes the Natomas area, was identified as a top priority in the recovery plan.

This aquatic snake inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, rice fields, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley (USFWS 1999). Rice fields and their adjacent irrigation and drainage canals serve an important role as aquatic habitat for giant garter snake. The elements and cycle of the rice field ecosystem coincides fairly closely with the biological needs of the giant garter snake. During the summer, giant garter snakes use the flooded rice fields as long as their prey is present in sufficient densities. During the late summer, rice fields provide important nursery areas for newborn giant garter snakes. In late summer/fall, water is drained from the rice fields and giant garter snake prey items become concentrated in the remaining pockets of standing water, which allows the snakes to gorge prior to their period of winter inactivity (USFWS 1999). It appears that the majority of giant garter snakes

move back into the canals and ditches as the rice fields are drained, although a few may over-winter in the fallow fields where they hibernate within burrows in the small berms separating the rice checks (Hansen 1998).

Managed marsh can also provide important habitat for giant garter snake. In contrast to rice, managed marsh provides habitat year-round, and habitat elements (such as dense cover, basking sites, and refugia) to meet all of the giant garter snakes daily and seasonal needs. In the Natomas Basin, managed marshes have been designed to provide habitat elements throughout the marsh, as opposed to the limited availability of the same elements in rice fields, which contributes to giant garter snake use occurring primarily around the perimeter of rice fields.

The USFWS has previously considered 200 feet as the width of upland vegetation needed to provide adequate habitat along the borders of aquatic habitat for giant garter snake (USFWS 1997). However, the width of uplands used by giant garter snake varies considerably. Many summer basking and refuge areas used by this snake are immediately adjacent to canals and other aquatic habitats, and may even be located in the upper canal banks (Eric Hansen, pers. comm., 2005). Giant garter snakes have also been found hibernating as far as 820 feet (250 meters) from water, however, and any land within this distance may be important for snake survival in some cases (Hansen 1988).

As of 2005, the CNDDDB lists 170 giant garter snake occurrences considered extant in California. Of these, 42 of the occurrences are from the Natomas Basin. This species has been documented in Lone Tree Canal, which serves as the western boundary of the project site. Sampling conducted during 1998 and 1999 detected at least five giant garter snakes on the project site in Lone Tree Canal, contributing to a projected density of the canal of eight giant garter snakes per linear kilometer (Wylie et al. 2000). Continued presence of giant garter snakes was confirmed in Lone Tree Canal, north of Elkhorn Boulevard, in the vicinity of the Central Main Canal in 2003 and 2004 (Jones and Stokes 2005). Additionally, there is one observation of an adult giant garter snake from 1986 and another from 1987 in Lone Tree Canal (CNDDDB 2005). Because giant garter snakes are known from the immediate vicinity, it is assumed that they are present or potentially present within suitable habitat on-site.

Currently, Lone Tree Canal provides habitat and a movement corridor for giant garter snakes. Although habitat degradation has impaired the function of Lone Tree Canal as a corridor, it is the primary remaining corridor for movement of giant garter snakes between the southern and central portions of the Natomas Basin (C. Aubry, pers. comm., 2005; E. Hansen, pers. comm., 2005). Loss of this corridor could isolate the southern portion of the Natomas Basin, dividing the current giant garter snake population into two smaller populations, which would substantially reduce the likelihood of giant garter snake persisting in the Basin.

The project site was evaluated in 2005 to determine potential value as giant garter snake habitat (Berryman Ecological 2005). Suitable giant garter snake habitat is characterized by all of the features necessary to support permanent populations of the species, including: (1) sufficient water during their active season to supply cover and food, such as small fish and amphibians; (2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; (3) bankside burrows, holes, and crevices to provide habitat for short-term refuge (refugia); and (4) high ground or upland habitat above the annual high-water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980). The primary factor in determining suitability was the presence/absence of sufficient water during the species' active season. Features that lacked standing or slow moving water late in season but possessed aquatic vegetation indicative of prolonged inundation, were considered to provide marginal habitat for giant garter snake. Marginal habitat provides aquatic habitat for only a portion of the snake's active season. Those features that lacked water or emergent, aquatic vegetation were considered unsuitable for giant garter snake.

On the project site, Lone Tree Canal, sections of three ditches draining into Lone Tree Canal, and a section of the large ditch immediately south of Elkhorn Boulevard were observed to have standing water late in the giant garter snake active season (early September 2005). These ditches also had emergent vegetation such as cattails and tules. The banks of these ditches were vegetated with grasses and herbs with sufficient open areas for basking. Small mammal burrows and cracks in the soil along the banks on Lone Tree Canal provide potential summer refuge for

giant garter snake. The features determined to provide marginal, seasonal habitat for the giant garter snake supported aquatic habitat during a portion of the giant garter snake active season, and supported emergent wetland vegetation, but were dry in early September 2005). It appears that due to the lack of irrigation water flowing onto the site during the summer that ditches in the interior portion of the project site do not support surface water beyond late spring/early summer now that rice farming has ceased. EDAW biologists noted that these ditches were dry in June 2006. The Natomas Central Mutual Water District has indicated that no water from their ditches is being delivered to the site for irrigation purposes (Fisher, pers. comm., 2005). However, water passes through the project site via Lone Tree Canal.

A total of 89.36 acres of giant garter snake habitat were identified on the project site and off-site improvement areas during the 2005 habitat evaluation (Berryman Ecological 2005). Suitable giant garter habitat delineated in 2005 included 6.28 acres of aquatic habitat and 83.08 acres of upland habitat that is located within 200 feet of aquatic habitat. Of the 6.28 acres of aquatic habitat present, approximately 3.5 acres consisted of suitable aquatic habitat available to the snake throughout the active season, and 2.78 acres consisted of marginally suitable aquatic habitat available to the snake for only a portion of the active season. The remaining areas mapped as seasonal wetlands on the project site have saturated soils during the winter, but do not hold standing water during the snake's active season. Two small, isolated ponds supporting seasonal wetlands on the property were considered too small and isolated to provide suitable aquatic habitat for the giant garter snake. Additionally, a roadside ditch along Elkhorn Boulevard east of SR 70/99 and upland habitat within 200-feet of aquatic giant garter snake habitat were also identified in improvement areas.

Swainson's Hawk

Swainson's hawk is state listed as threatened and is a primary covered species under the NBHCP. Historically, Swainson's hawks nested throughout lowland California. As many as 17,000 Swainson's hawk pairs may have nested in California at one time (DFG 1994). Currently, there are 700-1,000 breeding pairs in California, of which 600-900 are in the Central Valley (Estep 2003). The overall Swainson's hawk population is considered to be declining (DFG 1994), although individuals in the Central Valley appear to have adapted relatively well to certain agricultural patterns in areas where suitable nesting habitat remains (Estep 2003).

Swainson's hawks typically occur in California only during the breeding season (March through September) and winter in Mexico and South America, although a small number of individuals have been wintering in the San Francisco Bay-Delta for several years (City of Sacramento et al. 2003). The Central Valley population migrates only as far south as Central Mexico. Swainson's hawks begin to arrive in the Central Valley in March. Nesting territories are usually established by April, with incubation and rearing of young occurring through June (Estep 2003).

Swainson's hawk is most commonly found in grasslands, low shrublands, and agricultural habitats that include large trees for nesting. Nests occur in riparian woodlands, roadside trees, trees along field borders, and isolated trees. Stringers of remnant riparian forest along drainages contain the majority of known nests in the Central Valley (England et al. 1997; Estep 1984; Schlorff and Bloom 1984). Nesting pairs frequently return to the same nest site for multiple years and decades.

Prey abundance and accessibility are the most important features determining the suitability of Swainson's hawk foraging habitat. In addition, agricultural operations (e.g., mowing, flood irrigation) have a substantial influence on the accessibility of prey and thus create important foraging opportunities for Swainson's hawk. Crops which are tall and dense enough to preclude the capture of prey do not provide suitable habitat except around field margins, but preys in these habitats are accessible during and soon after harvest. Swainson's hawks feed primarily on small rodents, but also consume insects and birds.

Although the most important foraging habitat for Swainson's hawks lies within a one-mile radius of each nest (City of Sacramento et al. 2003), Swainson's hawks have been recorded foraging up to 18.6 miles from nest sites

(Estep 1989). Any habitat within the foraging distance may provide food at some time in the breeding season that is necessary for reproductive success. In a dynamic agricultural environment such as the Natomas Basin, the area required for Swainson's hawk foraging habitat depends on time of season, crop cycle, crop type, and discing/harvesting schedule, as these factors affect the abundance and availability of prey (City of Sacramento et al. 2003).

The most recent survey published by the Natomas Basin Conservancy (2004) mapped 89 nest sites in or adjacent to the Natomas Basin in 2004, of which 59 were active. Most nests sites are located in the western portion of the Natomas Basin along the Sacramento River where large trees are available. However, nesting and foraging occurs throughout the Basin, depending on the availability of suitable nest trees in proximity to upland foraging areas (Estep 2003).

The 2004 Natomas Basin Conservancy's report identified a total of 5 nests located within one mile of the Greenbriar site, two of which were active (Natomas Basin Conservancy 2004). There are no records of Swainson's hawk nesting on the project site, and no suitable nesting sites were present during 2005 surveys. Potentially suitable foraging habitat for Swainson's hawk occurs on the project site. No Swainson's hawks were observed on-site during a March 2005 survey.

In 2005, most of the project site provided potential foraging habitat for Swainson's hawk. The 115 acres of idle cropland on the project site is considered moderate-quality foraging habitat. Wheat fields and disturbed areas on the project site are considered low-quality foraging habitat for this species.

Burrowing Owl

Burrowing owl is a DFG species of special concern and is covered under the NBHCP. Burrowing owls and their nests are protected under Section 3503.5 of the California Fish and Game Code.

Burrowing owls typically inhabit grasslands and other open habitats with low-lying vegetation. Burrowing owls are also known to nest and forage in idle agricultural fields, ruderal fields and the edges of cultivated fields, although these areas provide lower quality habitat than native grasslands. Burrow availability is an essential component of suitable habitat. Burrowing owls are capable of digging their own burrows in areas with soft soil, but they generally prefer to adopt those excavated by other animals, typically ground squirrels. In areas where burrows are scarce, they can use pipes, culverts, debris piles, and other artificial features.

No systematic surveys have been conducted to determine burrowing owl distribution across the Natomas Basin. The CNDDDB (2005) includes seven occurrences for burrowing owl from the Natomas Basin of which six are considered extent. During a March 2005 survey, a burrowing owl was flushed from a culvert in a north-south drainage ditch in the southwestern portion of the site. A burrowing owl was observed in the same general area in September 2005.

Loggerhead Shrike

Loggerhead shrikes are most commonly found in grasslands, agricultural lands, open shrublands, and open woodlands. Land cover types designated as shrike habitat in the NBHCP include alfalfa, grassland, non-rice crops, oak groves, orchard, pasture, ponds and seasonally wet areas, riparian, ruderal, rural residential, tree groves and canals. Special habitat features that improve shrike abundance, survival and reproductive success are hunting perches, low nesting trees and shrubs, thorny vegetation and/or barbed wire on which to impale their prey. Shrikes select a variety of prey including insects, reptiles, mammals and birds.

The Natomas Basin Conservancy lists 82 shrike occurrences throughout the Basin, and suitable nesting and foraging habitat is common throughout the area. A loggerhead shrike was observed on the project site during March and October 2005 surveys.

Northwestern Pond Turtle

Northwestern pond turtle is a DFG species of special concern and is covered under the NBHCP.

Northwestern pond turtles are generally associated with permanent or near-permanent aquatic habitats, such as lakes, ponds, streams, freshwater marshes, and agricultural ditches. They require still or slow-moving water with instream emergent woody debris, rocks, or similar features for basking sites. Pond turtles are highly aquatic but can venture far from water for egg-laying. Nests are typically located on unshaded upland slopes in dry substrates with clay or silt soils (Jennings and Hayes 1994). Pond turtles can over-winter in upland sites.

Ditches, ponds, and marshes throughout the Natomas Basin provide potential habitat for northwestern pond turtle. Potential breeding habitat, however, is very limited by the predominance of agriculture and development but could occur along ditches and margins of other aquatic habitat.

Limited information is available on the status and distribution of the northwestern pond turtle in the Natomas Basin. Surveys conducted in 2004 for the Natomas Basin Conservancy documented six northwestern pond turtle occurrences in the Natomas Basin (Natomas Basin Conservancy 2004). Two of these occurrences were from locations just over one mile from the project site.

6.12.3 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The analysis in this section is based on the field surveys and research as previously discussed. EDAW also prepared an evaluation of the potential effects of the proposed project on the future condition of the Natomas Basin, and how those changes would affect species covered by the NBHCP and attainment of the NBHCP's goals and objectives. Relevant information from this analysis has been incorporated into the discussion below. The analysis is presented in its entirety in Appendix P.

Present and past agricultural use of the site was considered when evaluating project impacts, and determining appropriate mitigation, because of the important ramification related to wildlife use. In the Natomas Basin, crop types are directly related to habitat suitability for many wildlife species, including two listed species, giant garter snake and Swainson's hawk.

Section 15125 of the CEQA Guidelines specifies that EIRs describe the existing conditions on a site at the time the notice of preparation (NOP) is prepared, and states that these conditions would *normally* constitute the baseline for purposes of determining project impacts. The evaluation of the potential effects of the proposed project on the future condition of the Natomas Basin in Appendix P is required to assess the effects of the project on the NBHCP; thus, the effects analysis is based on development of the site as it was mapped for the NBHCP in 2001. The NOP was published in 2005. Crop selection on the project site has changed since 2001, and could change again. The discontinuation of rice farming occurred in 2004 and is particularly noteworthy because the value of the project site for giant garter snake was significantly diminished by this cessation.

To comply with CEQA requirements and to assure that the proposed project does not compromise the effectiveness of the NBHCP, which is based on 2001 site conditions, the impact analysis in this section evaluates conditions documented in 2005 when the NOP was released, and provides mitigation designed to reduce impacts to less than significant under both 2001 (for NBHCP compliance purposes) and 2005 conditions (for CEQA purposes).

THRESHOLDS OF SIGNIFICANCE

These thresholds have been prepared based on review of the applicable parts of Appendix G and Section 15065 of the State CEQA Guidelines. The proposed project would have a significant impact on biological resources if it would:

- ▶ Have a substantial adverse effect, either directly or through habitat modifications, 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 any riparian habitat or other sensitive natural community identified 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 Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) 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.
- ▶ Conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan.
- ▶ Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare or threatened species.

**IMPACT
6.12-1**

*Effects to Giant Garter Snake. Implementation of the proposed project would result in impacts to 58.75 acres of potential giant garter snake habitat. This impact would include the permanent loss of 55.56 acres of potential giant garter snake habitat and temporary impacts to 3.31 acres of potential giant garter snake habitat. Direct and indirect impacts could include loss of individuals, effects on connectivity, displacement of snakes currently occupying the site, effects related to increased contaminants, predation by domestic and feral animals, effects related to human encroachment, and road mortality. These impacts would result in **significant** adverse effects to giant garter snake.*

Habitat Loss

Implementation of the proposed project would result in permanent and temporary impacts to 58.75 acres of potential upland and aquatic giant garter snake habitat. A total of 55.56 acres of permanent impacts would include the loss of 2.99 acres of potential aquatic habitat and 52.57 acres of potential upland habitat located within 200 feet of potential aquatic habitat. Permanent habitat loss would include filling irrigation ditches and marsh habitat, and grading potential upland habitat prior to construction. The 3.31 acres of temporary impacts would include the temporary loss of 0.31 acres of potential aquatic habitat and 3.0 acres of potential upland habitat. Temporary impacts would include installation of water and sewer lines, which would be restored to pre-project conditions following impacts. This acreage does not include on-site construction of Meister Way from the Metro Air Park boundary to SR 70/99, or the on-site widening of Elkhorn Boulevard, because impacts resulting from this road construction are covered under the MAP HCP and would occur in connection with the approved Metro Air Park Project, which is under construction and independent of the proposed project.

Effects on Habitat Connectivity

The proposed project could fragment giant garter snake habitat and reduce habitat connectivity and genetic exchange between giant garter snake subpopulations inhabiting lands to the south, in

the southwest zone of the Natomas Basin, and those inhabiting lands to the north, in the northwest zone. I-5 already constrains movement between the northwest and southwest zones, and therefore development adjacent to I-5 would not reduce connectivity except at locations where snakes are able to pass under the freeway via culverts. Following construction of Metro Air Park, the only pathway for snakes to cross I-5 in this area will be by way of a culvert through which Lone Tree Canal passes under the I-5, which would not be affected by development of the project site.

Currently, Lone Tree Canal provides habitat and a movement corridor for giant garter snake, but this habitat has been degraded in the past few years because of inconsistent flows of water in the canal during the active season (Hansen, pers. comm., 2005). Also, in recent years, flows in the canal have not been optimal for giant garter snake. The other canals within and along the southern and eastern borders of the Greenbriar site also have recently provided (or still provide) some habitat for giant garter snake, and they may also serve as a movement corridor. Although habitat degradation has impaired the function of Lone Tree Canal as a corridor, it is the primary remaining corridor for movement of giant garter snakes between the southern and central portions of the Natomas Basin (Aubry, pers. comm., 2005; Hansen, pers. comm. 2005). Loss of this corridor could isolate the southern portion of the Natomas Basin, dividing the current giant garter snake population into two smaller populations, which would substantially reduce the likelihood of giant garter snakes persisting in the Natomas Basin.

The effects on giant garter snake habitat connectivity were evaluated by EDAW as part of an analysis of effects of the Greenbriar project on the Natomas Basin Habitat Conservation Plan (Appendix P). That evaluation included the following assumptions relevant to connectivity of giant garter snake habitat:

- ▶ Giant garter snakes currently use Lone Tree Canal at the Greenbriar site and are likely to continue to do so under the future condition resulting from the NBHCP;
- ▶ Occasionally snakes cross through the culverts under Interstate 5;
- ▶ The frequency of crossings under Interstate 5 is affected by the level of snake use in the adjacent sections of Lone Tree Canal;
- ▶ The level of snake use is affected by the habitat features provided by Lone Tree Canal and immediately adjacent land (i.e., movement along the canal is not independent of habitat availability and condition along the canal); and
- ▶ Mitigation for other projects affecting Lone Tree Canal south of Interstate 5 and north of Elkhorn Road would sustain giant garter snake habitat along those segments of Lone Tree Canal.

In the absence of effective mitigation to maintain or improve connectivity, the Greenbriar project could substantially affect the use of Lone Tree Canal (and of the entire Greenbriar site) by giant garter snakes. Significant impacts on giant garter snake connectivity that could result from implementation of the proposed project could include:

- ▶ Elimination of canals and natural vegetation within the Greenbriar site;
- ▶ Creation of additional road crossings of Lone Tree Canal at Meister Way and Street 3;
- ▶ Construction of residential development within 200 feet of Lone Tree Canal; and

- ▶ Reduction of the acreage draining into Lone Tree Canal, which could reduce the amount of surface water flow in the canal. However, this condition would be pertinent to rice farming or other irrigated activities, which has not occurred since 2004. Under current conditions (dry farming), these conditions would not occur.

In the absence of mitigation, these impacts could reduce giant garter snake habitat connectivity, and affect giant garter snake use of Lone Tree Canal, by:

- ▶ eliminating or degrading habitat;
- ▶ creating additional obstacles to giant garter snake movement;
- ▶ increasing predation; and
- ▶ increasing human activities that disrupt giant garter snake activities (e.g., basking, foraging) and as a result harm snakes, reduce snake use, or cause snakes to avoid this segment of Lone Tree Canal.

Development of agricultural land at the Greenbriar site would directly eliminate habitat that provides prey, cover, basking sites, and refugia. Additional obstacles, increased predation, and increased human activities all could degrade the quality of remaining habitat, increase mortality and reduce snake use of this segment of Lone Tree Canal.

In order to offset the effects resulting from these changes and to retain giant garter snake habitats and the movement corridor along Lone Tree Canal, the project would have to:

- ▶ minimize effects on giant garter snake movement at the crossings of Meister Road and Street 3,
- ▶ maintain vegetation and conditions along the canal and in adjacent uplands to meet requirements for giant garter snake use and movement, and
- ▶ reduce the effects of human disturbance, mortality from vehicle collisions, and predation by the cats, dogs, and wildlife associated with developed land uses.

Thus, measures would need to include:

- ▶ restrictions on adjacent land uses to allow only those compatible with provision of snake habitat,
- ▶ barriers to human and animal use of the site,
- ▶ design of the Meister Road and Street 3 crossings to minimize effects on snake movement (e.g., maximize cross-sectional area and visibility under the road crossings),
- ▶ barriers preventing giant garter snake access to developed areas and visually screening developed areas
- ▶ funding for site maintenance and management of habitat along the canal and on adjacent land, and
- ▶ assurance that adequate depth of surface water would be provided to the canal in perpetuity to provide for the habitat requirements of the giant garter snake (this is a legal obligation of the Metro Air Park HCP and would not be expected to be a requirement of Greenbriar).

Displacement and Loss of Individuals

Giant garter snakes could be displaced as a result of development activities and could encounter intraspecific and interspecific competition in the new areas they inhabit. They could experience low survivorship in new, unfamiliar areas where they experience less hunting success and are more susceptible to predation. Giant garter snake habitat on the project is relatively isolated by major roadways and existing development from other habitat that could support this species. Displaced snakes that may attempt to reach suitable off-site habitat via Lone Tree Canal after construction begins would need to either navigate culverts crossing at I-5 or Elkhorn Boulevard. Overland attempts by snakes to escape to the south or east would be blocked or constrained by I-5 and SR 70/99, while snakes crossing the site to the north would risk mortality from increased traffic on Elkhorn Boulevard. During project construction, giant garter snakes could be killed or injured by vehicle strikes on roads, crushing beneath heavy construction equipment, or entombment in their winter retreats (Wylie and Casazza 2000).

Contaminants

The proposed development could affect adjacent giant garter snake habitat through urban run-off and introduction of sediment, pesticides, herbicides, petroleum products, heavy metals, polynuclear aromatic hydrocarbons, and other organic nutrients into waterways (USFWS 2003). The City of Sacramento, however, has received a permit under the National Pollutant Discharge Elimination System (NPDES) for stormwater discharge from the Central Valley Regional Water Quality Control Board (RWQCB), and this requires the City to implement the best pollution control technology available prior to discharge of drainage water. The Central Valley RWQCB also requires participation in the statewide NPDES permit for construction activities. Under this permit, the City requires adherence to its erosion control standards and practices during project construction activities. Further, and more importantly, stormwater runoff from a portion of the site currently drains to Lone Tree Canal; following project development Lone Tree Canal would no longer convey any runoff from the site (see Section 6.10, "Hydrology, Drainage, and Water Quality," of this DEIR). Therefore, no direct or indirect impacts to giant garter snakes resulting from urban run-off would be expected.

Domestic and Feral Animals

Domestic and feral cats could be introduced into the giant garter snake habitat adjacent to developed areas as a result of the proposed development. Residential development close to areas inhabited by snakes can lead to increased predation by cats. While studies have demonstrated the predatory influences of domestic dogs and cats on wildlife (Van't Woudt 1990), its impact on giant garter snake populations has not been determined (CH2M Hill 2003). However, giant garter snake mortality resulting from predation by domestic and feral animals inhabiting developed portions of the project site could occur.

Human Encroachment

Noise and other disturbances from developed areas could disrupt the activities of giant garter snakes occupying adjacent habitat, and the number of human interactions with snakes could increase as a result of increased human population numbers from the proposed project. Human activity and noise may disrupt breeding and foraging activity, as animals leave an area to escape human presence. Such responses are often associated with physiological adjustments, and the energetic costs of active responses to human disturbance may result in diminished survivability or reproductive output (Gabrielson and Smith 1995). Off-road vehicles, foot, horse and bicycle traffic lead to trampling of vegetation and soil compaction that can hinder plant germination

(Carlson and Godfrey 1989), which could reduce vegetative cover for the giant garter snake along the banks of ditches and canals.

Giant garter snakes could experience increased mortality from motor vehicle activity associated with urbanization. Snakes could be killed on new roads constructed as part of the proposed project or on existing roads because of the increased traffic that would result due to increased human population.

The potential effects to giant garter snakes and their habitat from project implementation are considered *significant*.

Mitigation Measure 6.12-1: (City of Sacramento and LAFCo)

- a. To mitigate impacts to giant garter snake, the project applicant shall prepare an HCP, pursuant to Section 10(a) of ESA, and shall obtain appropriate authorization for incidental take of giant garter snake from USFWS and DFG. (DFG would issue permits through Section 2081 of the Fish and Game Code.) The HCP shall include a comprehensive giant garter snake conservation strategy, developed through consultation with USFWS and DFG. This strategy shall be consistent with the goals of the regional basin-wide conservation program described in the NBHCP, and shall advance the NBHCP's regional conservation strategy. This conservation strategy shall be designed to include avoidance, minimization and compensation measures that are adequate to assure that the proposed project shall not compromise the effectiveness of the NBHCP.
- b. The conservation strategy shall include habitat preservation and restoration consistent with the NBHCP's strategy of establishing an interconnected reserve system composed of marshlands, uplands, and rice fields in the Natomas Basin. Key elements of the giant garter snake conservation shall include on-site/off-site habitat preservation, restoration, and creation, and on-site avoidance and minimization measures. The conservation strategy that would ultimately be implemented as mitigation would be developed through consultation with DFG and USFWS as part of the permitting process. Refinements may occur through the USFWS/DFG consultation process, to the extent that the NBHCP regional conservation strategy is advanced.

1. Habitat Creation, Preservation, and Management in the Lone Tree Canal Linear Open Space/ Buffer Area

- a. To ensure that the project does not diminish habitat connectivity for giant garter snake between the southwest and northwest zones identified in the NBHCP, approximately 30.6 acres along Lone Tree Canal shall be protected and managed as giant garter snake habitat. This on-site habitat preservation shall protect an approximately 250-foot wide corridor of giant garter snake habitat that includes the canal and approximately 200 feet of adjacent uplands. Uplands within the linear open space/buffer area shall be managed as perennial grassland as described below. Additional aquatic habitat for giant garter snake shall be created along the east bank of Lone Tree Canal by construction and maintenance of a 2.7 acre tule bench. The habitat shall be managed in perpetuity as high-quality habitat for giant garter snake. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports prepared within six months of completion of monitoring for any given year. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP.
- b. To ensure that the project does not diminish giant garter snake movement along Lone Tree Canal, all new road crossings of Lone Tree Canal shall be designed to minimize obstacles to giant garter snake movement. The use of culverts under new road crossings on Lone Tree Canal shall be prohibited unless it can be demonstrated that the culverts will not diminish the potential for giant garter snake movement through the section of Lone Tree Canal protected by the setback fence and conservation easement.

- c. Upland giant garter snake habitat within the Lone Tree Canal linear open space/buffer area shall be created and managed to provide cover, basking areas, and refugia during the winter dormant period. Hibernaculae would be constructed at regular intervals by embedding concrete or coarse rock in the bank or in a berm along the Lone Tree Canal corridor to provide additional winter refugia. Upland habitat with the linear open space/buffer areas shall be converted to native perennial grassland and managed, in perpetuity, as perennial grassland habitat.
- d. Aquatic habitat shall be maintained throughout the giant garter snake active season in Lone Tree Canal, in perpetuity. This is the legal responsibility and obligation of Metro Air Park property owners (MAP). The MAP HCP includes provisions for maintaining water in the canal such that the basic habitat requirements of the giant garter snake are met. The MAP HCP also provides a road map, through “Changed Circumstances”, to address procedures to follow if water is not being maintained in the canal to meet these requirements. As described in the MAP HCP, the MAP is legally obligated to assure these requirements are met, and financial and procedural mechanisms are included in the MAP HCP to enforce this. It is, therefore, assumed that MAP will provide water to Lone Tree Canal, as required by the MAP HCP and ITP, in perpetuity. It is also assumed that USFWS will use all reasonable means available to it, to enforce this MAP HCP requirement. If water is not provided to Lone Tree Canal by the MAP to meet the habitat requirements of giant garter snake, as required by the MAP HCP, and USFWS exhausts its enforcement responsibilities, the project applicant shall assume the responsibility of providing suitable giant garter snake aquatic habitat throughout the section of Lone Tree Canal protected by the fence and conservation easement. However, as stated herein, the project applicant shall only assume this responsibility if it has been sufficiently demonstrated to the City that USFWS has exhausted all reasonable means to compel MAP to comply with the relevant conditions of the MAP ITP. Specific requirements related to ensuring suitable aquatic habitat in Lone Tree Canal is present, in perpetuity, throughout the giant garter snake active season shall be developed through consultation with DFG and USFWS, and included in the new or amended HCP for Greenbriar, and may include mechanisms, such as installation of a well, to assure water is provided in the canal to meet habitat requirements.
- e. A barrier shall be installed between the giant garter snake habitat linear open space/buffer area and the adjacent Greenbriar development to ensure that giant garter snakes do not enter the development area, and to prohibit humans and pets from entering the giant garter snake habitat. The design of this barrier shall be subject to USFWS and CDFG review and approval. The entire length of the barrier, which shall be bordered by yards rather than roadways, shall be maintained on the preserve side by a nonprofit land trust to ensure that vegetation or debris does not accumulate near the barrier and provide opportunities for wildlife and pets to climb over the barrier. On the development side, Covenants, Codes and Restrictions (CCRs) shall prohibit accumulation of vegetation or debris adjacent to the barrier. Chain link fencing shall be placed at both ends of the corridor, with locked gates permitting entry only by RD 1000 and NMWD for channel maintenance, and by the preserve manager for habitat monitoring and maintenance purposes.
- f. Specific requirements associated with the barrier shall be developed through consultation with USFWS and DFG, and may include the following and/or other specifications that DFG and USFWS consider to be equally or more effective:
 - ▶ Adequate height and below-ground depth to prevent snakes or burrowing mammals from providing a through-route for snakes by establishing burrows from one side to the other crossing;
 - ▶ Constructed using extruded concrete or block construction extending a minimum of 36-inches above ground level;

- ▶ Maintenance to repair the barrier and to prevent the establishment of vegetation or collection of debris that could provide snakes with a climbing surface allowing them to breach the barrier;
 - ▶ A cap or lip extending at least two-inches beyond the barrier's vertical edge to prevent snakes from gaining access along the barrier's top edge; and
 - ▶ Signage to discourage humans and their pets from entering the area.
- g. The Lone Tree Canal linear open space/buffer area shall be protected in perpetuity under a conservation easement and managed to sustain the value of this area for giant garter snake habitat connectivity. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports prepared. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP or following procedures developed in formal consultation with USFWS and DFG and contained in an ESA Incidental Take Permit for the Greenbriar project.

2. Off-site Habitat Preservation, Restoration, and Creation

- a. The project applicant shall preserve, restore, and manage giant garter snake habitat at two off-site locations identified as having high regional conservation value, and contributing to an interconnected regional reserve system as envisioned in the NBHCP. Off-site habitat preservation, restoration, and creation shall be implemented on the Sacramento County portion of the Spangler property ("Spangler Site") and the Natomas 130 parcel ("Natomas 130 Site") to ensure that implementation of the proposed project would result in no net loss of overall giant garter snake habitat value. The habitat shall be managed in perpetuity as high-quality habitat for giant garter snake. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports prepared. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP.

The Spangler Site is located in northern Sacramento County along the Sutter County line, northeast of the Sacramento Airport and west of SR 70/99 (Exhibit 6.12-4). This site is currently in irrigated rice. It is surrounded by agriculture (primarily rice) on all sides. Existing water channels provide potential habitat connectivity for giant garter snake between the Spangler Site and Lone Tree Canal. A minimum of 190 acres of managed marsh, including 55.2 acres of upland habitat, shall be created and preserved for giant garter snake on the Spangler Site. The 55.2 acres of upland habitat shall also serve as mitigation for impacts to Swainson's hawk described under Impact 6.12-2. To further reduce impacts to Swainson's hawk, a minimum 45.4 acres of high-quality Swainson's hawk foraging habitat (e.g., alfalfa) shall be created and managed on the Spangler Site, as further discussed below.

The North Natomas 130 Site is adjacent to the Natomas Basin Conservancy's Cummings preserve to the south, Fisherman's Lake to the east, rice land to the north, and the Sacramento River to the west. Because it is surrounded by compatible land uses and habitat expected to persist in the future, this site has long-term conservation value. The Natomas 130 Site provides potential habitat connectivity for giant garter snake to existing preserves and Lone Tree Canal via a series of water drainage and delivery channels. A minimum of 14.2 acres of managed marsh, including 4.3 acres of upland habitat, shall be created and preserved for giant garter snake on the North Natomas 130 Site. The 4.3 acres of upland habitat shall also serve as mitigation for impacts to Swainson's hawk described under Impact 6.12-2. To further reduce impacts to Swainson's hawk, 14.2 acres of high-quality foraging habitat shall be managed to provide Swainson's hawk foraging habitat on the North Natomas 130 Site. Habitat created and preserved on the North Natomas 130 Site shall also include 1.9 acres of riparian, which could provide potential nesting sites for Swainson's hawk.

- b. The off-site conservation lands shall be restored with giant garter snake habitat consisting of a mosaic of habitat types with variations in topography and an abundance of edges within and between habitat types. The managed marsh shall consist of seasonal marsh with shallow and deep water configurations,

permanent marsh, and upland habitats in the form of buffers, islands, and other high-ground habitats scattered throughout the marsh's wetland component. A significant portion of the upland component shall be above winter flood levels to protect giant garter snakes in their winter retreats. Vegetation shall be natural marsh vegetation such as cattails, spike rush, tule clumps, and thimbleberry, placed to maximize protected resting and basking sites and escape cover for the snakes.

3. On-site Avoidance and Minimization Measures

The measures described below shall be incorporated into the giant garter snake conservation strategy to avoid and minimize take of giant garter snakes during construction activities, including construction of managed marsh habitat:

- a. All grading activity within giant garter snake habitat (aquatic habitat and uplands within 200 feet of aquatic habitat) shall be restricted to a period between May 1 and October 1. Because this is during the snakes' active stage, it would allow snakes to actively move away from danger and thereby reduce chances of snake mortality. Additionally, this restriction is timed to avoid grading during the snakes' breeding, dispersal, fall foraging and over-wintering periods, when they are most vulnerable to disturbance. If grading cannot be scheduled between May 1 and October 1, the Applicant shall contact the USFWS to determine whether additional measures are necessary to avoid and/or minimize take of giant garter snake. Grading shall only occur during the period between October 2 and April 30 upon written USFWS approval.
- b. A qualified biologist with experience identifying giant garter snakes shall survey the construction area for giant garter snakes no more than 24 hours prior to the start of construction activities. If construction activities stop on the project site for a period of two weeks or more, a new giant garter snake survey shall be completed no more than 24 hours prior to the re-start of construction activities.
- c. Between April 15 and September 30, all irrigation ditches, canals, or other aquatic habitat within the construction area shall be completely dewatered, with no ponded water remaining, for at least 15 consecutive days prior to the excavation or filling in of the dewatered habitat. The purpose of dewatering the aquatic habitat prior to filling is to compel giant garter snakes to leave the area on their own. A qualified biological monitor shall ensure that dewatered habitat does not continue to support giant garter snake prey, which could attract snakes into the area. Netting and salvage of prey may be necessary if a site cannot be completely dewatered.
- d. Construction activity shall be avoided within the approximately 250-foot Lone Tree Canal linear open space/buffer area, except for the purpose of habitat restoration activities carried out under the direction of a qualified biological monitor with experience identifying giant garter snakes. To minimize habitat disturbance during construction of the urban development, the approximate 250-foot wide corridor shall be bordered on the outer edge with exclusionary fencing that shall prevent giant garter snakes from entering the construction area, but shall allow any giant garter snakes within the construction area, that may have otherwise been trapped, to cross into the canal corridor. Movement of heavy equipment associated with construction of the urban development shall be restricted to the construction area outside the corridor, except for approved restoration activity within the corridor.
- e. Clearing and grading shall be confined to the minimum area necessary to facilitate construction activities as determined by a qualified biologist. Habitat that will be avoided shall be cordoned off, clearly flagged, and designated as an "Environmentally Sensitive Area" by a qualified biologist. An exclusion fence shall be erected between the development area and the Lone Tree Canal linear open space/buffer area prior to and during construction to prevent giant garter snake entry into the construction zone. The fence shall be erected prior to the onset of the dormant season preceding construction when giant garter snakes are less likely to occupy upland retreats on the project site. The interior or project side of the

exclusion fence shall be routinely monitored for giant garter snakes stranded by the fence. Snakes encountered should be relocated to the nearest suitable habitat off-site by a qualified biologist.

- f. All construction personnel shall receive worker environmental awareness training from a USFWS-approved biologist prior to commencing any construction-related activities on the project site. This training shall instruct workers on how to identify the giant garter snake and its habitat, and what to do if a giant garter snake is encountered during construction activities.
- g. A USFWS-approved biological monitor shall be present during grading activities within 200 feet of aquatic giant garter snake habitat to ensure that construction activities do not encroach into unauthorized areas. If a live giant garter snake is found during construction activities, the biological monitor shall immediately notify USFWS. The biological monitor shall have the authority to stop construction in the vicinity of the snake. The snake shall be monitored and given a chance to leave the area on its own. If the snake does not show signs of leaving, then the biological monitor shall slowly move toward the snake to flush it toward adjacent habitat away from the construction area. Potential escape routes for giant garter snakes shall be determined in advance of construction. If the garter snake does not leave on its own within 1 working day, the biological monitor shall consult with the USFWS to determine necessary additional measures. Any giant garter snake mortality shall also be reported by the biological monitor within 1 working day to USFWS. Any project-related activity that results in giant garter snake mortality shall cease so that this activity can be modified to the extent practicable to avoid future mortality.
- h. Upon completion of construction activities, construction debris shall be completely removed from the site. If this material is situated near existing giant garter snake aquatic habitat, it shall be inspected by a qualified biologist prior to removal to assure that giant garter snakes are not using it for hibernaculae or temporary refuge.
- i. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes shall be placed on a project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutions include coconut coir matting, tactified hydroseeding compounds, or other material approved by DFG and USFWS.

Significance After Mitigation

Implementation of Mitigation Measure 6.12-1 would reduce impacts to giant garter snake and its habitat to a ***less-than-significant*** level. With mitigation incorporated, the project would not adversely affect the giant garter snake. The proposed mitigation would include preservation and creation of 234.8 acres of giant garter snake habitat. On-site mitigation would include creation, protection, and management of 27.9 acres of suitable uplands and 2.7 acres of suitable aquatic habitat, within a 250-foot wide linear open space/buffer along Lone Tree Canal. In addition, permanent and temporary impacts to 58.75 acres of giant garter snake habitat on-site would be offset by the increased habitat quality resulting from the creation and preservation of 144.7 acres of managed marsh and 59.5 acres of suitable upland habitat off-site. Habitat connectivity would not be diminished and could be enhanced along Lone Tree Canal through assuring adequate surface water is present in the canal and creation of a 2.7-acre tule bench along the west bank of the canal. In addition, the on-site avoidance and minimization measures would minimize the potential for direct harm of individuals. Any take of giant garter snake would require prior approval by DFG and USFWS in compliance with CESA and ESA.

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| IMPACT 6.12-2 |
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Effects to Swainson's Hawk. *Implementation of the proposed project would result in the permanent removal of approximately 546 acres of potential Swainson's hawk foraging habitat on-site and could disturb nesting in the vicinity of the project site. This impact would be **significant**.*

No Swainson's hawks have been observed or detected on-site, and no suitable nesting sites are present. However, in 2004, a total of 5 nests were located within one mile of the Greenbriar site, two of which were active (Natomas Basin Conservancy 2004). The project site includes an estimated 546 acres of potential Swainson's hawk foraging habitat that could be affected. In 2005, 115 acres of idle agricultural land on the project site was considered moderate-quality foraging habitat. The balance of the site, approximately 431 acres, was wheat fields, disturbed uplands, and seasonal wetlands, which are considered low-quality foraging habitat.

The project would substantially reduce the acreage of Swainson's hawk foraging habitat in the Natomas Basin. Although no focused surveys have been conducted to determine the importance of the project site as foraging habitat for Swainson's hawks nesting in the project vicinity, it is assumed that because the site was used for growing wheat in 2005, Swainson's hawk foraging is limited to field edges with the exception of during, and soon after, harvesting. Therefore, the project site is not likely to provide important foraging habitat during much of the Swainson's hawk nesting period. Based on 2005 site conditions and the absence of any active nests on the project site, it is not expected that loss of this foraging habitat alone would result in lower reproduction success at any of the active Swainson's hawk nesting sites in the Natomas Basin. However, the cumulative loss of Swainson's hawk foraging habitat in the basin could result in fewer Swainson's hawks nesting pairs in the future. Although no Swainson's hawk nests are known within one-half mile of the project site, should a nest become active near the site prior to development, construction activities associated with the project could result in the disturbance of nesting pairs in trees near the project site, potentially resulting in nest abandonment and mortality of chicks and eggs. This loss of foraging habitat and potential impacts to nesting Swainson's hawks in the project vicinity would be *significant*.

Mitigation Measure 6.12-2: (City of Sacramento and LAFCo)

- a. The project applicant shall implement Mitigation Measure 6.12-1. The project shall include a conservation strategy which shall be designed to include avoidance, minimization and compensation measures that are adequate to assure that the proposed project shall not compromise the effectiveness of the NBHCP. Implementation of this mitigation measure would require preservation of 27.9 acres of on-site managed grassland within the Lone Tree Canal linear open space/buffer area, which would provide low-quality Swainson's hawk foraging habitat, and would require off-site habitat at several locations. Off-site mitigation for impacts to Swainson's hawk foraging habitat on the Spangler Site would include creation and management of 55.2 acres of upland habitat that would provide moderate-quality foraging habitat, and creation and management of 45.4 acres of high-quality foraging habitat. Off-site mitigation on the North Natomas 130 Site would include creation and preservation of 4.3 acres of moderate-quality foraging habitat and 14.2 acres of high-quality foraging habitat. Off-site mitigation at the North Natomas 130 site also includes creation and preservation of 1.9 acres of riparian habitat that could provide potential nesting sites for Swainson's hawks.

In addition to creation and management of foraging habitat provided by Mitigation Measure 6.12-1, the project applicant shall acquire a minimum of 49 acres of land enhanced and managed to provide high-quality foraging habitat so that the cumulative value of on-site and off-site habitat is of equal or greater value to Swainson's hawk than that lost through project development. Swainson's hawk habitat acquired off-site shall either be located within 1 mile of the Swainson's hawk zone or an existing TNBC reserve, or, with USFWS and DFG concurrence, within two miles of more than one active Swainson's hawk nests.

Thus, in total, 27.9 acres of low-quality, 59.5 acres of moderate-quality, 108.6 acres (including the additional 49 acres referenced above) of high-quality, and 1.9 acres of potential nesting habitat would be provided as mitigation for the loss of approximately 546 acres of low- and moderate-quality foraging habitat.

The totals described above represent the acreage, of the quality described, likely to mitigate the loss of habitat value associated with the proposed project. This represents potential acreage within a range that could be used to mitigate loss of habitat value. Acquired and preserved acreage could range up to a replacement of 1:1 (or higher) ratio, if needed to replace lost habitat value. Alternatively, a lesser acreage that is enhanced and managed as high-quality foraging habitat (e.g., alfalfa) for Swainson's hawk in perpetuity, as proposed herein, would be acceptable provided that USFWS and DFG concur that, with the replacement habitat, the project would provide equal or greater value to the species than would the foraging habitat present at the project site. Compliance and biological effectiveness monitoring shall be performed and annual monitoring reports shall be prepared. This monitoring, reporting, and adaptive management shall be performed as described in Section IV of the NBHCP.

- b. In addition, the following avoidance and minimization measures shall be implemented:
1. Pre-construction surveys shall be conducted for Swainson's hawk and other raptors no more than 14 days and no less than 7 days prior to the beginning of any construction activity between March 15 and August 15. The survey area shall include all potential nesting sites located within ½ mile of the project and mitigation-sites
 2. Should nesting be discovered within the survey area, a qualified biologist shall notify DFG and no new disturbance shall occur within ½ mile of the nest until the nest is no longer active or appropriate avoidance measures are approved by DFG to ensure that the nest is adequately protected. Potential mitigation measures may include visual screening and timing restrictions for construction activity. Monitoring (funded by the project applicant) of active nests by a DFG-approved raptor biologist shall be required to determine if project construction is disturbing Swainson's hawks at the nest site. Exact implementation of this measure shall be based on specific information at the project site.

Significance After Mitigation

Implementation of Mitigation Measure 6.12-2 would reduce impacts to Swainson's hawk and its habitat to a less-than-significant level, because the combination of on-site habitat creation and preservation, and off-site habitat acquisition and preservation would provide greater or equal habitat value to the species. As proposed, an estimated 115 acres of moderate-quality and 431 acres of low-quality foraging habitat would be removed by the project. With mitigation incorporated, the project would provide 27.9 acres of on-site low-quality foraging habitat for Swainson's hawk. Off-site mitigation would include creation and preservation of a minimum of 59.5 acres of moderate-quality, and 108.6 acres of high-quality, foraging habitat. This replacement of overall higher quality acreage would be expected to provide as rich a food source and other attributes such that overall habitat value is replaced. In addition, the effect of construction-related activities on Swainson's hawks that could nest in the project vicinity would be reduced to a less-than-significant level through implementation of avoidance and minimization measures. With the implementation of these measures, this impact would be reduced to a **less-than-significant** level because adequate replacement habitat would be provided for Swainson's hawk that could forage on the project site.

**IMPACT
6.12-3**

Loss and Degradation of Wetlands and Waters of the United States. *Implementation of the proposed project would result in fill of jurisdictional waters of the United States, including wetlands subject to USACE jurisdiction under the federal Clean Water Act, and the potential loss and degradation of isolated wetland habitats protected under state regulations. Placement of fill in these waters would require a Section 404 permit from USACE and compliance with Porter-Cologne and Section 401 of the Clean Water Act, and Section 1600 of the California Fish and Game Code. This impact would be **significant**.*

Foothill Associates identified 25.95 acres of wetlands on the project site (Foothill Associates 2006) and determined that 14.15 acres met the USACE jurisdictional definition of waters of the

United jurisdictional. An additional 8.56 acres of features were reviewed at the request of the USACE. These areas were determined by Foothill to be uplands based on an absence of wetland hydrology and therefore would not be subject to USACE jurisdiction. The delineation prepared by Foothill has not been verified by USACE; therefore, these figures are subject to change. If the USACE reaches different conclusions regarding the 11.80 acres of isolated wetlands and 8.56 upland acres presumed non-jurisdictional then it could exercise jurisdiction over up to 34.51 acres on the project site.

Implementation of the proposed project likely would result in the loss of 14.15 acres of jurisdictional wetlands, including 9.43 acres of farmed wetlands, 1.34 acres of seasonal marsh, and 3.38 acres of ditch/canal. In addition, the project could result in the fill of up to 11.80 acres of isolated wetlands that are presumed non-jurisdictional. While isolated wetlands are not subject to USACE jurisdiction, they are considered sensitive because they can provide potential habitat for special-status species and important ecological values and functions.

Though the non-jurisdictional isolated wetlands on the project site have no particular ecological value for species covered by the state and federal ESAs, they perform functions for water quality and stormwater detention. Prior to conversion to wheat, the functions and values of these features were indistinguishable from the former rice fields. Because they are now isolated within the wheat fields, they have marginal value and provide minimal habitat value for protected species or special-status plants. Isolated wetlands on the site may be considered to be waters of the State subject to the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB) under the State's Porter Cologne Act.

While a loss of wetlands would occur, wetlands associated with Lone Tree Canal would be protected as part of the giant garter snake habitat conservation area described under Mitigation Measure 6.12-1. The managed marsh habitat provided for the giant garter snake will compensate for this loss and contribute to improved water quality.

Potentially significant secondary (indirect) effects of the proposed project on wetlands resulting from increased urbanization and population include reduction in water quality caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals into the Lone Tree Canal linear open space/buffer area and off-site wetlands; and introduction of invasive plant species that could result in habitat degradation. This would be a *significant* impact.

Mitigation Measure 6.12-3: (City of Sacramento and LAFCo)

- a. The project applicant shall implement Mitigation Measure 6.12-1 to avoid impacts to waters of the United States and wetlands associated with Lone Tree Canal.
- b. Prior to project approval, the project applicant shall obtain a verified wetland delineation from USACE. Based on the results of the verified delineation, the project applicant shall commit to replace, restore, or enhance on a "no net loss" basis, in accordance with USACE and the Central Valley RWQCB, as appropriate for each agency's jurisdiction, the acreage of all waters of the United States and wetland habitats, including isolated wetlands that would be removed with implementation of the project. Wetland restoration, enhancement, and/or replacement shall be at a location and by methods acceptable to the USACE, DFG, and Central Valley RWQCB, as determined during the Section 404, Section 1600, and Section 401 permitting processes.
- c. In conjunction with preparation and implementation of the giant garter snake mitigation described under Mitigation Measure 6.12-1, the project applicant shall prepare and submit a habitat mitigation and monitoring plan to USACE for the creation of jurisdictional waters at a mitigation ratio no less than 1:1 acres of created water of the United States, including wetlands, to each acre filled. The mitigation plans shall

demonstrate how the USACE criteria for jurisdictional waters will be met through implementation. Wetland mitigation achieved through implementation of Mitigation Measure 6.12-1 can satisfy this mitigation measure if conducted in such a way that it meets both habitat function and the USACE criteria for creation of waters of the United States. The wetland creation section of the habitat mitigation and monitoring plan shall include the following:

- ▶ target areas for creation,
 - ▶ a complete biological assessment of the existing resources on the target areas,
 - ▶ specific creation and restoration plans for each target area,
 - ▶ performance standards for success that will illustrate that the compensation ratios are met, and
 - ▶ a monitoring plan including schedule and annual report format.
- d. The project applicant shall secure the following permits and regulatory approvals, as necessary, and implement all permit conditions before implementation of any construction activities associated with the proposed project:
1. Authorization for the fill of jurisdictional waters of the United States shall be secured prior to placing any fill in jurisdictional wetlands from the USACE through the CWA Section 404 permitting process. Timing for compliance with the specific conditions of the 404 permit shall be per conditions specified by the USACE as part of permit issuance. It is expected that the project would require an individual permit because wetland impacts would total more than 0.5 acre. In its final stage and once approved by the USACE, this mitigation plan is expected to detail proposed wetland restoration, enhancement, and/or replacement activities that would ensure no net loss of jurisdictional wetlands function and values in the project vicinity. As required by Section 404, approval and implementation of the wetland mitigation and monitoring plan shall ensure no net loss of jurisdictional waters of the United States, including jurisdictional wetlands. Mitigation for impacts to isolated wetlands shall be included in the same mitigation plan. All mitigation requirements identified through this process shall be implemented before construction begins in any areas containing wetland features.
 2. Prior to construction in any areas containing wetland features, the project applicant shall obtain water quality certification pursuant to Section 401 of the Clean Water Act for the project. Any measures required as part of the issuance of water quality certification shall be implemented.
 3. The project applicant shall obtain a Streambed Alteration Agreement under Section 1600 et seq. of the California Fish & Game Code for impacts to Waters of the State as defined under Section 1602 of the California Fish & Game Code.
 4. The project applicant shall file a report of waste discharge with the Central Valley RWQCB for activities affecting waters of the state. For other mitigation measures aimed at maintaining water quality, including obtaining National Pollutant Discharge Elimination System (NPDES) permits, see Mitigation Measure 6.10-1 in “Hydrology, Drainage and Water Quality.”

Significance After Mitigation

With the implementation of these measures, impacts on waters of the United States, including wetlands, would be ***less than significant*** because no net loss of jurisdictional wetlands would occur, and compliance with state and federal statutes protecting wetland would be achieved.

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| IMPACT 6.12-4 |
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Disturbance or Removal of Special-status Plant Species. *Implementation of the proposed project could result in the disturbance or loss of Delta tule pea and Sanford's arrowhead. Delta tule-pea and Sanford's arrowhead could be present in the freshwater marsh habitat within the wetland habitats on the project site. The potential loss of a special-status plant population would be considered a **potentially significant** impact.*

No special-status plant occurrences have been reported on the project site; however, the potential for their occurrence on the project site cannot be dismissed because protocol-level surveys have not been conducted and suitable habitat is present. Implementation of the project could result in the loss or disturbance of freshwater marsh habitat that could support special-status plant species. Disturbance or removal of Delta tule pea or Sanford's arrowhead plants would be considered a potentially significant impact.

Mitigation Measure 6.12-4: (City of Sacramento and LAFCo)

- a. Before the initiation of any ground-disturbing or vegetation-clearing activities, the project applicant shall retain a qualified botanist to conduct focused surveys in the project area for Delta tule pea and Sanford's arrowhead. The botanist shall conduct surveys for these special-status plant species at the appropriate time of year when the target species would be in flower, and therefore, clearly identifiable Surveys shall be conducted following the approved DFG protocol for surveying for special-status plant species.
- b. If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter report to USFWS, DFG, and CNPS and no further mitigation shall be required.
- c. If special-status plant populations are found, the project applicant shall consult with the DFG to determine the appropriate mitigation measures for any population that may be affected by the project. Mitigation measures may include creation of off-site populations on project mitigation sites, through seed collection or transplanting, preserving and enhancing existing populations, or restoring or creating suitable habitat in sufficient quantities to compensate for the impact.

Significance After Mitigation

Implementation of the above mitigation measures would require focused surveys for special-status plants, and implementing measures to avoid and minimize any special-status plant populations identified on the project site, and would reduce impacts to special-status plant to a *less-than-significant* level.

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| IMPACT 6.12-5 |
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Modifications to Burrowing Owl Habitat. *Implementation of the proposed project could result in the loss of burrowing owl habitat or active burrows. This would be a potentially significant impact.*

An individual burrowing owl was observed on the project site during both March and September 2005 surveys. Burrowing owls and their nests are protected under Section 3503.5 of California Fish and Game Code. The proposed project could result in the removal or disturbance of a potentially active owl burrow or active nest site. Therefore, the project would result in a potentially significant impact to burrowing owl.

Mitigation Measure 6.12-5: (City of Sacramento and LAFCo)

- a. No more than 30 days and no less than 14 day prior to project site grading, a qualified biologist shall conduct focused surveys for burrowing owls in areas of suitable habitat on and within 300 feet of the project site. Surveys shall be conducted in accordance with DFG protocol (DFG 1995).
- b. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to DFG, and no further mitigation is necessary.
- c. If occupied burrows are found in the survey area, impacts shall be avoided by establishing a buffer of 165 feet during the non-breeding season (September 1 through January 31) or 300 feet during the breeding season (February 1 through August 31). The size of the buffer area may be adjusted if a qualified biologist and DFG determine it would not be likely to have adverse effects. No project activity shall commence within

the buffer area until a qualified biologist confirms that the burrow is no longer occupied. If the burrow is occupied by a nesting pair, a minimum of 6.5 acres of foraging habitat contiguous to the burrow shall be preserved until the breeding season is over.

- d. If impacts to occupied burrows are unavoidable, on-site passive relocation techniques may be used if approved by DFG to encourage owls to move to alternative burrows outside of the impact area. However, no occupied burrows shall be disturbed during the nesting season unless a qualified biologist verifies through non-invasive methods that the burrow is no longer occupied. Foraging habitat for relocated pairs shall be provided in accordance with guidelines provided by DFG (1995). DFG guidelines recommend a minimum of 6.5 acres of foraging habitat per pair or unpaired resident bird, be acquired and permanently protected.
- e. If relocation of the owls is approved for the site by DFG, the developer shall hire a qualified biologist to prepare a plan for relocating the owls to a suitable site. The relocation plan must include: (a) the location of the nest and owls proposed for relocation; (b) the location of the proposed relocation-site; (c) the number of owls involved and the time of year when the relocation is proposed to take place; (d) the name and credentials of the biologist who will be retained to supervise the relocation; (e) the proposed method of capture and transport for the owls to the new site; (f) a description of the site preparations at the relocation-site (e.g., enhancement of existing burrows, creation of artificial burrows, one-time or long-term vegetation control, etc.); and (g) a description of efforts and funding support proposed to monitor the relocation. Relocation options may include passive relocation to another area of the site not subject to disturbance through one way doors on burrow openings, or construction of artificial burrows in accordance DFG guidelines.
- f. The project applicant shall implement Mitigation Measure 6.12-2 to mitigate for the loss of burrowing owl foraging habitat.

Significance After Mitigation

Implementation of the above mitigation measures would avoid impacts to nesting burrowing owls and compensate for the loss of foraging habitat. Therefore, impacts on burrowing owl would be reduced to a *less-than-significant* level.

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| IMPACT 6.12-6 |
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Effects to Northwestern Pond Turtle. *Uplands and aquatic habitat on the project site suitable for giant garter snake is also considered potential habitat for northwestern pond turtle. Therefore, 55.56 acres of potential upland and aquatic habitat for western pond turtle would be permanently lost, 3.31 acres of upland and aquatic northwestern pond turtle habitat would be temporarily affected. The value of all northwestern pond turtle habitat on the project site is considered low because of insufficient water and the lack of emergent marsh vegetation in the excavated channels on the project site. However, Lone Tree canal and other areas that have the potential to support surface water of sufficient depths provide suitable habitat for this species. This impact would be **potentially significant**.*

The project area functions as a potential feeding, breeding, and rearing habitat, as well as a movement corridor for northwestern pond turtle. Although no western pond turtles have been observed or detected on-site, documented sightings of the western pond turtle within 5 miles of the site and the conditions present on-site indicate that Lone Tree Canal and hydrologically connected areas that support surface water of sufficient depths could be used by pond turtles during most life stages.

Following project development, western pond turtles could continue to use the site as a movement corridor between higher quality habitats to the north and south of the site. However, turtles traveling through the Lone Tree Canal or inhabiting other canals and wetlands downstream from the proposed development could be adversely affected by residential development through increased predation, disturbance and degradation of aquatic habitat.

Because the project could disturb areas that could potentially support and/or provide habitat for northwestern pond turtle, this impact would be *potentially significant*.

Mitigation Measure 6.12-6: (City of Sacramento and LAFCo)

- a. The project applicant shall implement Mitigation Measure 6.12-1.
- b. Construction personnel shall participate in a worker environmental awareness program. Under this program, workers shall be informed about the potential presence of western pond turtles in the construction area, and shall be provided guidance on appropriate steps to take if a pond turtle is encountered during project construction.
- c. Within 24 hours prior to commencement of construction activities, the site shall be inspected for turtles by a qualified biologist. The construction area shall be re-inspected whenever a lapse in construction activity of two weeks or greater has occurred.
- d. If a turtle is encountered on the project site, any construction activity that could result in harm of the turtle shall immediately cease and shall not resume until the monitoring biologist has determined that the turtle has moved away from the construction-site on their own volition or a qualified biologist has moved the turtle to a safe location.

Significance After Mitigation

Implementation of Mitigation Measure 6.12-6 would fully compensate for the loss of northwestern pond turtle habitat by provide on-site and off-site habitat that is of equal or greater value to the species, and by minimize the potential for harm that could result from construction activities, therefore, this impact would be reduced to a *less-than-significant* level.

**IMPACT
6.12-7**

Local Tree Protection Ordinance. The project would not result in the loss of any protected trees; therefore, no impact would occur.

There are no trees on the project site that qualify for protection under the County or City tree preservation ordinances. In addition, the project site is located outside the boundaries covered by these ordinances. Therefore, *no impact* to protected trees would occur.

No mitigation measures are required.

**IMPACT
6.12-8**

Potential Loss of Loggerhead Shrike Nests. Shrubs and weedy vegetation on the project site provide potential nesting habitat for the loggerhead shrike. This species has been observed on the project site. The loss of an active loggerhead shrike nest would be a potentially significant impact.

Loggerhead shrike, a California Species of Special Concern, is a relatively common species in the Natomas Basin. This species typically nests in dense shrubs and trees. The preferred nesting habitat for this species is not present on the project site, but small trees and shrubs, and tall weedy areas are considered marginal potential nesting habitat. Loggerhead shrikes have been observed on the project site, but no nests have been found. The potential loss of an active loggerhead shrike nest would be considered a *potentially significant* impact.

Mitigation Measure 6.12-8: (City of Sacramento and LAFCo)

If initiation of site grading is proposed during the loggerhead shrike nesting season (March 1 to July 31), a qualified biologist shall conduct a focused surveys for loggerhead shrikes in areas of suitable habitat on and within 300 feet of the project site. The survey shall be conducted no more than 30 days and no less than 14 days prior to the start of grading. If surveys identify an active loggerhead shrike nest in the survey area, the applicant shall install brightly colored construction fencing that establishes a boundary 100 feet from the active nest. No disturbance associated with the proposed project shall occur within the 100-foot fenced area during the nesting season of March 1 through July 31 or until a qualified biologist has determine that the young have fledged or that the nest is no longer occupied prior to disturbance of the nest site.

Significance After Mitigation

Implementation of Mitigation Measure 6.12-8 would ensure that any active loggerhead shrike nests on the project site would be adequately protected; therefore this impact would be reduced to a *less-than-significant* level.

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| IMPACT 6.12-9 |
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Potential to Conflict with the Natomas Basin Habitat Conservation Plan. *The project with the proposed mitigation for impacts to giant garter snake and Swainson's hawk (Mitigation Measures 6.12-1 and 6.12-2) would not reduce the viability of populations of covered species using the Natomas Basin and would not reduce the effectiveness of the conservation strategy of the NBHCP. It also would have only minimal effects on the likelihood of attaining any of the goals and objectives of the NBHCP, and for most of these goals and objectives the overall effect would be neutral or beneficial. Therefore, with proposed mitigation, this impact would be less than significant.*

For each of the goals and objectives on the NBHCP, for the population viability of covered species, and the conservation strategy of the NBHCP, attributes by which the project could affect the goal, objective, covered species, or conservation strategy were evaluated by EDAW (Appendix P). For goals and objectives, these attributes included effects on zones with human-wildlife conflicts (i.e., areas adjacent to developed lands and roads), habitat acreage, habitat connectivity, habitat value, water availability at and connectivity of existing TNBC reserves, opportunities to establish additional TNBC reserves, and construction-related effects on survival and reproduction. For covered species, mechanisms included construction-related effects, effects on human-wildlife conflicts, and effects on the quantity and quality of habitat.

The project includes development of approximately 546 acres (total project site less open space corridor along Lone Tree Canal). Mitigation proposed as part of mitigation measure 6.12-1 for impacts to giant garter snake would preserve and enhance approximately 30.6 acres along Lone Tree Canal, and would preserve and enhance 265.8 acres of habitat at off-site reserves. In the analysis of effects on the NBHCP (Appendix P), it was assumed that to mitigate impacts to Swainson's hawk foraging habitat under Impact 6.12-2, at least an additional 49 acres of land should be preserved and managed to provide high quality Swainson's hawk foraging habitat. (This analysis used a minimum value to avoid overestimating benefits of this mitigation for other covered species.) Therefore, the project, with the proposed mitigation, would preserve 345 acres of habitat for giant garter snake and Swainson's hawk. Most of this preserved habitat would be created or enhanced as part of the project, and all of it would be managed in perpetuity for its habitat values. The project also includes avoidance and minimization measures, both to avoid and minimize construction-related effects and to avoid and minimize effects on the potential for giant garter snake use of Lone Tree Canal.

The project and proposed mitigation would cause both adverse and beneficial effects on covered species and the TNBC reserve system. The project's beneficial effects would result from the proposed reserves and include increased habitat quality resulting from the creation, enhancement, preservation, and management of habitat, increased connectivity of existing TNBC reserves and of habitats, and increased opportunities to establish additional TNBC reserves. The project's adverse effects would include a reduction in the acreage of upland and wetland habitats in the Natomas Basin, reduced Swainson's hawk foraging habitat within a mile of an existing TNBC reserve, fragmented upland habitats in the vicinity of the Greenbriar site, degraded habitat quality on and potential conflicts with continued agricultural use of adjacent lands to the north of the site, and possibly reduced connectivity along Lone Tree Canal (despite preserving and enhancing a corridor of habitat along the canal).

The proposed mitigation would reduce the project's adverse effects by implementing additional measures to ensure that connectivity along Lone Tree Canal would be retained, and preserving and enhancing foraging habitat within a mile of existing TNBC reserve(s) (or within 1 mile of the Swainson's hawk zone along the Sacramento River). This mitigation also would create additional beneficial effects because the preserved and enhanced foraging habitat would not only mitigate effects on TNBC reserves, but also could increase connectivity of habitat and of TNBC reserves in accordance with the NBHCP's fundamental goal for the establishment and management of a biologically sound and interconnected habitat reserve system. Similarly, by ensuring that connectivity along Lone Tree Canal would be maintained in the long-term, the project (with proposed mitigation) would conserve a portion of an important corridor connecting reserves and habitats of the southern and central Natomas Basin. (The connectivity of upland habitats, however, would still be reduced at the project site.)

Because the project would develop land located outside of the NBHCP's permit areas for urban development, it could cause different types and magnitudes of effects from those caused by a comparable project inside of the areas permitted for development by the NBHCP; thus, the project's avoidance and minimization measures, and its mitigation, could be consistent with the measures and mitigation required by the NBHCP and yet the project could still reduce the likelihood of persistence in the Natomas Basin of populations of covered species, compromise the effectiveness of the conservation strategy of the NBHCP, or otherwise detrimentally affect attainment of the NBHCP's goals and objectives.

Therefore, the project's effects on the NBHCP were not based solely on the project's consistency with the avoidance, minimization, and mitigation measures of the NBHCP, but rather were based primarily on the sum of anticipated effects on the viability of populations of covered species using the Natomas Basin, on the effectiveness of the NBHCP's conservation strategy, and on attainment of the goals and objectives of the NBHCP. Each of these potential effects is summarized in the following sections.

To evaluate the proposed project's effects on the NBHCP, the effects analysis used the 2001 land cover data that represents baseline conditions of the NBHCP. Consequently, the habitat acreages in the following text are based on 2001 conditions. (In evaluating potential effects on the effectiveness of the NBHCP, 2005 conditions were also considered.)

Effect on Population Viability of Covered Species

The project would not affect five of the 15 animal species covered by the NBHCP: California tiger salamander, western spadefoot toad, vernal pool fairy shrimp, vernal pool tadpole shrimp, and midvalley fairy shrimp. None of these vernal pool-associated species are known to occur in

the vicinity of the project site or proposed reserve sites, nor does suitable habitat occur in the vicinity of these sites.

The project is also unlikely to affect valley elderberry longhorn beetle (VELB) because VELB is not known to occur in the vicinity of the Greenbriar or proposed reserve sites, and riparian habitat that might contain elderberry bushes is only present at and in the vicinity of the proposed Natomas 130 reserve.

The project would cause a variety of beneficial and adverse effects on populations of nine species covered by the NBHCP. For these species, the overall effect on population viability is summarized below.

Three of these species are birds that do not nest in the Natomas Basin but forage in the Basin in winter or during migration: Aleutian Canada goose, white-faced ibis, and bank swallow. Based on 2001 land cover, the project (with proposed mitigation) would decrease the acreage of foraging habitat available for these species in the Natomas Basin by 1–3% and would preserve and enhance 0–2% of the foraging habitat in the Basin. Because the size of these populations is not limited by the availability of foraging habitat in winter, or during migration, and the project would not substantially alter the availability of such foraging habitat, the project's effect on foraging habitat would not be expected to alter the viability of these populations. The project would also increase the acreage of nesting habitat for white-faced ibis, and this could increase the likelihood of white-faced ibis establishing a nesting colony in the Natomas Basin; while not discounted, this effect was not considered likely.

The project would cause both adverse and beneficial effects on burrowing owl and loggerhead shrike populations in the Natomas Basin, but effects due to the project would be insufficient to alter the viability of these populations. Though the project would preserve approximately 345 and 141 acres of shrike and owl habitat, respectively, these beneficial effects might not fully offset the project's adverse effects on these species. Adverse effects would include a net loss of 141 acres for the shrike, and for both species a loss of occupied habitat, habitat fragmentation, and potential increased mortality and habitat degradation adjacent to the project site. However, the project's effects would be small relative to the quantity of habitat that would remain in the Natomas Basin (for example, the project would eliminate 1% of shrike habitat), and the Natomas Basin represents only a small portion of the habitat for and population of these species in the Central Valley; thus, the project is unlikely to measurably reduce the viability of the loggerhead shrike and burrowing owl populations using the Natomas Basin.

The project (with the mitigation proposed by the City) could cause a small adverse effect on tricolored blackbird use of the Natomas Basin, but in either case this effect is unlikely to alter the viability of the tricolored blackbird population using the Natomas Basin. The Greenbriar project would increase the quantity of nesting habitat in the Natomas Basin (by 201 acres or about 9%), but would decrease the quantity of foraging habitat (by 598 acres or about 3%). This loss of foraging habitat would be partially (but not fully) offset by the preservation and enhancement of 135 acres of foraging habitat (at the mitigation sites described above). Although currently, nesting habitat is more limited than foraging habitat in the Natomas Basin, under the future condition more nesting habitat would exist, and thus the additional nesting habitat that would be provided by the project may not affect the tricolored blackbird population more than the loss of foraging habitat that would also result. However, because the project would only cause a small beneficial or adverse effect on tricolored blackbird use of the Natomas Basin, and because the Natomas Basin accounts for only a small portion of the habitat and population of

tricolored blackbird in the Central Valley, the project is unlikely to alter the viability of the tricolored blackbird population using the Natomas Basin.

The project (with the proposed mitigation) would result in both adverse and beneficial effects on the Swainson's hawk population nesting and foraging in the Natomas Basin, but these effects would be insufficient to alter the population's viability. Adverse effects would include a reduction in the total acreage of foraging habitat under the future condition (by 222 acres or 2%), fragmentation, and possibly degradation of habitat near the project site, and a reduction in habitat available to hawks nesting at reserves near the project site. Beneficial effects would include an overall increase in the acreage of high quality habitat, and preserved and enhanced habitat within a mile of TNBC reserves, and potential enhancement to the connectivity of foraging habitat adjacent to the mitigation-site(s) required by mitigation measure 6.12-2. Overall, the project would have a neutral or beneficial effect, but the effect would be too small to alter the viability of the population using the Natomas Basin. This interpretation is based on the USFWS interpretation of effects on Swainson's hawk due to the NBHCP (USFWS 2003). Based on the methods used by CH2M Hill (2003) to evaluate availability of foraging habitat during the nesting period, the enhancement of habitat at the proposed reserves and mitigation-sites would increase the availability of foraging habitat during April–August to a level greater than the 2001 baseline of the NBHCP. Based on an alternative analysis developed by EDAW, during April–June, the increase in foraging habitat values at the proposed reserve and mitigation sites would be greater than the 2001 habitat values lost by development at the Greenbriar site; during July–August, foraging values would not be fully offset, but foraging habitat values would be higher within the Natomas Basin as a whole at this time because of the harvesting of crops. Thus, based on these analyses, the project would not be expected to reduce the number of hawks nesting in the Natomas Basin or their reproductive success.

The project would cause both adverse and beneficial effects on the populations of giant garter snake and northwestern pond turtle that use canals, wetlands, and rice in the Natomas Basin. Overall, the project would not adversely affect these populations. Beneficial effects would include creating, enhancing, and preserving habitat at the reserve sites, enhancing and preserving a 250-foot wide corridor along a portion of Lone Tree Canal, and contributing to the enhanced connectivity of habitat and existing TNBC reserves adjacent to or near the proposed reserves. Adverse effects would include a reduction in the total acreage of habitat by 204 acres (based on 2001 land cover), possible degradation of habitat near the project site and reduced connectivity along Lone Tree Canal due to increased human disturbance and predation (which would result from narrowing the corridor of land along Lone Tree Canal, and placing residential development adjacent to the canal). The mitigation recommended for the project (Mitigation Measures 6.12-1) would reduce these adverse effects and ensure that connectivity of giant garter snake habitat was conserved along Lone Tree Canal at the Greenbriar site. For example, to minimize risks to connectivity due to human disturbance and predation, the recommended mitigation would require the construction of fencing and barriers.

The loss of habitat acreage would be offset by the increased habitat quality resulting from the preservation of habitat and conversion of rice to marsh. The project (with the recommended mitigation) would conserve connectivity and habitat for giant garter snake along the affected section of Lone Tree Canal, which is an important waterway connecting the southern and central Natomas Basin, and proposed reserves would contribute to connectivity of habitats and reserves in the southern and central Basin.

Of the seven plant species covered by the NBHCP, the project would not affect the five vernal pool-associated species because these species are not known to occur in the vicinity of the project site or proposed reserve sites, nor is suitable habitat present at or near these sites. These plant

species are: Boggs Lake hedge-hyssop, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass and legener. The other two covered plant species (delta tule pea and Sanford's arrowhead) are not known to occur at the project site or the proposed reserve sites, but suitable habitat for these species does occur at or near some of these sites, which have not been surveyed for these species. Overall, the project would increase the acreage of suitable habitat for these species (i.e., marsh and canal habitats) in the Natomas Basin. Nonetheless, because these species are not known to occur in the Natomas Basin, the project probably would not alter the viability of any of their populations.

Effect on the Conservation Strategy of the NBHCP

The project with the proposed mitigation would not reduce the effectiveness of the NBHCP's conservation strategy. In Section IV.C.1 (pages IV 5-15), the NBHCP describes the basis of the key components of the NBHCP's conservation strategy and how these components provide effective mitigation for 17,500 acres of urban development. These components are:

- a. basis for 0.5 to 1 mitigation ratio (Section IV.C.1.a),
- b. preparation of site specific management plans (Section IV.C.1.b),
- c. buffers within the reserve lands (Section IV.C.1.c),
- d. connectivity (Section IV.C.1.d),
- e. foraging habitat (Section IV.C.1.e), and
- f. 2,500-acre/400-acre minimum habitat block size requirements (Section IV.C.1.f).

In describing the basis for the 0.5:1 mitigation ratio, the NBHCP states that the ratio mitigates the impacts of the incidental take authorized under the NBHCP because much of the land to be developed does not provide habitat or only provides marginal habitat, and because the TNBC-managed reserves would provide habitat of higher quality than the eliminated habitat, and the land outside the permit area but within the basin would not be developed. Because the project would not alter the habitat value of land authorized for development under the NBHCP, and would not adversely affect the habitat value of TNBC reserves established under the NBHCP, the project would not affect the basis for the 0.5:1 mitigation ratio of the NBHCP.

The 0.5:1 mitigation ratio of the NBHCP is also related to the habitat values provided by other lands in the Natomas Basin (outside of reserves established through the NBHCP). The project (with the proposed mitigation) would not cause a net loss in the habitat values provided by these lands for giant garter snake and Swainson's hawk in the Natomas Basin. The project maintains these habitat values through avoidance, minimization, and mitigation measures to conserve habitat values along Lone Tree Canal, the creation and enhancement of higher quality habitat at mitigation sites, and preservation and management in perpetuity to sustain that higher quality habitat.

The project is not adjacent to existing TNBC reserves, and thus would not alter the effectiveness of the buffers within these reserve lands. Also, because under the future condition of the Natomas Basin resulting from the NBHCP, the Greenbriar site would be bordered by urban development, highways or major roads on all sides, development of the project site would only cause very limited effects on the effectiveness of buffers within future reserves, even if reserves were established on adjacent land to the north or southwest (i.e., adjacent land that would not be developed under the future condition of the Natomas Basin).

The development and reserves resulting from the Greenbriar project would, however, need to be considered in the development of site-specific management plans for existing and future reserves in their vicinity. Although the loss of raptor habitat at the Greenbriar site would be mitigated; there would still be less foraging habitat in the vicinity of some preserves as a result of the

project, which could alter site-specific plans. Also, the proposed reserves would provide additional options for management and future acquisitions that could alter the management plans of nearby TNBC reserves.

Overall, the project (with proposed mitigation) would not reduce connectivity of reserves or habitats within the Natomas Basin. The proposed reserve and mitigation-sites would probably improve connectivity of habitats and TNBC reserves, and potential adverse effects on Lone Tree Canal would be minimized by measures included in the project design and additional measures in the proposed mitigation. A comprehensive set of measures would be implemented to both reduce the project's effects on and to enhance the habitat in a 250-foot wide linear open space/buffer along the Lone Tree Canal which would provide garter snake habitat connectivity. These measures would prevent the project from reducing the connectivity of canal habitats and TNBC reserves, and also would prevent the project from subdividing the Basin's giant garter snake population into two smaller, and thus less viable, populations.

With the proposed mitigation, the project would not reduce the availability of foraging habitat for the Swainson's hawk in the Natomas Basin. Although the project would result in a net reduction of 253 acres of upland land cover providing habitat for covered species, it would enhance or create, preserve, and manage 135 acres of upland habitats (plus 60 acres of upland components in created marshes). As a result, the upland habitats that would result from the project would provide foraging resources during the months of April–August (when Swainson's hawks are nesting in the Basin) comparable to the habitats that would be eliminated by the project — based on the method CH2M Hill used to analyze effects of the NBHCP, the acreage of available foraging habitat would be increased by the project; based on EDAW's analysis, during April–June, the increase of habitat values resulting from enhancement would be greater than values lost at the Greenbriar site, but not during July–August. Although the EDAW analysis indicates that the loss of values would not be fully offset during July–August, foraging resources increase in the Natomas Basin during those months due to the harvest of crops, and thus Swainson's hawk is unlikely to be affected. (Both the mitigation and eliminated habitat would be within a mile of nesting habitat that is currently occupied.) By maintaining foraging resources, the project would not compromise the NBHCP Operating Conservation Program, and thus actions such as those listed on pages IV-13 and IV-14 of the NBHCP would not be necessary.

Overall, the project would beneficially affect the establishment of large blocks of preserved habitat. With the proposed mitigation, it would create, enhance, preserve, and manage at least 345 acres of additional habitat, most of which is adjacent to or near existing TNBC reserves. The project would adversely affect the preservation of large blocks of habitat by developing existing habitat at the project site. However, under the future condition of the Natomas Basin, this land would be surrounded by major roads and urban development, and the project would conserve the most ecologically important portion of the site, which is the corridor of land along Lone Tree Canal.

Effect on Attainment of NBHCP Goals and Objectives

For many of the same reasons that viability of populations and the effectiveness of the NBHCP's conservation strategy would not be reduced, the project would not reduce the likelihood of attaining the goals and objectives of the NBHCP. The overall effect resulting from the project (with the proposed mitigation) is summarized below for each goal or objective that could be affected.

Overall Goal 1. *Establish and manage in perpetuity a biologically sound and interconnected habitat reserve system that mitigates impacts on Covered Species resulting from Covered Activities and provides habitat for existing, and new viable populations of Covered Species. (NBHCP p. I-15)*

The project (with mitigation) would have an overall beneficial effect on the establishment and management of reserves for the NBHCP. Because the acreage of land in the Natomas Basin that is potentially available and suitable for preservation substantially exceeds the 8,750 acres that will be preserved by the NBHCP, the project would not preclude the preservation of sufficient land to attain the NBHCP's goals and objectives. It would provide reserve lands adjacent to or near existing reserves, increasing the connectivity of habitats and the resources available to covered species using reserves established by the NBHCP; in addition, it would conserve a portion of an important corridor of canal habitat along Lone Tree Canal. The project also would increase opportunities to establish new reserves, particularly to create larger reserves by preserving additional land adjacent to existing TNBC and project's proposed reserves.

Although the project would cause a net reduction in the acreage of land cover types providing upland and wetland habitats, the preservation and enhancement of habitat by the project would adequately mitigate for its effects on upland and wetland habitats of covered species. Based on 2001 land cover mapping, the project (with the proposed mitigation) would eliminate 388 acres of rice and 16 acres of canal habitats, but would increase the acreage of marsh by 201 acres, creating a net loss of 204 acres of these land cover types. An acre of marsh, however, provides a greater quantity and variety of habitat than does an acre of rice, for several reasons. These reasons include:

- ▶ Giant garter snakes primarily use the margins of rice fields, whereas they use the full extent of managed marshes. These marshes are designed to provide open water, foraging habitat, dense cover, basking sites, and refugia in close proximity throughout the marsh. (For example, an acre of managed marsh provides several times the edge habitat than does a rice field.)
- ▶ Marshes provide habitat throughout the active period of the snake. Rice fields do not provide habitat during early and mid-spring, and are typically drained before the end of the snake's active period. Thus, for a portion of their active period, giant garter snakes must rely entirely on non-rice habitats. In the Natomas Basin, these habitats are canals and managed marsh. In contrast, managed marshes provide habitat year-round.
- ▶ Rice is fallowed periodically, and thus does not provide habitat in all years; in contrast, a managed marsh does provide habitat in all years.

Thus, the additional habitat provided by the created marsh largely offsets the habitat lost in the rice and canal land cover types. In addition, the project would preserve, and manage for its habitat values, the 201 acres of created marsh (i.e., about 1 acre for each acre lost), ensuring the long-term existence of this habitat.

Similarly, the project would cause a net reduction of 253 acres of upland land cover providing habitat for covered species, but would enhance, or create and preserve, at least 135 acres of upland habitats (plus 60 acres of upland components in created marshes). For most covered species associated with upland habitats, the additional habitat quality resulting from this creation, enhancement, and preservation would offset the project's reduction of the acreage of upland habitats in the Natomas Basin. For example, the creation and enhancement of upland habitats that would result from the project would provide foraging resources during the months of April–August, when Swainson's hawks are nesting in the Basin, comparable to the habitats that would be eliminated by the project.

As previously described, the potential effects (both adverse and beneficial) that would result from implementing this project (with proposed mitigation) would be unlikely to alter the population viability of any of the covered species.

Overall Goal 3. *Preserve open space and habitat that may also benefit local, non-listed and transitory wildlife species not identified within the NBHCP. (NBHCP page I-16)*

As described under Overall Goal 1 above, the project would have an overall beneficial effect on the TNBC reserve system. Furthermore, the project (with proposed mitigation) would slightly increase the ratio of habitat preserved to habitat developed in the Natomas Basin by setting aside land at a ratio (0.63:1), which exceeds the 0.5:1 ratio required for development authorized by the NBHCP, and would include more extensive creation, enhancement, and management of habitat. For these reasons, the project (with the proposed mitigation) would have an overall beneficial effect on the attainment of this goal.

Overall Goal 4. *Ensure that direct impacts of Authorized Development upon Covered Species are avoided or minimized to the maximum extent practicable. (NBHCP, page I-16)*

With the City-proposed mitigation, the project would not adversely affect attainment of this goal because it would implement a comprehensive set of measures to avoid and minimize effects on covered species to the maximum extent practicable. The potential direct effects of the project are comparable to the potential direct effects of the development authorized by the NBHCP. Thus, the proposed mitigation would include all of the applicable avoidance and minimization measures that were included in the NBHCP to avoid and minimize construction-related effects, and several more stringent minimization measures to reduce construction-related effects. The project also avoids a 30.6 acre area along the Lone Tree Canal and includes a set of measures to avoid, minimize, and mitigate effects on this corridor of canal habitat. The Greenbriar project also would not alter the effectiveness of any NBHCP conservation measures for avoiding and minimizing the effects of development authorized by the NBHCP.

Overall Objective 1. *Minimize conflicts between wildlife and human activities, including conflicts resulting from airplane traffic, roads and automobile traffic, predation by domestic pets, and harassment by people. (NBHCP, page I-16).*

With the proposed mitigation, the project would not adversely affect attainment of this objective because it would implement a comprehensive set of measures that would minimize human-wildlife conflicts. These measures include all of the applicable measures that were included in the NBHCP to avoid and minimize construction-related effects and to reduce human-wildlife conflicts, plus additional measures (e.g., fencing and barriers) to reduce human-wildlife conflicts along Lone Tree Canal. The Greenbriar project also would not alter the effectiveness of any NBHCP conservation measures for minimizing human-wildlife conflicts resulting from development authorized by the NBHCP.

Overall Objective 3. *Ensure connectivity between TNBC reserves to minimize habitat fragmentation and species isolation. Connections between reserves will generally take the form of common property boundaries between reserves, waterways (primarily irrigation and drainage channels) passing between reserves, and/or an interlinking network of water supply channels or canals. (NBHCP, page I-16)*

The project would cause beneficial and adverse effects on the attainment of this objective through most of these mechanisms; its overall effect, however, would not be adverse. The main beneficial effects would be increased connectivity of habitats and TNBC reserves due to preservation, creation and enhancement of habitat at the project's proposed reserves, two of which are adjacent to or near (i.e., within a half mile of) existing TNBC reserves. Adverse effects would include reducing the foraging habitat within a mile of a TNBC reserve, fragmenting and reducing the connectivity of upland habitats adjacent to the project site, and possibly reducing the

connectivity of wetland habitats and TNBC reserves because of effects on Lone Tree Canal (despite preserving a corridor along the canal). The proposed mitigation would reduce these adverse effects by incorporating additional measures to ensure that connectivity along Lone Tree Canal is sustained, and to preserve and enhance foraging habitat within a mile of existing TNBC reserve(s) (or of the Swainson's hawk zone along the Sacramento River). (The connectivity of upland habitats, however, would still be reduced at the project site.) Thus, the project would cause only small effects on the attainment of this objective, and most of these effects would be beneficial.

Wetland Species/Habitat Goal/Objective 1. *Acquire, enhance and create a mosaic of wetland habitats with adjacent uplands and connecting corridors to provide breeding, wintering, foraging, and cover areas for wetland species in the Plan Area. (NBHCP, page I-17)*

For wetland land cover (i.e., rice, canal and ponds and seasonally wet areas), the net reduction in acreage resulting from the development of the project site would be offset by an increase in the habitat quality of rice, canal, and marsh habitats at the project's proposed reserves. Based on 2001 land cover mapping, the project site would eliminate 388 acres of rice and 16 acres of canal habitats, but would increase the acreage of marsh by 201 acres, creating a net loss of 204 acres of these wetland land cover types and of the habitats they provide. An acre of marsh, however, provides a greater quantity and variety of habitat than does an acre of rice, and thus the additional habitat provided by the created marsh largely offsets the habitat lost in the rice and canal land cover types (as described under Overall Goal 1 above). In addition, the project would preserve, and manage for its habitat values, the 201 acres of created marsh (i.e., about 1 acre for each acre lost), ensuring the long-term persistence of this habitat.

The project would not have an overall adverse effect connectivity of wetland habitats. This overall effect on connectivity of wetland habitats is described under Overall Objective 1 above.

Wetland Species/Habitat Goal/Objective 2. *Provide habitat to maintain, attract and sustain viable populations of the Covered Species. The habitat areas should be configured to encompass natural species migration areas, minimize species isolation, and prevent future habitat fragmentation. (NBHCP, page I-17)*

The project would create, enhance, preserve, and manage habitat to offset its adverse effects and that would sustain populations of the covered species, and thus it would not alter the population viability of any of the covered species. The habitat enhanced and preserved by the project and the project's effects on the TNBC reserve system are described under Overall Goal 1 above. The project's effect on the viability of each covered species is described under *Effects on Covered Species* above.

Upland Species/Habitat Goal/Objective 1. *Acquire, enhance and create a mosaic of upland habitat types for breeding, foraging, and cover for species dependent on upland habitats. (NBHCP, page I-17)*

Overall, the project would not adversely and could beneficially affect this goal/objective. Because the acreage of upland habitat in the Natomas Basin that is potentially available and suitable for preservation is substantially more than the acreage of upland habitat that would be preserved and enhanced by the NBHCP, and the project would affect only a small percentage of this land, the project would not preclude the preservation of sufficient land to attain the NBHCP's goals and objectives. The project would, however, increase opportunities to establish new or larger reserves, which would aid the attainment of this goal/objective.

Upland Species/Habitat Goal/Objective 2. *Ensure reserve land connectivity with travel corridors for upland-dependent species. The habitat areas should encompass grasslands, agricultural croplands, riparian habitats, and shelter and nesting habitat areas (fence rows, clusters of shrubs and small trees), as well as wetland areas to provide a year-round source of water for upland species. The upland areas should be configured to enhance natural species migration, minimize species isolation, and prevent future habitat fragmentation. (NBHCP, page I-17)*

A moderate level of uncertainty exists regarding the overall effect of the proposed project on this goal/objective. The proposed changes at the project site would have an uncertain effect on the movement and dispersal of upland species; also there is some uncertainty regarding the project's contributions to connectivity elsewhere in the Basin because the location of the mitigation-site(s) for Swainson's hawk that would account for part of the upland habitat preserved has not been determined. However, because the project would cause adverse and beneficial effects that are similar in nature and magnitude, and would affect only a small portion of the Basin's land area, the project would have only a small overall effect on the attainment of this goal/objective, whether it was beneficial or adverse.

Implementation of the project with Mitigation Measures 6.12-1, 6.12-2, 6.12-4, 6.12-5, 6.12-6, and 6.12-8 would resolve any potential inconsistencies between the NBHCP and the proposed project, therefore this impact would be *less than significant*. No additional mitigation is required.

6.13 CULTURAL RESOURCES

6.13.1 INTRODUCTION

This section includes an evaluation of the potential impacts to cultural resources. Cultural resources may include archaeological traces such as early Native American occupation sites and artifacts, or historic-era buildings and structures. These materials can be found at many locations on the landscape along with prehistoric and historic human remains and associated grave-goods, which are protected under various state and local regulations including CEQA and the City of Sacramento General Plan.

6.13.2 EXISTING SETTING

Native American and Euro-American peoples have inhabited or at least traveled through the present-day Sacramento County region for at least 10,000 years. This long record of occupation and activities in the area has left numerous prehistoric and historic-era remains on the landscape including scattered artifacts, human interments, buildings, structures, and in some cases heavily altered landscapes. The following archaeological and historical review is presented to place this occupation and associated sites, features, and artifacts within a broader cultural setting.

PREHISTORIC CONTEXT

The Central Valley region of California was one of the most densely populated areas in North America during prehistoric times. Summaries and overviews of the prehistory of the vicinity can be found in *California Archaeology* (Moratto 1984:167–216) and *Summary of the Prehistory of the Lower Sacramento Valley and Adjacent Mountains* (Johnson 1982). A more detailed discussion of the broad cultural patterns proposed for Central California can be found in Bennyhoff and Fredrickson (1969).

Early work conducted by Sacramento Junior College and the University of California, Berkeley resulted in the development of the Central California Taxonomic System and a tripartite classification scheme (Early, Middle, and Late Periods). Although these broad temporal periods have been further sub-divided (Bennyhoff and Hughes 1987:149), they are briefly described below.

Early Horizon (Windmill Pattern, ca. 4,500–2,500 BP) sites are characterized by extended burials orientated to the west, specialized grave goods, baked clay balls, charmstones and exotic lithic materials. Year round settlements with seasonal forays into the foothills resulted in the acquisition of a varied subsistence resource base that was dominated by fish and acorn acquisition. However, archaeological evidence shows heavy exploitation of elk, deer, antelope, rabbits, waterfowl and numerous additional floral and faunal species.

Middle Horizon (Berkeley Pattern, ca. 2,500–1,500 BP) artifact assemblages show a dramatic increase in the use of mortars and pestles, possibly related to an expanded reliance on acorn as a staple food resource. Flexed burials, with various orientations are common, as well as specialized bone tools, numerous distinctive shell beads and ornaments, and stone tools unique to the period frequently occur on sites dated to this time.

Late Horizon (Augustine Pattern, ca. 1,400–200 BP) cultural manifestations are distinguished by the presence of shaped mortars and pestles, the use of bow and arrow technology and the introduction of the harpoon, particularly during early phases of this period. Bone awls are common. There is an increased usage of shell for decorative items and ground stone artifacts such as tubular pipes and charmstones are commonly encountered. Mortuary practices can be highly variable and include pre-interment pit burning, cremations, and flex burials (Bennyhoff and Fredrickson 1969).

ETHNOGRAPHIC CONTEXT

The project area is within the ethnographic territory of the Patwin, a series of linguistically and culturally related groups who occupied a portion of the lower Sacramento Valley along the Sacramento River and north of Suisun Bay. Major sources of information on these groups include the works of Bennyhoff (1977); Johnson (1978); Kroeber (1925); McKern (1922, 1923); Powers (1877); and Work (1945).

The Patwin were politically organized into tribelets that consisted of one primary and several satellite villages. Each tribelet maintained its own autonomy and sense of territory. Villages were located along rivers and major creeks, often near their junction with other waterways or in the vicinity of foothill settings (Kroeber 1932). In general, the Patwin territory was well watered which supported a wide variety of animal life including Tule elk, deer, antelope, bear, various species of duck, geese, turtles and other small animals. While hunting and fishing were clearly important subsistence activities among the Patwin, as with many Native American groups throughout the region, their primary staple food was the acorn. Two species of valley oak acorns were used, hill, and mountain oak. The oak groves themselves were considered as “owned” communally by the particular tribelet (Powers 1877, Kroeber 1932).

One of the more distinctive aspects of the Patwin culture was the Kuksu or “big-head” dances cult system, also found in other tribes throughout most of north central California. Within each cult were secret societies, each with its own series of dances and mythologies centered on animal figures such as *Sede-Tsiak* (Old Man Coyote) or *Ketit* (Peregrine Falcon). The Patwin were unique in supporting three secret societies. In the central California cult system, almost all groups possessed the Kuksu but the Patwin also had the “ghost dance” (*way saltu*) and *Hesi* societies (Kroeber 1932; 313). Each secret society engaged in specific spiritual activities. For example, the *way saltu* society stressed curing and shamanistic functions (Johnson 1978: 353–354, 364–365).

In general, Patwin life-ways remained unchanged throughout the latter prehistoric period and well into the early decades of the 19th century. However, as Euro-American traders, trappers, missionaries, and eventually miners and settlers came into more regular contact with the Patwin their culture was dramatically changed. Events such as the yellow fever epidemics of the 1833–1834 and the Gold Rush of the late 1840s and early 1850s, virtually decimated the Patwin population and heavily marginalized the people. Today, the Patwin are reinvesting in their Native culture and traditions and once again constitute a thriving community within the broader present-day political and economic landscape.

Historic Context

Within the vicinity of the project the dominant themes of historic-era development include early agriculture and transportation. The evolution of each of these economic pursuits is intricately intertwined and constitutes the basic foundations of historic settlement and industrial activity in the region.

Agriculture

The development of agriculture within the Sacramento Valley and Sacramento County was dependent upon irrigation systems. The first irrigation system was constructed in 1864 when James Moore completed a dam across Cache Creek and 9 miles of canals that supplied water to the farmers of the county. A series of droughts in the 1860s necessitated the need for increasingly larger projects, however, it was not until the 20th century and implementation of the Central Valley Project that agriculture, aided by construction of a railroad network, vastly increased its contribution to the economic and subsequent political development of the Sacramento Valley (Jones and Stokes 2000:44).

An important element of agricultural growth in the region was the establishment of the Reclamation District 1000 (RD 1000) in 1911. RD 1000 was one of the first and largest of the districts in the state and transformed over 55,000 acres of frequently inundated floodplain into productive agricultural land. RD 1000 extends roughly from

the City of Sacramento in the south to Pleasant Grove in the north and from Elverta on the east to the Sacramento River on the west, and includes the project site.

Transportation

Early transportation routes within Sacramento County (and nearby Yolo County) date to the 1850s and the earliest of these roadways was the Benicia-Cache Creek Road. This road followed a route northeast as depicted on General Land Office (GLO) plat maps (1857 and 1859).

The first railroad established in the area was the California Pacific line, which expanded their operations from Davisville (Davis) north to Marysville by way of Woodland and Knights Landing in 1870 (Fitz 1970:12, Larkey and Walters 1987:47). Because of heavy losses, California Pacific sold their routes and operating control to the Central Pacific Railroad in 1871, with the Southern Pacific Railroad gaining control of the Central Pacific in 1884. Further restructuring of the railroad industry occurred in the 1980s when the Santa Fe and Southern Pacific Railroads merged to form the Santa Fe Southern Pacific Corporation which was absorbed by the Union Pacific Railroad in 1996.

6.13.3 REGULATORY SETTING

NATIVE AMERICAN CONSULTATION REQUIREMENTS FOR CULTURAL PLACES

California Senate Bill (SB) 18 states that prior to a local (city or county) government's adoption of any general plan or specific plan, or amendment to general and specific plans, or a designation of open space land proposed on or after March 1, 2005, the city shall initiate consultation with California Native American tribes for the purpose of preserving or mitigating impacts to Cultural Places.

A Cultural Place is defined in the PRC sections 5097.9 and 5097.995 as:

- ▶ Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine Public Resources Code [PRC] Section 5097.9), or;
- ▶ Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historic Resources pursuant to Section 5024.1, including any historic or prehistoric ruins, any burial ground, or any archaeological or historic site (PRC Section 5097.995).

The intent of SB 18 is to establish meaningful consultation between tribal governments and local governments ("government-to-government") at the earliest possible point in the planning process so that cultural places can be identified and preserved and to determine necessary levels of confidentiality regarding Cultural Place locations and uses. According to the Government Code (GC) Section 65352.4, "consultation" is defined as:

- ▶ The meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement. Consultation between government agencies and Native American Tribes shall be conducted in a way that is mutually respectful of each party's sovereignty. Consultation shall also recognize the tribes' potential needs for confidentiality with respect to places that have traditional tribal cultural significance.

While consultation is required to take place on a government-to-government level, the SB 18 process begins with a letter from the local government to the Native American Heritage Commission requesting a list of tribal organizations appropriate to the plan or plan amendment area or proposed open space designation. Once contacted by the local government, the tribes have up to 90 days to respond and request consultation regarding the preservation and treatment of known cultural place(s) if any have been identified by the tribe.

CEQA

Cultural resources in California are protected by a number of federal, state, and local regulations and ordinances. The most frequently applied legislation consists of the provisions of CEQA that provide for the documentation and protection of significant prehistoric and historic resources. Before the approval of discretionary projects and the commencement of agency undertakings, the potential impacts of the project on archaeological and historical resources must be considered (Public Resources Code Sections 21083.2 and 21084.1 and the CEQA Guidelines [California Code of Regulations Title 14, Section 15064.5]).

The significance of an archaeological or historic resource as per the CEQA Guidelines is an important consideration in terms of their management. Listing, or eligibility for listing, on the California Register of Historic Resources (CRHR) is the primary consideration in whether or not a resource is subjected to further research and documentation. As a matter of policy, public agencies should avoid damaging effects to historic and archaeological resources, particularly those that are CRHR-eligible. When impacts cannot be avoided, their affects can be mitigated through:

- ▶ avoidance during construction phases,
- ▶ incorporation of sites into open space,
- ▶ capping resources with chemically stable fill,
- ▶ deeding a site into a permanent conservation easement, and
- ▶ data recovery (testing and excavation).

In addition, the State CEQA Guidelines require consideration of unique archaeological sites (Section 15064.5). If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archeological resource as outlined in the Public Resource Code (Section 21083.2), it may be treated as a significant historical resource. Treatment options under Section 21083.2 of CEQA include a project that preserves such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation, or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a “unique archaeological resource”).

Public Resources Code Section 15064.5(e) of the State CEQA Guidelines also requires that excavation activities stop whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, Section 15064.5(d) CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans as identified by the Native American Heritage Commission and directs the lead agency (or applicant) to develop an agreement with the Native Americans for the treatment and disposition of the remains.

CITY OF SACRAMENTO GENERAL PLAN

The Preservation Element of the City of Sacramento General Plan outlines a series of goals under a Comprehensive Citywide Preservation Program. These goals include:

- ▶ **Goal A:** To Maintain a Comprehensive Citywide Preservation Program
- ▶ **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
- ▶ **Goal C:** To Maintain and Expand an Inventory of Important Historic and Cultural Resources and their Settings and Retain Information Important to their Understanding

- ▶ **Goal D:** To Foster Public Awareness and Appreciation of the City’s Heritage and its Historic and Cultural resources
- ▶ **Goal E:** To Identify and Protect Archaeological Resources that Enrich our Understanding of the Early Sacramento Area
- ▶ **Goal F:** To Provide Incentives to Encourage Owners of Historic Properties to Preserve and Rehabilitate Their Properties.

LAFCo

The LAFCo Policies, Procedures, and Guidelines document does not contain any policies related to cultural resources.

6.13.5 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

Cultural resource investigations for the project area consisted of a staged approach that included Native American consultation, pre-field research, field survey, and resource documentation. All aspects of the cultural resource study were conducted in accordance with guidelines outlined in the Office of Historic Preservation’s (OHP) Instructions for Recording Historical Resources (OHP 1995) and the federal Secretary of the Interior’s Standards and Guidelines for the Identification of Cultural Resources (48 CFR 44720-23).

Native American Consultation

Before conducting fieldwork, EDAW consulted with the Native American Heritage Commission (NAHC) regarding the potential for important cultural resources and properties to be within or adjacent to the project site. A response from the NAHC indicated that a search of the sacred land files failed to indicate the presence of Native American cultural resources or traditional cultural places in or near the project site. Input from local Native American groups was also solicited but to date no response has been received from these groups.

Pre-Field Research

To determine whether any previously documented or unrecorded cultural resources were present within and immediately adjacent to the project study area, background research on the project study area was conducted. Pre-field research consisted of a record search conducted by an EDAW historian at the North Central Information Center (NCIC) of the California Historical Resources Information System. Records curated by the NCIC include California Department of Parks and Recreation (DPR) Series 523 archaeological site records, site location maps, maps of previous study coverage, National Register of Historic Places (NRHP) Nomination Forms, and relevant historical documentation and maps. The NCIC research also consisted of, but was not necessarily limited to, a review of the following sources:

- ▶ National Register of Historic Places (National Park Service 1996, and Computer updates 1966 through 2000);
- ▶ California Register of Historical Resources (State of California 2004);
- ▶ California Points of Historical Interest (State of California 1992 and updates);
- ▶ Historic Spots in California (State of California 1966); and
- ▶ Directory of Properties in the Historical Resources Inventory (State of California 1976 and updates).

Field Research

Guided by the results of the NCIC record search, EDAW archeologists conducted an intensive inventory of the entire project area including the proposed location of the Meister Way overpass and off-site infrastructure connection points and alignments (i.e., water, wastewater, storm drainage) during January of 2005. No structures are present on-site. Pedestrian transects of no more than 25 meters were used and ground visibility in most areas was in excess of approximately 65%. However, some areas, the northwestern ¼ of the project area in particular, were heavily overgrown with grasses and the only ground surface that was visible was in rodent burrows and disturbed patches in the vicinity of former stable, barn, and racetrack locations.

Previous Archaeological Investigations

According to the NCIC record search results, a total of six cultural resource studies and evaluations have been conducted within or in the immediate vicinity of the current project area as described in Table 6.13-1.

| NCIC Report # | Report Title | Date | Author | Findings |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------|--------------------------------------------------------|
| 357 | Cultural Resources inventory and Evaluation of Systems Integrators, Inc. Project, Sacramento County, California | n.d. | Public Anthropological Research | no cultural resources documented |
| 70 | Negative Archeological Survey Report for the Expansion of State Route 99 Between Interstate 5 and Striplin Road, Sacramento and Sutter Counties. | 1983 | Henry O. Bass | no cultural resources documented |
| 4194 | Cultural Resources Evaluations for the North Natomas Community Plan Study Area, Sacramento, California | 1985 | David Chavez | cultural resources recorded outside Greenbriar project |
| 5777 | Historic Property Treatment Plan for RD 1000 Rural Historic Landscape District for the Cultural Resources Inventory and Evaluations for the American River Watershed Investigation, Sacramento and Sutter Counties, California | 1996 | Dames & Moore | n/a |
| 3469a | Historic American Engineering Record: RD 1000. HAER No. CA-187 | 1997 | Melinda A. Peak | n/a |
| 4195 | Cultural Resources Report: North Natomas Comprehensive Drainage Plan; Levee Improvements, Canal Widening and Additional Pumping Capacity | 1998 | Derr and Boghosian | P-34-886H and P-34-883H identified |

Cultural Resources Located in the Project Area

Based on previous cultural resource investigations and EDAW documentary and field research, a total of three cultural resources were identified within and adjacent to the project area (Table 6.13-2).

**Table 6.13-2
Cultural Resources in the Project Area**

| CHRIS Resource # | Resource Name | Temporal Association | Recorded | CRHR/NRHP Significance |
|------------------|-------------------|----------------------|---------------------------|------------------------|
| n/a | RD 1000 | historic | Melinda A. Peak (1997) | eligible – on NRHP |
| P-34-883H | El Centro Road | historic | Derr and Boghosian (1998) | not eligible |
| P-34-886H | Elkhorn Boulevard | historic | Derr and Boghosian (1998) | not eligible |

EDAW archeologists revisited two of the previously documented cultural resources (P-34-883H and P-34-886H) and found that they had not changed in terms of condition and overall integrity since their initial recording in 1998. Specific elements of RD 1000 facilities (e.g., ditches, canals) within and near the project area have been identified as cultural resources. These ditches and canals are currently in use and were not further recorded by EDAW. No previously undocumented prehistoric or historic-era archaeological sites, features, or artifacts were noted during the 2005 EDAW survey. No potential resources were noted in the area as a result of the NCIC research and a GLO plat map from the period of 1851–1870 shows no historic-era landscape features, buildings, or structures within the bounds of the present project. The GLO map notes the area as consisting of “Overflowed Land,” indicating the area was an active floodplain, suggesting it was not considered usable land during much of the 19th century.

THRESHOLDS OF SIGNIFICANCE

The significance of cultural resources within the project area is measured against the criteria outlined in the CRHR. CEQA requires that resources eligible for listing on the CRHR be afforded degrees of protection ranging from preservation to the mitigation of adverse impacts. Determining the CRHR eligibility of historic and prehistoric sites located within the study area is guided by the specific legal context of the site’s significance as outlined in sections 21083.2 and 21084.1 of the Public Resources Code (PRC), and the CEQA Guidelines (California Code of Regulations Title 14) Section 15064.5. In the CRHR cultural resources are defined as buildings, sites, structures or objects that may have historical, architectural, archaeological, cultural or scientific importance. A cultural resource may be eligible for listing on 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 or 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 California, if a prehistoric or historic resource does not necessarily meet any of the four CRHR criteria, but does meet the definition of a “unique” site as outlined in the PRC (Section 21083.2), it may still be treated as a significant resource. This is the case if it is “... an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- ▶ it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- ▶ it has a special and particular quality such as being the oldest of its type or the best available example of its type.
- ▶ it is directly associated with a scientifically recognized important prehistoric or historic event.

These two sets of criteria operate independently to ensure that significant potential effects on archaeological and historic resources are considered a part of a project’s environmental analysis. PRC guidelines also recommend provisions be made for the accidental discovery of archaeological sites, historical resources or Native American human remains during construction (PRC Section 5097.98).

IMPACTS AND MITIGATION MEASURES

IMPACT 6.13-1

Damage or Destruction of Significant Documented Cultural Resources. *No significant cultural resources have been identified within or immediately adjacent to the project site. Therefore, the proposed project would result in **no impacts** to CRHR-listed or eligible resources.*

Previous studies as well as EDAW archival and field investigations did not identify any significant or non-significant prehistoric or historic-era cultural sites, features, or artifacts within the project site or in areas where connections to off-site infrastructure (e.g., water and wastewater) would occur. The project site is situated within RD 1000, which is currently listed on the NRHP as a historic rural landscape and specifically as a Historic Vernacular Landscape. According to the NRHP, a Historic Vernacular Landscape is defined as a landscape that has been “... shaped by human activities or occupancy and reflect the physical circumstances and cultural character of daily lives. They generally contain large acreage and a proportionally small number of buildings and structures.” However, some individual elements of the District, such as associated ditches and canals located within the project site, are not considered NRHP or CRHR eligible. This non-eligibility is because of their loss of historical integrity and their continuing use and maintenance. In addition, such ditches and canals are ubiquitous in agricultural settings and do not possess the ability to provide information important to the historical development of irrigation and water conveyance systems in California. Therefore, **no impacts** would occur with development of the project.

No mitigation measures are required.

IMPACT 6.13-2

Potential Impacts to Undocumented Cultural Resources. *There is the possibility that previously undiscovered and undocumented resources could be adversely affected or otherwise altered by ground disturbing activities during construction of the project. Disturbance of undocumented resources would be a **potentially significant impact**.*

The entire project site has been subjected to an intensive surface pedestrian cultural resources inventory. However, surface visibility was limited in certain portions of the site and potentially significant cultural resources (as per CEQA) could be present in subsurface contexts that could not be examined during the survey. Although no identified archaeological sites are present within the project site, the potential exists to encounter and damage or otherwise alter previously undiscovered cultural material during ground-disturbing activities associated with construction of the project. Disturbance of these resources would be a **potentially significant impact**.

Mitigation Measure 6.13-2: (City of Sacramento and LAFCo)

If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, charcoal, animal bone, bottle glass, ceramics, burned soil, structure/building remains) is made during project-related construction activities,

ground disturbances in the area of the find shall be halted and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per CEQA and develop specific measures to ensure preservation of the resource. Specific measures for significant or potentially significant resources could include, but not necessarily be limited to in-field documentation, archival research, subsurface testing, and excavation. The specific type of measure necessary would be determined according to evidence indicating degrees of resource integrity, spatial and temporal extent, and cultural associations and would be conducted in a manner consistent with CEQA and the City's guidelines for preserving archaeological and cultural artifacts.

Significance After Mitigation

Implementation of the above mitigation measure would ensure that any resources that are inadvertently discovered during project construction activities are properly handled and preserved. Therefore, Mitigation Measures 6.13-2 would reduce potentially significant impacts resulting from inadvertent damage or destruction of unknown cultural resources during construction to a *less-than-significant* level.

| |
|-------------------------|
| IMPACT 6.13-3 |
|-------------------------|

Potential to Uncover Human Remains. *Subsurface disturbances associated with construction activities at the project site could potentially uncover unmarked historic-era and prehistoric Native American burials, resulting in their alteration or damage. This would be a **potentially significant** impact.*

While no evidence for prehistoric or early historic interments was found on the project site in surface contexts, this does not preclude the existence of buried subsurface human remains. California law recognizes the need to protect historic era and Native American human burials, skeletal remains, and items associated with Native American interments from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097. If any human remains were unearthed during construction of the project, particularly those that were determined to be Native American in origin, a *potentially significant* impact would occur.

Mitigation Measure 6.13-3 (City of Sacramento and LAFCo)

In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the City or the City's designated representative shall be notified. The City shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the Agency for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The City or their appointed representative and the professional archaeologist shall consult with a Most Likely Descendant (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

Significance After Mitigation

Assuming an agreement can be reached between the MLD and the City or their representative with the assistance of the archaeologist, implementation of Mitigation Measure 6.13-3 would ensure that any human remains that are inadvertently discovered during construction activities are properly preserved or avoided. Therefore, implementation of this mitigation would reduce the impact to a *less-than-significant* level.

7 OTHER CEQA-REQUIRED ANALYSES

7.1 GROWTH INDUCING IMPACTS

7.1.1 INTRODUCTION

According to Section 15126.2(d) of the California Environmental Quality Act (CEQA) Guidelines, an environmental impact report (EIR) must discuss the growth-inducing impacts of the project. Specifically, CEQA states that the EIR shall:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Growth-inducing impacts can result from development that directly or indirectly induces additional growth. Examples of growth inducement include:

- ▶ redesignation of property from agricultural to urban uses within an agricultural area, thus increasing the potential for adjacent farmland to also be redesignated to urban uses;
- ▶ the development of new housing or job-generating uses that would be sufficient in quantity to create a substantial demand for new jobs and housing, respectively;
- ▶ the development of new schools as part of a proposed project with excess capacity to serve adjacent currently undeveloped areas;
- ▶ the extension of roads and utilities to an area not currently served by such infrastructure; and
- ▶ the oversizing of new utility lines to a project site which may have additional capacity to serve currently undeveloped areas nearby.

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. These environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, or conversion of agricultural and open space land to urban uses.

7.1.2 CITY/COUNTY NORTH NATOMAS JOINT VISION PLAN

The project site is currently located outside the City of Sacramento (City) and outside the City's sphere of influence (SOI). The land use maps in the *City of Sacramento General Plan* (City General Plan) and the *County of Sacramento General Plan* (County General Plan) designate the project site for agricultural land uses. As such, based on current land use designations the project site is not identified for future urban development. Development of the project as proposed would be inconsistent with land uses envisioned in the City and County General Plans.

In 2001, the City and the County of Sacramento (County) embarked upon a long-term agreement to collaboratively manage growth and preservation of open space and habitat in unincorporated areas of the Natomas Basin within Sacramento County. The agreement resulted in the preparation of the City/County North Natomas Joint Vision Plan (Joint Vision). This vision indicated that a substantial portion of the Natomas Basin would become urbanized, including the project site. Both jurisdictions determined that it would be mutually beneficial to cooperatively plan for the urbanization of the area because the City and County would share revenues that result from development of the area and any future development would be in accordance with smart growth principles. The City Council and County Board of Supervisors approved a Memorandum of Understanding (MOU) that outlined a joint vision for land use and revenue sharing principles for Natomas and recognized the City as the agent of development and the County as the agent of permanent open space protection, including farmlands and habitat. The project as proposed would be consistent with urban development patterns and densities envisioned for the Joint Vision area, and is the first property in the area being considered for development since adoption of the MOU.

7.1.3 GROWTH INDUCING IMPACTS OF THE PROJECT

The project site is located outside the City of Sacramento city limit boundaries and outside its SOI boundaries. Project approval would require annexation of the project site into the City of Sacramento and amendment of the City's SOI boundary. Additionally, the proposed project would be served by the Sacramento Regional County Sanitation District (SRCSD) and County Sanitation District-1 (CSD-1). SRCSD and CSD-1 would be required to amend their SOI boundary as the project site currently lies outside SRCSD's and CSD-1's existing SOI boundary. As discussed above, the City and County General Plans identify agricultural land uses for the project site and proposed land uses would be different than what is currently envisioned.

The Joint Vision plan identifies high-density mixed residential uses for the majority of the project site along with single-family small-lot uses in the southeastern-most portion of the site. Although the proposed project would be consistent with the Joint Vision plan, this plan is conceptual and does not enable or entitle any land uses. The overall development proposed for the project site is similar to urban development envisioned by the City and County, as discussed below. Through development of the project site as envisioned by the Joint Vision (see Section 7.2 "Cumulative Impacts"), the project would be growth inducing because the increased population associated with development would increase demand for goods and services, thereby fostering population and economic growth in the City of Sacramento and nearby communities. More importantly, it would set a precedent for allowing development north of the current City boundaries; this is discussed further below.

Regarding growth inducement, the 1986 NNCP EIR and the 1993 NNCP EIR Supplement found that the development of the NNCP area would have growth-inducing effects. Development of the North Natomas area will continue to have growth-inducing effects on the adjacent areas surrounding the plan area (City of Sacramento 1993). The project is a reflection of that anticipated growth inducing effect of the NNCP. The 1986 NNCP EIR and the 1993 NNCP EIR Supplement stated that the magnitude of the growth-inducing effect identified for the NNCP area would be moderated by planning for a realistic jobs-to-housing balance. Although this balance has not yet been realized in the North Natomas community, the land use designations provided by the NNCP are intended to achieve a balance as residential neighborhoods mature and the establishment of commercial services becomes increasingly viable. Whether this balance mutes pressure for growth outside the NNCP, however, remains to be seen.

Development of the project would not substantially contribute to an overall growth inducing effect because of its specific location and the nature of the proposed development. The project would be located between residential development occurring in the NNCP area and commercial and industrial development approved for the future Metro Air Park. Because of its adjacency to the NNCP area, the project would extend the North Natomas community to the west. Further, proposed land uses (e.g., residential, commercial, open spaces, school) would complement existing and proposed adjacent land uses.

Roadways providing access to and within the project site would consist of existing roads, improved roads along existing roadway alignments, and new roads. The project would develop and/or improve the road network in the Greenbriar area including Elkhorn Boulevard, Lone Tree Road, and the State Route (SR) 99/Elkhorn Boulevard interchange. The proposed project would also construct a new east-west roadway, Meister Way, through the center of the project site to provide access to and from the NNCP area to the east and Metro Air Park to the west. Because of the project site's location (i.e., adjacent to Interstate 5 [I-5] and SR 70/99), the proposed roadway would not provide new or substantially enhanced access to currently undeveloped areas to the south and east. Further, no roadways are proposed to be extended to the north. The proposed Meister Way would only provide connectivity between the approved Metro Air Park development and the existing North Natomas community. Therefore, the Greenbriar roadway network would not be considered growth-inducing.

Currently, there are no public storm drain facilities that serve the project site or any properties to the north and west. Properties located to the east and south are currently served by a storm drain system operated by the Reclamation District (RD) 1000. A formal storm water management system is proposed for the project site that would include a series of pipes and detention facilities that would be operated by the City. Proposed storm water conveyance facilities would not serve (i.e., they would not be sized to handle additional flows) other development projects outside the plan area, and therefore would not be growth inducing.

The City currently does not provide water service to the project site. The proposed project includes plans for extension of the City's infrastructure from the existing water mains located to the east and south of the site. The extension of water infrastructure to the project site would allow for extending water service to the Metro Air Park development located to the west. However, the Metro Air Park development is an approved development project, and provision of water to Metro Air Park would not be dependent upon water infrastructure constructed to serve the project. Extension of water services to the Greenbriar and Metro Air Park project sites is designed to serve these projects alone and would not induce further growth beyond these projects.

Municipal wastewater treatment service is not currently available to the project site. However, a trunk sewer line, part of SRCSD's wastewater conveyance pipeline system, currently extends across the project site in an east-west direction connecting with Sacramento International Airport and the NNCP area. This trunk line currently conveys wastewater from Sacramento International Airport and would also convey future wastewater generated by the Metro Air Park development to the east. The proposed project would connect to this wastewater trunk line at a point on the easternmost portion of the site. The proposed project would construct the necessary facilities on-site to serve development and connect to SRCSD's conveyance system.

The proposed project would involve a substantial construction effort over an extended period that would bring construction workers to the project site on a daily basis during peak periods. Because construction workers typically do not change where they live each time they are assigned to a new construction site, it is not anticipated that there would be any substantial relocation of construction workers to the City or County of Sacramento associated with the proposed project. The existing number of residents in the City and County of Sacramento who are employed in the construction industry would likely be sufficient to meet the demand for construction workers that would be generated by the proposed project. Between June and July 2005, the construction industry in Sacramento metropolitan area added 800 new jobs, which accounted for the sixth consecutive month of expansion in the construction industry and brought the construction industry's job total to a new record high (EDD 2005). As of July 2005, there were 73,400 jobs in the construction industry for the Sacramento metropolitan area (EDD 2005). Therefore, no substantial increase in demand for housing or goods and services would be created by project construction workers, and thus no growth inducement associated with these workers would be expected.

In addition, employees would be hired for the proposed elementary school. No employment assumptions for elementary schools in the City of Sacramento were available; based on average school enrollments and average school sizes, Economic & Planning Systems estimated the number of employees per acre for elementary schools at 5.0 employees per acre (Ross, pers. comm., 2005). Based on this estimate, construction of an elementary school on 10 net acres on the project site would result in the creation of 50 full-time equivalent positions employed by

the school district. Approximately 850 additional full-time positions would be created by commercial land uses on the project site. It is expected that the proposed project's employment needs would be largely filled by existing Sacramento County or regional residents. Therefore, the proposed project would not be expected to directly induce population growth by bringing substantial numbers of new employees to the project vicinity.

The proposed project would include the development of up to 3,473 residential units with an estimated population of 8,926. Although the proposed project includes the provision of commercial services, on-site services would meet only some of the needs of the project population. The additional population associated with the proposed project would spur an increase in demand for goods and services in the surrounding area and region, which could potentially result in additional development to satisfy this demand. In this respect, the proposed project would be growth inducing. It would be speculative, however, to try to predict exactly where any such new services would locate. The most logical assumption is that they would locate where the existing City and County General Plans currently anticipate them. The general plans have already undergone environmental review and any new individual projects requiring discretionary approvals would undergo their own environmental review if of a scale that warrants environmental review.

Fire, protection, law enforcement, and other City services would be expanded only as necessary to meet project demand. As discussed in Section 6.6, "Public Services," existing law enforcement services have sufficient capacity to serve the proposed project. The City of Sacramento Fire Department (SFD) is planning for the construction of an additional fire station that would serve the project site and surrounding Natomas area. The project would coordinate with the SFD and pay required fees to ensure adequate facilities are in place to meet project demands. The project would also provide space for the construction of an elementary school and would pay fees toward funding necessary school facilities. Because adequate public services are available to serve the project or the proposed project would provide or ensure that additional public services would be available to meet project demands (i.e., schools, police, fire), it would not facilitate additional development requiring public services.

The land directly north of the project site is outside the City's SOI boundary and is located in the jurisdiction of the County. This land is designated in the County General Plan for agricultural land uses. Because of this designation and its location outside the City's SOI, the intended long-term use of this property is for agriculture. As the proposed project develops, particularly along its northern edge, it would place urban development adjacent to agricultural land. Historically, this type of land use pattern has resulted in conflicts between the ongoing agricultural operations and the urban development uses. Further, economic returns from urban development are typically substantially higher than continued agricultural use of land, and encroaching urban uses typically make attractive the conversion of adjacent agricultural land to urban uses. Thus, it can be expected that the project would place pressure on agricultural land to the north of the site to convert to urban uses.

Conversion of adjacent agricultural lands to urban uses is not consistent with existing and adopted long-term plans for the area. This potential conversion of agricultural land to an urban use and the related loss of agricultural land, loss of biological habitat, additional traffic generation, and air and noise impacts are potential growth-inducing impacts of the project. Development in this area would also require the extension of unplanned infrastructure (i.e., water, storm drainage, wastewater). Because development of these agricultural lands would require the County to amend its general plan and/or the City to expand its corporate limits and SOI boundary, such a land use conversion is not assured. Although development of the project, despite not providing any direct infrastructure linkages to the area, may contribute to possible long-term economic pressure for the eventual filing of applications for general plan amendments and/or other discretionary approvals in the area north of the project site, the responses of future elected bodies to such applications cannot be predicted. It is therefore impossible to conclude that the long-term urbanization of this northern area would be a reasonably foreseeable indirect effect of the project. (See State CEQA Guidelines Section 15358 [which defines "effects" for purposes of CEQA as including "[i]ndirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still *reasonably foreseeable*"] [emphasis added].) This said, however, the project's potential for setting a precedent for growth and extension of the NNCP boundaries is an important consideration. As the

NNCP is built out, substantial pressure has been placed to consider development of the area to the north, including the project site. Recent proposals have included consideration of developing the area and using revenues from development to help fund a new sports arena. This proposal did not result in formal application to the City or County, but it suggests that interest in the area is high. Further, under the Joint Vision and the SACOG Blueprint, much of the area is identified as future urban development.

Approval of the project would require the City to expand its sphere of influence to cover the site, which also requires approval of LAFCo. This approval could set precedent for future considerations of growth in the area, but it would also potentially mute such considerations in that LAFCo would not be apt to consider multiple sphere-of-influence changes in rapid succession. Further, ultimate development of the site would require agreement with the U.S. Fish and Wildlife Service (USFWS), because the site, and the rest of the Joint Vision area, is not permitted for development in the Natomas Basin Habitat Conservation Plan (NBHCP). Thus additional requests for development would be closely scrutinized by USFWS. In short, the precedent-setting nature of the project itself may make other development requests more difficult to process.

Overall, the proposed project would be growth inducing because the increased population associated with the proposed project would increase demand for goods and services, thereby fostering population and economic growth in the City of Sacramento and nearby communities. It can be expected that a successful project would place pressure on adjacent areas to the north to seek development entitlements. As explained above, however, it would be speculative to assume that these areas would in fact develop with urban uses, and numerous discretionary actions subject to environmental review and political considerations would have to be granted before any such urban uses could materialize. In summary, much of the growth that the proposed project would induce has been evaluated and provided for in the City General Plan, County General Plan, and other relevant planning documents.

7.2 CUMULATIVE IMPACTS

This draft environmental impact report (DEIR) provides an analysis of overall cumulative impacts of the project taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the California Environmental Quality Act Guidelines (State CEQA Guidelines). The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether Greenbriar itself would cause a “cumulatively considerable” (and thus significant) incremental contribution to any such cumulatively significant impacts. (See State CEQA Guidelines Sections 15130[a]-[b], Section 15355[b], Section 15064[h], Section 15065[c]; *Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal.App.4th 98, 120.) In other words, the required analysis intends to first create a broad context in which to assess the project’s incremental contribution to anticipated cumulative impacts, viewed on a geographic scale well beyond the project site itself, and then to determine whether the project’s incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., “cumulatively considerable” in CEQA parlance).

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A cumulative impact occurs from “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130(a), the discussion of cumulative impacts in this DEIR focuses on significant and potentially significant cumulative impacts. State CEQA Guidelines Section 15130(b), in part, provides the following:

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

7.2.1 PROJECTS CONTRIBUTING TO POTENTIAL CUMULATIVE IMPACTS

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. For this DEIR, both the list and the plan approach have been combined to generate the most reliable future projections possible. A list approach is used to define specific projects that are currently proposed, but are not necessarily considered within an approved planning document. The plan approach is used to consider development consistent with an adopted plan. The plan approach is also used to consider the potential cumulative impacts of long-term development of the Joint Vision area, because specific development proposals for this overall area are not yet formed, and the best source for consideration of this area is the SACOG Blueprint, as will be discussed below.

CUMULATIVE CONTEXT

The City of Sacramento has developed over the past 150-plus years beginning in the late 1840's immediately following the discovery of gold. Over this time the City, and the Sacramento region, has shifted largely, though not entirely, from natural habitat to agriculture and urban development. Overall, population in Sacramento County has increased dramatically over the past 65 years, based on US Census data, from approximately 170,000 in 1940 to 500,000 in 1960, 780,000 in 1980, and 1,230,000 in 2000 (California Department of Finance 2005). Over this same period, the City of Sacramento grew from approximately 105,000 people in 1940 to 192,000 in 1960, 276,000 in 1980, and 407,000 in 2000 (California Department of Finance 2005). According to the California Department of Conservation, Sacramento County comprises 636,083 acres, and the amount of urbanized land increased from 131,321 acres in 1988 to 159,903 acres in 2002, a change of 28,582 acres (4.5% of total County acreage) over the reporting period (California Department of Conservation Farmland Mapping and Monitoring Program, 1988–2002 Land Use Summary). The population growth and the related development has changed the environment of the Sacramento region, and this change has resulted in the environmental baseline for many of the issues discussed in Chapter 6, such as adverse air quality, diminishing biological habitat, increased traffic, etc.

The North Natomas area of the City of Sacramento is another important indicator of past development. Greenbriar, if approved, would amend the boundary of the NNCP and would be a Special Planning Area (SPA) within the NNCP subject to its own Planned Unit Development (PUD) guidelines and finance plan. As described further below the NNCP is an approximately 9,000-acre area of the City that began developing in 1999 and is expected to reach buildout in 2016. The cumulative effects of this build out are described in the cumulative impact analysis.

RELATED PROJECTS CONTRIBUTING TO CUMULATIVE IMPACTS

CURRENTLY PLANNED AND PROPOSED PROJECTS

North Natomas Community Plan

Development projects in the North Natomas community that have been approved but are yet to be fully built out have been identified and evaluated by the NNCP and the associated environmental review documents. For this reason, the cumulative analysis contained in this EIR focuses on the overall development anticipated in the North

Natomas community as projected by the NNCP. Using this approach, this cumulative assessment provides the most conservative and inclusive analysis of past, present, and potential future projects.

The North Natomas community is bounded by Elkhorn Boulevard to the north, I-80 to the south, the Natomas East Main Drainage Canal to the east, and the West Main Drain Canal to the west, covering more than 9,000 acres in the northwest portion of the city (see Exhibit 3-2 in Chapter 3) that was predominantly in agricultural use before development. The NNCP provides a long-term vision for the development of the North Natomas community. The environmental consequences from implementation of the NNCP were addressed in the 1986 NNCP EIR (certified by the Sacramento City Council in May 1986) as well as the 1993 Supplement to the 1986 NNCP EIR. Development within the NNCP started in 1999.

There are several development projects that have been approved in the North Natomas community. Some of these projects are fully built-out and occupied at this juncture, while others are still in development phases. These projects are generally located to the south and east of the project site and include: the Westborough project, Cambay West, Natomas Crossing, Natomas Town Center, Panhandle, and Natomas Creek.

The development projects in the North Natomas community that have been approved but are yet to be fully built out have been identified and anticipated by the NNCP and the associated environmental review documents. For this reason, the cumulative analysis contained in this EIR focuses on the overall development anticipated in the North Natomas community as projected by the NNCP. Using this approach, this cumulative assessment provides the most conservative and inclusive analysis of past, present, and potential future projects.

In 2000, the estimated population for the North Natomas area was 2,002 people, occupying 740 housing units (SACOG 2001). At buildout (year 2016), the NNCP estimates a population of 66,495 in the North Natomas community occupying 33,257 housing units on approximately 9,038 acres, and 72,016 employees; the NNCP area is projected to account for approximately 35% of new housing and 30% of the new jobs in the City of Sacramento at buildout (City of Sacramento 1994). According to the City of Sacramento, development within the NNCP area as of September 14, 2005, includes approval of 12,162 lots for development of residential, commercial, and industrial land uses; approval of 10,801 building permits; approval of 11,599 single-family residential special permits; and approval of 6,003 multifamily residential special permits (City of Sacramento 2005).

According to SACOG projections, there were 14,865 persons living in the NNCP area and 5,368 housing units in the year 2005. SACOG projects 45,040 persons occupying 17,230 housing units in the year 2025 (SACOG 2005). Using these numbers, SACOG projects a growth of 30,175 persons, or 203% increase, and an increase of 11,862 housing units, or 221% increase, by the year 2025.

Metro Air Park

In addition to development anticipated within the North Natomas community, the Metro Air Park development is a newly developing project located adjacent to the Sacramento International Airport and along the westerly edge of the Greenbriar site. The Metro Air Park totals 1,983 acres and has been approved for development of approximately 20 million square feet of office space, light industrial projects, retail and hotel developments, and a golf course on land east of the airport and north of I-5. The project is located in an area that has historically been dominated by agricultural uses. Construction of the Metro Air Park began in September 2003.

West Lakeside

As detailed in the MOU for the City/County Joint Vision for Natomas, the City has been identified as the appropriate agent for planning new growth in Natomas (City of Sacramento and County of Sacramento 2002). An application for development within the Joint Vision area is on file for the West Lakeside project. No other applications for the Joint Vision area have been filed and its future development potential is in its early consideration stage by the City and County. As such, development of the Joint Vision is considered separately in this analysis. The West Lakeside project is a proposal located approximately 0.25 mile south of the project site adjacent to the eastern

border of West Main Drain Canal. This project includes the development of 524 residential units, a 10-acre elementary school, and approximately 33 acres of open space land uses (e.g., parks and detention basins).

Habitat Conservation Plan-Related Development Considerations

Several regional habitat conservation planning efforts are also underway that allow for development, while setting aside, enhancing, and protecting habitat for sensitive species found in the region. The Natomas Basin HCP (NBHCP) would include the protection, management, and monitoring of conservation lands to reconcile the needs of 22 special-status species with planned development in the Natomas Basin, including lands within the City of Sacramento and Sutter County. Implementation of the NBHCP would provide a comprehensive program for the preservation and protection of habitat for threatened and endangered species potentially found on approximately 53,537 acres of undeveloped and agricultural land in northwestern Sacramento County and southern Sutter County. In addition, a habitat conservation plan (HCP) was developed and adopted for the Metro Air Park (described above).

The land that would be authorized for development under the take permits associated with the NBHCP would be 15,517 acres, of which approximately 4,000 acres are currently undeveloped lands within the City of Sacramento, within the NNCP. In combination with the Metro Air Park, this total would reach 17,500 acres allocated among the City, Metro Air Park, and Sutter County. (Although the Metro Air Park is not part of the NBHCP, it was evaluated in the EIR/EIS for the NBHCP). Authorized development would include projects sponsored by either private developers or public entities that occur within the permitted area.

SUMMARY OF CURRENTLY PLANNED AND PROPOSED PROJECTS

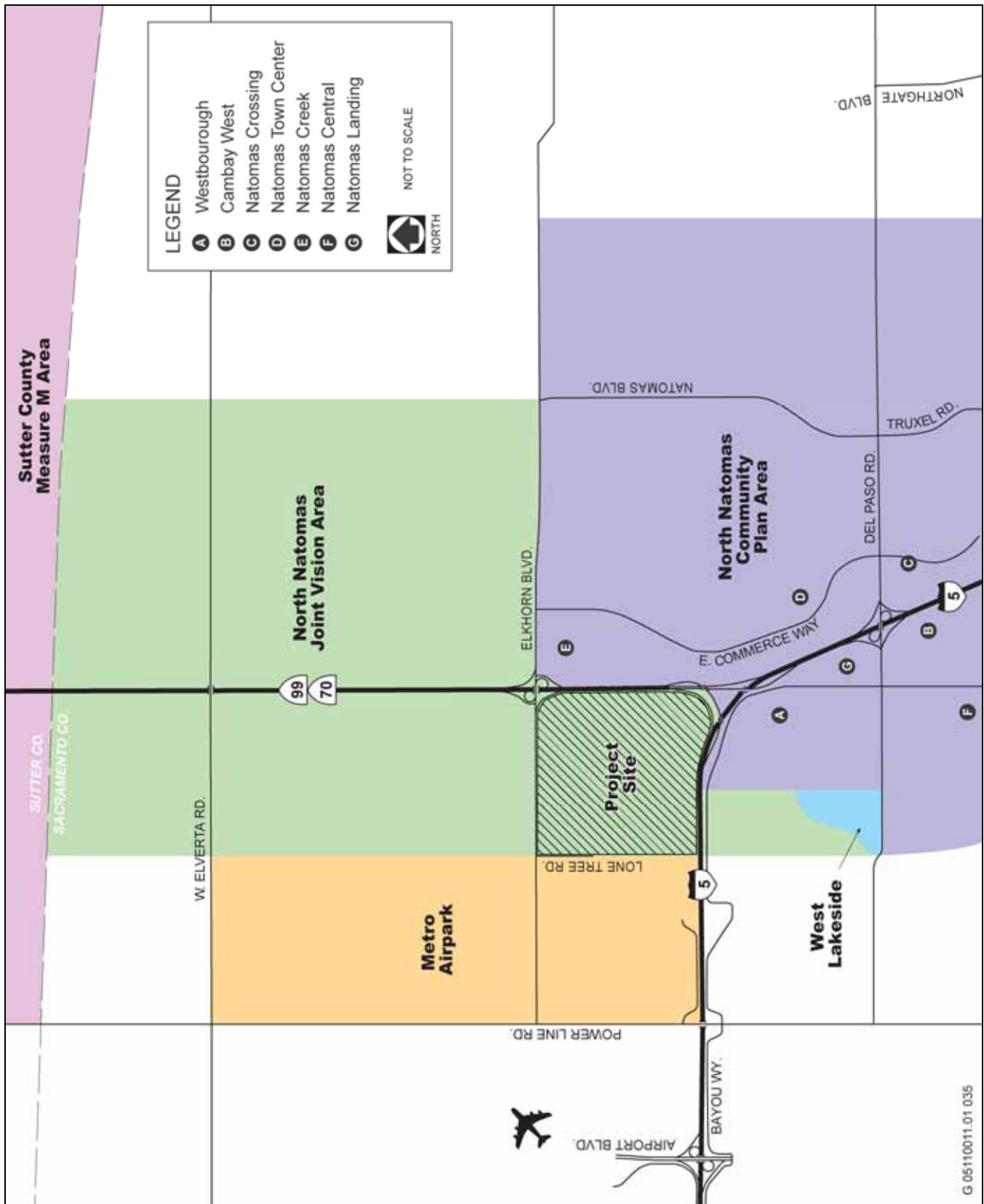
Table 7-1 provides a summary of the projects considered in the cumulative analysis. Exhibit 7-1 presents the general location of cumulative projects.

| Table 7-1 Cumulative Projects | | | | |
|------------------------------------------|--------------------|--------------------------------------------|------------------------------------------------|-----------------------------|
| Cumulative Project | Total Acres | Residential Land Uses (acres/units) | Commercial/Industrial Land Uses (acres) | Population (persons) |
| North Natomas Community Plan | 9,038 | 3,160/33,257 | 2,195 | 66,495 |
| Metro Air Park Development | 1,983 | 0/0 | 1,983 | 0 |
| West Lakeside Development | 133.4 | 70/524 | 0 | 1,215 |
| Greenbriar Development Project | 577 | 390/3,473 | 27.5 | 8,926 |
| Total | | 3,620/37,254 | 4,205.5 | 76,636 |

FUTURE POTENTIAL CUMULATIVE PROJECT: CITY/COUNTY JOINT VISION AND SUTTER COUNTY MEASURE M

Joint Vision

As discussed in Section 3.7.2, “North Natomas Joint Vision Area,” the Joint Vision Plan is a collaborative effort between the City and County of Sacramento to develop a vision for the 10,000-acre area of the County between the northern city limits and Sutter County. Concepts for development have been considered and include a mixture of residential densities, an industrial park (in addition to Metro Airpark), and open spaces throughout, including most extensively in the northern extent separating development from the Sutter County boundary. In fact, a large amount of open space is anticipated to be dedicated (for habitat preservation and farmland retention) in this area. To date, no land use plans have been adopted, and all considerations to date have been conceptual.



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TJKM 2005

Project's Contribution to Potential Cumulative Impacts

Exhibit 7-1

The City and County’s conceptual vision for growth within this area is generally compatible with the principles outlined in Sacramento Area Council of Government’s (SACOG) Blueprint (discussed in Section 3.8.3, “Sacramento Region Blueprint”). The preferred vision for growth and development within this area could result in the development of a range of development densities, depending on the development scenario ultimately selected. Under the preferred scenario, two development options are under consideration: 1) No Development in Floodplain areas; 2) Up to 50% of Floodplain areas if sufficiently protected. The difference between the options would depend upon whether areas within the existing floodplain are brought under 100-year flood protection through the construction of measures (e.g., improved levees, set-back levees, elevated building pads) to remove flood hazards. Table 7-2 presents the range of development densities for the options under consideration.

| Land Use Category | No Development in Floodplain | | | | Up to 50% of Floodplain is Reclaimed | | | |
|------------------------|------------------------------|--------|------------------------|--------|--------------------------------------|--------|------------------------|--------|
| | Net Acres | Units | Commercial Square Feet | Jobs | Net Acres | Units | Commercial Square Feet | Jobs |
| Residential Mixed Use | 2,154 | 38,759 | -- | -- | 2,656 | 47,801 | -- | -- |
| Commercial/ Employment | 186 | -- | 3,255,709 | 11,772 | 233 | -- | 4,656,698 | 16,837 |
| Open Space/ Public | 1,453 | -- | -- | -- | 1,794 | -- | -- | -- |

Source: City of Sacramento, 2005

The Greenbriar site is in the area being considered under the Joint Vision. For comparison purposes and to demonstrate the magnitude of the proposal, development of the Joint Vision would occur over an area approximately 6.5 to 8.0 times larger than the project site, would develop 10 to 13 times more houses, and would develop 11 to 16 times the commercial space proposed by the project.

The ultimate development scenario that would be proposed for the Joint Vision area is not known and likely will not be known within the time this EIR and development are being considered. However, because the development potential of the area is large and it is being actively studied, this EIR includes disclosure of the plan to the extent it can be known. It is considered as future potential cumulative development, and because this is a speculative development proposal at this time, it is considered separately and less extensively than the cumulative development that is currently planned and proposed (i.e., specific development proposals have been submitted). The Joint Vision plan would be the subject of extensive CEQA review and consideration by the City and County, neighboring jurisdictions, regulatory agencies including DFG and USFWS, local service providers and LAFCo, and its likely implementation is best described as unknown.

Measure M

In 2004, Sutter County voters passed Measure M, an advisory measure intended to provide the Board of Supervisors with an indication of how the citizens of Sutter County feel about the types and level of development in the 7,500-acre area of the South Sutter County Industrial / Commercial Reserve. The southern boundary of the Measure M area forms the Sutter/Sacramento county line, approximately 4 miles north of Greenbriar. The vote did not approve any specific development proposals, but did provide guidance on how development may be viewed in the future. Measure M parameters for the South Sutter area are:

- ▶ at least 3,600 acres for commercial/industrial development;
- ▶ at least 1,000 acres for schools, parks, other public uses, and retail; and

- ▶ no more than 2,900 acres for residential development, with a population cap of 39,000.

An application for the Measure M area has not been submitted to Sutter County, as of December 2005 (well after the date of the NOP for this EIR), so the specifics of any development proposal are not known beyond the parameters outlined above.

7.2.2 CUMULATIVE IMPACT ANALYSIS

TRAFFIC AND CIRCULATION

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

Year 2025 Cumulative Conditions

The analysis of cumulative traffic impacts is presented in Section 6.1, “Transportation and Circulation,” of this EIR. Please refer to that section. As shown, cumulative development would cause a number of roadways, including freeway segments, to operate above capacity levels, which is a significant cumulative impact. In the year 2025 (without project), the following 8 intersections are expected to operate unacceptably:

- ▶ SR 70/99 Southbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ Elkhorn Boulevard and Lone Tree Road (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ SR 70/99 Northbound Ramps and Elkhorn Boulevard (LOS F during the a.m. peak)
- ▶ Metro Air Parkway and I-5 Northbound Ramps (LOS F during the a.m. and p.m. peaks)
- ▶ Elverta Road and Lone Tree Road (LOS E and LOS F during the a.m. and p.m. peak, respectively)
- ▶ Meister Way and Metro Air Parkway (LOS F during the p.m. peak)
- ▶ Metro Air Parkway and Bayou Road (LOS F during the a.m. and p.m. peaks)

The following 2 roadway segments are expected to operate unacceptably under Cumulative (2025) Conditions:

- ▶ Elkhorn Boulevard west of SR 70/99 Interchange – LOS E
- ▶ Metro Air Parkway north of I-5 Interchange – LOS F

The following 5 freeway ramps are expected to operate unacceptably under Cumulative (2025) Conditions:

- ▶ SR 70/99 northbound to Elkhorn Boulevard off-ramp – LOS E during the a.m. peak hour
- ▶ I-5 northbound to SR 70/99 northbound off-ramp – LOS E during the a.m. peak hour
- ▶ I-5 northbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ I-5 southbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ Metro Air Parkway to I-5 southbound loop on-ramp – LOS F during the p.m. peak hour

The following 3 freeway segments are expected to operate unacceptably under Cumulative (2025) Conditions:

- ▶ I-5 East of Powerline Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of Del Paso Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour

Cumulative Plus Project

Under Cumulative plus Project conditions, the following 14 intersections would operate unacceptably:

- ▶ SR 70/99 Southbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elverta Road (LOS F during the a.m. peak)
- ▶ Elkhorn Boulevard and Lone Tree Road (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ SR 70/99 Southbound Ramps and Elkhorn Boulevard (LOS E during the a.m. peak)
- ▶ SR 70/99 Northbound Ramps and Elkhorn Boulevard (LOS F during the a.m. peak)
- ▶ Metro Air Parkway and I-5 Northbound Ramps (LOS F during the a.m. and p.m. peaks)
- ▶ Elverta Road and Lone Tree Road (LOS E and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and Metro Air Parkway (LOS E and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and Lone Tree Road (LOS D and LOS F during both the a.m. and p.m. peaks, respectively)
- ▶ Meister Way and E. Commerce Way (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Metro Air Parkway and Bayou Road (LOS F during the a.m. and p.m. peaks)
- ▶ Elkhorn Boulevard and Project Street 1 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Elkhorn Boulevard and Project Street 2 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)
- ▶ Elkhorn Boulevard and Project Street 3 (LOS D and LOS F during the a.m. and p.m. peaks, respectively)

The following three roadway segments are expected to operate unacceptably under Cumulative plus Project conditions:

- ▶ Elkhorn Boulevard west of SR 70/99 Interchange – LOS F
- ▶ Metro Air Parkway north of I-5 Interchange – LOS F
- ▶ Meister Way west of SR 70/99 – LOS E

The following 6 freeway ramps are expected to operate unacceptably under Cumulative plus Project conditions:

- ▶ SR 70/99 northbound to Elkhorn Boulevard off-ramp – LOS F during the a.m. peak hour
- ▶ Elkhorn Boulevard to SR 70/99 southbound slip on ramp – LOS E during the p.m. peak hour
- ▶ I-5 northbound to SR 70/99 northbound off-ramp - LOS E during the a.m. peak hour
- ▶ I-5 northbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ I-5 southbound to Metro Air Parkway off-ramp – LOS F during the a.m. peak hour
- ▶ Metro Air Parkway to I-5 southbound loop on-ramp – LOS F during the p.m. peak hour

The following three freeway segments are expected to operate unacceptably under Cumulative plus Project conditions:

- ▶ I-5 East of Powerline Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of Del Paso Road – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour
- ▶ I-5 north of I-5/I-80 Interchange between I-80 and Arena Boulevard Exit – LOS F for the northbound approach during the a.m. peak hour and the southbound approach during the p.m. peak hour

As shown, the project would contribute considerably to cumulative traffic impacts, increasing the number of intersections, roadway segments, and freeway ramps that operate unacceptably, and exacerbating adverse operating conditions on 3 freeway segments that would already operate poorly.

The ability to mitigate these impacts is tied to fair share contributions to regional transportation funds, but these programs are not currently available and, therefore, implementation of the improvements can not be guaranteed. Further, in some instances, freeway widening would be required, and this is likely not financially feasible or would require right-of-way acquisition that is not available. Please see Section 6.1, "Transportation and Circulation." Therefore, these impacts are considered cumulatively *significant and unavoidable*.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

As described above, cumulative development would result in significant impacts to a number of roadways, intersections, and freeway segments, which would operate above capacity. Because the land uses are imprecisely defined for the Joint Vision area, traffic impacts can only be roughly estimated. Using trip generation rates that reflect a relative mid-point generation level, it is assumed residential uses would generate 7 daily and 0.7 p.m. peak hour trips; commercial would generate 50 daily and 5 peak hour trips per 1,000 square feet; and employment would generate 4 daily and 0.5 p.m. peak hour trips per job. At these rates, the Joint Vision would generate between 480,000 and 635,000 daily, and between 50,000 and 65,000 p.m. peak hour trips. By comparison, the project would generate 41,119 daily and 4,467 p.m. peak hour trips. This would be a substantial addition of traffic to the regional roadway system, and would further exacerbate cumulative traffic impacts. Because, as described above, the addition of Greenbriar traffic would be considerable, it would also contribute considerably to cumulative impacts associated with development of the Joint Vision, if approved.

The land uses for the Measure M area of South Sutter County have only been discussed within basic parameters. The ultimate land uses and how they are configured will largely influence trip generation and distribution patterns for Measure M and until plans are proposed it would be speculative to forecast traffic impacts. Given the magnitude of potential development, which is similar to the Joint Vision, it is likely that substantial additional traffic would be placed on I-5 and SR 70/99, and that traffic impacts would be further exacerbated.

The ability of the project to reduce its contribution to this impact is tied to fair share contributions to regional transportation funds, but these programs are not currently available. Further, in some instances, freeway widening would be required, and this is likely not financially feasible or would require right-of-way acquisition that is not available. It is expected to contribute considerably to a cumulatively significant unavoidable impact. However, an analysis of traffic from the Joint Vision project would need to be conducted, along with the development of mitigation programs, to determine what the actual cumulative impact would be after mitigation. It is suggested that the City of Sacramento and the County consider a regional transportation fee program to fund regional improvements to the degree feasible.

AIR QUALITY

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

Past development in the Sacramento Valley Air Basin combined with meteorological conditions has resulted in significant cumulative impacts to air quality. As described in Section 6.2, "Air Quality," the SVAB is in non-attainment status for ozone and small particulate matter (less than 10 microns in diameter, or PM₁₀).

The Sacramento Metropolitan Air Quality Management District (SMAQMD) has established a significance threshold of 85 lbs/day for oxides of nitrogen (NO_x), an ozone precursor, during construction. For PM₁₀, SMAQMD defines a substantial contribution as any project that would add a concentration of 2.5 micrograms (µg) per cubic meter. Modeling by the District has shown that projects that generally disturb more than 15 acres in any one day, even when fully mitigated by the use of dust control, could add 2.5 µg per cubic meter of PM₁₀ to sensitive receptors near a project site.

The proposed project would result in significant and unavoidable construction-related air quality impacts associated with generation of NO_x and PM₁₀, even with implementation of mitigation measures identified in

section 6.2, “Air Quality.” Assuming all related projects also implement all feasible construction emission control measures consistent with SMAQMD guidelines, construction emissions on some of the related projects may be less than significant, although it is likely that larger projects, such as the Metro Air Park development, would result in significant and unavoidable air quality impacts on their own. This impact cannot be more precisely determined because related projects would develop on their own schedules, some of which are not known. It would, thus, be speculative to try to add together the various projects with their differing and changing schedules. However, given the large scale of development that would occur with the related projects (over 10 times the size of Greenbriar), taken in total and combined with the nonattainment status of the SVAB for ozone and PM₁₀ and other development that would occur in the SVAB, would result in a significant and unavoidable cumulative construction-related air quality impact. Because the project would result in a significant impact from the generation of NO_x and PM₁₀, it would also be expected to contribute considerably to the **significant and unavoidable** cumulative air quality impact.

Long-term emissions from related projects, considered in light of the non-attainment status of the air basin, would also be cumulatively significant. As described in Section 6.2, “Air Quality,” the SMAQMD has established thresholds of significance for project operations: 65 lbs/day of reactive organic gases (ROG) and NO_x, and a substantial contribution to PM₁₀ (see discussion above). The proposed project would result in significant and unavoidable long-term regional (operational)-related air quality impacts and would exceed the SMAQMD thresholds. It would, therefore, contribute considerably to the cumulative air quality impact. Related projects would similarly contribute, although to a much greater degree. Emissions attributable to the proposed project, cumulative development listed on Table 7-1, and emissions from other reasonably foreseeable future projects in SVAB as a whole, would continue to contribute to long-term increases in emissions that would exacerbate existing and projected nonattainment conditions. Thus, the proposed project would contribute to a **significant and unavoidable** cumulative air quality impact and the project’s contribution would be considerable.

Given that compliance with applicable rules and regulations would be required for the control of stationary source TAC emissions, both on-site and off-site, the project’s contribution to long-term cumulative increases in stationary source TAC concentrations would be minor and **less than significant**. Further, exposure to TAC emissions is a site-specific issue.

As described in Section 6.2, “Air Quality,” implementation of the proposed project would result in less-than-significant local mobile source CO-related air quality impacts. Carbon monoxide emissions from mobile sources would be anticipated to further decrease under cumulative conditions because of implementation of emissions control technology, thus, 1- and 8-hour CO concentrations for the 2025 cumulative conditions would not be anticipated to exceed the significance thresholds of 20 ppm and 9 ppm. Consequently, the cumulative impact of the project’s contribution to traffic volumes on the local roadway network relative to CO concentrations would be **less than significant**.

With respect to mitigation, the EIR includes all available feasible mitigation to reduce the project’s contribution to cumulative construction-related and long-term emission air quality impacts; see Section 6.2, “Air Quality,” Mitigation Measures 6.2-1 and 6.2-2. However, while this mitigation would substantially reduce emissions from the project, it is not sufficient to reduce the project’s cumulative contribution to below a level that is not considerable. Therefore, the project would contribute considerably to cumulatively **significant and unavoidable** air quality impacts associated with ozone precursors and PM₁₀ during construction and operations.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Given that the Joint Vision could result in development at a magnitude of more than 10 times the project and the Measure M development could be similar in magnitude as the Joint Vision, they would be expected to further contribute to cumulative significant adverse air quality conditions, especially associated with ozone precursors and PM₁₀ during construction and operations. The Joint Vision and Measure M would, therefore, exacerbate

future cumulative conditions, and the project would contribute considerably to these conditions, because it would exceed significance thresholds as described above.

7.2.3 NOISE

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

Construction activities occurring during the daytime hours are exempt from the provisions of the noise ordinance, provided, however, that all construction equipment is required to be fitted with factory installed muffling devices and maintained in good working order. For the proposed project, it was determined that adherence to these noise regulations would be sufficient to avoid significant construction noise impacts. Because daytime construction is required under the noise ordinance, it can be reasonably assumed that related projects would include such restrictions. Hence, cumulative noise impacts associated with construction noise sources would be expected to be *less than significant*. Further, construction noise is localized. Thus, if construction activities occur simultaneously, they would likely not result in cumulative impacts unless sites are being developed in close proximity to one another and expose sensitive receptors to significant noise levels at the same time. Because the proposed project would comply with the noise ordinance and because it is not anticipated that the proposed project would combine with any others to produce construction noise at sensitive receptors, it would not contribute to any such significant cumulative noise impacts. This would be a *less-than-significant* cumulative impact.

Likewise, stationary noise (i.e., noise generated by stationary on site uses), would be localized to those areas of the site where the noise would be detectable, and would not combine with other projects in the region to produce cumulative noise, and this would be a *less-than-significant* cumulative stationary noise impact.

The one source of noise that would be expected to result in potential cumulative noise impacts is traffic noise. As described in Section 6.3, “Noise,” implementation of the proposed project would result in significant long-term traffic-generated noise impacts under existing plus project conditions, with several homes being exposed to substantial increases in noise. These impacts would occur at selected off-site sensitive receptors within the County, generally at homes located on Lone Tree Road (south of Elkhorn), Elverta Road (east of Power Line), Power Line Road (between Elkhorn and Del Paso), and Elkhorn Boulevard (between Power Line and Lone Tree), where noise from the project was modeled to increase by more than 4 dB CNEL, which exceeds the County’s threshold of significance. Given the relative size of related projects and the fact that they would use the same roadways, it is likely that cumulative development would likewise result in similar significant impacts at these sensitive receptors. The project’s contribution to the noise levels at these areas would be considerable and, as described in Section 6.3, “Noise,” mitigation is not feasible. Therefore the project would contribute considerably to this *significant and unavoidable* cumulative impact.

Further, buildout of the area would result in a noticeable increase in traffic noise on major roadways. For instance, under current conditions, the 65 dB CNEL extends 798 feet from I-5 (west of the SR 70/99 split) (see Table 6.3-1). Under cumulative (with project) conditions, the noise contour would extend an additional 326 feet from I-5 (Table 6.3-13). The 65 dB CNEL from Elkhorn Boulevard, between Lone Tree and SR 70/99, does not extend outside of the roadway under current conditions; under cumulative plus project conditions the 65dB CNEL contour would extend 404 feet (modeled) from the roadway. Thus, the combined cumulative increase in traffic from future growth would extend the 65 dBA CNEL contour (and all other traffic noise contours) considerably, and this would affect sensitive land uses in the area. This is considered a significant cumulative traffic noise impact, and the project would contribute considerably to it. Mitigation for this impact would be developed primarily as new development proceeds, resulting in construction of noise walls, berms, etc. Areas that are already developed and do not have these noise attenuation features would be the most vulnerable to increased noise.

Because cumulative noise would be generated by several projects, it may require a regional program to sufficiently fund sound walls, berms, etc. It is not known if such a program would be feasible to implement. Because mitigation to sufficiently reduce noise at every existing and proposed sensitive receptor may be infeasible, this cumulative traffic noise impact is considered *significant and unavoidable* and the project contribution would be considerable.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Given that the Joint Vision could result in development at a magnitude of more than 10 times the project and it would contribute substantial new traffic to regional roadways, it would be expected to further contribute to cumulative significant adverse noise generation at sensitive land uses. The Joint Vision would, therefore, exacerbate future cumulative conditions, and the project would contribute considerably to these conditions, because it would exceed significance thresholds as described above. Because potential Measure M development in south Sutter County would be similar in magnitude as the Joint Vision (although traffic patterns would be different), it is likely to contribute even further to cumulative noise impacts. Mitigation would need to be considered once the magnitude of noise impacts is better understood, but may or may not be feasible. The project's contribution to cumulative noise would be considerable, and the impact is assumed to be significant and unavoidable.

7.2.4 UTILITIES

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

Cumulative development throughout the City of Sacramento is expected to increase demand for water from 135,576 acre-feet/year (AFY) in 2005, to 242,877 AFY in 2030. Entitled surface water supply would increase from 205,000 AFY in 2005 to 310,800 AFY in 2030 (see Table 6.4-2 in Section 6.4, "Utilities"). Ample surplus water is available over the foreseeable future. Further, no additional water treatment or conveyance facilities would be needed to serve the project. The project would result in a *less-than-significant* cumulative water supply impact.

Regarding wastewater conveyance, Section 6.4, "Utilities," identified that sufficient capacity is available to convey wastewater to the SRWTP. Further, Sacramento Regional County Sanitation District has indicated that capacity would be available to treat project-related wastewater flows (Hedges, pers. comm., 2006). Cumulative development in the Sacramento Regional Wastewater Treatment Plant (SRWTP) service area (most of Sacramento County and part of Yolo County) would result in the need to expand the treatment plant, and this expansion is planned and has undergone CEQA review and approval (the legal adequacy of the EIR is being challenged). The expansion would be timed to proceed before its capacity constraining development. The proposed project would contribute considerably to the need to expand the plant, and the expansion would result in significant air quality impacts from ozone precursors during construction. No other unmitigated significant impacts from plant expansion were identified in the EIR prepared for the plant expansion. However, the project would contribute considerably to a *significant and unavoidable* cumulative impact.

With implementation of the project, no increase in the discharge rate of stormwater runoff from the site from the project would be expected, so the project would not contribute cumulatively to any stormwater runoff impacts from related development. This would be a *less-than-significant* cumulative impact.

On a cumulative basis, adequate electrical and natural gas facilities and services are available to meet project demands because staffs of SMUD and PG&E have indicated that they would expand their operations on an as-needed basis to meet new demands (Hager, pers. comm., 2005; Schlaht, pers. comm., 2005). No expansion of existing facilities would be required for the project. As a result, the project would not contribute to a significant cumulative electricity and natural gas impact. This would be a *less-than-significant* cumulative impact.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Development in the Joint Vision area would increase demands for water. Given the availability of water in the City, it is not expected that Joint Vision development would result in significant cumulative water supply impacts. Sutter County has its own water supply system and would not cumulatively affect the availability of entitled water for the City of Sacramento.

Joint Vision development would add to the need for additional wastewater treatment services, which would require expansion as a result of cumulative development (see discussion above). It is unknown if Measure M development would seek connection to the SRWTP, or if it would provide for a different means of treatment, so its contribution to the need to provide expanded local wastewater treatment facilities is not known.

7.2.5 PUBLIC SERVICES

As described in Section 6.5, “Public Services,” of the EIR, the project applicant would prepare a separate financing plan that would establish the necessary funding mechanisms to provide services to the project. A summary of the elements and performance standards of the finance plan is included in Appendix C. The proposed project would fully provide for its increment of necessary public services and would not result in a contribution to any cumulative impacts. As stated in Section 6.5, “Public Services,” of this EIR, no new police, fire, or solid waste facilities would be required that are not already planned for; sufficient capacity has been determined to exist at proposed on-site and off-site schools, and no long-term shortfall of school services and facilities would result; and the project proponent would pay development impact fees sufficient to mitigate school impacts. For these reasons, the proposed project would result in less-than-significant public services impacts and would not contribute to a cumulative public services impact. This would be a *less-than-significant* cumulative impact.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Proposed cumulative development, and additionally the Joint Vision and Sutter County Measure M projects, may result in cumulative impacts to various public services, but because the project would not result in an incremental contribution to these impacts, no further analysis is needed under CEQA.

7.2.6 PARKS AND OPEN SPACE

The proposed project would not result in significant impacts on parks and open space. Similarly, development of the cumulative projects would not be expected to result in impacts related to parks and open space because each development would be required to comply with the City’s standards for provision of park facilities. The City does, however, have a citywide deficit of neighborhood/community parkland acreage of less than 20 acres (City of Sacramento 2004a). This deficit is a baseline effect and is considered a significant cumulative impact because it has resulted from past development in the City. However, the proposed project would meet the City’s Quimby Act parkland dedication requirements (see Section 6.6, “Parks and Open Space”) and it would satisfy the proposed project’s overall park needs. Because of this, it would not contribute to the cumulative parkland deficit and would, therefore, not contribute considerably to any park impacts. However, conversion of the project site from predominantly agricultural and open space uses to urban development would result in a significant open space impact. The applicant would provide land for in a permanent conservation easement for open space to offset the project’s impact to open space resources. While the permanent conservation easement would lessen significant effects, it would only partially offset proposed conversion and no new open space would be made available. As a result, the project would result in a considerable contribution to a *significant and unavoidable* cumulative open space impact.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Proposed cumulative development, and additionally the Joint Vision and Sutter County Measure M projects, may result in cumulative impacts to parks, but because the project would not contribute to these impacts, no further analysis is needed under CEQA. Further, it is likely that these new projects would meet parkland dedication requirements that would cover their contribution to parkland demand, given that they would be subject to Quimby Act requirements. Development of the Joint Vision and Sutter County M projects would result in the permanent conversion of open space resources. Although, open space resources would be permanently conserved as part of those projects, no new open space areas would be created and conserved lands would only partially offset open space impacts. The project in combination with the Joint Vision and Sutter County M projects would result in a considerable contribution to a *significant and unavoidable* cumulative open space impact and the project's contribution would be considerable.

7.2.7 AESTHETICS

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

Implementation of the proposed project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses, resulting in a significant aesthetic impact related to degradation of visual character. Because of the scale and location of the proposed project, there is no feasible mitigation available to address aesthetic resource impacts associated with the conversion of agricultural land to urban development. However, the area to the south and east of the site has been undergoing a visual transformation over the last 10 years, as the NNCP area has converted from predominantly agriculture to a suburbanized setting. The project would result in the extension of this suburban setting. Although design, architectural, development, and landscaping standards are included to ensure that urban development on the project site conforms to certain aesthetic guidelines, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to urban development. Because development in the NNCP area and Metro Air Park has occurred on formerly agricultural land, as would be the case under the proposed project, and West Lakeside development, development of the NNCP would be expected to result in a similar aesthetic impact regardless of implementation of project design guidelines. Therefore, the proposed project would considerably contribute to a significant cumulative impact on aesthetics, and this impact would be *significant and unavoidable*.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Development in the Joint Vision area would result in the conversion of around half of the 10,000-acre open space between the current NNCP boundaries and the Sutter County line. This conversion would extend even further the change in the viewshed from open space to suburban. This sort of change would be perceived as a regional alteration of open space, and would lend to the overall aesthetic sense that a large part of the formerly rural area north of downtown Sacramento is irretrievably changing to suburban development. This is a cumulatively significant impact. The impact could be reduced by requiring that large areas of open space are retained along I-5 and SR 70/99, and by requiring design features that provide for visually diverse and high quality development. Further, a concept included in the Joint Vision MOU calls for a buffer between development in the Joint Vision area and the boundary with Sutter County. This would help maintain visual buffer so it does not appear that development in Sacramento County is merging with development in Sutter County and community separation would be somewhat maintained.

Development of the Measure M area of Sutter County would convert an additional 7,500 acres and add to the cumulative impact associated with this aesthetic impact. The buffer between Sacramento County and Sutter County would help reduce the sense of cumulative change in aesthetic character, but would not eliminate the overall visual sense of the conversion of the project area from agriculture to suburban development. This is a cumulatively *significant* impact.

The project would contribute considerably to this cumulatively significant aesthetic impact, even though its impact would be substantially reduced through mitigation proposed for the project.

7.2.8 PUBLIC HEALTH AND HAZARDS

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

The proposed project would result in a potentially significant public health and hazards impact related to the potential for health hazards from soils contaminated by previously unknown underground storage tanks (USTs) or by other sources at the former Two Jakes Park site (see Section 6.8, “Public Health and Hazards”). However, any USTs found would be removed and any contaminated soils would be excavated and treated according to County Environmental Management Department (EMD) procedures before the resumption of construction, thus reducing this impact to a less-than-significant level. Similarly, development of cumulative projects would not be expected to result in significant impacts related to public health and hazards that could not be addressed by standard mitigation and remediation measures (City of Sacramento 1993). This would be a *less-than-significant* cumulative impact.

Implementation of the project would place residents within the Sacramento International Airport’s overflight safety zone and would be inconsistent with the safety standards in the comprehensive Land Use Plan (CLUP) related to the proposed parks and lightrail station that fall within the overflight safety zone. Location of these facilities in the Airport’s overflight safety zone would increase safety risks associated with aircraft operations. It is important to note that locating a project within an Airport Safety Zone does not suggest that safety impacts would occur; rather, the Airport Safety Zone is an area of elevated safety risk. That is, in the highly unlikely circumstance of a forced landing not on airport property, the Airport Safety Zone is the area where such a forced landing has a greater probability of occurring. Therefore, development located within this area has an elevated risk of a safety hazard, although such a risk remains remote.

Other cumulative development proposed in and near the airport safety zone could add to this cumulative impact. The Metro Air Park project is located within the Airport Safety Zones. The project is the only other project currently being considered that is located within the overflight zone of the airport. These two projects, together, cumulatively increase safety risks from airport overflights. The West Lakeside project, located southeast of the airport, is outside of the Safety Zone even though it is subject to overflights from airport. Given that the overflight zone defines the maximum extent of defined significant safety risk, the fact that no other projects are within the overflight zone suggests that there are no other projects that contribute to this cumulative impact. As described in Section 6.8, “Public Health and Hazards,” the project’s airport safety hazard impacts would be reduced to a less-than-significant level through implementation of mitigation that requires a wildlife management plan for the on-site lake/detention basin. Therefore, this is a *less-than-significant* cumulative impact and the project’s contribution would be less than considerable.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Much of the land that is located within the Joint Vision area is also located within the Sacramento International Airport safety zone. However, no specific development locations have been established within the Joint Vision area. Therefore, it is not known if development within the Joint Vision area would add to cumulative impacts associated with the airport overflights and the attendant safety risks. Similarly, the very southern edge of the Measure M area falls within the northern extent of the Airport Safety Zone. However, there is not a specific land use plan for the Measure M area, as yet, so it cannot be determined if any land uses would be located within the overflight safety area. To the extent of that land uses may be located within the Airport Safety Zone, such land uses would, in combination with Greenbriar and the Metro Air Park projects, add to cumulative impacts associated with airport safety. Because land uses for both the Joint Vision and Measure M areas have not yet been defined, it would be speculative to state that inconsistent land uses would be located within the airport safety

zone. Therefore, there is no conclusion that can be drawn regarding whether there would be increased cumulative impacts associated with development in these areas.

7.2.9 GEOLOGY AND SOILS

The proposed project would result in potentially significant impacts related to exposure of people and structures to seismic hazards, including ground shaking and liquefaction; subsidence or compression of unstable soils; and damage associated with expansive soils. However, these impacts would be reduced to a less-than-significant level with implementation of recommendations included in the preliminary geotechnical report and a comprehensive site-specific geotechnical report for the proposed project. Any residual less-than-significant impacts would be confined to the project site; it would not combine with any geotechnical effects associated with development in other areas. Similarly, development of cumulative projects would not be expected to result in geology and soils impacts that could not be addressed by standard engineering practices (City of Sacramento 1993). In combination, additional cumulative geology and soils impacts would not be anticipated because these effects are typically site-specific. Thus, the proposed project would result in a *less-than-significant* cumulative geology and soils impact.

7.2.10 HYDROLOGY, DRAINAGE, AND WATER QUALITY

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

The proposed project would not result in significant impacts related to hydrology, drainage, and water quality. At the time of publication of the 1993 NNCP EIR Supplement and the subsequent NNCP Update (City of Sacramento 1993, 1996), the NNCP area was located within the 100-year floodplain; thus, development of the NNCP area under the conditions described in the 1993 EIR Supplement and NNCP Update would be expected to result in a significant and unavoidable impact with regard to flooding hazards. However, the North Natomas area was granted 100-year flood protection in 1998 as a result of local flood protection projects, and the significant and unavoidable impact conclusion was no longer valid. As described in Section 6.10, “Hydrology, Drainage, and Water Quality,” of this EIR and because the project is not located within a designated 100-year floodplain, less-than-significant flooding impacts would occur and the project would not contribute to any cumulative flooding impacts. This would be a *less-than-significant* cumulative impact.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

As described above, there is adequate flood protection for development within the project area and the project would not contribute to cumulative impacts. It is not known, and it is beyond the scope of this EIR, to determine if development within the Joint Vision area and the Measure M area would be subject to flood risks. Because this issue is somewhat speculative (see discussion above and Section 15145 of the State CEQA Guidelines), no conclusion can be drawn with respect to whether the proposed project in combination with development of the Joint Vision and Measure M projects would result in significant cumulative effects to flooding.

7.2.11 AGRICULTURE

PLANNED AND PROPOSED DEVELOPMENT IMPACTS

Approval of the NNCP required that the City of Sacramento adopt a Statement of Overriding Considerations for the significant impact of conversion of agricultural land. The City determined that conversion of farmlands that were once within the boundaries of the NNCP was an acceptable impact and that there were overriding reasons for approval of development of the NNCP. The NNCP, in combination with the proposed West Lakeside project and the Metro Air Park project, would convert a total of 11,100 acres of land, much of it in agriculture. A large amount of this land has already been converted within the NNCP. The proposed project would convert 518 additional acres of Important Farmland at the site (389 acres of Prime Farmland). While the EIR includes mitigation aimed at reducing the potential to cause adjacent land to convert from agriculture to urban uses, and

would preserve through permanent conservation easements open space and habitat lands, some of which may be used for agricultural operations, the impact of the conversion of 518 acres of on-site agricultural land is a significant and unavoidable impact. In combination, the proposed project would add to the cumulative loss of farmlands associated with other development in the NNCP, plus West Lakeside. This is considered a significant cumulative impact to which the project would contribute. Because additional feasible mitigation is not available to mitigate the loss of agricultural land, this impact would be *significant and unavoidable*.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Development of the Joint Vision area would result in an estimated conversion of up to 4,683 acres of open space land to developed uses. Some of the developed uses would include parks, but also would result in a conversion of current land uses. The majority of this land is in agricultural use. Conversion of this amount of agricultural land would be a significant impact. Similarly, the Measure M area would result in the conversion of up to 7,500 acres of land, most of it in agricultural use. The combination of this conversion, in addition to the agricultural conversions described above, would result in substantial loss of agricultural land within the Natomas basin. This is a significant cumulative impact to agricultural land, and the proposed project would contribute considerably to this impact. There are no mitigation measures available to substantially lessen this cumulatively significant and unavoidable impact.

7.2.12 BIOLOGICAL RESOURCES

Similar to the proposed project, additional development as proposed within the North Natomas community would result in impacts to Swainson's hawk, giant garter snake, riparian/wetland habitat, and agricultural lands/rice fields. The development of the NNCP area and the Metro Air Park in combination with the proposed project would continue to diminish the lands available for biotic resources. The undeveloped lands in this area, as well as South Sutter County, and West Yolo County, serve as prime habitat for a variety of wildlife and vegetation. The continued development of these lands would result to the incremental decline in the number and diversity of plant and animal species, including sensitive species. The project would contribute to this decline. This is a considerable contribution to this *significant* cumulative impact.

In consideration of these impacts, the Natomas Basin Habitat Conservation Plan (NBHCP) provides a comprehensive program for the preservation and protection of habitat for threatened and endangered species potentially found on approximately 53,537 acres of undeveloped and agricultural land in northwestern Sacramento County and southern Sutter County. The primary component of the conservation strategy for funding habitat reserve acquisition would be the use of mitigation fees to set aside 0.5 acre of habitat land for each acre of development that occurs in the Natomas Basin. Approximately 8,750 acres of land would be acquired or preserved through implementation of the NBHCP. Included within this area is development within the NNCP, which includes all the cumulative projects except for West Lakeside. West Lakeside would require its own habitat conservation strategy, possibly through preparation of a habitat conservation plan, or through some other similar means. In addition, a HCP was approved for the Metro Air Park. These conservation plans in combination with the mitigation recommended for the proposed project provide a comprehensive preservation, conservation, and minimization strategy, would reduce the severity of these cumulative biological impacts.

In addition to the projects considered for all resource areas in this EIR, other projects are considered in the cumulative impacts for biological resources. These projects are considered for biological resources only because they do not combine with other resource areas (e.g., traffic, agriculture, etc.) to produce cumulative effects, or they are already considered in other sections of this EIR (e.g., noise from the expanded airport operations is considered in Section 6.3, "Noise"). Other projects include:

SACRAMENTO INTERNATIONAL AIRPORT DEVELOPMENT PLAN

The Airport Development Plan would include the major improvements that are needed at the Sacramento International Airport over a 20-year planning horizon. These improvements are safety, security, and capacity enhancement projects that would enable the Sacramento County Airport System to meet customer service goals at increased levels of activity in passengers, air cargo, and aircraft operations.

The plan is still under development; but, the Sacramento International Airport Master Plan Study (PB Aviation 2004) contains a recommended Airport Development Plan that illustrates the type, location, and scale of projects under consideration. Most projects would be within the existing Airport Operations Area (AOA). Outside of the APA, potential projects include approximately 400 acres of development (parking and commercial development) on adjacent land along I-5, and approximately 500 acres of development (aviation-related and commercial development) on adjacent land to the north of the AOA.

The recommended Airport Development Plan also would eliminate several waterways, including:

- ▶ 4.4 miles of the drainage ditch north of Elverta Road,
- ▶ 2.0 miles of the drainage ditch west of Power Line Road,
- ▶ 1.0 mile of the canal adjacent to the access road west of Power Line Road, and
- ▶ 0.5 mile of the drainage ditch along Bayou Road.

SACRAMENTO AREA FLOOD CONTROL LEVEE UPGRADE PROJECT

To assess the risk of levee failure and to identify potential remedies, SAFCA commissioned the Natomas Levee Evaluation Study in 2005, discussed in more detail in Section 6.9, “Hydrology, Drainage, and Water Quality.” A variety of remedies were proposed for identified problems. Most of these remedies involve levee improvement and bank protection techniques, including construction of cutoff walls within existing levees, placement of toe rock, and revegetation of banks at locations along existing levees that pose erosion problems. The implementation of these remedies could temporarily disturb approximately 30 acres of habitat for covered species.

As a potential remedy, the study also assessed a setback levee along the upper 5 miles of the east levee of the Sacramento River. This levee would be set back about 1,000 feet from the existing levee. Under this alternative the existing levee would continue to confine the river; the new levee would ensure safe containment of a 200-year flood if the existing levee were to fail. The construction of this levee could affect up to 150 acres of habitat for species covered by the NBHCP (EDAW 2005).

NATOMAS MUTUAL WATER COMPANY AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT PROJECT (ABFSHIP)

The Natomas Mutual Water Company (Natomas Mutual) annually diverts nearly 100,000 AF of water from the Sacramento River and the Natomas Cross Canal and distributes that water throughout the Natomas Basin. Natomas Mutual is currently planning and designing two new diversions to replace its existing five diversions. These pumps would be located along the Sacramento River near Sankey Road and between Elverta Road and Elkhorn Road, respectively. These new diversions would retain the same pumping capacity of the existing diversions (630 cubic feet per second [cfs]), plus an additional 14 cfs to accommodate the Bolen Ranch, which would then eliminate its existing, independent diversion. The new pumps, however, would be variable frequency drive pumps that would facilitate the management of water levels throughout the canal system. Other changes to the current infrastructure would include:

- ▶ Construction of a new highline canal between the proposed Sankey Diversion along the landside of the Natomas Cross Canal south Levee to the existing Northern Pumping Plant;

- ▶ Relocation and extension of the existing Vestal Drain adjacent to the new highline canal between RD 1000's Pumping Plant No. 4 and the new Sankey Diversion site;
- ▶ Decommissioning and removal of the existing Verona Diversion Dam and Lift Pumps;
- ▶ Additional capacity for the internal re-lift pumps at RD 1000 Pumping Plant No. 3 in place of the removed Riverside Pumping Plant;
- ▶ Re-grading the Riverside Main Highline Canal from RD 1000 pumping Plant No. 3 to the existing Riverside Pumping Plant;
- ▶ Upgrading of two control structures, the County Line Check and Lift Pump and the Elkhorn Check and Lift Pumps;
- ▶ Removing the five pumping plants (two along the Natomas Cross Canal and three along the Sacramento River);
- ▶ Re-grading the North Drainage Canal from the V Drain to Highway 99 in order to improve conveyance; and,
- ▶ Re-grading the Elkhorn Main Highline Canal between the existing Prichard Pumping Plant and the existing Elkhorn Pumping Plant.

SACRAMENTO RIVER WATER RELIABILITY STUDY

The Sacramento River Water Reliability Study (SRWRS) was initiated in 2002 by the U.S. Bureau of Reclamation (Reclamation), Placer County Water Agency (PCWA), Sacramento Suburban Water District (SSWD), City of Roseville (Roseville), and City of Sacramento (Sacramento). Its goal is to develop a water supply plan that is consistent with the Water Forum Agreement (The Water Forum 2000). It would fulfill this goal by providing additional water supply to PCWA for planned urban growth, to SSWD for groundwater stabilization, to Roseville for planned urban growth and a local conjunctive use program, and to Sacramento for water supply reliability and wheeling services with neighboring water purveyors to meet their water supply demands and to reduce their reliance on groundwater. It also would increase the interconnectivity and source redundancy to the water supply system to maximize long-term water supply reliability.

An initial alternatives report has been prepared for this study (Reclamation 2005) that developed four alternatives. These alternatives are:

SRWS Elverta Diversion Alternative. This alternative would consist of a diversion on the Sacramento River with an associated pump station and water treatment plant, and treated water pipelines to water distribution systems of the SRWRS partners. Water pipelines would extend from the Sacramento River across the Natomas Basin along or adjacent to Elverta Road, and from Elverta Road south to the City of Sacramento. Total pipeline length would be approximately 9 miles.

Joint SRWS-ABFSHIP Elverta Diversion Alternative. This alternative would consist of a consolidated diversion on the Sacramento River and associated facilities to accommodate the needs of the SRWRS partners and the NMWC from the Elkhorn Diversion planned under the ABFSHIP. Water pipelines would extend from the Sacramento River across the Natomas Basin along or adjacent to Elverta Road, and from Elverta Road south to the City of Sacramento. Total pipeline length would be approximately 9 miles.

ARPS-Elverta Diversion Alternative. This alternative would consist of facility expansions by PCWA in Placer County, increased use of groundwater by Roseville, and construction of a diversion on the Sacramento River and of associated treatment and transmission facilities by Sacramento. (Under this alternative, NMWC would construct and operate its planned Elkhorn Diversion independent of the SRWRS, or continue to divert from its

existing diversion.) Water pipelines would extend from the Sacramento River along or adjacent to Elverta Road for approximately 5 miles, and from Elverta Road south to the City of Sacramento. Total pipeline length would be approximately 6.5 miles.

ARPS-Joint Sacramento-ABFSHIP Elverta Diversion Alternative. This alternative would include the same facilities as the ARPS-Elverta Alternative plus additional diversion capacity and facilities at the diversion if the ABFSHIP lead agencies select the Sankey/Elkhorn Diversions alternative for the ABFSHIP. Water pipelines would extend from the Sacramento River along or adjacent to Elverta Road for approximately 5 miles, and from Elverta Road south to the City of Sacramento. Total pipeline length would be approximately 6.5 miles.

Each of these projects could combine to result in disturbances to biological resources, particularly aquatic resources. Mitigation would be developed for each of these projects, and to the degree that endangered species are affected, mitigation would be required, by law, to fully mitigate impacts.

Similarly, the Greenbriar project would be required to comply with the federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). Both of these acts require that impacts to endangered species are minimized and fully mitigated. As described in Section 6.12, "Biological Resources," extensive mitigation is proposed, including the purchase and enhancement of two mitigation sites (Natomas 130 and Spangler), purchase of additional easements for Swainson's hawk habitat; along with establishment of a 250-foot linear open space/buffer along the western edge of the Greenbriar site. Additionally, the project applicant would consult with the USFWS and the CDFG on this mitigation plan, and would incorporate additional mitigation that arises through the consultation process. Taken together, it is expected that this mitigation would lessen the impact of the proposed project on biological resources to the extent that it is not considerable. The project, therefore, would not contribute considerably to a cumulatively significant impact on these biological resources and this would be a *less-than-significant* cumulative impact.

JOINT VISION AND SUTTER COUNTY MEASURE M CUMULATIVE IMPACTS

Development within the Joint Vision area would result in the conversion of up to 4,683 additional acres of open space land that provides various levels of habitat for Swainson's hawk, giant garter snake, and other species that are currently protected by the NBHCP. This is nearly half the acreage within that Joint Vision area. Some of the land within this area has already been set aside as a habitat in compliance with the NBHCP. Additional development within the Joint Vision area would be expected to have adverse impacts on the various species covered by the NBHCP. It is very likely, and expected, that any development within this area would require a new habitat conservation plan, consistent with FESA and the CESA. As described above, compliance with these laws requires that impacts to endangered species are minimized and fully mitigated. However, it must be recognized that this level of additional development would be expected to have residual environmental impacts to the various species in the area. While the extent of potential mitigation for development within this area is not currently known, there is the real potential that cumulatively significant impacts to various of the species could occur. Because the project would result in adverse effects (which would be mitigated), it has the potential to combine with adverse effects from development in the Joint Vision area, and generate cumulatively significant impacts. However, a conclusion on this issue cannot be reached until development is actually proposed in the Joint Vision area.

The Measure M area is located on property that is covered by the incidental take permit issued under the NBHCP. While development of this 7,500 acre area could adversely affect the various species covered by the NBHCP, the impacts would be minimized and fully mitigated through necessary compliance with the terms of the NBHCP.

Overall, development of the project site, the NNCP area, West Lakeside, the Joint Vision area, and the Measure M area would result in development of several thousand acres of habitat and potential habitat. While this development would be subject to the terms and conditions of HCP's, which either are or would be in existence to guide development while minimizing impacts of biological resources, it is cumulative impacts could occur to

sensitive biological resources. That stated, it would be speculative to conclude, without the details of any HCP's, whether the residual impacts would be cumulatively significant.

7.2.13 CULTURAL RESOURCES

Development of the cumulative projects have the potential to result in the discovery of undocumented subsurface cultural resources or unmarked historic-era and prehistoric Native American burials. However, these potential impacts would not increase in severity in consideration of cumulative projects. In addition, the incorporation of standard measures addressing the response when undocumented resources are discovered would address this potential impact. For these reasons, the proposed project would result in a *less-than-significant* cumulative impact on cultural resources.

7.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE CAUSED BY THE PROPOSED PROJECT

CEQA (Public Resources Code Section 21100[b][2]) provides that an EIR shall include a detailed statement setting forth “[i]n a separate section...[a]ny significant effects on the environment that would be irreversible if the project is implemented.” State CEQA Guidelines Section 15126.2(c) provides the following guidelines for analyzing the significant irreversible environmental changes of a project:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irretrievable damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Although the proposed project would use minor amounts of both renewable and nonrenewable natural resources for project construction, this use would not increase the overall rate of use of any natural resource, or result in the substantial depletion of any nonrenewable resource.

The project includes the development of or creation of access to a previously inaccessible area. However, development of the project site would commit future generations to the significant irreversible change of converting the project site from agricultural, which supports both crops and habitat, and open-space use to an urbanized land use. Mitigation for habitat conversion is included in the project and considered in this EIR.

Lastly, the proposed project is not anticipated to result in irreversible damage from environmental accidents, such as an accidental spill or explosion of a hazardous material. During construction, equipment would be using various types of fuel and material classified as hazardous. In the State of California, the storage and use of hazardous substances are strictly regulated and enforced by various local, regional, and state agencies. The enforcement of these existing regulations would preclude credible significant project impacts related to environmental accidents.

7.4 SUMMARY OF SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This section is prepared in accordance with Section 15126.2(b) of the State CEQA Guidelines, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated but cannot be reduced to a less-than-significant level.

An analysis of environmental impacts caused by the proposed project is provided in Chapter 6 of this EIR. The following is a summary of the impacts that have been determined to be significant and unavoidable:

► *Transportation*

- *Impacts to the Freeway Ramps.* The proposed project would increase traffic volumes on the freeway system and would cause three study freeway ramps (i.e., SR 70/99 NB/Elkhorn Boulevard off ramp, SR 70/99 SB/I-5 SB off ramp, and I-5 NB/SR 70/99 NB off ramp) to operate unacceptably under Baseline plus Project Conditions. With implementation of mitigation measures 6.1-3b, the SR 70/99 Northbound to Elkhorn Boulevard off ramp would operate at acceptable levels and this impact would be reduced to a less-than-significant level. However, this ramp is not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this ramp to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA impacts to the SR 70/99 Northbound to Elkhorn Boulevard off ramp (Impact 6.1-3b) would remain ***significant and unavoidable***. Further, no feasible mitigation is available to reduce the project's impacts to the SR 70/99 Southbound to I-5 Southbound on ramp and the I-5 Northbound to SR 70/99 Northbound off ramp because recommended mitigation is beyond the control of the project applicant, outside the jurisdiction of the City, and there is no established funding mechanism available for contribution to recommended improvements. Therefore, impacts to these ramps would be ***significant and unavoidable***.
- *Freeway Mainline Segment Impacts.* The proposed project would increase traffic volumes on the freeway system and would cause four study freeway mainline segments (i.e., I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard, SR 70-99 between Elverta Road and Elkhorn Boulevard, and SR 70/99 between Elkhorn Boulevard and I-5/SR 70/99 interchange) to operate unacceptably under Baseline plus Project Conditions. Because no feasible mitigation is available to reduce the project's impacts to study area freeway segments, impacts to these freeway segments would remain ***significant and unavoidable***.
- *Cumulative Traffic Impacts to Study Area Intersections.* Traffic volumes associated with the project in combination with other reasonably foreseeable cumulative projects would cause several study area intersections to operate unacceptably and exceed City and County thresholds of significance for intersection operations. The intersections of SR 70/99 Southbound Ramps and Elkhorn Boulevard, SR 70/99 Northbound Ramps and Elkhorn Boulevard, and Metro Air Parkway are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be considered ***significant and unavoidable***.

Further, no feasible mitigation is available or implementation of feasible mitigation can not be guaranteed because it is not subject to the control of the City for the intersections of Elkhorn Boulevard and Lone Tree Road, Meister Way and Metro Air Parkway, Meister Way and Lone Tree Road, Elkhorn Boulevard and Project Street 1, Elkhorn Boulevard and Project Street 2, and Elkhorn Boulevard and Project Street 3. Therefore, the project's cumulative impacts to these intersections are considered ***significant and unavoidable***.

- *Cumulative Impacts to Study Area Roadway Segments.* The proposed project in combination with cumulative projects would increase traffic volumes along the Elkhorn Boulevard west of SR 70/99 interchange segment and would cause this segment to degrade from an acceptable operating condition (i.e., LOS A) to an unacceptable operating condition (i.e., LOS F). No feasible mitigation is available to reduce the project's cumulative impacts to this segment. Therefore, the project's cumulative impact to this intersection would be ***significant and unavoidable***.

- *Cumulative Impacts to Study Area Freeway Ramps* The proposed project in combination with cumulative projects would increase traffic volumes on the freeway system and would cause six study freeway ramps to operate unacceptably under Cumulative plus Project Conditions and exceed Caltrans thresholds of significance for freeway ramp operations. With implementation of recommended mitigation measures, SR 70/99 Northbound to Elkhorn Boulevard off ramp, I-5 Northbound to Metro Air Parkway off-ramp, I-5 Southbound to Metro Air Parkway off-ramp, and the Metro Air Parkway to I-5 Southbound loop on-ramp would operate at acceptable levels under cumulative conditions and the project's cumulative impact would be reduced to a less-than-significant level. However, these ramps are not under the jurisdiction of the City of Sacramento (i.e., subject to Caltrans jurisdiction). While the project would contribute funds that would implement measures that would fully mitigate impacts to this intersection to a less-than-significant level, it is unknown whether these measures would be implemented because they are not subject to the control of the City. As a result, for purposes of CEQA, cumulative impacts to these intersections would be **significant and unavoidable**.
- Further, no feasible mitigation is available or implementation of feasible mitigation can not be guaranteed because it is not subject to the control of the City for the Elkhorn Boulevard to SR 70/99, Southbound slip on ramp and the Northbound to SR 70/99 Northbound off ramp. Therefore, the project's cumulative impacts to these intersections are considered **significant and unavoidable**.
- *Cumulative Freeway Mainline Segment Impacts*. The proposed project in combination with cumulative projects would increase traffic volumes on the freeway system and would cause three study freeway mainline segments (i.e., I-5 east of Powerline Road, I-5 north of Del Paso Road, I-5 north of I-5/I-80 interchanges between I-80 and Arena Boulevard) to operate unacceptably under Cumulative plus Project Conditions. These intersections would operate unacceptably under Cumulative no Project conditions; however, the project would contribute additional trips to these intersections, which is unacceptable based on Caltrans standards. No feasible mitigation is available to reduce the project's cumulative mainline freeway segment impacts (Impacts 6.1-8a, b, and c) to a less-than-significant level. Therefore, the project's cumulative impacts to these mainline freeway segment impacts would be **significant and unavoidable**.

► *Short-term Construction Generated Emissions*

The proposed project would result in construction-generated emissions that would exceed SMAQMD's significance threshold for NO_x and would contribute concentrations that would exceed ambient air quality standards. Mitigation recommended for the project would include measures to limit temporary construction emissions including use of late-model engines, low-emission diesel products, alternative fuels, payment of fees to SMAQMD's construction mitigation fund, and reduction of fugitive dust emissions. Implementation of the recommended mitigation would substantially reduce NO_x and fugitive dust emissions; however, emissions would still exceed SMAQMD's significance thresholds. Therefore, the project would result in a **significant unavoidable** impact and would result in a substantial contribution to a **significant and unavoidable** cumulative impact.

► *Generation of Long-Term (Regional) Emissions of ROG, NO_x, and PM₁₀*

Long-term operation of the project would result in operations of ozone-precursor pollutants that would exceed SMAQMD's threshold. Furthermore, the project's operational emissions would conflict with or obstruct implementation of applicable air quality plans. Mitigation recommended for the project would include the redesign and incorporation of features into the project that would encourage bicycle, pedestrian, and transit use, would eliminate physical barriers between residential and nonresidential uses, and building to Title 24 energy standards. Implementation of the recommended mitigation would substantially reduce operational emissions; however, emissions would still exceed SMAQMD's significance thresholds. Therefore, the project

would result in a **significant unavoidable** regional emission impact and would result in a substantial contribution to a **significant and unavoidable** regional emission cumulative impact.

► *Long-Term Operational Traffic Noise*

Implementation of the project would result in increases in traffic noise levels greater than 4 dBA and would cause noise levels to exceed the County's 60 dBA L_{dn}/CNEL exterior noise standards at sensitive receptors in unincorporated Sacramento County. No feasible mitigation is available to reduce exterior project-related traffic noise levels to a less-than-significant level. Therefore, the project would result in a **significant and unavoidable** long-term operational traffic noise impact and would result in a substantial contribution to a **significant and unavoidable** long-term operational traffic noise cumulative impact in the County.

► *Land Use Compatibility with On-site Noise Levels*

Implementation of the project would expose on-site sensitive receptors to future noise levels generated by area traffic and light rail operations that exceed applicable noise standards. Mitigation recommended for the project would require the construction of sound barriers, re-orientation of on-site land uses to protect outside areas from transportation noise, and preparation of site-specific acoustical analyses. Even with implementation of recommended mitigation, outdoor areas at proposed residential uses and the proposed school would exceed the City's noise standards. Therefore, the project would result in a **significant and unavoidable** land use compatibility impact and would result in a substantial contribution to a **significant and unavoidable** land use compatibility cumulative impact.

► *Environmental Impacts Associated with SRWTP Expansion*

The project would result in increased demand for wastewater treatment from the SRWTP. Although wastewater treatment capacity is currently available to serve the project, the project in combination with other cumulative development would result in the need to expand the capacity of the SRWTP. The SRCSD prepared and approved the SRWTP 2020 Master Plan Expansion Project in 2004, which would allow the incremental expansion of the SRTWP to meet projected wastewater demands over the next 15 to 20 years. An EIR was prepared and certified for that project and identified one significant and unavoidable impact related to construction-related air quality. Although wastewater treatment capacity is currently available to serve the project, the project in combination with other development would contribute to the need for and expanded SRWTP and would contribute to the **significant and unavoidable** construction-related air quality impact. Therefore, the project would contribute to a **significant and unavoidable** cumulative wastewater impact.

► *Increased Demand for Fire and Emergency Medical Services*

Implementation of the project would increase demand for fire protection services. Although the Sacramento Fire Department (SFD) is planning to construct a new fire station near the project site and with this facility SFD would provide fire and emergency services to the project site within acceptable standards, the timing of construction of this facility is currently unknown and could result in a potentially significant fire and emergency medical service impact. Mitigation recommended for the project would require that adequate fire and emergency medical services be in place before issuance of the project's first occupancy permit, which may require the construction of a new fire station facility. Construction of this facility could result in construction-related environmental effects some of which may be significant and unavoidable even with implementation of all feasible mitigation. Therefore, because the project would contribute the need for a new fire station facility the construction of which could result in significant and unavoidable environmental effects, this would be a **significant and unavoidable** impact.

► *Degradation of Visual Character*

Implementation of the proposed project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses, resulting in a significant aesthetic impact related to degradation of visual character. Because of the scale and location of the proposed project, there is no feasible mitigation available to address aesthetic resource impacts associated with the conversion of agricultural land to urban development. Although design, architectural, development, and landscaping standards are included to ensure that urban development on the project site remains within certain aesthetic guidelines, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to urban development. Therefore, this impact would remain **significant and unavoidable** and would contribute to a **significant and unavoidable** cumulative impact.

► *Conversion of Open Space*

The proposed project would result in the conversion open space areas to urban land use. Because feasible mitigation is not available to completely mitigate the loss of open space, this impact would be **significant and unavoidable** and the project would contribute to a **significant and unavoidable** cumulative open space impact.

► *Potential for Safety Hazards from Proximity of Airport to Proposed Land Uses*

The project would result in the construction of seven neighborhood parks and a light rail station either partially or wholly within the safety zone as identified in the Sacramento International Airport Comprehensive Land Use Plan (CLUP). These land uses are prohibited from being located within the safety zone in order to minimize potential risks associated with aircraft hazards. Therefore, the project would result in a significant impact related to incompatibility with the Sacramento International Airport CLUP. Mitigation recommended for the project would require the City to issue an override to the Airport Land Use Commission's (ALUC) consistency determination. However, this mitigation would not eliminate the project's inconsistency with the CLUP; therefore, this would be a **significant and unavoidable** impact.

► *Conversion of Prime Farmland and Unique Farmland*

The proposed project would result in the conversion Prime and Unique Farmland to urban land use. Because feasible mitigation is not available to completely mitigate the loss of Prime Farmland and Unique Farmland, this impact would be significant and unavoidable and the project would contribute to a **significant and unavoidable** cumulative farmland impact.

8 COMPARATIVE MERITS OF THE ALTERNATIVES

In accordance with Section 15126.6(a) of the State CEQA Guidelines, an EIR must discuss a range of reasonable alternatives to the project "... which would feasibly attain most of the basic objectives of the project ... and evaluate the comparative merits of the alternatives." The factors that can determine feasibility are site suitability, other plan or regulatory limitations, and jurisdictional boundaries. An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. The alternatives analysis must also include a comparative evaluation of the No Project Alternative (State CEQA Guidelines Section 15126.6[e]). Through comparison of the alternatives, the advantages and disadvantages of each alternative compared with the proposed project can be weighed. Chapter 4 provides a description of the alternatives that are analyzed in this EIR.

This chapter provides a comparative summary of potentially feasible alternatives considered in this EIR. Alternatives that were considered but rejected as infeasible and alternatives that were considered and resulted in changes to the project are discussed in Chapter 4, "Alternatives to the Proposed Project." Section 8.1 provides a comparative analysis of a Reduced Size Alternative, Section 8.2 provides a comparative analysis of a Dispersed Development Alternative, and Section 8.3 provides a comparative analysis of a No Project Alternative. Section 8.4 summarizes the environmental conclusions of the alternatives analysis and compares the project impacts for each resource area to impacts associated with the alternatives. Lastly, Section 8.5 identifies the environmentally superior alternative.

8.1 CONSIDERATION OF AN OFF-SITE ALTERNATIVE

The key question in consideration of an off-site alternative is whether a feasible alternative is available that would feasibly attain most of the basic objectives of the project, and would also avoid or substantially lessen any of the significant environmental effects of the project (State CEQA Guidelines Section 15126.6[a]). The basic objectives of the project include creating a residential development located near downtown Sacramento and Metro Air Park, as well as providing development and a light rail stop along the proposed Downtown-Natomas-Airport light rail line with densities that would support the feasibility of a light rail line. In addition, the project site is located immediately adjacent to (across SR 70/99 from) the North Natomas community and the project would be located within the NNCP through a boundary amendment. The project would be a special planning area and would implement its own planned unit development guidelines. Because the NNCP area provides the greatest area of available land for development within close proximity to downtown Sacramento, the Sacramento International Airport, and alternative transportation opportunities, the North Natomas community is considered the most reasonable and feasible location for a potential off-site alternative. Further, staff of the Sacramento Regional Transit District have expressed (during a LAFCo hearing) that the location of the project and its proposed land uses and densities "create an environment that transit supportive" and would be critical to ensuring the success of the Downtown-Natomas-Airport transit line (Scott 2005).

According to the City's General Plan, as of September 2005 there were approximately 14,000 acres of low and medium density parcels of vacant land available. However, this number is likely less than this total, because there continues to be urban development in the North Natomas area, where the majority of this land is concentrated. For example, projects considered in a cumulative context include the Westborough, Cambay West, Natomas Crossing, Natomas Town Center, Natomas Creek and Panhandle projects (Exhibit 6-1), each of which are in the North Natomas area. As this shows, the North Natomas area continues to be actively developed, and much of the land is tied up by other landowners interested in development. None of the undeveloped low or medium density residential or residential /mixed-use properties within the NNCP area are currently owned by the Greenbriar property owner. As described in Chapter 4, "Alternatives to the Proposed Project," this alternative has been rejected as infeasible because land suitable for development of the project is not available. Nonetheless, a comparative analysis is provided below to describe the comparative environmental effects if this alternative were feasible. For this reason, an off-site alternative that would be located within the North Natomas area is considered

below, but a specific off-site property has not been selected as the “off-site alternative project site.” However, to consider the relative environmental impacts of an alternative in one of the undeveloped areas of the NNCP currently designated for low or medium density residential development, this section provides a comparative analysis of a theoretical off-site alternative within the vacant low or medium density residential properties within the NNCP.

A key version of this alternative is that, if development of the project were to occur within the boundaries of the NNCP, it would displace development that would otherwise occur within the boundaries of the NNCP. It is assumed, therefore, at the overall development of the NNCP would be the same, that is, development of the project would replace a similar level of development already planned within the NNCP. The Greenbriar site would not be developed. Therefore, overall development (considering the NNCP and Greenbriar) would be less under this alternative than under the proposed project if this alternative were feasible.

8.1.1 TRANSPORTATION AND CIRCULATION

Development of an off-site alternative would result in the same trip generation rates as the project (i.e., 41,119 total trips; 3,153 a.m. peak hour and 4,467 p.m. peak hour). The transportation and circulation impacts of an alternative within the existing NNCP boundaries have been projected by the 1993 NNCP EIR (City of Sacramento 1993). The SACMET 2025 traffic analysis model, developed for the North Natomas area, includes the assumptions consistent with the 1993 NNCP EIR and the ultimate land uses projected for the North Natomas area. This model reflects the NNCP and approved land use changes in the North Natomas area, as well as the ultimate roadway configuration planned for the NNCP area, as specified in the NNCP Financing Plan. If the project were to occur within the boundaries of the NNCP, consistent with the NNCP, the additional vehicle trips projected by this EIR would not be additive to overall development assumptions of the NNCP, because they have already been included in these projections. Thus, it can be assumed that an off-site alternative within the boundaries of the NNCP would result in comparatively substantially less traffic impacts; however, specific quantification of the traffic reductions can not be determined without a specific location for the off-site alternative. The same transportation system deficiencies would be expected with the Greenbriar project, although the overall congestion and anticipated delays would be less. Thus, this alternative would result in less transportation and circulation impacts [*Less*].

8.1.2 AIR QUALITY

The air quality impacts identified for the proposed project are related to construction, the land uses proposed (e.g., residential, elementary school and commercial tenants), and the location of these land uses adjacent to I-5 and SR 70/99. Construction of an off-site alternative would result in the same construction and long-term operational emissions as the project (i.e., mitigated to 89.5 lbs/day of ROG and 511.2 lbs/day of NO_x) because the same land uses would be developed. Similarly, operational emissions associated with the off-site alternative would be the same as the proposed project because the same land uses are proposed. As a result, the off-site alternative would result in mitigated emissions of 350.7 lbs/day of ROG, 338.5 lbs/day of NO_x, and 206.6 lbs/day of PM₁₀. However, because overall there would be less development under this alternative than if the Greenbriar site were to develop (see assumptions under description of the alternative), regional emissions would be substantially less than with the project. Further, depending on the location (or multiple locations) of the off-site alternative, the off-site alternative may not be located in close proximity (i.e., within 500 feet) of a nearby freeway (e.g., I-5 or SR 70/99) and may reduce potential less-than-significant health risk-related air quality impacts associated with toxic air contaminants. However, because the specific location for the off-site alternative is not known, it can not be determined with any certainty whether this project would reduce this potential. Therefore, overall the project would result in similar air quality impact [*Similar or less*].

8.1.3 NOISE

Similar to the project, this alternative would result in temporary noise generated by construction activities; development of various noise-generating land uses; increases in traffic noise; and development of sensitive receptors that would be exposed to existing or project noise levels exceeding City standards. Because the off-site alternative would result in the construction of the same facilities and use of similar construction equipment, unmitigated construction-related noise levels would range from 79 to 91 dBA at 50 feet. However, similar to the project, construction activities would be limited to the hours of 7 a.m. to 6 p.m. Monday through Saturday and 9 a.m. to 6 p.m. on Sunday, which would reduce construction-related noise impacts to a less-than-significant level. Because of the developing nature of the NNCP area, it is likely that the off-site alternative would be in close proximity to sensitive receptors. It is unknown whether existing noise levels currently exceed the City's standards; however, construction of an off-site alternative would likely result in an increase in ambient noise levels in the local area and could result in an exceedence of the City's exterior noise standard (i.e., 60 dBA L_{dn} /CNEL). If an alternative were developed within an available site within the NNCP, noise levels associated with roadway traffic volumes would likely be comparatively less (i.e., less than 74 to 81.1 dBA unmitigated) because this site would be located at a greater distance from the combined impacts of traffic noise from I-5 and SR 70/99. Thus, significant noise impacts to residential and school uses may be eliminated depending on the location of the off-site alternative. However, final determination of traffic noise reductions can not be made with knowing the specific location of the off-site alternative. Similarly, although noise impacts at the site from aircraft operations at Sacramento International Airport are less than significant, the off-site alternative would likely be located a greater distance from regularly used flight paths and would therefore be subject to less frequent overflights by aircraft and would likely have reduced single event (SENL) levels. When compared to the project, because of its likely more distant location from I-5 and SR 70/99 and airport operations, the off-site alternative would result in less noise impacts when compared to the project [*Less*].

8.1.4 UTILITIES

An off-site alternative within the NNCP boundaries would generate a similar number of people and create similar utility and service system demands as the proposed project (i.e., water, wastewater, drainage, electricity, and natural gas). These NNCP demands have already been anticipated by the North Natomas Financing Plan (first approved in 1994, and last updated in 2002) and the public facilities fees (PFF) that are collected for projects within the current North Natomas boundaries. The project's demands would be addressed by the financing plan prepared specifically for the project. The significant environmental impacts that would occur with the provision of wastewater treatment services (i.e., expanded wastewater treatment facilities) to the project would not be expected to occur under this alternative because the NNCP area is within the City's corporate boundaries and was planned for in the SRCSD's facility master plan. Therefore, this alternative would eliminate the project's significant and unavoidable impact to wastewater treatment services. Although the proposed project and an off-site alternative within the boundaries of the NNCP would have similar utility system demands, the off-site alternative would eliminate the project's significant and unavoidable impact to wastewater treatment services and impacts would be less [*Less*].

8.1.5 PUBLIC SERVICES

An off-site alternative within the NNCP boundaries would generate a similar number of people and create similar public service demands (i.e., police, fire, schools, and libraries) as the proposed project. These NNCP demands have already been anticipated by the North Natomas Financing Plan (first approved in 1994, and last updated in 2002) and the public facilities fees (PFF) that are collected for projects within the current North Natomas boundaries. The project's demands would be addressed by the financing plan prepared specifically for the project. Further, a site within the NNCP would not result in demands that are additive to overall development demands of the NNCP because they have already been included in these projections. For these reasons, an off-site alternative, while resulting in the same demands as the project based on a per capita demand factor for each service, would have comparatively less public services effects because demands associated with build out of the NNCP area have

already been planned for by the City the NNCP. Overall, this alternative would result in less public services impacts [*Less*].

8.1.6 PARKS AND OPEN SPACE

An off-site alternative within the NNCP boundaries would generate a similar number of residents as the proposed project and would construct the same facilities (i.e., 48.4 net acres of parkland) as the project. The City's standard for parkland dedication (5 acres per 1,000 new residents or a demand for 48.2 acres) would remain the same regardless of the location of the off-site alternative. However, a site within the NNCP would not result in demands that are additive to overall park demands of the NNCP because they have already been included in these projections. The project would result in the conversion of 577 acres of open space area (518 acres of which are farmlands). While an off-site alternative would likely also result in the conversion of open space areas, the loss of this open space areas were accounted for in the NNCP and its EIR; therefore, this alternative would not result in the additive loss of open space resources. The off-site alternative would have less effects related to parks and open space [*Less*].

8.1.7 AESTHETICS

Under this alternative, it is likely that development of property within the NNCP boundaries would result in the development of open space land or land historically used for farming activities. Therefore, the off-site alternative would result in the same type of land use alterations as the project because the site would be converted to urban land uses. This was identified as a significant and unavoidable impact for the project. However, the project would extend the area of the City that would be converted from agricultural to urban land uses. A development within the NNCP would maintain the City's boundaries and would not extend the urban core of the City. Lighting would be similarly changed under this alternative, but lighting impacts were not identified as significant project impacts. Overall, this alternative would result in the same aesthetic resources impacts, but these impacts would be less than the project because the existing urban core of the City would be maintained [*Less*].

8.1.8 PUBLIC HEALTH AND HAZARDS

While it is unknown whether an off-site location would have contaminated soils, development within the boundaries of the NNCP would not be expected to result in public health and hazard impacts that could not be addressed by standard mitigation and remediation measures (City of Sacramento 1992). It should be noted that a project site within the boundaries of the NNCP would locate the proposed lake/detention basin at a greater distance from the Sacramento International Airport, which would reduce potential bird hazard impacts in comparison to the project. The Sacramento International Airport discourages the construction of water features which could attract hazardous wildlife within 5 miles of the airport. Although the off-site alternative would construct the same water feature at a greater distance from the airport, it nonetheless would likely be located within the airport's 5-mile radius and would be considered a hazardous wildlife attractant. However, implementation of the project's mitigation to reduce bird hazards from the lake would reduce this impact to a less-than-significant level.

An off-site alternative would eliminate the project's potential inconsistency with the Sacramento International Airport Comprehensive Land Use Plan (CLUP) requirement to limit land uses (i.e., parks and light rail station) that would result in a substantial concentration of people (i.e., 25 persons per acre on average of 50 persons per acre at any one time) because the off-site alternative would be located outside the airport's overflight safety zone. Therefore, the off-site alternative would eliminate the project's significant and unavoidable CLUP consistency impact. Further, a site within the NNCP would locate sensitive receptors including the elementary school at greater distances from I-5 and SR 70/99, which would reduce their, exposure to mobile source emissions (see Section 8.1.2, "Air Quality," above). Thus, an off-site alternative within the boundaries of the NNCP would have less public health and hazard effects [*Less*].

8.1.9 GEOLOGY AND SOILS

The City determined that the NNCP includes measures to reduce soils and geology impacts to a less-than-significant level (City of Sacramento 1992). No unique geologic structures or conditions have been identified in the NNCP area and the NNCP area is substantially similar to the project site in terms of site soils and geotechnical issues (i.e., liquefaction, expansive soils, fault hazards). Similar to the proposed project, standard engineering practices can address design and structural requirements for development of a site within the NNCP boundaries. For these reasons there would be no measurable difference in environmental impacts when comparing the proposed project with an off-site alternative within the boundaries of the NNCP [*Similar*].

8.1.10 HYDROLOGY, DRAINAGE, AND WATER QUALITY

Hydrology and drainage in the NNCP area has been addressed by the Comprehensive Drainage Plan. Similar to the requirements for the proposed project, any development within the NNCP would be required to comply with the City's Grading, Erosion, and Sediment Control Ordinance (Chapter 15.88 of the City Code). A SWPPP would be prepared and BMPs would be required to be implemented to address stormwater quality control during construction and post-construction. With the implementation of these existing requirements, less-than-significant impacts on water quality and hydrology would occur. Further, the alternative would be required to be designed consistent with the City's drainage system standards to ensure adequate drainage facilities are provided on-site and that adequate capacity is available in off-site drainage facilities to handle proposed flows. Drainage impacts were determined to be less than significant with the project. Similar to the project, this alternative would be located in an area that is located outside the Federal Emergency Management Agency's (FEMA) 100-year floodplain and less-than-significant flooding impacts would occur. Therefore, the proposed project and an off-site alternative within the current boundaries of the NNCP would have similar hydrology, drainage, and water quality effects [*Similar*].

8.1.11 AGRICULTURE

Approval of the NNCP required that the City adopt a Statement of Overriding Considerations for the significant impact of conversion of Prime Farmland. The City has determined that conversion of farmlands that were once within the boundaries of the NNCP was an acceptable impact and that there were overriding reasons for approval of development of the NNCP. The project would require a similar finding, because of the presence of Important Farmland at the project site. However, approval of the project would result in the conversion of an additional 518 acres of Important Farmlands beyond the conversions anticipated by the NNCP. Thus, development of an off-site alternative within the boundaries of the NNCP would result in fewer acres (i.e., 518 fewer acres) of Important Farmland being converted to urban uses. For these reasons, an off-site alternative within the boundaries of the existing NNCP would create less impact on Important Farmlands [*Less*].

8.1.12 BIOLOGICAL RESOURCES

Similar to the proposed project, development of the North Natomas community would result in impacts on Swainson's hawk, riparian/wetland habitat, and agricultural lands/rice fields. Without knowing the exact site within the NNCP boundaries that could be pursued for an off-site alternative, it is not possible to perform a detailed comparison of biological impacts. However, development of an off-site alternative within the NNCP would bring the project within the City's permit area identified in the Natomas Basin Habitat Conservation Plan (NBHCP). The NBHCP, the EIR on the NBHCP, and subsequent monitoring programs have evaluated the impacts to biological resources from development within the NNCP area including impacts to giant garter snake and Swainson's hawk. The project is not included in the City's permit area. The biological impacts of the project are subject to ongoing review, including review by resource agencies of the applicant's specific mitigation proposal. Based on these conditions, development of an off-site alternative within the NNCP area would have less biological resource impacts compared to the project. However, because the project will be required to comply

with its own HCP, it would require a finding from USFWS and CDFG that impacts to sensitive biological resources are fully mitigated, it is expected that impacts would not be significant. Nevertheless, because less land would be developed under this alternative, it would have less of an effect on sensitive biological resources. [Less].

8.1.13 CULTURAL RESOURCES

Both the off-site location and the project site would have the potential for undocumented subsurface cultural resources. However, there are no documented resources on either the project site or on Low Density Residential sites within the NNCP. For this reason, the proposed project and an alternative within the current boundaries of the NNCP would have similar effects on cultural resources [Similar].

8.1.14 PROJECT OBJECTIVES

Depending on the specific location, the off-site alternative could meet most if not all of the project's objectives including those related to creation of a pedestrian-friendly development; development of a project that is consistent with SACOG's Blueprint plan, development of a residential development near the major employment centers of downtown Sacramento and Metro Air Park; provision of vertically and horizontally mixed neighborhoods; incorporation of parks and open space in a manner that provides connectivity; creating a residential development with a variety of housing types; and providing housing and employment opportunities that meet the City's long-term housing and employment demand projections. In addition, an off-site alternative could possibly further support and implement the project objective related to developing a project that is consistent with the Sacramento International Airport CLUP because it would eliminate the project's inconsistency with the safety requirement of maintaining a density of 50 persons per acres for the proposed light rail station, and park areas. However, the off-site alternative may not meet the project's objective of providing readily accessible light rail transit opportunities on-site.

8.2 CONSIDERATION OF DISPERSED DEVELOPMENT ALTERNATIVE

Among the findings to be considered in deliberations over the project, LAFCo will need to determine whether expansion of the City's SOI will be needed to provide adequate housing within its jurisdiction to meet projected housing demands. There are several properties designated for residential land uses within the City that are either undeveloped or under utilized such that they could be developed (or re-developed) with new residential land uses that could help the City meet its long-term housing demands. The City's objective in considering the Greenbriar project is to consider development projects that would provide housing and employment opportunities that would meet long-term employment and housing demand projections.

According to the City's General Plan, as of September 2005 there were approximately 14,000 acres of low and medium density parcels of vacant land available. However, this number is likely less than this total, because there continues to be urban development in the North Natomas area, where the majority of this land is concentrated. For example, projects considered in a cumulative context include the Westborough, Cambay West, Natomas Crossing, Natomas Town Center, Natomas Creek and Panhandle projects (Exhibit 6-1), each of which are in the North Natomas area. In the south Sacramento area, SunCal Companies has announced they intend to develop on one of the last remaining large blocks of land in the City, the 800-acre Delta Shores site (SunCal press announcement, November 8, 2005). Vacant industrial sites at the downtown Sacramento and Curtis Park railyards are being actively pursued for development, with applications submitted on both. As this shows, the North Natomas area continues to be actively developed, and other large, vacant, or undeveloped parcels are being actively pursued. Further, much of the land is tied up by other landowners interested in development. None of the undeveloped low or medium density residential or residential /mixed-use properties within the NNCP area or in other large, undeveloped areas of the City are currently owned by the Greenbriar property owner.

The purpose of this alternative is to consider whether existing properties within the City's SOI could support the project's proposed land uses, while at the same time eliminating some of the project's significant and significant and

unavoidable environmental impacts. As described above, sufficient holding capacity is available within the City's SOI to accommodate the project's proposed residential development. In spite of the fact that the City may currently have holding capacity for the project, this is not expected to be the case in the foreseeable future. According to Sacramento City staff (McDonald, pers. comm., June 19, 2006), the Technical Background report for the City of Sacramento General Plan Update shows the following:

| | |
|------------------------------------------------|---------|
| Current (2005) population: | 450,000 |
| Proposed General Plan Holding Capacity (2030): | 564,000 |
| Anticipated City population (2030): | 650,000 |

Over the next 25 years, the City is expected to grow by 200,000 people. However, the current General Plan, including the current sphere-of-influence, would accommodate an additional estimated 114,000 people. Additional land would be needed if the City intends to accommodate the 86,000 people above the General Plan's holding capacity that are anticipated to live in the City.

The proposed project would also provide for employment through commercial/retail uses, although these uses would primarily serve residential uses on and near the project site. Projections for employment uses in the City are as follows:

| | |
|------------------------------------------------|---------|
| Current (2005) employment: | 181,000 |
| Proposed General Plan Holding Capacity (2030): | 445,000 |
| Anticipated City employment (2030): | 321,000 |

Unlike housing, the City has ample holding capacity for employment uses. As mentioned above, commercial/retail uses on the project site are intended to be local serving, and they would reduce the need for driving trips outside the project site. So, while they could be provided elsewhere within the City, they would frustrate project objectives for a mixed use development.

8.2.1 TRANSPORTATION AND CIRCULATION

Implementation of a dispersed development alternative would result in similar trip generation rates as the project (i.e., 41,119 total trips; 3,153 a.m. peak hour and 4,467 p.m. peak hour); however, these trips would not be concentrated in one area of the City, but instead would be dispersed throughout multiple properties and areas of the City. Overall, this alternative could result in reduced transportation impacts because proposed trips would be dispersed over a large area; however, quantification of the traffic reductions can not be determined without specific locations for the dispersed development alternative. In some cases, the existing roadway network may currently operate unacceptably and, thus, this alternative would exacerbate these unacceptable conditions. Thus, this alternative would result in similar (but may be greater or lesser) transportation and circulation impacts [*Greater or Less*].

8.2.2 AIR QUALITY

The air quality impacts identified for the proposed project are related to construction, the land uses proposed (e.g., residential, elementary school and commercial tenants), and the location of these land uses adjacent to I-5 and SR 70/99. Construction of an off-site alternative would result in the same construction and long-term operational emissions as the project (i.e., mitigated to 89.5 lbs/day of ROG and 511.2 lbs/day of NO_x) because the same land uses would be developed. Similarly, operational emissions associated with the dispersed development alternative would be the same as the proposed project because the same land uses are proposed. As a result, the dispersed development alternative would result in mitigated emissions of 350.7 lbs/day of ROG, 338.5 lbs/day of NO_x, and 206.6 lbs/day of PM₁₀. Depending on the multiple locations of the dispersed development alternative, this alternative may not be located in close proximity (i.e., within 500 feet) of a nearby freeway (e.g., I-5 or SR 70/99) and may reduce potential less-than-significant health risk-related air quality impacts associated with toxic air

contaminants. However, because the specific locations for this alternative are not known, it can not be determined with any certainty whether this project would reduce this potential TAC impact. Therefore, overall this alternative would result in similar air quality impacts as the project [*Similar or less*].

8.2.3 NOISE

Similar to the project, this alternative would result in temporary noise generated by construction activities; development of various noise-generating land uses; increases in traffic noise; and development of sensitive receptors that would be exposed to existing or project noise levels exceeding City standards. Because the dispersed development alternative would result in the construction of the same facilities and use of similar construction equipment, unmitigated construction-related noise levels would range from 79 to 91 dBA at 50 feet. However, similar to the project, construction activities would be limited to the hours of 7 a.m. to 6 p.m. Monday through Saturday and 9 a.m. to 6 p.m. on Sunday, which would reduce construction-related noise impacts to a less-than-significant level. Because of the developed nature of the City, it is likely that this alternative would be in close proximity to sensitive receptors. It is unknown whether existing noise levels currently exceed the City's standards; however, construction of a dispersed development alternative would likely result in an increase in ambient noise levels in the local area and could result in an exceedence of the City's exterior noise standard (i.e., 60 dBA $L_{dn}/CNEL$). If an alternative were dispersed throughout the City, noise levels associated with roadway traffic volumes would likely be comparatively less (i.e., less than 74 to 81.1 dBA unmitigated) because this site would be located at a greater distance from the combined impacts of traffic noise from I-5 and SR 70/99. Thus, significant noise impacts to residential may be eliminated depending on the location of this alternative. However, final determination of traffic noise reductions can not be made with knowing the specific locations for this alternative. Similarly, although noise impacts at the site from aircraft operations at Sacramento International Airport are less than significant, this alternative would likely be located a greater distance from regularly used flight paths and would therefore be subject to less frequent overflights by aircraft and would likely have reduced single event (SENL) levels. When compared to the project, because of its likely more distant location from I-5 and SR 70/99 and airport operations, the dispersed development alternative would result in less noise impacts when compared to the project [*Less*].

8.2.4 UTILITIES

An off-site alternative dispersed throughout the city limits and SOI would generate a similar number of people and create similar utility and service system demands as the proposed project (i.e., water, wastewater, drainage, electricity, and natural gas). These demands have already been anticipated by various public facilities financing programs established by the City. The significant environmental impacts that would occur with the provision of wastewater treatment services (i.e., expanded wastewater treatment facilities) to the project would not be expected to occur under this alternative because dispersed locations would be within the city limits or SOI and have been planned for in the SRCSD's facility master plan. Therefore, this alternative would eliminate the project's significant and unavoidable impact to wastewater treatment services. Although the proposed project and a dispersed development alternative would have similar utility system demands, the dispersed development alternative would eliminate the project's significant and unavoidable impact to wastewater treatment services and impacts would be less [*Less*].

8.2.5 PUBLIC SERVICES

A Dispersed Development alternative within the city limits or SOI would generate a similar number of people and create similar public service demands (i.e., police, fire, schools, and libraries) as the proposed project. These demands have already been anticipated by the City's General Plan and the public facilities fees that are collected for projects within specific service areas. These fees would provide sufficient facilities and capacity to serve this alternative. For these reasons, a dispersed development alternative, while resulting in the same demands as the project based on a per capita demand factor for each service, would have comparatively less public services

effects because demands associated with build out of the city limits or SOI have already been planned for by the City. Overall, this alternative would result in less public services impacts [*Less*].

8.2.6 PARKS AND OPEN SPACE

A Dispersed Development alternative within the city limits or SOI would generate a similar number of residents as the proposed project and would construct the same facilities (i.e., 48.4 net acres of parkland) as the project. The City's standard for parkland dedication (5 acres per 1,000 new residents or a demand for 48.2 acres) would remain the same regardless of the location of the alternative. While this alternative would also result in the conversion of open space resources, the loss of these were accounted for in the General Plan and its EIR; therefore, this alternative would not result in the additive loss of open space resources. This alternative would have less effects related to parks and open space [*Less*].

8.2.7 AESTHETICS

Under this alternative, it is likely that development of property within the city limits or SOI could result in the development of open space land or land historically used for farming activities. Therefore, this alternative would result in the same type of land use alterations as the project because the site would be converted to urban land uses. However, it is likely that impacts would be less because some parcels where development could occur would be in urban areas (i.e., infill development). Changes to visual character of the project site was identified as a significant and unavoidable impact for the project. However, the project would extend the area of the City that would be converted from agricultural to urban land uses. A development within the city limits or SOI would maintain the City's boundaries and would not extend the urban core of the City. Lighting would be similarly changed under this alternative, but lighting impacts were not identified as significant project impacts. Overall, this alternative would result in the same aesthetic resources impacts, but these impacts would be less than the project because the existing urban core of the City would be maintained [*Less*].

8.2.8 PUBLIC HEALTH AND HAZARDS

While it is unknown whether an off-site location would have contaminated soils, development within the City's SOI would not be expected to result in public health and hazard impacts that could not be addressed by standard mitigation and remediation measures (City of Sacramento 1992). It should be noted that because development would be dispersed over multiple properties, the project's proposed lake/detention basin would likely not be constructed. As a result, this alternative would eliminate the project's potential wildlife hazard impacts. However, implementation of the project's mitigation to reduce bird hazards from the lake would reduce this impact to a less-than-significant level.

A dispersed development alternative would eliminate the project's potential inconsistency with the Sacramento International Airport Comprehensive Land Use Plan (CLUP) requirement to limit land uses (i.e., parks and light rail station) that would result in a substantial concentration of people (i.e., 25 persons per acre on average of 50 persons per acre at any one time) because this alternative would be located outside the airport's overflight safety zone. Therefore, the dispersed development alternative would eliminate the project's significant and unavoidable CLUP consistency impact. Further, a site within the NNCP would locate sensitive receptors including the elementary school at greater distances from I-5 and SR 70/99, which would reduce their, exposure to mobile source emissions (see Section 8.1.2, "Air Quality," above). Thus, a dispersed development alternative within the city limits or SOI would have less public health and hazard effects [*Less*].

8.2.9 GEOLOGY AND SOILS

The City's General Plan and various community plans include measures to reduce soils and geology impacts to a less-than-significant level. No unique geologic structures or conditions have been identified in greater Sacramento

area and other areas within the City are substantially similar to the project site in terms of site soils and geotechnical issues (i.e., liquefaction, expansive soils, fault hazards). Similar to the proposed project, standard engineering practices can address design and structural requirements for development of a site within the NNCP boundaries. For these reasons there would be no measurable difference in environmental impacts when comparing the proposed project with a dispersed development alternative within the boundaries of the NNCP [*Similar*].

8.2.10 HYDROLOGY, DRAINAGE, AND WATER QUALITY

Similar to the requirements for the proposed project, any development within the City would be required to comply with the City's Grading, Erosion, and Sediment Control Ordinance (Chapter 15.88 of the City Code). A SWPPP would be prepared and BMPs would be required to be implemented to address stormwater quality control during construction and post-construction. With the implementation of these existing requirements, less-than-significant impacts on water quality and hydrology would occur. Further, the alternative would be required to be designed consistent with the City's drainage system standards to ensure adequate drainage facilities are provided on-site and that adequate capacity is available in off-site drainage facilities to handle proposed flows. Drainage impacts were determined to be less than significant with the project. This alternative could be accommodated in areas located outside the Federal Emergency Management Agency's (FEMA) 100-year floodplain; therefore, less-than-significant flooding impacts would occur. Therefore, a dispersed development alternative within the city limits or SOI would have similar hydrology, drainage, and water quality effects compared to the project [*Similar*].

8.2.11 AGRICULTURE

Approval of the project would result in the conversion of 518 acres of Important Farmlands and 465 acres of open space areas. While a dispersed development alternative would likely also result in the conversion of Important Farmlands, the loss of these were accounted for in the General Plan and its EIR; therefore, this alternative would not result in the additive loss of farmland. For these reasons, a dispersed development alternative within the city limits or SOI would create less impact on Important Farmlands [*Less*].

8.2.12 BIOLOGICAL RESOURCES

Similar to the proposed project, development within the city limits and SOI would result in impacts on Swainson's hawk, riparian/wetland habitat, and agricultural lands/rice fields. Without knowing the exact sites within the city limits or SOI that could be pursued for a dispersed development alternative, it is not possible to perform a detailed comparison of biological impacts. Implementation of a dispersed development alternative in the city limits or SOI would be anticipated to result in similar resource impacts as those affected by the project (e.g., foraging habitat, wetlands) and would result in similar take of species because habitat and species present at the project site is common throughout the City and surrounding areas. Developments north of the American River would be located within the City's permit area identified in the Natomas Basin Habitat Conservation Plan (NBHCP). The NBHCP, the EIR on the NBHCP, and subsequent monitoring programs have evaluated the impacts to biological resources from development within the NNCP area including impacts to giant garter snake and Swainson's hawk. Because this alternative would result in similar habitat and species impacts as the project, it would have similar effects on sensitive biological resources [*Similar*].

8.2.13 CULTURAL RESOURCES

Both the dispersed development site locations and the project site would have the potential for undocumented subsurface cultural resources. However, there are no documented resources on either the project site or on Low Density Residential sites within the NNCP. For this reason, the proposed project and an alternative within the city limits or SOI would have similar effects on cultural resources [*Similar*].

8.2.14 PROJECT OBJECTIVES

Because of the dispersed nature of this alternative, this alternative would likely not meet many of the project's objectives including development of a residential development near the major employment centers of downtown Sacramento and Metro Air Park; provision of vertically and horizontally mixed neighborhoods; incorporation of parks and open space in a manner that provides connectivity; creating a residential development with a variety of housing types; and creating a development that could support a light rail station. However, this alternative could possibly further support and implement the project objective related to developing a project that is consistent with the Sacramento International Airport CLUP because it would eliminate the project's inconsistency with the safety requirement of maintaining a density of 50 persons per acres for the proposed light rail station, and park areas. Further, this alternative would be consistent with the City's infill development strategy and would contribute to meeting long-term housing and employment demand projections.

8.3 CONSIDERATION OF A REDUCED SIZE ALTERNATIVE

The key objective of the reduced size alternative is to avoid or reduce several of the significant and unavoidable environmental impacts identified for the project including minimizing impacts to farmland, noise compatibility, air quality, traffic, sensitive habitat and species, and hazards. As described in section 4.2.2, "Reduce Size Alternative," the reduced size alternative is designed to reduce the development footprint of the project to avoid one or more of the project's significant and unavoidable impacts. Although this alternative would constrain development at the project site to a development level that may not be financially feasible to implement, it would achieve most if not all of the project's objectives including providing sufficient development densities to support a light rail station and would be consistent with SACOG's Blueprint.

Development of this alternative would be approximately 80% of proposed project levels (20% reduction in proposed development at the site) (Exhibit 4-1). Therefore, this alternative would result in the development of 2,995 residential units and approximately 25 acres of commercial development. The remainder of the site would be undeveloped and would continue in its existing state. To reduce potential impacts to agricultural resources, open space areas, sensitive biological species and habitats, and to minimize the development area that falls within the Sacramento International Airport's safety zone, development of this alternative would need to be concentrated in the eastern portion of the project site. However, mobile source air emissions and noise impacts from I-5 and SR 70/99 result in the need to locate sensitive receptors including the elementary school at a greater distance from these sources. Therefore, this alternative would need to be designed in such a way as to provide a buffer on the eastern and southern boundaries of the site in addition to the proposed buffer on the western boundary of the project site. In general, this alternative would result in a development project that provides a 200- to 400-foot open space buffer along the eastern, southern, and western edges of the project site.

8.3.1 TRANSPORTATION AND CIRCULATION

The reduced size alternative would reduce the number of housing units developed at the project site by approximately 20%, resulting in a corresponding 20% reduction in daily traffic volumes on local roadways. Therefore, the reduced size alternative would result in the generation of 32,896 total trips (2,523 a.m. peak hour and 3,574 p.m. peak hour trips). Based on evaluation of the surrounding roadway network, a reduction of approximately 75% of total trip generation (i.e., not to exceed 10,280 total trips) would be required to eliminate the project's significant and significant and unavoidable transportation system impacts including impacts to local roadway intersections, roadway segments, freeway ramps, and freeway segments. Therefore, while this alternative would result in less traffic on area roadways, it nonetheless would continue to result in significant and unavoidable transportation impacts because existing traffic volumes are either closely approaching unacceptable operating conditions or currently exceed acceptable operating thresholds for these facilities. However, it should be noted that mitigation recommended for the project would like result in more efficient and less congested operation of the local roadway network under the reduced size alternative compared to the project. Further, because of its reduced size and the reduced number of traffic trips generated by this alternative, this alternative would result in

less transportation and circulation impacts compared to the project, but these impacts would continue to be significant and unavoidable [*Less*].

8.3.2 AIR QUALITY

This alternative would result in development of the majority of the project site and the generation of construction- and operations-related air emission. Air emissions would be approximately 20% less under this alternative because of the reduced number of houses and commercial acreage (and associated vehicle trips). However, because a majority (i.e., 80%) of construction activities and proposed uses would occur, this alternative would also result in the generation of air emissions that exceed relevant standards of the Sacramento Metropolitan Air Quality Management District (SMAQMD) (i.e., construction-related emissions mitigated to 71.6 lbs/day of ROG and 408.96 lbs/day of NO_x) and operational emissions mitigated to 280.6 lbs/day of ROG, 270.8 lbs/day of NO_x, and 165.3 lbs/day of PM₁₀) This alternative would provide a greater setback between I-5 and SR 70/99 from sensitive receptors through the provision of a 200- to 400-foot buffer along the eastern and southern boundaries of the project site. This setback would further reduce less-than-significant (due to reduced exposure resulting from emissions controls over time; see Section 6.2, “Air Quality”) exposure to toxic air contaminants from freeway operations, and could depending on other design considerations (e.g., soundwalls, tree lines) eliminate any concerns surrounding this concern. Overall, this alternative would result in less construction- and operation-related air emissions compared to the project, but these impacts would continue to be significant and unavoidable, and this alternative would likely substantially reduce or avoid the project’s significant toxic air contaminant impacts [*Less*].

8.3.3 NOISE

Both this alternative and the proposed project would result in temporary noise generated by construction activities; development of various noise generating land uses; increases in traffic noise; and development of sensitive receptors that would be exposed to existing or project-generated noise levels exceeding City standards. Construction-related noise impacts would be the same as the proposed (i.e., unmitigated construction-related noise levels ranging from 79 to 91 dBA at 50 feet) because the same types and numbers of construction equipment would be used. However, noise levels at nearby sensitive receptors may be reduced because of the larger buffer areas provided around the development site. Similar to the project, construction activities would be limited to the hours of 7 a.m. to 6 p.m. Monday through Saturday and 9 a.m. to 6 p.m. on Sunday, which would reduce construction-related noise impacts to a less-than-significant level. Given the relative level of traffic (80% of project), compared with the project, traffic noise would be reduced. This alternative would also shift the project footprint of the site to the center and would provide a greater distance between the development and the major noise source of the Sacramento International Airport. More importantly, this alternative would provide a greater setback from major transportation noise sources, I-5 and SR 70/99, thereby reducing and perhaps eliminating exterior and interior noise level exceedances at sensitive receptors. However, because of the constrained nature of the site and the need to locate the elementary school outside the overflight safety zone of the Sacramento International Airport, it may not be feasible to re-locate the elementary school such that the benefit of increased noise reduction could be achieved. Overall, this alternative would reduce noise impacts to some noise sensitive land uses and impacts would be less than the project [*Less*].

8.3.4 UTILITIES

Under this alternative, public utility demands would be approximately 20% less; however, these impacts are less than significant or less than significant with mitigation for the project. No significant utilities impacts were identified for the project after mitigation, so this alternative would not reduce or avoid any such impacts. Indirect impacts related to regional improvement projects (i.e., wastewater treatment expansion) would be similar. Overall, this alternative would result in similar environmental impacts (i.e., based on CEQA thresholds) as the project, although unit demands for utility services would be less because this alternative would reduce the total population living on-site [*Similar*].

8.3.5 PUBLIC SERVICES

Under this alternative, public service demands would be approximately 20% less; however, these impacts are less than significant or less than significant with mitigation for the project. No significant utilities impacts were identified for the project after mitigation, so this alternative would not reduce or avoid any such impacts. Overall, this alternative would result in similar environmental impacts (i.e., based on CEQA thresholds) as the project, although unit demands for public services would be less because this alternative would reduce the total population living on-site [*Similar*].

8.3.6 PARKS AND OPEN SPACE

Although reduced in size, it is assumed this alternative would provide comparable park land as the project and would meet the City's standard for parkland dedication (5 acres per 1,000 new residents). Based on a population of 7,141 residents, approximately 35.71 acres of parkland would be provided under this alternative. However, because of the need to provide buffers around the perimeters of the project site to reduced noise and air quality impacts associated with traffic on I-5 and SR 70/99 and the constraints associated with the airport safety zone, it may be potentially infeasible for this alternative to provide a community park (i.e., a park of 23 acres or more). Nonetheless, it is expected that this alternative would meet its park demand requirements. This alternative would convert approximately 20% less open space areas because of its reduced size. Therefore, the proposed project and this alternative would have similar effects related to parks and open space [*Similar*].

8.3.7 AESTHETICS

Under this alternative there would be the same alteration of views, but at a reduced scale, of the project site from surrounding lands including I-5, SR 70/99, and local roadways. This impact was identified as significant and unavoidable with the project. With this alternative, this impact would also be considered significant and unavoidable because the view shed would substantially changed from existing conditions, similar to what would occur with the project. Lighting would be slightly less under this alternative, but lighting impacts were not identified as significant project impacts. Overall aesthetic resources impacts would be perceived as nearly the same as the project because the site would be substantially converted from any open space to a developed use [*Similar*].

8.3.8 PUBLIC HEALTH AND HAZARDS

In general, this alternative would result in the same land uses and same project amenities including the proposed light rail station. This alternative would reduce the number of houses within the overflight safety zone of the Sacramento International Airport, thereby reducing potential safety risks associated with airport operations. This alternative would, however, include a proposed light rail station, commercial uses, and parks which would be incompatible with safety standards of the Sacramento International Airport's CLUP. Further, this alternative would also locate a lake/detention basin within the airport safety zone, which could create potential bird strike hazards for commercial aircraft. However, implementation of mitigation recommended for the project would reduce this impact to a less-than-significant level. Overall, this alternative would reduce the development and land uses that would fall within the airport safety zone, thereby reducing the number of residents and tenants that are exposed to potential aircraft hazards. Therefore, this alternative would result in less public health and hazards impacts [*Less*].

8.3.9 GEOLOGY AND SOILS

Under this alternative there would be a reduction in project development; therefore impacts related to construction erosion and risks from seismic and soil hazards would be reduced. Nonetheless, because of its substantial size (i.e., greater than 15 acres), this alternative would include the same soil erosion (i.e., preparation of a SWPPP) and

soil hazards mitigation measures as the project; therefore, post mitigation impacts would not change (i.e., impacts would be less than significant). Therefore, this alternative would result in similar geology and soils impacts [Similar].

8.3.10 HYDROLOGY, DRAINAGE, AND WATER QUALITY

In general, this alternative would result in the same hydrology and water quality impacts as the project because a substantially similar, but somewhat reduced development would occur. This alternative would reduce the volumes of stormwater discharges from the site. Nevertheless, because both the project and this alternative would be designed in accordance with City drainage standards, would ensure that sufficient capacity exists in off-site drainage facilities, and would implement BMPs for water quality, this alternative would result in similar hydrology and water quality impacts. Similar to the project, this alternative would be located in an area that is located outside the Federal Emergency Management Agency's (FEMA) 100-year floodplain. Therefore, less-than-significant flooding impacts would occur. Therefore, the proposed project and reduced size alternative would have similar hydrology, drainage, and water quality effects [Similar].

8.3.11 AGRICULTURE

The viability of the buffer areas on the project site (i.e., long, narrow 200- to 400-foot wide strips of land) for agricultural operations would likely be infeasible. In general, large areas dedicated to agricultural operations are needed to have a viable farming operation. Further, potential land use incompatibilities (e.g., air, noise) associated with agricultural operations adjacent to urban development increases the likelihood that a viable agricultural operation surrounding the project site would not occur. Therefore, although the foot print of this alternative would result in less development and direct conversion of Important Farmland, the net effect because of land use compatibilities and lack of viable farming properties would be similar to the project (i.e., conversion of 518 acres of Important Farmland) and with mitigation would be significant and unavoidable. However, this alternative would reduce the acreage of open space converted to urban land uses; however, because of the substantial size of this alternative and the lack of full compensatory mitigation, this impact would remain significant and unavoidable. Nonetheless, this alternative would reduce impacts to Important Farmland and overall impacts would be less [Less].

8.3.12 BIOLOGICAL RESOURCES

This alternative would reduce the development footprint of the project site and would increase the buffer area along the western, eastern, and southern boundaries of the site (i.e., up to 400 feet). Therefore, this alternative would reduce overall impacts to giant garter snake. Further, similar mitigation to enhance giant garter snake habitat at off-site location would also be provided. There would be increased Swainson's hawk foraging habitat at the site under this alternative. Other habitat and species impacts would be comparable under this alternative, but would occur to a lesser degree (e.g., wetland impacts). Overall, this alternative would result in less biological resources impacts. However, because less of the site would be developed, less off-site mitigation would need to be purchased and enhanced for the benefit of species affected. The establishment of off-site preserves designed for the benefit of species is intended to fully offset the impacts of project development. Under this alternative, the need for off-site mitigation would be less. Because the mitigation is designed to offset the impacts, impacts under this alternative would be similar to the proposed project.[Similar].

8.3.13 CULTURAL RESOURCES

Because this alternative would result in development of the majority of the project site and ground-disturbing activities would occur across the site, impacts to unknown archaeological resources would be potentially significant with this alternative similar to those of the project. However, with implementation of mitigation recommended for the project, this impact would be reduced to a less-than-significant level. This alternative would

not reduce or avoid and significant cultural resource impact of the project, so overall cultural resource impacts would be similar to the project [*Similar*].

8.3.14 PROJECT OBJECTIVES

The reduced size alternative would meet most if not all of the project's objectives including those related to creation of a pedestrian-friendly development; development of a project that is generally consistent with SACOG's Blueprint development plan, development of a residential development near the major employment centers of downtown Sacramento and Metro Air Park; provision vertically and horizontally mixed neighborhoods; incorporation of parks and open space in a manner that provides connectivity; and creating a residential development with a variety of housing types. However, because of its reduced size and reduced population densities, the reduced size alternative may not provide a sufficient population base to support the construction of a light rail station on the project site and it would not provide as great a benefit toward meeting the City's long-term housing and employment demand projections.

8.4 CONSIDERATION OF NO PROJECT ALTERNATIVE – CONTINUATION OF EXISTING LAND USES

The key objective of the no project alternative is to continue existing land use activities on the project site consistent with the County's agricultural land use designations for the site. The project site has been or is currently in agricultural production and agricultural support uses. The majority of the site currently consists of rice fields/former rice fields and associated water canals. A racehorse training facility was previously located in the northwest corner of the project site but has been demolished and only remnant building foundations and the dirt racetrack remain. This alternative would not develop the project site with urban land uses and the project site would continue to operate in an agricultural/farming capacity including rice and row crop cultivation.

8.4.1 TRANSPORTATION AND CIRCULATION

The no project alternative would not develop any urban land uses on the project site. Therefore, traffic volumes on local roadways would not increase as a result of the project. Because no changes in land uses would occur from existing condition, this alternative would not generate any increased daily vehicle trips and would not cause any impacts to local roadways or intersections. Therefore, this alternative would eliminate the project's significant and unavoidable transportation impacts to local intersections, roadway segments, freeway ramps, and freeway segments. Overall, the no project alternative would result in substantially less transportation and circulation impacts compared to the project [*Less*].

8.4.2 AIR QUALITY

Because the no project alternative would not develop any urban land uses on the project site, and no construction activities would occur, this alternative would not generate any construction- or operational-related air emissions (e.g., ROG, NO_x, PM₁₀, or TAC's). The project would result in significant and unavoidable impacts related to construction emissions, increases in stationary source TAC's, and long-term regional emissions. Implementation of the no project alternative would eliminate these impacts. However, farming activities would likely occur at the site and these activities would result in the generation of fugitive dust emissions associated with disking and plowing activities. Quantified dust emissions associated with on-site farming operation are known, but depending the crops that are produced and how crops are rotated at the site, this alternative could result in the substantial generation of fugitive dust emissions, but because of their intermittent nature would not likely result in significant air quality impacts. Overall, this alternative would reduce or eliminate the project's significant and unavoidable air quality impacts; therefore, impacts would be less [*Less*].

8.4.3 NOISE

No construction activities would occur under this alternative because no development would occur. As a result, this alternative would eliminate the project's construction-related noise impacts; however, these impacts are reduced to a less-than-significant level with implementation of recommended mitigation. Noise impacts associated with aircraft overflights would not occur because no new residential land uses would be developed on-site. Further, mobile-source noise impacts associated with traffic on I-5 and SR 70/99 would not occur because no residences would be located in close proximity to these noise sources. Implementation of this alternative would eliminate all of the project's significant and unavoidable noise impacts [*Less*].

8.3.4 UTILITIES

No increased demands for utility services would occur under this alternative because no new development would occur. While the project's utility impacts were determined to be less than significant with mitigation, this alternative would not result in the need to construct or extend existing utilities to the site, the construction of which could result in significant environmental effects. As such, this alternative would result in less utility impacts compared to the project [*Less*].

8.4.5 PUBLIC SERVICES

Under this alternative, demand for public services would not occur. Although no significant public service impacts were identified for the project after mitigation, this alternative would not create the need to extend public services (e.g., fire protection, law enforcement, schools) to the project site. As such, this alternative would result in less utility impacts compared to the project [*Less*].

8.4.6 PARKS AND OPEN SPACE

Because the no project alternative would not develop any urban land uses, this alternative would not require development or dedication of park land as defined by City standards and would have no demands for park facilities. Further, no open space lands would be converted. For these reasons, this alternative would have less effects related to parks and open space [*Less*].

8.4.7 AESTHETICS

The no project alternative would not develop any urban land uses on the project site. Therefore, alteration of existing views from surrounding lands including I-5, SR 70/99, and local roadways would not occur. This impact was identified as significant and unavoidable with the project. With this alternative, this impact would not occur because the view shed would not change from existing conditions. Overall, aesthetic resource impacts would be perceived as less than the proposed project because the site would not convert from existing agricultural land uses to a developed use [*Less*].

8.4.8 PUBLIC HEALTH AND HAZARDS

Under this alternative no new development would occur; therefore, no residents or tenants of the site would be exposed to aircraft safety hazards (i.e., bird strikes) associated with the location of a lake/detention basin on-site. However, this impact would be reduced to a less-than-significant level with implementation of recommended mitigation under the project. Nonetheless, this alternative would eliminate this potential safety impact and it would also eliminate the project's potential inconsistency with the CLUP because no land uses are proposed that would be inconsistent with development standards in the CLUP (i.e., parks, commercial, light rail station). This alternative eliminates the project's interim significant and unavoidable flooding hazard impacts because no

housing would be located on the project site. Therefore, the no project alternative would result in less public health and hazards impacts compared to the project [*Less*].

8.4.9 GEOLOGY AND SOILS

Under this alternative there would be no development of urban land uses; therefore impacts related to construction erosion and risks from seismic and soil hazards would not occur. While farming activities at the site could result in exposed soils, which could lead to potential erosion impacts, these impacts are anticipated to be minor and would not increase from existing conditions. This alternative would not construct any buildings or structures on the project site and, as a result, would not result in any soil hazard impacts (e.g., liquefaction, soil expansion). Overall, the no project alternative would result in less geology and soils impacts compared to the proposed project [*Less*].

8.4.10 HYDROLOGY AND WATER QUALITY

This alternative would reduce the volumes of stormwater discharges from the site because development of urban land uses would not occur. Further, this alternative would not develop land uses (e.g., homes, structures) that would be subject to a flooding risk during storm events. While flooding impacts would be less-than-significant, this alternative would result in less hydrology and water quality impacts than the proposed because no structures would be constructed on-site [*Less*].

8.4.11 AGRICULTURE

Agricultural operations on the project site would continue under this alternative and the potential for conflicts between urban land uses and surrounding agricultural operations would not occur. Further, implementation of this alternative would not result in the conversion of any Important Farmlands to urban land uses. Therefore, impacts to agriculture would be less compared to the proposed project [*Less*].

8.4.12 BIOLOGICAL RESOURCES

This alternative would not develop any urban land uses on the project site and existing biological and wildlife habitats on the project site would remain unchanged. As a result, this alternative would avoid the project's significant biological resource impacts; however, these impacts would be reduced to a less-than-significant level with implementation of recommended mitigation. It is important to note that this alternative would not provide any mitigation lands that would serve to enhance giant garter snake habitat in the local area at an off-site location. Nonetheless, this alternative would result in less overall biological resource impacts [*Less*].

8.4.13 CULTURAL RESOURCES

Although this alternative would not result in development of the project site, ground-disturbing activities (i.e., disking and plowing) would still occur on the project site. However, these activities would likely not extend to the same depths as the project (i.e., 2-3 feet versus 10-15 feet). Nonetheless, because ground-disturbing activities would continue, this alternative would result in the same potentially significant impacts associated with the discovery of previously undiscovered cultural resources. Mitigation recommended for the project would reduce these impacts to a less-than-significant level. Therefore, this alternative would result in similar cultural resource impacts [*Similar*].

8.4.14 PROJECT OBJECTIVES

The no project alternative would not meet any of the project's objectives including those related to development of a light rail station, creation of a pedestrian-friendly development; development of a project that is generally

consistent with SACOG’s Blueprint development plan, development of a residential development near the major employment centers of downtown Sacramento and Metro Air Park; provision vertically and horizontally mixed neighborhoods; incorporation of parks and open space in a manner that provides connectivity; and creating a residential development with a variety of housing types along the DNA line. This alternative would not further the City’s goal to provide sufficient and additional housing opportunities to area residents and would not contribute to meeting long-term housing and employment demand projections.

8.5 SUMMARY OF COMPARATIVE EFFECTS OF THE PROJECT SITE ALTERNATIVES

Table 8-1 summarizes the environmental analysis provided above for the off-site alternative, dispersed development alternative, reduced size alternative, and the no project alternative.

| Table 8-1 Comparison of Environmental Impacts of Alternatives in Relation to the Proposed Project | | | | |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------|-------------------------------------|
| Issue Area | No Project Alternative— Continuation of Existing Land Uses (NP) | Off-site Alternative | Dispersed Development Alternative | Reduced Size Alternative |
| Traffic and Circulation | Less | Less | Greater or Less | Less |
| Air Quality | Less | Similar or Less | Similar or Less | Less |
| Noise | Less | Less | Less | Less |
| Utilities | Less | Less | Less | Similar |
| Public Services | Less | Less | Less | Similar |
| Parks and Open Space | Less | Less | Less | Similar |
| Aesthetics | Less | Less | Less | Similar |
| Public Health and Hazards | Less | Less | Less | Less |
| Geology and Soils | Less | Similar | Similar | Similar |
| Hydrology and Water Quality | Less | Similar | Similar | Similar |
| Agriculture | Less | Less | Less | Less |
| Biological Resources | Less | Less | Similar | Similar |
| Cultural Resources | Similar | Similar | Similar | Similar |

8.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the alternatives to the proposed project, CEQA requires that an “environmentally superior” alternative among the alternatives considered be selected and the reasons for such selection disclosed. In general, the environmentally superior alternative is the alternative that would generate the fewest or least severe adverse impacts. In the case of the project, the no project alternative is the environmentally superior alternative because it would not create any new site-specific adverse environmental impacts. However, CEQA requires the identification of another environmentally superior alternative when the “no project” alternative is identified as environmentally superior (State CEQA Guidelines Section 15126[e][2]).

The reduced size alternative would be environmentally superior to the project because it would substantially reduce the project’s traffic, air, noise, farmland, and biological resources impacts. Further, it would meet most project objectives including supporting light rail and creating a development consistent with SACOG’s Blueprint.

An off-site alternative within the existing boundaries of the NNCP would be environmentally superior to the project and to the reduced size alternative. This alternative is the overall superior alternative because it would avoid the project's significant aircraft safety hazard impact associated with compatibility with CLUP standards and it would substantially reduce traffic, farmland, biological, air quality, and noise impacts. Further, it would meet most if not all project objectives. However, a site within the NNCP is not currently owned by the project applicant and all land in the NNCP area is currently proposed for development. Therefore, it is not known whether the off-site alternative considered in this analysis is feasible. Further, this alternative would not meet the key project objective of providing a development along the DNA line.

The dispersed development alternative would not be environmentally superior to the project. While this alternative would avoid the project's significant aircraft safety hazard impacts associated with compatibility with CLUP standard and it would substantially reduce traffic, farmland, biological, air quality, and noise impacts, depending on localized conditions could result in greater transportation impacts compared to the project. Further, multiple sites within the city limits or SOI are not owned by the project applicant and most land with the City is currently proposed for development. Therefore, it is not known whether this theoretical off-site alternative considered in this analysis is feasible. Further, development of an alternative in a dispersed nature would not achieve the key project objectives related to providing residential development that would support development of a light rail station along the DNA line.

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10 REPORT PREPARATION

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Scott Tobey..... Development Engineering & Finance
Sabina Gilbert..... Legal Counsel
Joe Cerullo..... Legal Counsel

SACRAMENTO COUNTY LOCAL AGENCY FORMATION COMMISSION

Peter Brundage Executive Officer
Don Lockhart..... Assistant Executive Officer
Nancy Miller..... Legal Counsel
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11 STANDARD TERMINOLOGY AND ACRONYMS

This DEIR uses the following terminology and acronyms.

11.1 STANDARD TERMINOLOGY

“No impact” means no change from existing conditions (no mitigation is needed).

“Less-than-significant impact” means no substantial adverse change in the physical environment (no mitigation is needed).

“Potentially significant impact” means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).

“Significant impact” means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).

“Significant and unavoidable impact” means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of recommended mitigation.

“Greenbriar site/area” refers to the 577-acre area identified for the Greenbriar development proposal.

“Proposed project” refers to the Greenbriar project.

11.2 ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in this DEIR:

| | |
|----------|--------------------------------------------------------------------|
| AASHTO | American Association of State Highway and Transportation Officials |
| AB | Assembly Bill |
| ac-ft | acre-feet |
| AEP | Annual Exceedance Probability |
| AFY | acre-feet per year |
| APN | assessor’s parcel number |
| ARB | California Air Resources Board |
| BMP | best management practice |
| BP | before present |
| CAA | federal Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| Cal-EPA | California Environmental Protection Agency |
| Cal/OSHA | California Occupational Safety and Health Administration |
| Caltrans | California Department of Transportation |
| CCAA | California Clean Air Act |
| CCIC | Central California Information Center |
| CCR | California Code of Regulations |
| CDC | California Department of Conservation |
| CDE | California Department of Education |
| CDMG | California Division of Mines and Geology |
| CEQA | California Environmental Quality Act |

| | |
|---------------------|-------------------------------------------------------------------------|
| CESA | California Endangered Species Act |
| cf | cubic feet |
| CFR | Code of Federal Regulations |
| cfs | cubic feet per second |
| CGS | California Geological Survey |
| CHRIS | California Historical Resources Information System |
| City | City of Sacramento |
| City General Plan | City of Sacramento General Plan |
| CIWMB | California Integrated Waste Management Board |
| CNDDB | California Natural Diversity Database |
| CNEL | community equivalent noise level |
| CNG | compressed natural gas |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| County | Sacramento County |
| County General Plan | Sacramento County General Plan |
| CP | Community Park |
| CRHR | California Register of Historical Resources |
| CTR | California Toxics Rule |
| CWA | Clean Water Act |
| DA | development agreement |
| dB | decibel |
| dBA | A-weighted decibel |
| DEIR | draft environmental impact report |
| DFG | California Department of Fish and Game |
| DHS | California Department of Health Services |
| DPR | California Department of Parks and Recreation |
| DRB | Design Review Board |
| DSMP | Caltrans District 3 Draft District System Management Plan |
| DTSC | Department of Toxic Substances Control |
| du | dwelling unit |
| du/ac | dwelling units per acre |
| DWR | California Department of Water Resources |
| EIR | environmental impact report |
| EIS | environmental impact statement |
| EPA | U.S. Environmental Protection Agency |
| ESA | Environmental Site Assessment |
| FAR | floor area ratio |
| FEMA | Federal Emergency Management Agency |
| FESA | federal Endangered Species Act |
| FHWA | Federal Highway Administration |
| FIRM | Flood Insurance Rate Map |
| FMMP | Important Farmland Maps of the Farmland Mapping and Monitoring Program+ |
| FPP | Farmland Protection Program |
| FPPA | Farmland Protection Policy Act |
| FSZ | Farmland Security Zone |
| FTE | Full-Time Equivalent |
| GO | General Obligation bonds |

| | |
|------------------|-------------------------------------------------------------------------------------|
| gpm | gallons per minute |
| HAP | hazardous air pollutant |
| HCD | California Department of Housing and Community Development |
| HCS | highway capacity software |
| HR | High Density Residential |
| HS | High School |
| I- | interstate |
| IS | initial study |
| ITE | Institute of Transportation Engineers |
| kWh | kilowatt hours |
| kWh/day | kilowatt hours per day |
| K-8 | kindergarten through grade 8 |
| LAFCO | Sacramento Local Agency Formation Commission |
| L _{dn} | day-night average noise level |
| L _{eq} | energy-equivalent noise level |
| LESA | California Agricultural Land Evaluation and Site Assessment |
| L _{max} | maximum noise level: the maximum instantaneous noise level during a specific period |
| L _{min} | minimum noise level: the minimum instantaneous noise level during a specific period |
| LOS | level of service |
| LRT | light rail transit |
| M | Maximum Moment Magnitude |
| MBTA | Migratory Bird Treaty Act |
| mcf | million cubic feet |
| MCL | Maximum Contaminant Level |
| MCM | Minimum Control Measure |
| mgd | million gallons per day |
| mg/l | milligrams per liter |
| ml | milliliter |
| MMI | Modified Mercalli Intensity |
| mm/yr | millimeter/year |
| mph | miles per hour |
| MPN | Most Probable Number |
| msl | mean sea level |
| MUTCD | Manual of Uniform Traffic Control Devices |
| NAAQS | National Ambient Air Quality Standards |
| NAHC | Native American Heritage Commission |
| NAPMPD | Northern Area Portion Master Plan of Drainage |
| NC | Neighborhood Commercial |
| NCCP | Natural Community Conservation Plan |
| NCCPA | Natural Community Conservation Planning Act |
| NEPA | National Environmental Policy Act |
| NEHRP | National Earthquake Hazards Reduction Program |
| NEHRPA | National Earthquake Hazards Reduction Program Act |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants |
| NFIP | National Flood Insurance Program |
| NGVD | National Geodetic Vertical Datum |

| | |
|--------------------|--------------------------------------------------------------------------------------------------|
| NMFS | National Marine Fisheries Service |
| NNCP | North Natomas Community Plan |
| NO | nitric oxide |
| NOAA | National Oceanic and Atmospheric Administration |
| NOI | Notice of Intent |
| NOP | notice of preparation |
| NO _x | oxides of nitrogen |
| NO ₂ | nitrogen dioxide |
| NP | Neighborhood Park |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | U.S. Department of Agriculture National Resources Conservation Service |
| NUSD | Natomas Unified School District |
| NWP | nationwide permit |
| OC | Office-Commercial |
| O&M | operation and maintenance |
| OS | Levees, Open-space, River |
| O ₃ | ozone |
| pc/mi/ln | passenger cars/mile/lane |
| PG&E | Pacific Gas and Electric Company |
| PM | particulate matter |
| PM _{2.5} | particulate matter less than or equal to 2.5 microns in diameter |
| PM ₁₀ | particulate matter less than or equal to 10 microns in diameter, or suspended particulate matter |
| POC | point of connection |
| Porter-Cologne Act | Porter-Cologne Water Quality Control Act |
| ppm | parts per million |
| ppt | parts per thousand |
| psi | pounds per square inch |
| P-SP(NC) | Public/Semi-Public (Neighborhood Commercial underlay) |
| PSR | project study report |
| RD | reclamation district |
| REC | recognized environmental condition |
| R/MU | Residential/Mixed Use |
| ROG | reactive organic gases |
| RV | recreational vehicle |
| RWD | Report of Waste Discharge |
| RWQCB | Regional Water Quality Control Board |
| SB | Senate Bill |
| SB 610 Report | SB 610 Water Supply Assessment |
| SEL | single-event noise level |
| SFPD | School Facilities Planning Division |
| SIP | State Implementation Policy |
| SMARA | Surface Mining and Reclamation Act |
| SO ₂ | sulfur dioxide |
| SPA | special planning area |
| SPC | Specialty Commercial |
| SR | State Route |
| SRA | shaded riverine aquatic |

| | |
|-------------------|--------------------------------------------------|
| SRCSD | Sacramento Regional County Sanitation District |
| SWMP | stormwater management program |
| SWP | State Water Project |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TAC | toxic air contaminant |
| TPY | tons per year |
| UBC | Uniform Building Code |
| UCMP | University of California, Museum of Paleontology |
| UPRR | Union Pacific Railroad |
| USACE | U.S. Army Corps of Engineers |
| USC | U.S. Code |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VR | Variable Density Residential |
| WDR | waste discharge requirements |
| WQCF | Water Quality Control Facility |
| WQCP | Water Quality Control Plan |
| WSA | Water Supply Assessment |
| °C | degrees Celsius |
| °F | degrees Fahrenheit |
| µg/l | micrograms per liter |
| µg/m ³ | micrograms per cubic meter |