

Draft

SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Environmental Impact Report

Prepared for
San Joaquin County

October 2014





San Joaquin County
NOTICE OF AVAILABILITY
of the
Draft EIR for the
2035 General Plan, San Joaquin County, California

To: Public Agencies and Concerned
Citizens/Interested Parties

From: San Joaquin County
Community Development Department
1810 E. Hazelton Avenue
Stockton, CA 95205

Project Applicant: San Joaquin County

Notice: Notice is hereby given that San Joaquin County ("the County"), acting as Lead Agency under the California Environmental Quality Act (CEQA), will receive public comment and recommendations on a Draft Environmental Impact Report (Draft EIR) prepared for the San Joaquin County 2035 General Plan. The review period extends just over the required 45 days, beginning October 21, 2014 and ends at 5:00 pm on December 5, 2014. All comments regarding the Draft EIR must be received by this ending date/time.

Project Location: San Joaquin County encompasses over 900,000 acres (about 1,425 square miles) of land in the center of California's Central Valley. San Joaquin County is bordered by Sacramento County to the north, Stanislaus County to the south, Amador and Calaveras Counties to the east, and Contra Costa and Alameda Counties to the west. The city of Stockton is the county seat for San Joaquin County.

Project Description: The project analyzed in this Program EIR is the proposed San Joaquin County 2035 General Plan, which will guide land use decisions within the unincorporated portions of the County. The 2035 General Plan is a comprehensive update of the policies of the County's current 2010 General Plan. While many of the existing policies of the adopted General Plan remain unchanged, the 2035 General Plan reflects a new Vision for future growth and development within the county, and recent State law requirements. The most significant changes to the policies of the San Joaquin County 2035 General Plan include new or revised policies that address:

- Complete Streets in both urban communities and rural areas to ensure that County streets are designed to accommodate all forms of transportation, including autos, trucks, transit, bicycles, and pedestrians, and all people, including children, the elderly, and disabled.
- Congestion Management and Transportation Control Measures which are intended to reduce the number of single-occupant autos on freeways and major County streets.
- Delta protection and use, including intergovernmental cooperation, environmental preservation, agricultural protection, local land use control, and recreation.

- County Economic Development, including increased employment-based uses in urban communities and adjacent to freeway interchanges, business retention and expansion, economic base diversification, agri-tourism, and protection of the Stockton Metropolitan Airport and the Port of Stockton.
- Water and Energy Conservation, including energy-efficient buildings, water use and reuse, and alternative energy sources.
- Greenhouse Gas emissions reductions, including modified County operations, reduced auto trips, emphasis on infill development in urban communities and cities, and reduced energy and water consumption.
- Character of Urban Communities, including compatible development, revitalization of main streets, adequate public facilities and services, and increased employment opportunities.
- Intergovernmental Cooperation, including support for regional planning programs, agricultural land preservation, coordination of water service and conservation, and Delta protection.
- Flood Risk Protection, including limitation on development in flood-prone areas, increased flood protection facilities, and expanded development review.

Potential Environmental Impacts: The Program EIR identified two types of potentially significant environmental impacts: those that can be mitigated, and those that would be significant and unavoidable. Potentially significant impacts that can be mitigated include: land use, cultural and paleontological resources, air quality, geology, soils and seismicity, aesthetics, utilities and service systems, and mineral resources. If the County implements mitigation measures identified in the Program EIR each of these potentially significant impacts would be reduced to a less than significant level. Significant and unavoidable impacts include: agriculture (two); transportation (three); cultural and paleontological resources (two); air quality (three); and utilities (two). These impacts will remain significant and unavoidable even if the County implements identified mitigation measures. In both cases, the County, as project sponsor, would carry out the identified mitigation measures and administer the Mitigation Monitoring and Reporting Program.

Public Review Period: The public review period for the Draft EIR extends from October 21, 2014 through December 5, 2014.

Location Where Document Can Be Reviewed: The County has prepared a Draft EIR for the subject project pursuant to the California Environmental Quality Act. This document is available for review at the San Joaquin County Community Development Department, 1810 E. Hazelton Avenue, Stockton, CA 95205, or online at: <http://www.sjcgpu.com>.

<p>Comments on the Draft Environmental Impact Report must be received, <u>in writing</u>, by the end of the review period, December 5, 2014, at 5:00 p.m. Submit comments to Raymond Hoo, Senior Planner, San Joaquin County, Community Development Department 1810 E. Hazelton Avenue, Stockton, CA 95205 or rhoo@sjgov.org Phone: 209-468-3164</p>
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San Joaquin County

October 2014



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CHAPTER 1

Introduction

A. Overview

The project analyzed in this EIR is the proposed San Joaquin County 2035 General Plan. The update includes a comprehensive update of the policies of the County's current General Plan that will guide land use decisions within the unincorporated portions of the County. While many of the existing policies of the adopted General Plan are likely to remain unchanged, the General Plan update will address recent State law requirements for the General Plan to address sustainability, climate change, multi-modal transportation options, and other items.

The most significant changes to the policies of the San Joaquin 2035 General Plan include new or revised policies:

- That address **Complete Streets** in both urban communities and rural areas to ensure that County streets are designed to accommodate all forms of transportation, including autos, trucks, transit, bicycles, and pedestrians, and all people, including children, the elderly, and disabled.
- Related to **Congestion Management** and **Transportation Control Measures** which are intended to reduce the number of single-occupant autos on freeways and major County streets.
- That address **Delta** protection and use, including intergovernmental cooperation, environmental preservation, agricultural protection, local land use control, and recreation.
- To support County **Economic Development**, including increased employment-based uses in urban communities and adjacent to freeway interchanges, business retention and expansion, economic base diversification, agri-tourism, and protection of the Stockton Metropolitan Airport and the Port of Stockton.
- That support increased **Water and Energy Conservation**, including energy-efficient buildings, water use and reuse, and alternative energy sources.
- To reduce **Greenhouse Gas** emissions, including modified County operations, reduced auto trips, emphasis on infill development in urban communities and cities, and reduced energy and water consumption.
- That support preservation of the **Character of Urban Communities**, including compatible development, revitalization of main streets, adequate public facilities and services, and increased employment opportunities.

- To encourage increased **Intergovernmental Cooperation**, including support for regional planning programs, agricultural land preservation, coordination of water service and conservation, and Delta protection.

B. California Environmental Quality Act

The proposed San Joaquin County 2035 General Plan approvals constitute a “project” as defined by, and subject to the requirements of, the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) and the “CEQA Guidelines” (California Code of Regulations, Title 14, Section 15000 et seq.). For purposes of CEQA, the term “project” refers to the whole of an action that has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA *Guidelines* Section 15378).

As the principal public agency responsible for approving the 2035 General Plan update, San Joaquin County is the “lead agency” for implementing the CEQA environmental review process. A “responsible agency” is any other public agency that has discretionary approval authority over a proposed project (CEQA *Guidelines* Section 15381). Other public agencies with approval authority over the proposed 2035 General Plan, include the San Joaquin Council of Governments acting as the Airport Land Use Commission and the Delta Protection Commission, which are identified as responsible agencies.

San Joaquin County has determined that the size, scale, and potentially significant impacts resulting from the proposed project require the preparation of an EIR. Consistent with CEQA, this EIR is an informational document which will inform public agency decisionmakers and the public about the significant environmental effects of the proposed Plan, and about mitigation measures and/or alternatives to the project to minimize the Plan’s significant adverse impacts (CEQA *Guidelines* Section 15121(a)).

C. Environmental Review

C.1 Type of EIR

The CEQA *Guidelines* identify several types of EIRs, each applicable to different circumstances. This EIR will function as a program EIR for the proposed 2035 General Plan.

According to the CEQA *Guidelines* (Section 15168(a)), a public agency may prepare a program EIR that can be characterized as one large project or a series of actions that are linked geographically; logical parts of a chain of contemplated events; rules, regulations, or plans that govern the conduct of a continuing program; or individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

Under CEQA, a program EIR can function as a first-tier environmental document that assesses and documents the broad environmental impacts of a program with the understanding that a more detailed site-specific review may be required to assess future projects implemented under the

program. The analysis contained in this EIR may also be used as a reference for subsequent environmental review of development projects, infrastructure improvements, zoning amendments, impact fees, and other development plans and proposals within San Joaquin County.

The series of actions analyzed in this Program EIR includes potential future development in the unincorporated County based on the horizon year of the General Plan update, 2035, as well as associated updates to plans, programs and policies that support the General Plan. While the Program EIR will identify potential impacts that would result from project implementation, the analysis is not detailed to the level of site specificity. The Program EIR will identify a range of potential impacts resulting from future development allowed under the 2035 General Plan and will identify mitigation measures that will guide future development and reduce identified potentially significant effects.

With respect to the processing of subsequent projects, including more site-specific projects, the County in making optimal use of this EIR (once it is certified) intends to avail itself of at least two separate, but complementary processes authorized by CEQA that streamline the review of projects consistent with approved general plans. First, as noted above, this program EIR will be used for later activities related to the General Plan to determine whether an additional environmental document must be prepared, pursuant to CEQA *Guidelines* Section 15168. If a later activity would have effects that were not examined in this Program EIR, a new Initial Study would be prepared leading to either an EIR or a Negative Declaration. If no new effects would occur and no new mitigation measures would be required, the County may approve the later activity as being “within the scope” of the Program EIR, and no new environmental document would be required. Relevant feasible mitigation measures in this Program EIR would be incorporated into subsequent actions.

Second, future environmental review can also be streamlined pursuant to Public Resources Code Section 21083.3 and CEQA *Guidelines* Section 15183. These provisions generally limit the scope of necessary environmental review for site-specific approvals following the preparation of an EIR for a general plan. For such site-specific approvals, CEQA generally applies only to impacts that are “peculiar to the parcel or to the project” and that have not been disclosed in the general plan EIR, except where “substantial new information” shows that previously identified impacts will be more significant than previously assumed. Notably, impacts are considered **not** to be “peculiar to the parcel or to the project” if they can be substantially mitigated pursuant to previously adopted “uniformly applied development policies or standards”. The previous adoption must include a finding that these policies or standards will substantially mitigate these impacts when applied to future projects.

C.2 Notice of Preparation

On October 9, 2013, the County sent a Notice of Preparation (NOP) to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the Plan. The NOP is included as **Appendix A** of this EIR. The NOP requested that agencies with regulatory authority over any aspect of the Plan describe that authority and identify the relevant

environmental issues that should be addressed in the EIR. Interested members of the public were also invited to comment. Responses to the NOP are included as **Appendix B**.

C.3 Draft EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the 2035 General Plan, description of the environmental setting, identification of significant environmental impacts and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. Upon completion of the Draft EIR, the County filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the public review period (CEQA Section 21161).

Public Notice and Public Review

Concurrent with the NOC, the County has provided public notice of the availability (NOA) of the Draft EIR for public review, and is inviting comment from the general public, agencies, organizations, and other interested parties. The public review period will be just over the required forty-five (45) days beginning October 21, 2014 and ending on December 5, 2014.

All comments or questions regarding the Draft EIR should be addressed to:

Raymond Hoo
Senior Planner
San Joaquin County Community Development Department
1810 E. Hazelton Avenue
Stockton, CA 95205

or via e-mail to: rhoo@sjgov.org

C.4 Final EIR and Project Approval

Following the public review period, a Final EIR will be prepared. The Final EIR will respond to comments on environmental issues that are received during the public review period, including both written comments and oral comments made at the public hearing on the Draft EIR.

The Final EIR will be reviewed by the Planning Commission and a recommendation will be made to the Board of Supervisors (BOS) regarding Final EIR certification. The BOS will consider and certify the Final EIR if it is determined to be in compliance with CEQA, and then consider whether to adopt CEQA findings, adopt a statement of overriding considerations, adopt the mitigation monitoring and reporting program (MMRP), and consider whether to approve the proposed 2035 General Plan.

When a public agency approves a project for which an EIR has been certified, which identifies one or more significant environmental effects, CEQA requires that the agency make one or more written findings for each of those significant effects accompanied by a brief explanation of the rationale for each finding (CEQA *Guidelines* Section 15091). The lead agency must find either that the significant impact has been mitigated, that mitigation is the responsibility of another

agency that can and should adopt it, or that mitigation is infeasible. Because significant environmental effects have been identified in this EIR, findings will be required for the proposed 2035 General Plan at the time of project approval.

At the time of project approval, the BOS will also consider whether to adopt a statement of overriding considerations. A statement of overriding considerations identifies the reasons why the benefits of the proposed project outweigh the significant adverse environmental impacts of the project, if there are impacts that cannot be avoided or substantially lessened (CEQA *Guidelines* Section 15093).

CEQA requires that when a public agency makes findings based on an EIR, the public agency must also adopt an MMRP for those measures that it has adopted or made a condition of project approval in order to mitigate or avoid potentially significant effects on the environment. The BOS will adopt an MMRP to ensure compliance with required mitigation measures during project implementation (CEQA *Guidelines* Section 15097). The MMRP will be prepared and available for review at the time of the Final EIR.

Upon considering the Final EIR and CEQA findings, the BOS may then take action to approve, revise, or reject the proposed 2035 General Plan.

D. Range of Alternatives

CEQA requires that an EIR discuss a reasonable range of potentially feasible alternatives to the proposed project. This EIR describes and analyzes a reasonable range of alternatives, including a “No Project” alternative as required under CEQA (CEQA *Guidelines* Section 15126.6[e]); compares the environmental effects of each alternative with the effects of the proposed project; and addresses the relationship of each alternative to the project objectives (see Chapter 5). The final determinations of the Lead Agency concerning the feasibility, acceptance, or rejection of the alternatives considered in this EIR will be addressed in the findings when San Joaquin County considers approval of the project, as required by CEQA.

E. Organization of the Draft EIR

This *Introduction* (Chapter 1) presents an overview of the process by which this EIR will be reviewed and used by the decision-makers in their consideration of the proposed 2035 General Plan.

The *Summary* (Chapter 2) includes a brief project description and a summary table that lists the environmental impacts, proposed mitigation measures, and the level of significance after mitigation. Detailed analysis of these impacts and mitigation measures is provided in Chapter 4 (Environmental Setting, Impacts and Mitigation Measures). Chapter 2 also provides a summary of the alternatives to the proposed 2035 General Plan.

The *Project Description* (Chapter 3) describes the project location and boundaries; lists the project objectives; and provides a general description of the technical, economic, and environmental

characteristics of the proposed project. This chapter also includes a list of the County's required approvals and other agencies that may be responsible for approving aspects of the proposed 2035 General Plan.

The *Environmental Setting, Impacts and Mitigation Measures* (Chapter 4) contains a description of the environmental setting (existing physical environmental conditions), the regulatory setting, and the environmental impacts (including cumulative impacts) that could result from the proposed 2035 General Plan. It includes the thresholds of significance used to determine the significance of adverse environmental effects. This chapter also identifies mitigation measures, including policy edits, which would avoid or substantially lessen these significant adverse impacts. The impact discussions disclose the significance of the each impact both with and without implementation of mitigation measures.

Alternatives (Chapter 5) evaluates a range of reasonable alternatives to the proposed 2035 General Plan and identifies an environmentally superior alternative, consistent with the requirements of CEQA. The alternatives analysis evaluates each alternative's ability to meet the project objectives and its ability to reduce environmental impacts.

Other Statutory Sections (Chapter 6) presents growth-inducing effects, significant irreversible changes, and a summary of cumulative impacts, significant and unavoidable environmental impacts, and effects found to be less than significant.

Report Preparation (Chapter 7) identifies the authors of the EIR. Persons and documents consulted during preparation of the EIR are listed at the end of each analysis section (Sections 4.A through 4.P).

Appendices contain the NOP/Initial Study, comment letters received on the NOP, comments from the scoping hearing, as well as supporting documents and technical information for the impact analyses.

All reference documents listed at the end of each analysis section (Chapter 4) are available for review by the public. These documents are available at the San Joaquin County Community Development Department at 1810 Hazelton Avenue, Stockton, CA 95205, during normal business hours.

F. Intended Uses of the EIR

After certification by the County Board of Supervisors and approval of the proposed 2035 General Plan, this EIR may be used by the County and other agencies for approval of subsequent activities, as described in Section C1. Subsequent County activities may include:

- Rezoning undertaken to make zoning consistent with the San Joaquin County 2035 General Plan;

- Adoption of plans for unincorporated communities, to the extent that such plans are consistent with the San Joaquin County 2035 General Plan and recognizing that there will be site-specific impacts needing additional CEQA analysis; or
- Adoption of infrastructure-related plans set out under the San Joaquin County 2035 General Plan, with the understanding that site-specific impacts will require additional CEQA analysis.

The Delta Protection Commission (DPC) must review and approve the 2035 General Plan. To approve the 2035 General Plan, the DPC must make the specific findings listed in Government Code Section 29761.5. The DPC will consider information in this EIR as part of its review and approval process.

The Delta Reform Act of 2009 (Act) established a self-certification process for demonstrating consistency with the Delta Plan. This means that state and local agencies proposing to undertake a qualifying action, called a “covered action” in the Act, must submit to the Delta Stewardship Council (DSC), a written certification of consistency with detailed findings as to whether the covered action is consistent with the Delta Plan. The proposed 2035 General Plan is a “covered action” per Water Code Section 85057.5.

Other agencies in addition to DPC, the Local Agency Formation Commission (LAFCO), and DSC may also utilize this EIR for CEQA compliance for their decisions on subsequent activities, pursuant to procedures for use of program EIRs established by CEQA Guidelines Section 15168. Specific subsequent activities by other agencies have not been identified.

References – Introduction

California Environmental Quality Act (CEQA) Statutes and Guidelines; Public Resources Code 21000-21177) and California Code of Federal Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387. 2010.

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CHAPTER 2

Executive Summary

A. Introduction

The California Environmental Quality Act (CEQA) requires that all state and local government agencies consider the environmental consequences of programs and projects over which they have discretionary authority before taking action on those projects or programs. Where there is substantial evidence that a project may have a significant effect on the environment, the agency shall prepare an environmental impact report (EIR) (CEQA *Guidelines* Section 15164[a]). An EIR is an informational document that will inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.

CEQA requires that a draft EIR be prepared and circulated for public review. Following the close of the public review period, the lead agency prepares a Final EIR, which includes the comments received during the review period (either verbatim or in summary), and responses to the significant environmental issues raised in those comments. Prior to taking action on a proposed project the lead agency must certify the EIR and make certain findings.

B. Project Overview

The project analyzed in this EIR is the proposed San Joaquin County 2035 General Plan (2035 General Plan). The 2035 General Plan includes the proposed policies, diagrams, text, and implementation measures that will guide land use decisions within the unincorporated areas of the County. The 2035 General Plan also includes a comprehensive update of the policies of the County's current 2010 General Plan (adopted in 1992). While some of the existing policies of the adopted General Plan are carried forward, the 2035 General Plan includes a number of new policies that address changes in State law. The 2035 General Plan update also addresses new issues, such as climate change and energy efficiency and emerging County priorities, such as economic development and the provision of public infrastructure and services.

Regional and Local Setting

San Joaquin County is located in the center of California's vast agricultural heartland, the Central Valley (see **Figure 3-1**). The County encompasses over 900,000 acres (about 1,425 square miles) and is bordered by Sacramento County to the north, Stanislaus County to the south, Amador and Calaveras Counties to the east, and Contra Costa and Alameda Counties to the west. The city of Stockton is the county seat for San Joaquin County. San Joaquin County includes relatively level,

agriculturally productive lands. Major landforms in the County include the foothills of the Diablo Range in the southwest, the foothills of the Sierra Nevada in the east, and the Delta in the northwest. State Route 99 (SR 99) and Interstate 5 (I-5), two of the State's major north-south freeways, pass through San Joaquin County. Interstate 205 (I-205) and Interstate 580 (I-580) provide direct connections to the San Francisco Bay Area to the west. Three transcontinental railroads (including Amtrak Service), the Stockton Metropolitan Airport, and the Port of Stockton connect the County to the State, nation, and world.

The General Plan divides San Joaquin County into 12 Planning Areas as follows: the Delta, Escalon, Lathrop, Linden, Lockeford, Lodi, Manteca, Mountain House, Ripon, Stockton, Thornton, and Tracy (see **Figure 3-2**). The General Plan Planning Areas include all lands within the County line, not including lands in the seven incorporated cities (i.e., Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy) and any additional areas in which adopted County policies may relate.

Project Objectives

Although the 2035 General Plan was developed to meet several fairly broad objectives (i.e., the requirements of State law, etc.), the General Plan has been developed through an extensive public outreach process to reflect the specific policy needs of San Joaquin County. To help determine what these specific policy needs are, the San Joaquin County Board of Supervisors considered input received during several community workshops, focus group meetings, and Planning Commission study sessions, on the fundamental values that would guide the preparation of the proposed 2035 General Plan. The result of the public outreach was the Vision and Guiding Principles document which paints a picture of what the County will strive for in the next 20 years (SJC, 2010). The Guiding Principles represent the County's core values, and touch on multiple topics such as: development, mobility, the Delta, water, community services and utilities, community character and economy. They establish benchmarks for the General Plan goals and policies. The Vision and Guiding Principles are applicable to the context of the County as a whole.

The 2035 General Plan expresses the County's vision for its physical, economic, and social development through the horizon year of 2035. 2035 General Plan objectives, which are consolidated from the Vision and Guiding Principles, are as follows:

- Preserve for future generations agricultural land and environmental resources, including the Delta, waterways, habitat areas, fish and wildlife, and other significant resources.
- Maintain clear boundaries between cities and unincorporated communities and focus new, higher-density growth within incorporated cities and adjacent areas outside of cities with full urban services.
- Preserve and enhance the rural, small town character and agricultural heritage of unincorporated communities and areas, while promoting infill and ensuring a balanced mix of residential, commercial, and employment uses.
- Ensure agriculture and agricultural-related industries remain one of the County's important economic sectors, while designating commercial and industrial areas suitable for the development of new industries.

- Plan agricultural land uses that support large-scale commodity farming, value-added agriculture, agri-tourism, and specialized farming practices and promote agricultural practices that support the farmer's ability to be productive, viable, and profitable.
- Create safe and efficient connections (e.g., auto, transit, bike, and pedestrian) between cities and unincorporated communities and promote regional transit connections (e.g., ACE Train) to reduce automobile trips.
- Enhance goods movement infrastructure (i.e., truck routes, railways, shipping channels, and airports) efficiency to ensure goods movement facilities and terminals operate in a safe and effective manner, consistent with surrounding land uses.
- Maintain infrastructure and services (e.g., water, sewer, drainage) to meet the needs of unincorporated communities and residents and businesses and ensure new development provides adequate infrastructure and services.
- Enhance parks and recreational opportunities for all County residents and visitors and promote appropriate access to rivers and waterways throughout the County, while limiting impacts to property owners and agricultural operations.
- Encourage development patterns, transportation systems, "green" building practices, energy efficiency projects/practices (e.g., renewable energy generation, alternative energy use, water conservation, waste reduction and recycling), and other sustainable practices that reduce emissions and improve air quality.
- Minimize risks from major floods and fire hazards and ensure the continued maintenance and enhancement of flood control infrastructure (i.e., levees).

The 2035 General Plan relies on individual policies to direct growth to preferred locations in response to market forces. The policies are presented in Appendix C. The most significant changes to the policies of the 2035 General Plan include new or revised policies:

- That address Complete Streets in both urban communities and rural areas to ensure that County streets are designed to accommodate all forms of transportation, including autos, trucks, transit, bicycles, and pedestrians, and all users, including children, the elderly, and disabled.
- Related to Congestion Management and Transportation Control Measures which are intended to reduce the number of single-occupant autos on freeways and major County streets.
- That address Delta protection and use, including intergovernmental cooperation, environmental preservation, agricultural protection, local land use control, and recreation.
- To support County Economic Development, including increased employment-based uses in urban communities and adjacent to freeway interchanges, business retention and expansion, economic base diversification, agri-tourism, and protection of the Stockton Metropolitan Airport and the Port of Stockton.
- That support increased Water and Energy Conservation, including energy-efficient buildings, water use and reuse, and alternative energy sources.
- To reduce Greenhouse Gas emissions, including modified County operations, reduced auto trips, emphasis on infill development in urban communities and unincorporated areas within cities, and reduced energy and water consumption.
- That support preservation of the Character of Urban Communities, including compatible development, revitalization of main streets, adequate public facilities and services, and increased employment opportunities.

- To encourage increased Intergovernmental Cooperation, including support for regional planning programs, agricultural land preservation, coordination of water service and conservation, and Delta protection.

Implementation Measures

To help ensure that appropriate actions are taken to implement the 2035 General Plan, the 2035 General Plan includes a set of implementation programs (see **Appendix C**). Implementation programs identify the specific steps to be taken by the County to implement the goals and policies of the 2035 General Plan. They include revisions of current codes and ordinances, capital improvements, programs, financing, and other measures that are assigned to different County departments after the 2035 General Plan is adopted. The types of tools or actions the County can use to carry out its policies and implementation programs generally fall into eight categories:

- Regulation and Development Review (RDR)
- Plans, Strategies, and Programs (PSP)
- Financing and Budgeting (FB)
- Planning Studies and Reports (PSR)
- County Services and Operations (SO)
- Intergovernmental Coordination (IGC)
- Joint Partnerships with the Private Sector (JP)
- Public Information (PI)

California Environmental Quality Act Compliance

This Draft EIR for the proposed 2035 General Plan was prepared in compliance with CEQA and the CEQA *Guidelines* (California Code of Regulations, Title 14). As described in the CEQA *Guidelines* Section 15121(a), an EIR is a public information document that assesses the potential environmental effects of a project, as well as identifies mitigation measures and alternatives to the project that could reduce or avoid adverse environmental impacts. CEQA guidelines require that state and local government agencies consider the environmental consequences of a project over which they have discretionary authority. Consequently, the Draft EIR is an informational document used in the planning and decision-making process. It is not the purpose of an EIR to recommend either approval or denial of a project.

The procedures required by CEQA “are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects (Public Resources Code Section 21002).” In the case of this Draft EIR for the proposed project, the proposed mitigation measures for these significant effects take the form of general plan policies that would be incorporated into the final 2035 General Plan.

The Draft EIR for the proposed 2035 General Plan was submitted to the State Clearinghouse (SCH #2013102017) and released for public and agency review on October 21, 2014 and extends for 45-days (closes on December 5, 2014). A copy of the Notice of Preparation dated October 9, 2013, requesting public comment, is attached to this EIR as **Appendix A**.

C. Environmental Impacts and Mitigation Measures

Potentially significant environmental impacts of the proposed project are summarized in **Table 2-1**. This table lists impacts and mitigation measures in three major categories: significant impacts that would remain significant even with mitigation (significant and unavoidable); significant impacts that could be mitigated to a less than significant level (significant but mitigable); and impacts that would not be significant (less than significant). For each significant impact, the table includes a summary of feasible mitigation measure(s) and an indication of the level of significance of the impact following implementation of mitigation measures. A complete discussion of each impact and associated mitigation measure is provided in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*. In Table 2-1, recommended edits to draft policies of the 2035 General Plan are shown with ~~strike through~~ for removed text and underlining for new text.

D. Alternatives

Alternatives to the proposed project are addressed in detail in Chapter 5 of the EIR and are summarized as follows:

- **No Project Alternative** – The No Project Alternative represents a continuation of the County’s existing 2010 General Plan (adopted in 1992), and the seven general plans of the incorporated cities within San Joaquin County (see CEQA *Guidelines* Section 15126(e)(3)(A)).
- **Blueprint Alternative** – The Blueprint Alternative is an interpretation of the San Joaquin Council of Governments Blueprint. The Blueprint Alternative focuses growth in cities and assumes a more compact development pattern. Less development would occur within unincorporated areas of the county.
- **Mitigated Alternative** – The Mitigated Alternative would remove one large area proposed for land use changes in the unincorporated county. This area is currently in the Primary Zone of the Delta where agricultural uses are encouraged to be retained. The proposed area that would not have a land use change is currently designated as General Agriculture (A/G) and includes 607.9 acres that were proposed to be changed to General Industrial (I/G) under the proposed 2035 General Plan. The parcels border State Route 4 at the southwest edge of the City of Stockton.

E. Areas of Controversy

CEQA *Guidelines* Section 15123 specifies that the EIR summary shall identify “areas of controversy” known to the Lead Agency including issues raised by agencies and the public, and issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects. The following issues are known to the Lead Agency to be controversial or that have the potential to be controversial: land use, agricultural resources, water and water quality, flooding and flood protection, population and housing, air quality, public services, recreation, transportation, and issues affecting the Sacramento-San Joaquin Delta. The potential impacts associated with all of these areas of controversy are addressed in Chapter 4 of the Draft EIR.

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
A. Land Use		
Impact 4.A-1: Implementation of the proposed 2035 General Plan could physically divide an established community within the county. (Significant)	<p>Mitigation Measure 4.A-1: The following new policy shall be included in the 2035 General Plan as a means of reducing the impact of division of an existing community:</p> <p><u>LU-1-14: New Infrastructure Developments. The County shall work to reduce or eliminate potential impacts of any new major infrastructure development, especially those that are linear in nature (freeways, utility corridors, rail lines, roadways, etc.), that could physically divide an established community. In this case, the term "established community" shall mean residential neighborhoods or urban communities.</u></p> <p>A corresponding implementation program shall also be included in the 2035 General Plan:</p> <p><u>LU-G: Review of New Infrastructure. The County shall comment on any plan that would result in new infrastructure (e.g., freeways/roads, transmission lines, rail lines, surface water conveyance facilities) that would physically divide an established community and shall require that any routing be revised to protect existing communities. The County shall work with special districts, community service districts, public utility districts, mutual water companies, private water purveyors, sanitary districts, and sewer maintenance districts to provide adequate public facilities and to plan/coordinate, as appropriate, future above-ground utility corridors in an effort to minimize future land use conflicts.</u></p>	Less than Significant.
Impact 4.A-2: Implementation of the proposed 2035 General Plan could conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (Significant)	Mitigation Measure 4. A-2: The 2035 General Plan shall be revised to retain the existing agricultural land designations for the approximately 607 acres at the southwestern edge of Stockton that are within the Primary Zone of the Delta and are subject to the Delta Protection Commission Land Use and Resources Management Plan (LURMP).	Less than Significant.
Impact 4.A-3: Implementation of the proposed 2035 General Plan could conflict with an applicable Habitat Conservation Plan or Natural Community Conservation Plan. (Less than Significant)	None required.	
Impact 4.A-4: Implementation of the proposed 2035 General Plan, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable probable future development, could contribute to significant cumulative land use impacts in the area. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
B. Agricultural and Forestry Resources		
Impact 4.B-1: Implementation of the proposed 2035 General Plan would result in the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to non-agricultural uses. (Significant and Unavoidable)	None available.	Significant and Unavoidable.
Impact 4.B-2: Implementation of the proposed 2035 General Plan could conflict with existing zoning for agricultural use, or conflict with the provisions of the Williamson Act contracts through early termination of active Williamson Act contracts, which could result in a net loss of farmland to other forms of development. (Less than Significant)	None required.	
Impact 4.B-3: Implementation of the proposed 2035 General Plan would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)). (Less than Significant)	None required.	
Impact 4.B-4: Implementation of the proposed 2035 General Plan would not result in the loss of forest land or conversion of forest land to non-forest use. (Less than Significant)	None required.	
Impact 4.B-5: Implementation of the proposed 2035 General Plan would involve other land use conflicts between agricultural and urban use or conversion of forest land to non-forest use, that could result in the conversion of Farmland to non-agricultural use, but would not result in the conversion of forest land to non-forest use. (Less than Significant)	None required.	
Impact 4.B-6: Implementation of the proposed 2035 General Plan, combined with cumulative development in the Central Valley, including past, present, reasonably foreseeable probable future development, could contribute to significant adverse cumulative impacts on agricultural resources. (Significant and Unavoidable)	None available.	Significant and Unavoidable.
Impact 4.B-7: Implementation of the proposed 2035 General Plan, combined with cumulative development in the Central Valley, including past, present, reasonably foreseeable probable future development, would not have significant adverse cumulative impacts on forestry resources. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
C. Population and Housing		
Impact 4.C-1: Implementation of the proposed 2035 General Plan could induce substantial population or housing growth both directly and indirectly. (Less than Significant)	None required.	
Impact 4.C-2: Implementation of the proposed 2035 General Plan could displace a substantial number of people or housing. (Less than Significant)	None required.	
Impact 4.C-3: Implementation of the proposed 2035 General Plan, in conjunction with past, present, and future development in the surrounding region could introduce additional population to the region, and would result in unanticipated population, housing, or employment growth, or the displacement of existing residents or housing units on a regional level. (Less than Significant)	None required.	
D. Transportation and Circulation		
Impact 4.D-1: Implementation of the proposed 2035 General Plan could result in increased traffic volumes, delay, and a decrease in level of service (LOS) on two SR 88 roadway segments during the peak hours that exceed both the Regional Congestion Management Plan (RCMP) and Caltrans LOS standards. Given that facilities are designated as part of San Joaquin County's RCMP, this impact is also identified as a congestion management program impact. (Significant and Unavoidable)	<p>Mitigation Measure 4.D-1: The following new policy shall be included in the 2035 General Plan:</p> <p>TM-1.19: <u>At the time these sections of State Route 88 are shown through Regional Congestion Management Plan (RCMP) traffic count monitoring to exceed the RCMP standards, the County of San Joaquin shall coordinate with the San Joaquin Council of Governments (SJCOC) to evaluate the need for a RCMP Deficiency Plan. If needed, the RCMP Deficiency Plan shall identify improvements to add roadway capacity to allow the facility to achieve the RCMP level of service (LOS) standard ("direct fix"). Alternatively, the County may prepare an RCMP system-wide deficiency plan to improve multi-modal circulation and air quality. Improvements identified in the RCMP Deficiency Plan shall be programmed for inclusion and construction under the Regional Transportation Impact Fee (RTIF) program, payable at the time of building permit applications. Construction of the "direct fix" improvements would improve LOS at both of these segments to an acceptable LOS D or better.</u></p>	Significant and Unavoidable.
Impact 4.D-2: Implementation of the proposed 2035 General Plan could result in increased daily traffic volumes on local County roadways forecast to be deficient under future baseline conditions per the County's average daily traffic (ADT) threshold. (Significant and Unavoidable)	<p>Mitigation Measure 4.D-2: The following new implementation program shall be included in the 2035 General Plan:</p> <p>TM-K: <u>The County shall widen the following local roadways from two to four lanes or, alternatively, implement demand management strategies to reduce daily traffic to less-than-significant levels. As part of the next Traffic Impact Mitigation Fee (TIMF) update, the County shall consider including these roadways improvements in the TIMF Capital Improvement Program where they are not already addressed in the Regional Transportation Improvement Fee Program.</u></p>	Significant and Unavoidable.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
D. Transportation and Circulation (cont.)		
Impact 4.D-2 (cont.)	<ul style="list-style-type: none"> • <u>Chrisman Road, North of Schulte Road</u> • <u>Escalon-Bellota Road from Mahon Ave to Magnolia Lane</u> • <u>French Camp Road, East of Airport Way</u> • <u>Howard Road from Clifton Court Road to Grimes Road</u> • <u>Jack Tone Road from French Camp Road to SR 120</u> • <u>Jack Tone Road from Leroy Ave to Graves Road</u> • <u>Lower Sac Road, North of Mokelumne Street</u> • <u>McHenry Ave from Jones Road to the Stanislaus County Line</u> • <u>Tracy Boulevard, South of Finck Road</u> 	
Impact 4.D-3: Implementation of the proposed 2035 General Plan could conflict with San Joaquin Council of Governments (SJCOG) adopted/approved regional plans. (Less than Significant)	None required.	
Impact 4.D-4: Implementation of the proposed 2035 General Plan could decrease the efficient and convenient transit services accessible to all unincorporated county residents; conflict with adopted policies, plans, or programs regarding public transit; or otherwise decrease the performance or safety of such facilities. (Less than Significant)	None required.	
Impact 4.D-5: Implementation of the proposed 2035 General Plan could conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, leading to additional single-occupant vehicle trips. (Less than Significant)	None required.	
Impact 4.D-6: Implementation of the proposed 2035 General Plan could result in an increase in traffic volumes, which could increase the potential opportunities for safety conflicts. (Less than Significant)	None required.	
Impact 4.D-7: Implementation of the proposed 2035 General Plan could directly result in a change to air traffic patterns. (Less than Significant)	None required.	
Impact 4.D-8: Implementation of the proposed 2035 General Plan would not result in inadequate emergency access. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
D. Transportation and Circulation (cont.)		
Impact 4.D-9: Implementation of the proposed 2035 General Plan could generate temporary increases in traffic volumes and temporary effects on transportation conditions. (Less than Significant)	None required.	
Impact 4.D-10: Implementation of the proposed 2035 General Plan, combined with cumulative development in the defined geographic area, including past, present, and reasonably foreseeable probable future development, could contribute to significant cumulative transportation and circulation impacts. (Significant and Unavoidable)	Mitigation Measure 4.D-10: Implement Mitigation Measures 4.D-1 and 4.D-2.	Significant and Unavoidable.
E. Cultural and Paleontological Resources		
Impact 4.E-1: Implementation of the proposed 2035 General Plan could cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5, within San Joaquin County. (Significant and Unavoidable)	<p>Mitigation Measure 4.E-1: The following revision to NCR-6.7 “Adaptive Reuse of Historic Structures,” in the 2035 General Plan would reduce the impact of the inappropriate adaptive reuse efforts of designated or eligible historical resources in San Joaquin County.</p> <p>NCR-6.7: Adaptive Reuse of Historic Structures. The County shall encourage the adaptive reuse of architecturally significant or historical buildings if the original use of the structure is no longer feasible and the new use is allowed by the underlying land use designation and zoning district. <u>Adaptive reuse efforts shall conform to the Secretary of the Interior’s Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.</u></p>	Significant and Unavoidable.
Impact 4.E-2: Implementation of the proposed 2035 General Plan could cause a substantial adverse change in the significance of a known unique archaeological resource, pursuant to Section 15064.5. (Significant)	<p>Mitigation Measure 4.E-2: The following revision to NCR-6.5 “Protect Archaeological and Historical Resources,” in the 2035 General Plan would reduce impacts to significant archaeological resources from issuance of any discretionary permit or approval in San Joaquin County. [Note that revisions address both Impact 4.E-2 and 4.E-3].</p> <p>NCR-6.5: Protect Archaeological, Paleontological, and Historical Resources. The County shall protect significant archaeological, <u>paleontological</u>, and historical resources by requiring <u>an archaeological a cultural resources</u> report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts <u>or paleontological resources</u> that could be disturbed by project construction. The County shall require feasible mitigation identified in the report, such as avoidance, testing, or data recovery efforts, to be implemented.</p>	Less than Significant.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
E. Cultural and Paleontological Resources (cont.)		
Impact 4.E-3: Implementation of the proposed 2035 General Plan could cause a substantial adverse change resulting from the inadvertent discovery of unique archaeological resources, pursuant to Section 15064.5. (Significant)	<p>Mitigation Measure 4.E-3: The following new policy “Inadvertent Discovery of Cultural Resources,” in the 2035 General Plan would reduce impacts to accidentally discovered archaeological resources during ground disturbing activities in San Joaquin County.</p> <p><u>NCR-6.10: Inadvertent Discovery of Cultural Resources.</u> <u>If prehistoric or historic-period archaeological resources are encountered during ground disturbing activities in the county, all activities within 100 feet shall halt and the County shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that a project could damage a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the County. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.</u></p>	Less than Significant.
Impact 4.E-4: Implementation of the proposed 2035 General Plan could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Significant)	<p>Mitigation Measure 4.E-4: The following revision to NCR-6.5 “Protect Archaeological and Historical Resources,” in the 2035 General Plan would reduce impacts to paleontological resources from issuance of any discretionary permit or approval in San Joaquin County. [Note that revisions address both Impact 4.E-2 and 4.E-3]</p> <p><u>NCR-6.5: Protect Archaeological, Paleontological, and Historical Resources.</u> The County shall protect significant archaeological, paleontological, and historical resources by requiring an archaeological a <u>a cultural resources</u> report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts <u>or paleontological resources</u> that could be disturbed by project construction. The County shall require feasible mitigation identified in the report, such as avoidance, testing, or data recovery efforts, to be implemented. (Source: Existing GP, Heritage Resources, Policy 2, modified)</p>	Less than Significant.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
E. Cultural and Paleontological Resources (cont.)		
Impact 4.E-5: Implementation of the proposed 2035 General Plan could disturb human remains, including those interred outside of formal cemeteries. (Less than Significant)	None required.	
Impact 4.E-6: Implementation of the proposed 2035 General Plan, in conjunction with, past, present, and reasonably foreseeable probable future projects, could have significant cumulative impacts on historical resources in the County. (Significant and Unavoidable)	Mitigation Measure 4.E-6: Implement Mitigation Measures 4.E-1.	Significant and Unavoidable.
Impact 4.E-7: Implementation of the proposed 2035 General Plan, in conjunction with, past, present, and reasonably foreseeable probable future projects, could have significant cumulative impacts on unique archaeological resources, and paleontological resources, as well as human remains, in the County. (Significant)	Mitigation Measure 4.E-7: Implement Mitigation Measures 4.E-2 and 4.E-3.	Less than Significant.
F. Biological Resources		
Impact 4.F-1: Development facilitated by implementation of the proposed 2035 General Plan could have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service. (Less than Significant)	None required.	
Impact 4.F-2: Development facilitated by implementation of the proposed 2035 General Plan could have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant)	None required.	
Impact 4.F-3: Development facilitated by implementation of the proposed 2035 General Plan could have a substantial adverse effect on federally protected wetlands, other waters of the U.S. or waters of the State through direct removal, filling, hydrological interruption, or other means. (Less than Significant)	None required.	
Impact 4.F-4: Development facilitated by implementation of the proposed 2035 General Plan could interfere with the movement of 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. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
F. Biological Resources (cont.)		
Impact 4.F-5: Development facilitated by implementation of the proposed 2035 General Plan could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant)	None required.	
Impact 4.F-6: Development facilitated by implementation of the proposed 2035 General Plan could conflict with an adopted local, regional, or State Habitat Conservation Plan. (Less than Significant)	None required.	
Impact 4.F-7: Implementation of the proposed 2035 General Plan, in conjunction with other past, present, or reasonably foreseeable probable future projects in San Joaquin County, could result in cumulative impacts on special-status species, habitats, wetlands and other waters of the U.S. (Less than Significant)	None required.	
G. Air Quality		
Impact 4.G-1: Development facilitated by implementation of the proposed 2035 General Plan could violate an air quality standard or contribute substantially to an existing or projected air quality violation due to construction activities. (Significant)	Mitigation 4.G-1: The following additional policy shall be included to address potential construction emissions from new development under the 2035 General Plan: <u>PHS-5.15: Construction Emissions. The County shall require that new development projects incorporate feasible measures to reduce emissions from construction, grading, excavation, and demolition activities to avoid, minimize, and/or offset their impacts consistent with San Joaquin Valley Air Pollution Control District requirements.</u>	Less than Significant.
Impact 4. G-2: Development under the proposed 2035 General Plan could generate operational emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation. (Significant and Unavoidable)	Mitigation 4.G-2: The following additional policies shall be included to address potential operational emissions from new development under the 2035 General Plan: <u>PHS-5.16: Operational Emissions. The County shall require that new development projects incorporate feasible measures that reduce operational emissions through project and site design and use of best management practices to avoid, minimize, and/or offset their impacts consistent with San Joaquin Valley Air Pollution Control District requirements.</u> <u>PHS-5.17: Wood Burning Devices. The County shall require the use of natural gas where service is available or the installation of low-emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes as required under the SJVAPCD Rule 4901– Woodburning Fireplaces and Woodburning Heaters. The County shall promote the use of natural gas over wood products in space heating devices and fireplaces in all existing and new homes.</u>	Significant and Unavoidable.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
G. Air Quality (cont.)		
Impact 4.G-3: The proposed 2035 General Plan could expose sensitive receptors to substantial concentrations of toxic air contaminants. (Significant)	<p>Mitigation 4.G-3: The following additional policy shall be included to address potential health risks from new development under the 2035 General Plan:</p> <p>PHS-5.185: Health Risk Evaluation. <u>Prior to project approval, the County shall evaluate health risks when proposed developments would result in new sensitive receptors near existing sources of substantial toxic air contaminants (TACs) or the development of sources of substantial toxic air contaminants near existing sensitive receptors. Evaluation would be based on consideration of the California Air Resource's Board Air Quality and Land Use Handbook: A Community Health Perspective distance recommendations between sources and receptors. If the project would not meet the distance recommendations between sources and receptors, the County shall require the applicant to ensure TAC impacts would be below the carcinogenic threshold (i.e., probability of contracting cancer for the Maximally Exposed Individual would be less than 10 in one million) and below the non-carcinogenic threshold (i.e., result in a Hazard Index less than 1 for the Maximally Exposed Individual). In addition, several measures to reduce potential risk from commercial or industrial land uses that would be considered include:</u></p> <ul style="list-style-type: none"> <u>Proposed commercial or industrial land uses that have the potential to emit toxic air contaminants (such as loading docks for diesel delivery trucks) would be located as far away as possible from existing and proposed sensitive receptors.</u> <u>Signs would be posted at all loading docks and truck loading areas which indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises in order to reduce idling emissions.</u> <u>Proposed commercial and industrial land uses that have the potential to host diesel trucks would incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies such as, IdleAire, electrification of truck parking, and alternative energy sources for transport refrigeration units to allow diesel engines to be completely turned off.</u> 	Less than Significant.
Impact 4.G-4: Development facilitated by implementation of the proposed 2035 General Plan could create objectionable odors affecting a substantial number of people. (Less than Significant)	None required.	
Impact 4.G-5: Development facilitated by implementation of the proposed 2035 General Plan could conflict with or obstruct implementation of the applicable air quality plan. (Significant and Unavoidable)	Mitigation Measure 4.G-5: Implement Measures 4.G-1 and 4.G-2.	Significant and Unavoidable.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
G. Air Quality (cont.)		
Impact 4.G-6: Development facilitated by implementation of the proposed 2035 General Plan, when combined with past, present and other reasonably foreseeable development in the vicinity, could result in cumulative criteria air pollutant air quality impacts. (Significant and Unavoidable)	None available.	Significant and Unavoidable.
H. Noise		
Impact 4.H-1: Construction facilitated by implementation of the proposed 2035 General Plan could expose persons to or generate noise levels in excess of the County noise standards. (Significant)	<p>Mitigation 4.H-1: The following additional policy and implementation program shall be included to address potential construction noise from new development under the 2035 General Plan:</p> <p><u>PHS-9.10: Construction Noise Time Limitations.</u> The County shall seek to limit the potential noise impacts of construction activities on surrounding land uses by limiting construction activities to the hours of 7 am to 7pm, Monday through Saturday. Exceptions to these allowable hours could be allowed if approved beforehand by the County.</p> <p><u>PHS-AA: Revise Construction Noise Hours of Exemption.</u> The County Code shall be revised to incorporate the more conservative allowable hours of construction of 7am to 7pm for noise exemption in order to reduce the potential for nuisance and/or sleep disturbance from construction noise.</p>	Less than Significant.
Impact 4.H-2: Construction facilitated by implementation of the proposed 2035 General Plan could result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Less than Significant)	None required.	
Impact 4.H-3: Transportation-related operations (including rail activity) facilitated by implementation of the proposed 2035 General Plan could result in a substantial permanent increase in ambient noise levels or above levels existing without the project. (Less than Significant)	None required.	
Impact 4.H-4: Non-transportation-related operations facilitated by implementation of the proposed 2035 General Plan could result in a substantial permanent increase in ambient noise levels in the vicinity. (Less than Significant)	None required.	
Impact 4.H-5: Development facilitated by implementation of the proposed 2035 General Plan could place noise-sensitive residential uses in a noise environment that would exceed the County's standards for exterior/interior noise exposure. (Significant)	<p>Mitigation 4.H-5: Policy PHS-9.7 shall be revised as follows to address potential non-transportation-source noise impacts from new development under the 2035 General Plan:</p> <p><u>PHS-9.7: Require Acoustical Study.</u> The County shall require a project applicant to prepare an acoustical study for any proposed new residential or other noise-sensitive development when the County determines the</p>	Less than Significant.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
H. Noise (cont.)		
Impact 4.H-5 (cont.)	proposed development may expose people to noise levels exceeding acceptable General Plan noise levels. <u>Based on this acoustical study, the applicant shall incorporate mitigation measures into the project design in order to achieve the County noise standards.</u>	
Impact 4.H-6: Increases in transportation and non-transportation noise sources associated with development facilitated by implementation of the proposed 2035 General Plan, in combination with other development, could result in cumulatively considerable noise increases. (Less than Significant)	None required.	Less than Significant.
I. Geology, Soils, and Seismicity		
Impact 4.I-1: In the event of a major earthquake in the region, seismic ground shaking could injure people and cause collapse of or structural damage to structures and/or retaining walls associated with development under the proposed 2035 General Plan. (Significant)	<p>Mitigation Measure 4.I-1: The proposed 2035 General Plan Policies PHS-3.1 and PHS-3.2 shall be modified as follows:</p> <p>PHS-3.1: Consider Geologic Hazards for New Development. The County shall consider the risk to human safety and property from seismic and geologic hazards (e.g., slope/levee stability, unstable soils, expansive soils, etc.) as identified through a geotechnical investigation by a California licensed geotechnical engineer in designating the location and intensity for new development and the conditions under which that development may occur in accordance with the most current version of the County's building code. The County shall require feasible mitigation identified in the geotechnical investigations to be implemented. (Source: Existing GP, Seismic and Geologic Hazards, Policy 1, modified by EIR analysis)</p> <p>PHS-3.2: Location of Sensitive Land Uses. The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction as identified in a geotechnical investigation by a California licensed geotechnical engineer: facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers. (Source: Existing GP, Seismic and Geologic Hazards, Policy 2; modified by Local Hazard Mitigation Plan and EIR analysis)</p>	Less than Significant.
Impact 4.I-2: In the event of a major earthquake in the region, people and property in the county could be exposed to seismically induced ground failure, including liquefaction, lateral spreading, and earthquake-induced settlement. (Significant)	<p>Mitigation Measure 4.I-2: The proposed 2035 General Plan Policies PHS-3.4 and PHS-3.5 shall be modified as follows:</p> <p>PHS-3.4: Liquefaction Studies. The County shall require proposals for new development in areas with high liquefaction potential to include detailed site-specific liquefaction studies by a California licensed geotechnical engineer or engineering geologist in accordance with the most current County building code. (Source: New Policy, Consultants; modified by EIR analysis)</p>	Less than Significant.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
I. Geology, Soils, and Seismicity (cont.)		
Impact 4.I-2 (cont.)	PHS-3.5: Subsidence or Liquefaction. The County shall require that all proposed structures, utilities, or public facilities within recognized near-surface subsidence or liquefaction areas be located and constructed in a manner that minimizes or eliminates potential damage. (Source: New Policy, Consultants)	
Impact 4.I-3: In the event of a major earthquake in the region, development under the proposed 2035 General Plan could be subject to adverse effects resulting from seismically induced landslides or levee failures. (Significant)	Mitigation Measure 4.I-3: Implement Mitigation Measure 4.I-1.	Less than Significant.
Impact 4.I-4: Development facilitated by implementation of the proposed 2035 General Plan could result in substantial soil erosion or loss of topsoil. (Less than Significant)	None required.	
Impact 4.I-5: Development facilitated by implementation of the proposed 2035 General Plan could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. (Significant)	Mitigation Measure 4.I-5: Implement Mitigation Measure 4.I-1.	Less than Significant.
Impact 4.I-6: Development facilitated by implementation of the proposed 2035 General Plan could be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code creating substantial risks to life or property. (Significant)	Mitigation Measure 4.I-6: Implement Mitigation Measure 4.I-1.	Less than Significant.
Impact 4.I-7: Development under the proposed 2035 General Plan, combined with past, present, and reasonably foreseeable probable projects, could result in substantial adverse cumulative impacts related to geology, soils, or seismic hazards. (Significant)	Mitigation Measure 4.I-7: Implement Mitigation Measure 4.I-1 and 4.I-2.	Less than Significant.
J. Hydrology and Water Quality		
Impact 4.J-1: Project construction under the proposed 2035 General Plan could violate water quality standards or waste discharge requirements, or otherwise degrade water quality. (Less than Significant)	None required.	
Impact 4.J-2: Development under the proposed 2035 General Plan could deplete groundwater supplies or interfere substantially with recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater level. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
J. Hydrology and Water Quality (cont.)		
Impact 4.J-3: Development under the proposed 2035 General Plan could substantially alter the existing drainage pattern of the area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding. (Less than Significant)	None required.	
Impact 4.J-4: Development under the proposed 2035 General Plan could create or contribute runoff water which would exceed the capacity of existing stormwater drainage systems. (Less than Significant)	None required.	
Impact 4.J-5: Development under the proposed 2035 General Plan could place housing and other structures in an area subject to 100-year flooding. (Less than Significant)	None required.	
Impact 4.J-6: Development under the proposed 2035 General Plan would potentially be subjected to flooding as a result of failure of a dam or levee. (Less than Significant)	None required.	
Impact 4.J-7: Increased construction activity and new development under the proposed 2035 General Plan, in conjunction with past, present, and reasonably foreseeable probable future projects, could cause significant cumulative impacts on hydrology and water quality. (Less than Significant)	None required.	
K. Hazards and Hazardous Materials		
Impact 4.K-1: Development facilitated by implementation of the proposed 2035 General Plan could involve the transportation, use, and storage of hazardous materials, which could present public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)	None required.	
Impact 4.K-2: Hazardous materials associated with implementation of the proposed 2035 General Plan, could be spilled through upset or accidental conditions, increasing public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
K. Hazards and Hazardous Materials (cont.)		
Impact 4.K-3: Hazardous materials use resulting from implementation of the proposed 2035 General Plan Could Result in hazardous emissions or the handling of hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school. (Less than Significant)	None required.	
Impact 4.K-4: Development facilitated by implementation of the proposed 2035 General Plan could be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard to the public or environment through exposure to previous contamination of soil or groundwater including vapor intrusion into buildings. (Less than Significant)	None required.	
Impact 4.K-5: Development facilitated by implementation of the proposed 2035 General Plan could be located within two miles of a public airport or adjacent to a private airstrip. (Less than Significant)	None required.	
Impact 4.K-6: Development under the 2035 General Plan could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)	None required.	
Impact 4.K-7: Development facilitated by the implementation of the 2035 General Plan could expose people or structures to a significant risk of loss, injury, or death involving wildland fires. (Less than Significant)	None required.	
Impact 4.K-9: Hazards resulting from implementation of the proposed 2035 General Plan, in combination with past, present, and reasonable foreseeable probable future projects could contribute to cumulative hazards. (Less than Significant)	None required.	
L. Aesthetics		
Impact 4.L-1: Development under the proposed 2035 General Plan could have a substantial adverse effect on a scenic vista. (Significant)	Mitigation Measure 4.L-1: The following implementation program shall be added to the 2035 General Plan: <u>IS-S: The County shall work with Caltrans to ensure that any road expansions of identified scenic routes shall minimize disruption of the elements that make the route scenic (e.g., orchards, historic structures, and riparian vegetation).</u>	Less than Significant.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
L. Aesthetics (cont.)		
Impact 4.L-2: Development facilitated by implementation of the proposed 2035 General Plan could damage scenic resources, including, but not limited to, trees, rocks, outcroppings, and historic buildings within a state scenic highway. (Significant)	Mitigation Measure 4.L-2: Implement Mitigation Measure 4.L-1.	Less than Significant.
Impact 4.L-3: Development facilitated by implementation of the proposed 2035 General Plan could substantially degrade the existing visual character or quality of the site and its surroundings in a substantial manner. (Significant)	Mitigation Measure 4.L-3: Implement Mitigation Measures 4.L-1 and 4.A-2.	Less than Significant.
Impact 4.L-4: Development facilitated by implementation of the proposed 2035 General Plan could create a new source of substantial light or glare that could adversely affect day or nighttime views in the project area. (Significant)	<p>Mitigation Measure 4.L-4: Policy NCR-7.7 shall be revised as follows:</p> <p>NCR-7.7: Reducing Glare and Light Pollution. The County shall encourage project designs, lighting configurations, <u>complementary land uses</u>, and operational practices that <u>reduce the potential for glare during daytime hours and reduce nighttime light pollution and to protect adjacent land uses from light and glare and preserve views of the night sky.</u> (RDR) (Source: New Policy, Consultants)</p> <p>To reduce lighting impacts from new signage, Implementation Measure ED-I shall be revised as follows:</p> <p>ED-I: Signage and Wayfinding Program. The County, in coordination with Caltrans, chambers of commerce, and the Lodi Winegrowers Association, shall develop, adopt, and maintain a comprehensive signage and wayfinding program for agritourism, wineries, recreation, and heritage sites that will help tourists easily navigate from one destination to another throughout the county. <u>Lighting of any signage shall be designed to minimize glare for the surroundings.</u> (Source: New Program, Consultants)</p>	Less than Significant.
Impact 4.L-5: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, approved, pending, and reasonably foreseeable future projects, could result in cumulatively considerable impacts to aesthetic resources. (Significant)	Mitigation Measure 4.L-5: Implement Mitigation Measures 4.L-1 and 4.L-4.	Less than Significant.
M. Public Services and Recreation		
Impact 4.M-1: Development under the proposed 2035 General Plan could result in an increase in calls for fire protection and emergency medical response services, and could require new or physically altered fire protection facilities in order to maintain acceptable performance standards. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
M. Public Services and Recreation (cont.)		
Impact 4.M-2: Development under the proposed 2035 General Plan could result in an increase in calls for police services, and could require new or physically altered police facilities in order to maintain acceptable performance objectives. (Less than Significant)	None required.	
Impact 4.M-3: Development under the proposed 2035 General Plan could result in new students for local schools, and could require new or physically altered school facilities in order to maintain acceptable performance objectives. (Less than Significant)	None required.	
Impact 4.M-4: Development under the proposed 2035 General Plan could result in increased use of other governmental facilities, including libraries, and may require new or physically altered government facilities in order to maintain acceptable performance objectives. (Less than Significant)	None required.	
Impact 4.M-5: Development facilitated by implementation of the proposed 2035 General Plan could increase the use of existing neighborhood and regional parks and recreation centers, or require the construction or expansion of recreational facilities that could have an adverse physical effect on the environment. (Significant)	Mitigation Measure 4.M-5: The following new policy shall be included in the 2035 General Plan as a means of reducing the impact on regional parkland: NCR-8.26: Regional Parkland Development. The County shall assess the feasibility of adopting a development fee program for new development to contribute to the acquisition and development of new regional parkland.	Less than Significant.
Impact 4.M-6: Development facilitated by implementation of the proposed 2035 General Plan, in conjunction with other past, current, or foreseeable development in the unincorporated county, could result in impacts related to public services. (Less than Significant)	None required.	
Impact 4.M-7: Development facilitated by implementation of the proposed 2035 General Plan, in conjunction with other past, current, or foreseeable development in the unincorporated county, could result in impacts related to recreation. (Significant)	Mitigation Measure 4.M-7: Implement Mitigation Measure 4.M-5.	Less than Significant.
N. Utilities and Service Systems		
Impact 4.N-1: Development under the proposed 2035 General Plan could result in an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
N. Utilities and Service Systems (cont.)		
Impact 4.N-2: Development facilitated by implementation of the proposed 2035 General Plan could result in wastewater service demands that would result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve projected demand and result in the construction of new or expanded wastewater treatment facilities, the construction of which could cause significant environmental effects. (Less than Significant)	None required.	
Impact 4.N-3: Development facilitated by implementation of the proposed 2035 General Plan would require and result in the need for new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)	None required.	
Impact 4.N-4: Development facilitated by implementation of the proposed 2035 General Plan could have insufficient water supplies available to serve new development from existing entitlements and new development could require the construction of new water supply or treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Significant and Unavoidable)	None available.	Significant and Unavoidable.
Impact 4.N-5: Development facilitated by implementation of the proposed 2035 General Plan could be served by a landfill with insufficient permitted capacity to accommodate solid waste generated by the project, or that may result in non-compliance with federal, state, and local statutes and regulations related to solid waste. (Significant)	Mitigation Measure 4.N-5: The County shall include the following new policy in the proposed 2035 General Plan: <u>IS-1.18: Landfill Capacity. The County shall analyze remaining landfill capacity and continue to implement solid waste diversion programs in order to increase the rate of diversion across all communities and increase the usable life of existing landfill disposal facilities.</u>	Less than Significant.
Impact 4.N-6: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to wastewater treatment facilities and systems. (Less than Significant)	None required.	
Impact 4.N-7: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to potable water supply and treatment and delivery systems. (Significant and Unavoidable)	None available.	Significant and Unavoidable.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY 2035 GENERAL PLAN

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
N. Utilities and Service Systems (cont.)		
Impact 4.N-8: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to stormwater drainage systems. (Less than Significant)	None required.	
Impact 4.N-9: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to landfills and solid waste disposal facilities. (Less than Significant)	Mitigation Measure 4.N-9: Implement Mitigation Measure 4.N-5.	Less than Significant
O. Mineral Resources		
Impact 4.O-1: Implementation of the proposed 2035 General Plan could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or could result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (Significant)	Mitigation Measure 4.O-1: The following implementation measures shall be added to the 2035 General Plan: NCR-NEW1: Protection of Mineral Resource Sites. The County shall discourage the development of incompatible land uses, as defined by the State Mining and Geology Board (SMGB), within or immediately adjacent to existing and potential mineral resource sites, including existing and new MRZ-2 (Mineral Resource Zone 2) zones identified by Surface Mining and Reclamation Act (SMARA) and locally important mineral resource sites as they are identified in the future such that the development would impede or preclude mineral extraction or processing.	Less than Significant.
Impact 4.O-2: Implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to mineral resources. (Significant)	Mitigation Measure 4.O-2: Implement Mitigation Measure 4.O-1.	Less than Significant.
P. Energy and Climate Change		
Impact 4.P-1: Implementation of the proposed 2035 General Plan could result in the wasteful, inefficient or unnecessary consumption of energy by residential, commercial, or industrial uses associated with increased demand. (Less than Significant)	None required.	
Impact 4.P-2: Implementation of the proposed 2035 General Plan would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment or could conflict with the applicable plan, policy or regulation adopted for the purpose of reducing GHG. (Less than Significant)	None required.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SAN JOAQUIN COUNTY GENERAL PLAN UPDATE

Potential Impact	Mitigation Measures	Level of Significance <i>after any recommended mitigation measures</i>
P. Energy and Climate Change (cont.)		
Impact 4.P-3: Implementation of the proposed 2035 General Plan, combined with other projects, could result in the wasteful, inefficient or unnecessary consumption of energy, or generate GHG emissions that have significant adverse cumulative impacts on the environment or conflict with the applicable plan, policy or regulation adopted for the purpose of reducing GHG. (Less than Significant)	None required.	

CHAPTER 3

Project Description

A. Introduction

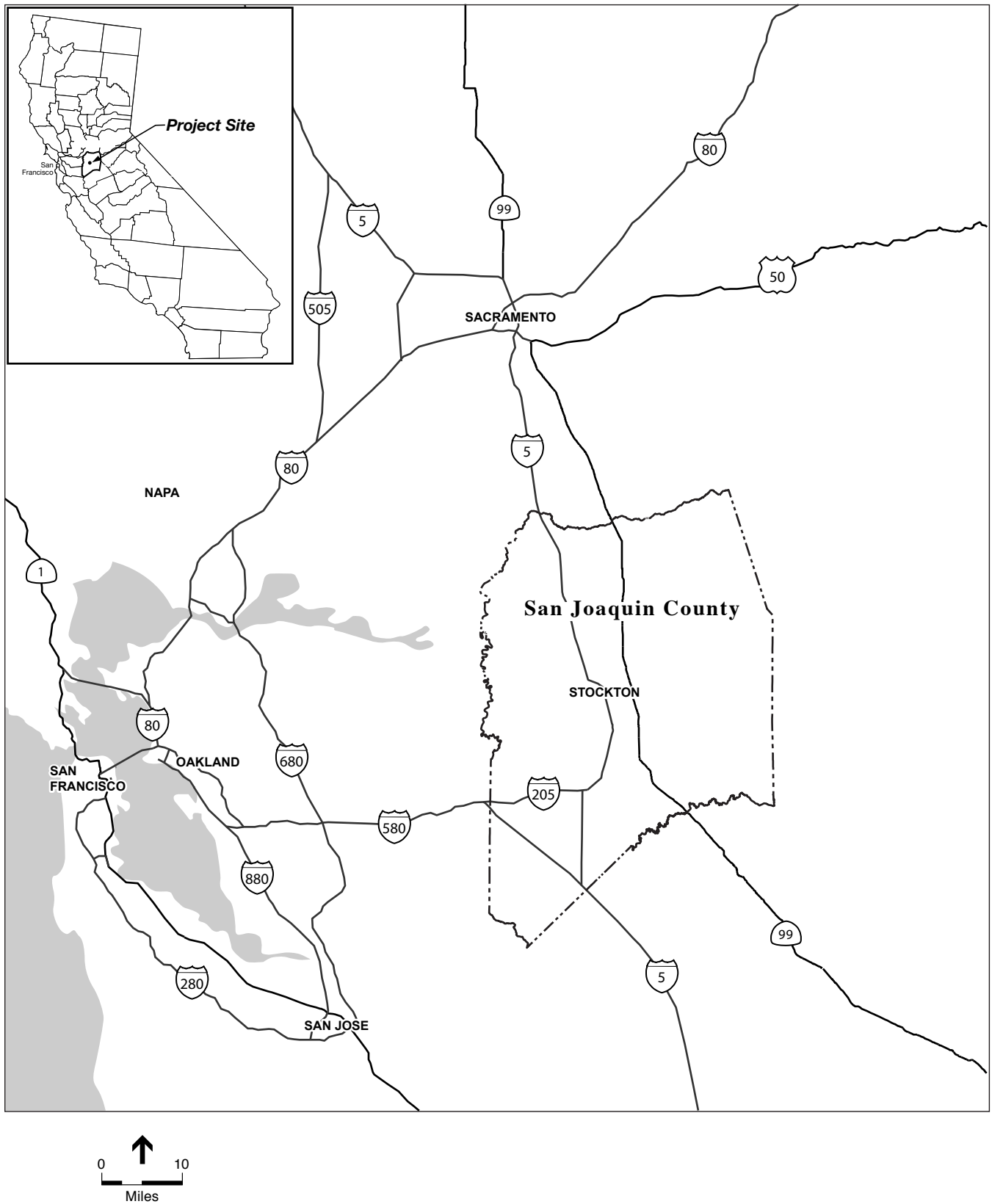
The project analyzed in this EIR is the proposed San Joaquin County 2035 General Plan (2035 General Plan). The 2035 General Plan is the proposed policies, diagrams, text, and implementation measures that would guide land use decisions within the unincorporated areas of San Joaquin County. The 2035 General Plan includes a comprehensive update of the policies of the County's current 2010 General Plan (adopted in 1992). While the proposed 2035 General Plan carries forward some of the existing policies of the adopted General Plan, it includes a number of new policies that address changes in state law. The 2035 General Plan also addresses new issues, such as climate change and energy efficiency, and emerging County priorities, such as economic development and the provision of public infrastructure and services.

This chapter provides background information regarding the regional location of the county, describes what comprises a General Plan in California, outlines the proposed 2035 General Plan objectives and the policy development process, and identifies the key themes and components of the 2035 General Plan. Additional details are provided in the Notice of Preparation (**Appendix A**) and the Policy Document, dated July, 2014 (**Appendix C**). Alternatives to the 2035 General Plan are described in Chapter 5 of this Program EIR.

B. Project Setting

San Joaquin County is located in the center of California's vast agricultural heartland, the Central Valley (see **Figure 3-1**). The county encompasses over 900,000 acres (about 1,425 square miles) and is bordered by Sacramento County to the north, Stanislaus County to the south, Amador and Calaveras Counties to the east, and Contra Costa and Alameda Counties to the west. The city of Stockton is the county seat for San Joaquin County. San Joaquin County includes relatively level, agriculturally productive lands. Major landforms in the county include the foothills of the Diablo Range in the southwest, the foothills of the Sierra Nevada in the east, and the Delta in the northwest. State Route 99 (SR99) and Interstate 5 (I-5), two of the State's major north-south freeways, pass through San Joaquin County. Interstate 205 (I-205) and Interstate 580 (I-580) provide direct connections to the San Francisco Bay Area to the west. Three transcontinental railroads (including Amtrak service), the Stockton Metropolitan Airport, and the Port of Stockton connect the county to the state, nation, and world.

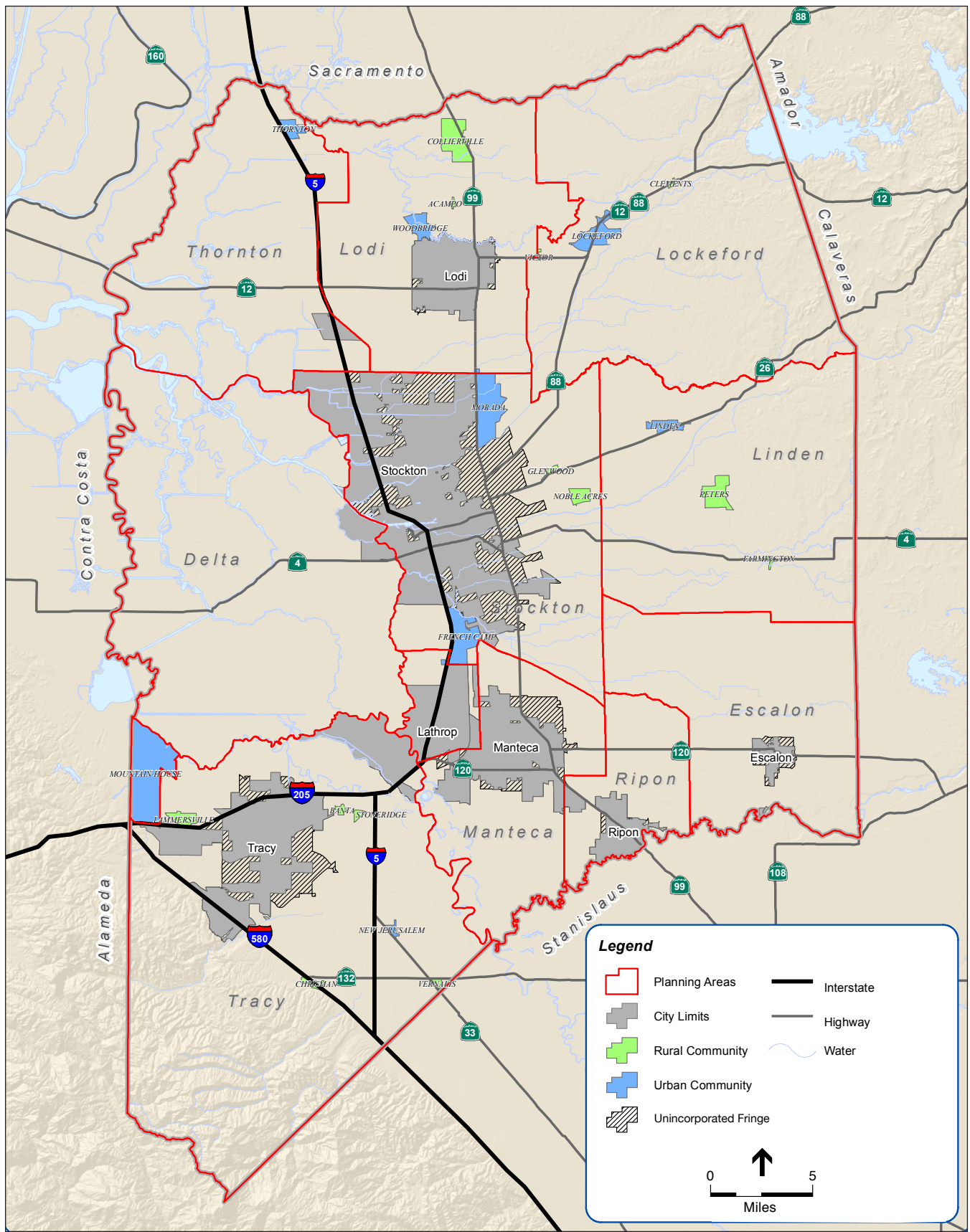
The 2035 General Plan divides San Joaquin County into the following 12 Planning Areas: the Delta, Escalon, Lathrop, Linden, Lockeford, Lodi, Manteca, Mountain House, Ripon, Stockton, Thornton, and Tracy (see **Figure 3-2**). The General Plan Planning Areas include 1) all lands within



SOURCE: ESA, 2014

San Joaquin County 2035 General Plan . 209529

Figure 3-1
Regional Setting



SOURCE: Minter-Harnish, 2013

San Joaquin County 2035 General Plan . 209529

Figure 3-2
San Joaquin County Communities

the county line, not including lands in the seven incorporated cities (i.e., Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy); and 2) any additional areas in which adopted County policies may be relevant.

C. The General Plan Process and 2035 General Plan

C.1 General Plans in California

State law requires each county and city to prepare and adopt a comprehensive and long-range General Plan for its physical development (Government Code Section 65300). Each General Plan must address the seven topics (referred to as “elements”) of land use, circulation, housing, open space, conservation, safety, and noise as identified in state law (Government Code Section 65302), to the extent that the topics are locally relevant. Cities and counties in the San Joaquin Valley must also address air quality matters as specified by Government Code Section 65302.1. Cities and counties may also include other topics of local interest, as they choose (Government Code Section 65303).

Together, the elements of a General Plan form a comprehensive set of planning policies, diagrams, and text (Government Code Section 65302). These required elements, along with a summary of the primary contents addressed within the elements, are identified in **Table 3-1**.

**TABLE 3-1
SUMMARY OF THE MANDATED ELEMENTS OF THE GENERAL PLAN**

General Plan Element	Primary Objectives
Land Use Element	Provides the general distribution and intensity of land uses within the planning area.
Circulation Element	Identifies the general location and extent of existing and proposed transportation facilities and utilities.
Housing Element	Includes a comprehensive assessment of current and future housing needs for all segments of the county population, as well as a program for meeting those needs.
Open Space Element	Provides measures for the preservation of open space, for the protection of natural resources, for the managed production of resources, and for public health and safety.
Conservation Element	Addresses the conservation, development, and use of natural resources.
Safety Element	Establishes policies to protect the community from risks associated with natural and human-made hazards such as seismic, geologic, flooding, wildlife, and air quality hazards.
Noise Element	Identifies major noise sources and contains policies intended to protect the community from exposure to excessive noise levels.

SOURCE: State of California, 2003

A comprehensive General Plan provides the jurisdiction, whether a city or a county, with a consistent framework for land use decision-making. The General Plan has been called the “constitution” for land use development to emphasize its importance to land use decisions. Once a General Plan is adopted, its maps, diagrams, and development policies form the basis for the jurisdiction’s zoning, subdivision, and public works actions. Under California law, every specific plan, area plan, community plan, rezoning, subdivision map, or public works project must be consistent with an adopted General Plan.

A county may adopt a General Plan in the format that best fits its unique circumstances (Government Code Section 65300.5). In doing so, the county must ensure that the General Plan and its component parts comprise an integrated, internally consistent and compatible statement of development policies.

San Joaquin County has chosen to adopt a General Plan that addresses all of the mandatory elements (identified above in Table 3-1). **Table 3-2** illustrates how the proposed 2035 General Plan (left column of table) relates to the mandatory elements identified in state law. Components of County elements with no check mark are optional topics. In addition to the various elements identified in Table 3-2, the proposed 2035 General Plan contains policies and land use designations for 12 specific unincorporated communities. The overall structure of the proposed 2035 General Plan is described in greater detail below.

C.2 Objectives of the 2035 General Plan

Although the 2035 General Plan was developed to meet several fairly broad objectives (i.e., the requirements of state law, etc.), it was developed through an extensive public outreach process to reflect the specific policy needs of San Joaquin County. To help determine what these specific policy needs are, the San Joaquin County Board of Supervisors considered input received during several community workshops, focus group meetings, and Planning Commission study sessions on the fundamental values that would guide the preparation of the proposed 2035 General Plan. The result of the public outreach was the Vision and Guiding Principles document, which will help paint a picture of what the County will strive for in the next 20 years (San Joaquin County, 2010). The Guiding Principles represent the County's core values and touch on multiple topics such as development, mobility, the Delta, water, community services and utilities, community character, and economy. They establish benchmarks for the General Plan goals and policies. The Vision and Guiding Principles are applicable to the context of the county as a whole.

The 2035 General Plan expresses the County's vision for its physical, economic, and social development through the horizon year of 2035. The 2035 General Plan objectives, which are consolidated from the Vision and Guiding Principles, are as follows:

- Preserve for future generations agricultural land and environmental resources, including the Delta, waterways, habitat areas, fish and wildlife, and other significant resources.
- Maintain clear boundaries between cities and unincorporated communities and focus new, higher-density growth within incorporated cities and adjacent areas outside of cities with full urban services.
- Preserve and enhance the rural, small-town character and agricultural heritage of unincorporated communities and areas, while promoting infill and ensuring a balanced mix of residential, commercial, and employment uses.
- Ensure agriculture and agricultural-related industries remain one of the county's important economic sectors, while designating commercial and industrial areas suitable for the development of new industries.

**TABLE 3-2
RELATIONSHIP BETWEEN PROPOSED 2035 GENERAL PLAN ELEMENTS AND
STATE-MANDATED ELEMENTS**

Proposed San Joaquin County 2035 General Plan Element	State-Mandated Elements						
	Land Use	Circulation	Housing	Open Space	Conservation	Safety	Noise
Community Development							
Land Use	■		■				
County Area and Communities	■						
Housing			■				
Economic Development							
Public Facilities and Services							
Circulation and Mobility		■					
Infrastructure and Services	■						
Public Health and Safety							
Emergency Preparedness						■	
Flood Hazards						■	
Seismic and Geologic Hazards						■	
Fire Hazards						■	
Air Quality							
Greenhouse Gas Reductions					■		
Hazardous Materials and Waste						■	
Airport Safety						■	
Noise							■
Resources							
Open Space	■			■			
Agricultural Lands	■				■		
The Delta					■		
Vegetation, Fish, and Wildlife Habitat					■		
Water Resources and Quality					■		
Mineral Resources	■				■		
Energy					■		
Cultural and Historic Resources					■		
Scenic Resources				■			
Recreation	■						

NOTE: **Bolded** items are separate elements that contain subsections. Some of the San Joaquin County 2035 General Plan elements do not correspond with a state-mandated element, and therefore that row is empty. A marked box indicates that the state-mandated content is included in that subsection.

SOURCE: State of California, 2003 and San Joaquin County, 2014.

- Plan agricultural land uses that support large-scale commodity farming, value-added agriculture, agri-tourism, and specialized farming practices and promote agricultural practices that support the farmer's ability to be productive, viable, and profitable.
- Create safe and efficient connections (e.g., auto, transit, bike, and pedestrian) between cities and unincorporated communities and promote regional transit connections (e.g., ACE Train) to reduce automobile trips.
- Enhance the efficiency of goods movement infrastructure (i.e., truck routes, railways, shipping channels, and airports) to ensure that goods movement facilities and terminals operate in a safe and effective manner, consistent with surrounding land uses.
- Maintain infrastructure and services (e.g., water, sewer, drainage) to meet the needs of unincorporated communities and residents and businesses and ensure that new development provides adequate infrastructure and services.
- Enhance parks and recreational opportunities for all county residents and visitors and promote appropriate access to rivers and waterways throughout the county, while limiting impacts on property owners and agricultural operations.
- Encourage development patterns, transportation systems, “green” building practices, energy efficiency projects/practices (e.g., renewable energy generation, alternative energy use, water conservation, waste reduction and recycling), and other sustainable practices that reduce emissions and improve air quality.
- Minimize risks from major floods and fire hazards and ensure the continued maintenance and enhancement of flood control infrastructure (i.e., levees).

C.3 Description of the 2035 General Plan

The proposed 2035 General Plan consists of a comprehensive update of San Joaquin County’s existing 2010 General Plan (adopted in 1992).

General Plan Organization

The 2035 General Plan includes a new format that differs from that of the 2010 General Plan. The 2035 General Plan is comprised of two documents: 1) Volume I: Policy Document; and 2) Volume II: Existing Conditions (hereinafter referred to as the “Background Report”).

The Policy Document, Volume I, contains all of the goals, policies, and programs that would guide future land use and environmental decisions within the county. It includes the Land Use Diagram and Circulation Diagram. It also identifies implementation programs that would ensure that the goals and policies in the General Plan are carried out. The Policy Document is organized into the following four main parts:

- **Part 1: Introduction** contains the overview of the General Plan including how the General Plan is organized, how to use the General Plan, and how the General Plan was prepared.
- **Part 2: Overview of San Joaquin County** includes the General Plan Vision and Guiding Principles. It is organized around six internally consistent topics: 1) Natural Environment,

2) Built Environment, 3) Institutional Environment, 4) People of the County, 5) Key Assumptions for the Plan, and 6) The General Plan as a Response to Change. It also includes the Land Use Diagram (see **Figure 3-3**) and the Circulation Diagram (see **Figure 3-5**).

- **Part 3: Goals and Policies** contains four elements: 1) Community Development, 2) Public Facilities and Services, 3) Public Health and Safety, and 4) Resources. Within the Community Development Element, the topics of planning framework, land use, county areas and communities, housing, and economic development are addressed. The Public Facilities and Services Element addresses circulation and mobility as well as infrastructure and services. The Public Health and Safety Element addresses health and safety topics such as emergency preparedness, air quality, and airport safety. The Resources Element addresses natural and cultural resources such as agricultural lands, the Delta, water resources, energy resources, and scenic resources.
- **Part 4: Administration and Implementation** describes how the County would maintain and monitor implementation of the General Plan and the types of actions and tools the County would use to implement the General Plan. It also provides specific implementation programs the County would use to carry out the goals and policies contained in Part 3.

Volume I also contains an appendix that includes the following:

- Glossary
- Technical Memo on the GHG Gap Analysis (AB 32)
- CVFPB General Plan Crosswalk (AB 162)
- Delta Protection Commission Compliance Findings
- SJVAPCD Compliance Findings (AB 170)

Volume II, the Background Report, is a “snapshot” of San Joaquin County’s trends and conditions, and is organized into 15 chapters and an appendix. It provides a detailed description of a wide range of topics within the county, including demographics and economic development, land use and development, climate change, agriculture, housing, transportation and circulation, public services and utilities, natural resources, the Delta, scenic resources, recreation and cultural resources, safety, and noise. This report provided decision-makers, the public, and local agencies with context for developing policies during the update process, and addresses several State of California planning law requirements. It is intended to be objective and is policy-neutral (i.e., it does not provide policy direction). The Background Report can be reviewed on the County’s General Plan Update website at: <http://www.sjcgpu.com/docs.html>.

The 2035 General Plan would be prepared and adopted as the County’s Climate Action Plan (CAP) consistent with Section 15183.5 of the CEQA Guidelines. As part of the General Plan update process, the County evaluated greenhouse gas reduction estimates leading to the development of new or modified policies and programs. The 2035 General Plan includes CAP-related policies and implementation programs (i.e., actions) within its policy framework. This integrated approach allows the 2035 General Plan to be recognized as a “Plan for the Reduction of Greenhouse Gas Emissions” as provided in Section 15183.5 of the CEQA Guidelines. As a result, measures and actions that would contribute to a “stand-alone” CAP have been incorporated into the 2035 General Plan.

Key Policy Changes

The 2035 General Plan relies on individual policies to direct growth to preferred locations in response to market forces. The policies are presented in **Appendix C**. The most significant changes to the policies of the 2035 General Plan include new or revised policies:

- That address **Complete Streets** in both urban communities and rural areas to ensure that County streets are designed to accommodate all forms of transportation, including autos, trucks, transit, bicycles, and pedestrians, and all users, including children, the elderly, and disabled.
- Related to **Congestion Management** and **Transportation Control Measures** that are intended to reduce the number of single-occupant autos on freeways and major County streets.
- That address **Delta** protection and use, including intergovernmental cooperation, environmental preservation, agricultural protection, local land use control, and recreation.
- To support County **Economic Development**, including increased employment-based uses in urban communities and adjacent to freeway interchanges, business retention and expansion, economic base diversification, agri-tourism, and protection of the Stockton Metropolitan Airport and the Port of Stockton.
- That support increased **Water and Energy Conservation**, including energy-efficient buildings, water use and reuse, and alternative energy sources.
- To reduce **Greenhouse Gas** emissions, including modified County operations, reduced auto trips, emphasis on infill development in urban communities and unincorporated areas within cities, and reduced energy and water consumption.
- That support preservation of the **Character of Urban Communities**, including compatible development, revitalization of main streets, adequate public facilities and services, and increased employment opportunities.
- To encourage increased **Intergovernmental Cooperation**, including support for regional planning programs, agricultural land preservation, coordination of water service and conservation, and Delta protection.
- To increase **Flood Protection**, including limitation on development in flood-prone areas, increased flood protection facilities, and expanded development review.

Implementation Measures

To help ensure that appropriate actions are taken to implement the 2035 General Plan, the 2035 General Plan includes a set of implementation programs (see **Appendix C**). Implementation programs identify the specific steps to be taken by the County to implement the goals and policies of the 2035 General Plan. They include revisions of current codes and ordinances, capital improvements, programs, financing, and other measures that are assigned to different County departments after the 2035 General Plan is adopted. The types of tools or actions the County can use to carry out its policies and implementation programs generally fall into eight categories:

- Regulation and Development Review (RDR)

- Plans, Strategies, and Programs (PSP)
- Financing and Budgeting (FB)
- Planning Studies and Reports (PSR)
- County Services and Operations (SO)
- Intergovernmental Coordination (IGC)
- Joint Partnerships with the Private Sector (JP)
- Public Information (PI)

Population Growth Under the General Plan Analysis Assumptions and Methodology

Overall, future development in San Joaquin County will continue to be driven by population growth, the distribution of that growth throughout the county, and the availability of supporting infrastructure and resources (including water supply, utility systems, etc.).

This Draft EIR analyzes impacts at the 2035 planning horizon. Once adopted, the 2035 General Plan (the project) would serve as the basis for population growth projections in unincorporated San Joaquin County. Given the historic county growth rate, development patterns established under the proposed project, and other constraints, it would be infeasible for every parcel in the county to develop to its maximum theoretical buildout potential within the 2035 planning horizon. Therefore, the Draft EIR analysis focuses on growth that is reasonably foreseeable to occur within the 2035 planning horizon. Maximum theoretical buildout is described further below under the section “Maximum Theoretical Buildout Beyond 2035” of this chapter.

Countywide growth assumptions developed for the proposed project are based on historic trends and countywide population and housing unit projections that are consistent with regional planning efforts undertaken by the San Joaquin Council of Governments Sustainable Communities Strategy (San Joaquin County, 2014a). This includes the “Valley Vision San Joaquin,” which is being prepared by San Joaquin Council of Governments (SJCOG) with assistance from member jurisdictions and stakeholders. The 2014 RTP “Valley Vision San Joaquin” will be the first Regional Transportation Plan in San Joaquin County to contain a Sustainable Communities Strategy (SCS), the result of the Sustainable Communities and Climate Protection Act of 2008, known as Senate Bill (SB) 375 (SJCOG, 2014).

Historic Population Growth

San Joaquin County grew rapidly from 1990 to 2010, by 42.5 percent, compared to a 27.9 percent increase statewide. As shown in **Table 3-3**, the county grew from a population of 480,628 in 1990 to 685,200 in 2010, an increase of 204,572 persons over 20 years. However, it is important to note that the county’s incorporated cities experienced the majority of this growth, with the City of Stockton experiencing the largest percentage share of growth (80,757 or 39 percent of overall County growth) between 1990 and 2010.

**TABLE 3-3
HISTORIC POPULATION TRENDS FOR SAN JOAQUIN COUNTY – 1970 TO 2010**

	1970	Average Annual Growth Rate	1980	Average Annual Growth Rate	1990	Average Annual Growth Rate	2000	Average Annual Growth Rate	2010	Change, 1970-2000	Change, 1990-2010
Population in Incorporated City Areas of San Joaquin County	190,770	2.1%	234,542	4.3%	355,881	2%	433,532	2.3%	543,200	+242,762	+187,319
Population in Unincorporated Areas of San Joaquin County	111,400	.04%	111,900	1.1%	124,747	0.4%	130,066	0.88%	142,000	+18,666	+17,253
County Total Population	302,170	1.4%	346,442	3.3%	480,628	1.6%	563,598	2.2%	685,200	+261,428	+204,572
California Total Population	20,039,000	1.7%	23,782,000	2.3%	29,758,213	1.3%	33,873,086	0.96%	37,253,959	+13,834,086	+7,495,746

SOURCE: Mintier Harnish, 2009; San Joaquin County, 2014a.

The percentage share of the county population in the unincorporated areas decreased annually between 1970 and 2010. The unincorporated area made up 36.9 percent of the entire county population in 1970 and declined to 21 percent in 2010. The decrease in growth in the unincorporated county and the growth in the county overall again reflects a shift to the incorporated areas of the county.

Projected Population and Housing Growth to 2035

The year 2035 is used as the “planning horizon,” reflecting the planning period of the proposed project. Consistent with the recommendations of the State General Plan Guidelines (see: Office of Planning and Research, 2003, pages 13–14), San Joaquin County has chosen a general plan horizon of approximately 25 years. **Table 3-4** summarizes the distribution of 2010 population between the cities and unincorporated county and projects the population growth from 2010 to 2035. As shown, a majority of new population growth would occur as part of city expansions (155,900 or approximately 60 percent) compared to growth resulting from unincorporated county development (104,100 or approximately 40 percent). Much of the existing unincorporated area growth is expected to occur adjacent to cities, within city Spheres of Influence.¹

**TABLE 3-4
POPULATION AND HOUSING GROWTH
WITHIN SAN JOAQUIN COUNTY BY EXISTING CITY LIMITS**

City/County	2010 Population		Population Growth (2010-2035)		2035 Population		New Housing Units (2010 to 2035)
	Population	Distribution	Population	Distribution	Population	Distribution	
City							
Escalon	7,100	1.04%	200	0.08%	7,300	0.77%	100
Lathrop	18,000	2.63%	49,700	19.12%	67,700	7.16%	13,700
Lodi	62,100	9.06%	5,800	2.23%	67,900	7.18%	2,200
Manteca	67,100	9.79%	25,400	9.77%	92,500	9.79%	8,600
Ripon	14,300	2.09%	1,100	0.42%	15,400	1.63%	400
Stockton	291,700	42.57%	46,500	17.88%	338,200	35.78%	15,300
Tracy	82,900	12.10%	27,200	10.46%	110,100	11.65%	8,300
Subtotal	543,200	79.26%	155,900	59.96%	699,100	73.96%	48,600
Unincorporated County	142,000	20.72%	104,100	40.04%	246,100	26.03%	35,500
Total	685,300	100.00%	260,000	100.00%	945,300	100.00%	84,000

NOTE: Addresses growth within city limits. However, annexations will occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014a.

¹ A Sphere of Influence (SOI) is typically the planning boundary outside of an agency's legal boundary (such as the city limit line) that designates the agency's probable future boundary and service area.

Table 3-5 presents the distribution of 2010 population between the cities and unincorporated county outside of city Spheres of Influence and summarizes the projected population growth from 2010 to 2035. As shown, a majority of new population growth would occur as part of city expansions (218,300 or 83.48 percent) compared to growth resulting from unincorporated county development outside of city Spheres of Influence (43,200 or 16.52 percent). While the proposed 2035 General Plan allows for development in some areas within city Spheres of Influence, it is expected that most of the anticipated growth in Spheres of Influence will occur as a result of city annexations and expansions. It can be expected that by 2035 much of the land currently within each city Sphere of Influence will be annexed into each respective city.

**TABLE 3-5
POPULATION AND HOUSING GROWTH WITHIN SAN JOAQUIN COUNTY
BY CITY SPHERES OF INFLUENCE**

City/County	2010 Population		Population Growth (2010-2035)		2035 Population		New Housing Units (2010 to 2035)
	Population	Distribution	Population	Distribution	Population	Distribution	
City SOIs							
Escalon	7,300	1.07%	2,400	0.92%	9,700	1.02%	900
Lathrop	18,100	2.64%	49,800	19.04%	67,900	7.17%	13,700
Lodi	65,700	9.59%	7,300	2.79%	73,000	7.71%	2,700
Manteca	69,100	10.08%	36,400	13.92%	105,500	11.14%	12,300
Ripon	14,700	2.15%	9,900	3.79%	24,600	2.60%	3,500
Stockton	344,300	50.24%	74,400	28.45%	418,700	44.22%	24,500
Tracy	87,500	12.77%	38,100	14.57%	125,600	13.27%	11,700
Subtotal	606,700	88.53%	218,300	83.48%	825,000	87.14%	69,300
Unincorporated County outside City Spheres of Influence	78,600	11.47%	43,200	16.52%	121,800	12.86%	14,700
Total	685,300	100.00%	261,500	100.00%	946,800	100.00%	84,000

NOTE: Addresses growth within Spheres of Influence of cities as annexations would occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014a.

The growth pattern moving forward to 2035 is similar to what has happened in San Joaquin County since the 2010 General Plan was adopted in 1992. At the time of the 2010 General Plan adoption, it was predicted that about 37,400 acres of undeveloped land within the county would be developed with residential, commercial, or industrial uses (San Joaquin County, 1992). Since 1992, about 27,800 acres of land have been annexed into incorporated cities within the county as shown in **Table 3-6**. In that same time period, the county has had development within unincorporated areas that totaled about 183.45 acres. Thus, it can be seen that the historical trend has been for new development to be focused within cities, either by annexations or by development within existing city boundaries. Therefore, it is reasonable for this EIR to assume that in the future, cities will continue to annex unincorporated land within Spheres of Influence through 2035.

TABLE 3-6
SAN JOAQUIN COUNTY DEVELOPMENT AND ANNEXATION HISTORY (1992-2008)

Year	City Annexations (acres)							Total
	Escalon	Lathrop	Lodi	Manteca	Ripon	Stockton	Tracy	
1992	-	-	539	379	-	249	-	1,167
1993	1	-	163	39	6	-	88	297
1994	12	-	40	492	509	15	-	1,065
1995	6	-	61	84	-	1	1,538	1,690
1996	14	-	64	2,132	-	137	1,072	3,419
1997	14	6,582	-	209	9	114	186	7,114
1998	-	-	-	226	-	-	2,796	3,022
1999	40	-	-	187	50	-	146	426
2000	-	276	140	-	-	-	-	416
2001	9	-	12	91	461	225	-	798
2002	5	-	74	53	20	815	-	967
2003	190	66	-	-	-	582	550	1,388
2004	-	-	10	52	11	653	-	726
2005	-	1,518	-	654	81	1,187	-	3,340
2006	-	276	235	-	200	56	-	767
2007	-	18	478	237	27	19	-	779
2008	-	290	-	-	-	-	-	290
Total	292	9,026	1,815	4,834	1,370	4,053	6,379	27,769

NOTE: Addresses growth within Spheres of Influence of cities as annexations would occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014a.

While data are shown regarding annexations through 2008, updated data were also assessed to determine how much growth from 2008 to 2013 within San Joaquin County was associated with annexations to cities vs. growth within the unincorporated areas. From 2008 to 2013, 8,492 acres were annexed into incorporated cities (LAFCo, 2014a). In that same five-year period, the County had only 33.12 acres that entailed land use designation requests (San Joaquin County, 2014b). These were unincorporated lands designated in the County's General Plan for General Agriculture and Agriculture-Urban Reserve that were changed to Freeway Service Commercial designations and Limited Industrial designations. The County's development was only 0.3 percent of that associated with annexations in this same time period. For this reason, the EIR assumes that the most extensive growth will continue to be within cities and via annexations to the cities' Spheres of Influence.

As can be seen in Table 3-5, a majority of the county's existing population resides in the City of Stockton's Sphere of Influence (344,300 or 50.24 percent). The largest projected increases are expected to occur in the Stockton Sphere of Influence (74,400 persons), Lathrop Sphere of Influence (49,800 persons), and Tracy Sphere of Influence (38,100 persons). While about 50 percent of the county's population now resides in the Stockton Sphere of Influence, that

percentage is projected to change to 44 percent by 2035. Only about 11 percent of the overall countywide population currently resides within unincorporated areas of San Joaquin County outside of city Spheres of Influence, and in 2035, this percentage is expected to increase to 13 percent. A large portion of the population growth would occur outside city limits, but within city Spheres of Influence. Additionally, a significant amount of growth is projected to occur within the unincorporated community of Mountain House. Annexations of unincorporated land would occur as city boundaries expand outward and much of the new growth is served by existing services and utilities provided by the cities.

In order to facilitate the new growth in the Spheres of Influence, the proposed 2035 General Plan includes goals and policies to regulate that expected growth. For example the first goal of the Land Use Element (Goal LU-1) reads:

Goal LU-1: Direct most urban development towards cities and urban and rural communities within the unincorporated county to promote economic development, while preserving agricultural lands and protecting open space resources.

Policies that would support the County in achieving that goal include:

LU-1.1: Compact Growth and Development. The County shall discourage urban sprawl and promote compact development patterns, mixed-use development, and higher-development intensities that conserve agricultural land resources, protect habitat, support transit, reduce vehicle trips, improve air quality, make efficient use of existing infrastructure, encourage healthful, active living, conserve energy and water, and diversify San Joaquin County's housing stock. (RDR) (Source: Existing GP, Energy, Land Use and Circulation Patterns, Policy 1, modified)

LU-1.2: Accommodating Future Growth. The County shall ensure that the General Plan designates sufficient land for urban development to accommodate projected population and employment growth. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 1, modified)

LU-1.3: Building Intensity and Population Density. The County shall regulate the levels of building intensity and population density according to the standards and land use designations set out in the General Plan and the San Joaquin County Development Title. Within these designations, cumulative development from 2010 shall not exceed 35,500 new dwelling units and 31,700 new employees by 2035. (RDR) (Source: New Policy)

LU-1.4: Encourage Infill Development. The County shall encourage infill development to occur in Urban and Rural Communities and City Fringe Areas within or adjacent to existing development in order to maximize the efficient use of land and use existing infrastructure with the capacity to serve new development. The County shall balance infill development within outward expansion of communities and new development in other unincorporated areas. (Source: New Policy)

Employment

Table 3-7 presents the employment forecasts for San Joaquin County. As can be seen, the majority of employment growth would occur in the Stockton Sphere of Influence, and only 12.5 percent of the countywide job growth would occur within the unincorporated areas. As with population growth, much of the job growth would occur in the Spheres of Influence as the cities expand and annex lands now within the County's jurisdiction.

**TABLE 3-7
PROJECTED EMPLOYMENT GROWTH WITHIN SAN JOAQUIN COUNTY BY
CITY SPHERES OF INFLUENCE**

City/County	Existing Jobs (2008)	2010 to 2035 Projected Net New Growth in Jobs	Percent of Total	2035 Estimated Jobs
Cities				
Escalon	1,870	300	0.58 %	2,170
Lathrop	5,535	800	1.56%	6,335
Lodi	23,695	4,000	7.8%	27,695
Manteca	15,845	3,300	6.5%	19,145
Ripon	3,845	500	0.98 %	4,345
Stockton	122,200	31,600	61.9%	153,800
Tracy	22,060	4,100	8.0%	26,160
Subtotal	195,050	44,600	87.4%	239,650
Unincorporated County	25,635	6,400	12.5%	32,035
Total	220,685	51,000	100%	271,685

NOTE: Addresses growth within Spheres of Influence of cities as annexations would occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014a.

Land Use Changes Proposed by 2035 General Plan

Much of the growth between the present day and the General Plan horizon is anticipated to occur within Spheres of Influence of the seven incorporated cities of the county. While some amount of infill may occur within underutilized portions of these cities, annexations would also be expected within the Spheres of Influence of the incorporated cities. These Spheres of Influence have been approved by the County's Local Agency Formation Commission (LAFCo) as areas where future development would occur and where infrastructure would be adequate to support the new growth (LAFCo, 2014b).

Within the unincorporated county not in Spheres of Influence, the majority of future growth is planned for the 15 rural communities (Acampo, Banta, Chrisman, Clements, Collierville, Coopers Corner, Farmington, Glenwood, Lammersville, New Jerusalem, Noble Acres, Peters, Stoneridge, Vernalis, and Victor), the urban communities (French Camp, Linden, Lockeford, Morada, Mountain House, Thornton, and Woodbridge), the fringe area of cities, and the unincorporated lands that are neither an identified rural community nor an urban community and that are often at the fringe of incorporated cities. However, it should be noted that approximately 85 percent of the projected growth in unincorporated communities not in Spheres of Influence is projected to occur

in the Mountain House urban community alone. The proposed 2035 General Plan land use diagram is presented in **Figure 3-3**.²

Figure 3-4 shows the potential areas of new growth as reflected by recently proposed land use designation changes. As illustrated, these new growth areas would primarily be development of industrial lands and freeway service areas. These are located primarily at major freeway interchanges and at the outer edges of Lodi, Stockton, and Tracy. **Table 3-8** illustrates the overall change in acreage assumed within county lands, including the proposed land use designation changes and land in city Spheres of Influence. As can be seen in this table, about 2,200 acres of land now designated as “General Agriculture” and 635 acres of land now designated as “Open Space/Resource Conservation” may be converted to residential, commercial, or industrial use. As part of the General Plan update process, the County accepted property-owner requests for changes to General Plan land use designations. These are included in **Figure 3-3**, **Figure 3-4**, **Table 3-8**, and **Table 3-9**. Each request was thoroughly reviewed and considered by the Board of Supervisors. Factors such as current zoning, existing designations, surrounding land uses, available public services, the Draft Vision and Guide Principles, the growth scenario, geological constraints, preservation of natural resources, and the impact on the safety and welfare of the community were considered.

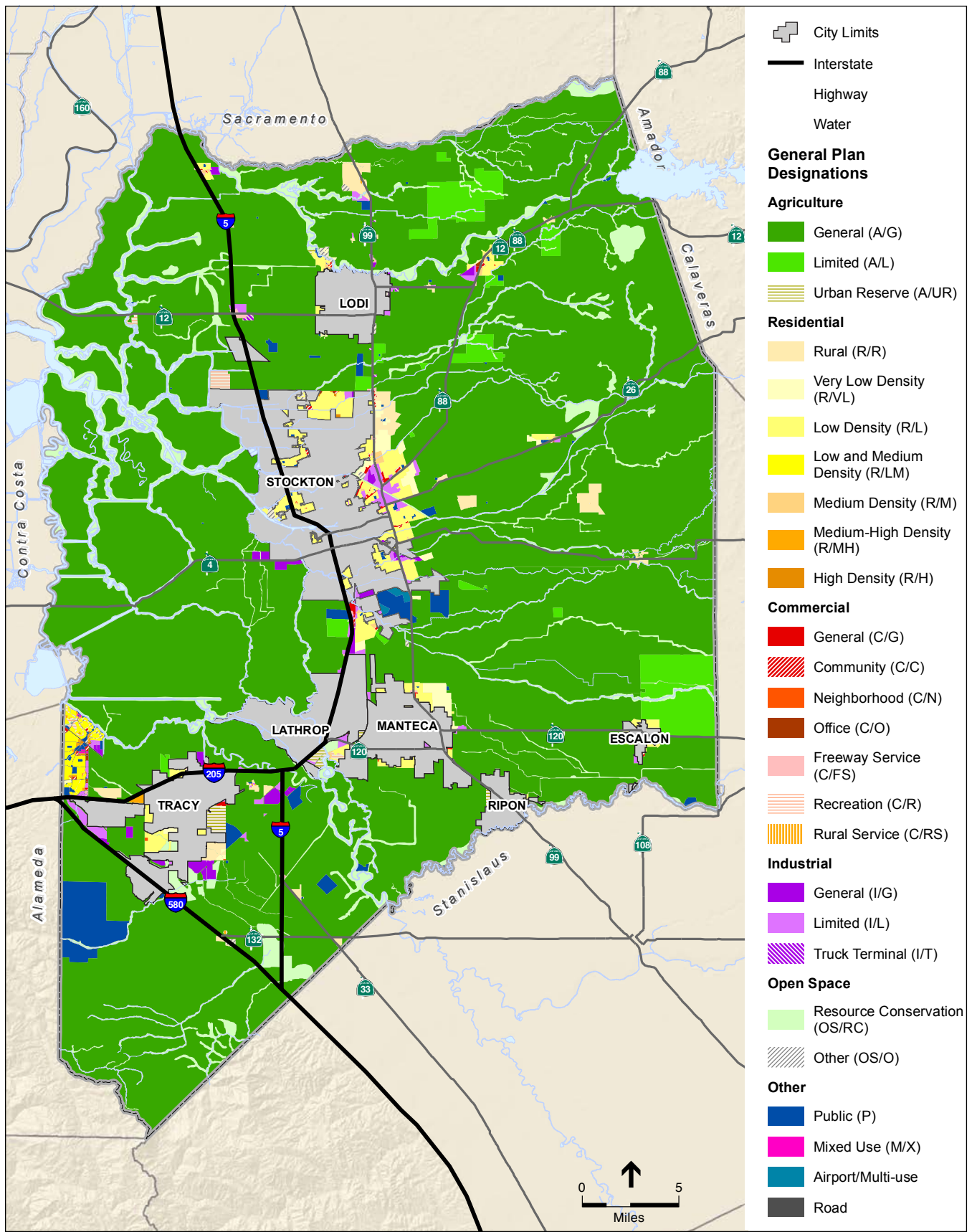
The potential buildout under the proposed 2035 General Plan is presented in **Table 3-9**. The development capacity, which includes the proposed land use designation changes, would accommodate a population of 107,723 and 55,848 jobs. However, as discussed earlier, this Draft EIR analysis focuses on growth that is reasonably foreseeable to occur within the 2035 planning horizon.

Growth in Community Plan Areas

Using the land use changes described above, population projections have also been developed for General Plan Community Plan Areas, which are unincorporated county areas not within Spheres of Influence. Consistent with the objectives of the 2035 General Plan, future county growth is focused within Urban and Rural Community Plan Areas as shown in **Table 3-10**. The projections in Table 3-10 include the land use changes proposed by the 2035 General Plan. As shown in Table 3-10, the Urban Community Areas are anticipated to support the vast majority of future growth (particularly in Mountain House) by 2035, with smaller amounts of growth anticipated for the remainder of the urban and rural communities.

Under the 2035 planning horizon, some additional amount of residential development could occur outside of designated Community Plan Areas consistent with allowed densities and zoning for each land use. However, the exact amount of development that could occur outside of designated Community Plan Areas is speculative and would likely be very small consistent with historic land use patterns.

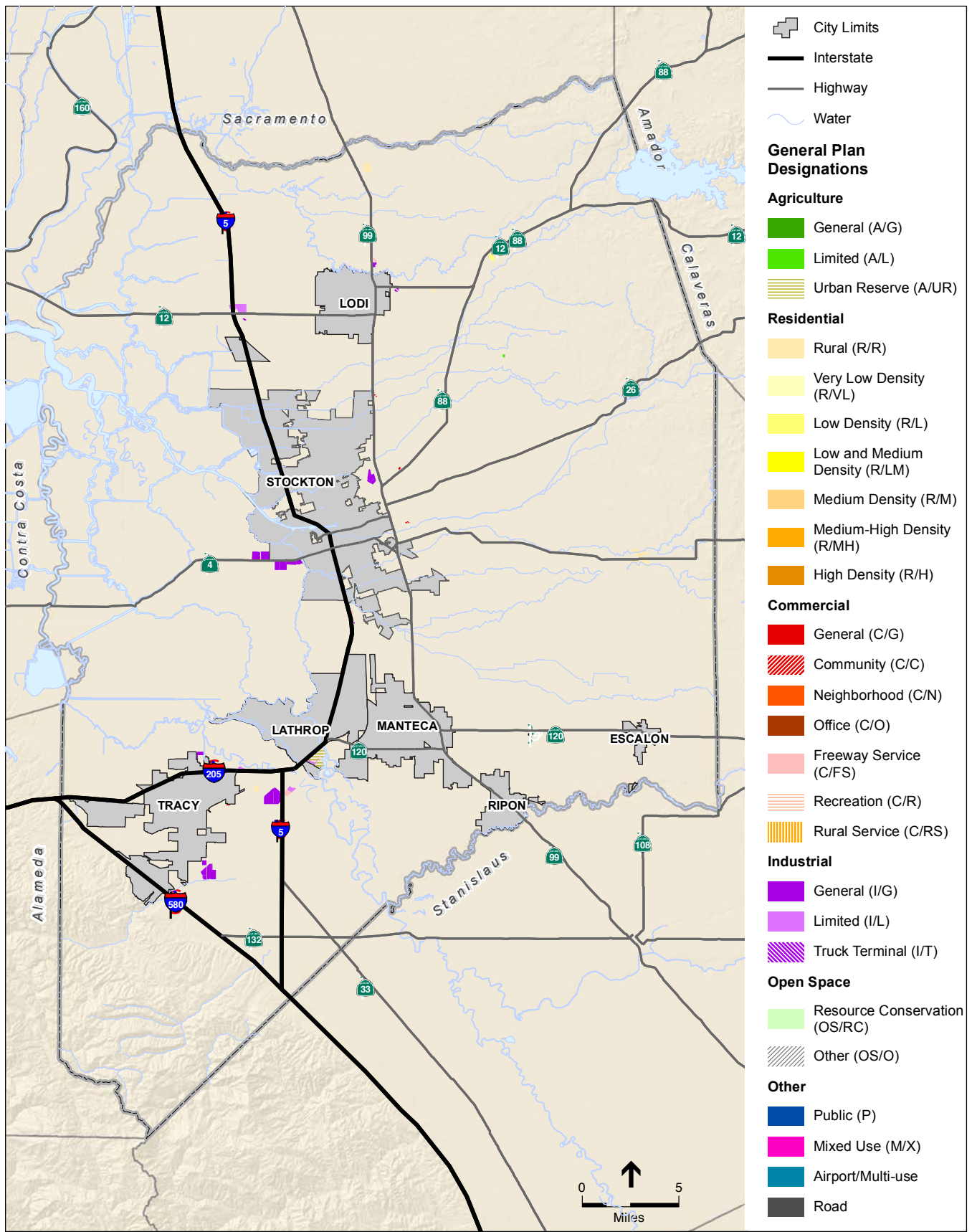
² Figure 3-3 includes the proposed land use changes that are presented in Figure 3-4.



SOURCE: Minter-Harnish, 2013

San Joaquin County 2035 General Plan . 209529

Figure 3-3
General Plan Land Use Diagram



SOURCE: Minter-Harnish, 2013

San Joaquin County 2035 General Plan . 209529

Figure 3-4
General Plan Designation Changes

**TABLE 3-8
EXISTING AND PROPOSED ACRES BY LAND USE DESIGNATION ON COUNTY LANDS
INCLUDING LAND WITHIN SPHERES OF INFLUENCE**

General Plan Designation	General Plan Code	Existing (2013) Acreage	Percent of Total	Proposed Acreage	Percent of Total	Acreage Change
Agriculture/General	A/G	659,532	72.30%	657,315	72.0%	-2,217
Agriculture/Limited	A/L	20,627	2.30%	20,637	2.3%	+10
Agriculture/Urban Reserve	A/UR	1,053	0.10%	1,421	0.2%	+368
Residential/Rural	R/R	5,722	0.60%	6,143	0.7%	+421
Residential/Very Low Density	R/VL	3,637	0.40%	3,637	0.4%	0
Residential/Low Density	R/L	15,010	1.60%	15,083	1.7%	+73
Residential/Low & Medium Density	R/LM	2,348	0.30%	2,348	0.3%	0
Residential/Medium Density	R/M	520	0.10%	505	0.1%	-15
Residential/Medium High Density	R/MH	412	0.00%	412	0.0%	0
Residential/High Density	R/H	132	0.00%	132	0.0%	0
Commercial/General	C/G	772	0.10%	789	0.1%	+17
Commercial/Community	C/C	531	0.10%	537	0.1%	+6
Commercial/Neighborhood	C/N	64	0.00%	64	0.0%	0
Commercial/Office	C/O	120	0.00%	120	0.0%	0
Commercial/Freeway Service	C/FS	593	0.10%	752	0.1%	+159
Commercial/Recreation	C/R	1,117	0.10%	1,117	0.1%	0
Commercial/Rural Service	C/RS	161	0.00%	171	0.0%	+10
Industrial/General	I/G	1,772	0.20%	3,314	0.4%	+1,542
Industrial/Limited	I/L	4,653	0.50%	4,866	0.5%	+213
Industrial/Truck Terminal	I/T	124	0.00%	173	0.0%	+49
Open Space/Resource Conservation	OS/RC	81,434	8.90%	80,799	8.9%	-635
Open Space/Other	OS/O	1,130	0.10%	1,130	0.1%	0
Public	P	13,757	1.50%	13,756	1.5%	-1
Mixed/Use	M/X	58	0.00%	58	0.0%	0
Airport/Multi-Use	AP/X	411	0.00%	411	0.0%	0
City	CITY	96,653	10.60%	96,652	10.6%	-1
Road	ROAD	437	0.00%	437	0.0%	0
Total		912,780	100.0%	912,780	100.00%	0

SOURCE: San Joaquin County, 2014a.

**TABLE 3-9
POTENTIAL BUILDOUT DEVELOPMENT CAPACITY UNDER PROPOSED 2035 GENERAL PLAN**

Land Use Designation	Acres	Units	Population	Square Feet	Employees
Residential					
Rural Residential	1,275	638	1,913	-	-
Very Low-Density Residential	1,792	1,792	5,376	-	-
Low-Density Residential	7,001	28,004	84,012	-	-
Medium-Density Residential	206	1,545	4,635	-	-
Medium High-Density Residential	186	2,604	7,812	-	-
High-Density Residential	53	1,325	3,975	-	-
<i>Subtotal</i>	<i>10,513</i>	<i>35,908</i>	<i>107,723</i>	<i>-</i>	<i>-</i>
Commercial					
Neighborhood Commercial	33	-	-	503,118	1,437
Community Commercial	206	-	-	2,243,340	6,410
General Commercial	283	-	-	3,081,870	8,805
Office Commercial	59	-	-	899,514	3,271
Freeway Service	236	-	-	2,056,032	5,874
Rural Service Commercial	54	-	-	470,448	1,344
Commercial Recreation	653	-	-	1,422,234	2,032
<i>Subtotal</i>	<i>1,524</i>	<i>-</i>	<i>-</i>	<i>10,676,556</i>	<i>29,173</i>
Industrial					
Limited Industrial	1,659	-	-	7,226,604	7,227
General Industrial	624	-	-	1,359,072	1,087
Truck Terminals	58	-	-	50,530	34
<i>Subtotal</i>	<i>2,341</i>			<i>8,636,206</i>	<i>8,348</i>
Other					
Mixed Use	0			0	0
Mountain House ¹	3,062	11,558	28,715	0	18,327
<i>Subtotal</i>					
TOTAL	17,442	47,466	136,438	19,321,762	55,848

NOTE:

¹ The buildout potential and remaining development capacity of Mountain House were calculated separately. See Appendix A, Section 4A.9.

SOURCE: San Joaquin County, 2014a.

**TABLE 3-10
ALLOCATION OF FUTURE SAN JOAQUIN COUNTY DWELLING UNITS AND
POPULATION GROWTH BY COMMUNITY PLANNING AREA UNDER
PROPOSED 2035 GENERAL PLAN – 2010 TO 2035**

	2010 Population ¹	2035 Projected Population	2010 -2035 Housing Units
Urban Community Area			
French Camp	4,421	4,421	0
Linden	1,814	2,782	330
Lockeford	3,301	6,230	998
Morada	4,387	4,446	20
Mountain House	9,996	45,234	12,008
Thornton	809	1,176	125
Woodbridge	3,787	3,831	15
Subtotal:²	28,515	68,120	13,496
Rural Community Area			
Acampo	462	462	0
Collierville	2,345	2,870	179
Farmington	249	672	144
Peters	520	520	0
Victor	395	483	30
Subtotal:	3,971	5,007	353
Rural Community Area (No Existing 2010 Population Data Available)			
Banta	Not Available	161	55
Chrisman	Not Available	0	0
Clements	Not Available	0	0
Coopers Corner	Not Available	0	0
Glenwood	Not Available	0	0
Lammersville	Not Available	94	32
New Jerusalem	Not Available	6	2
Noble Acres	Not Available	18	6
Stoneridge	Not Available	0	0
Vernalis	Not Available	0	0
Subtotal:		279	95

NOTES:

- ¹ 2010 population estimate based on Census Defined Place (CDP) boundaries covering each community boundary. May include areas beyond the community boundary.
- ² From Spheres of Influence Table, population growth (2010-2035) in unincorporated county is 43,200 and net new units (2010 -2035) in unincorporated county is 14,700. The difference is due to unincorporated development located outside a community boundary and city Spheres of Influence (i.e., rural residential or City Fringe Areas outside a Sphere of Influence).

SOURCE: San Joaquin County, 2014a.

Maximum Theoretical Buildout Beyond 2035

Maximum theoretical buildout at development capacity is identified in **Table 3-11**. The theoretical development levels in Table 3-10 are higher than forecasted development levels in 2035, the General Plan horizon year.

**TABLE 3-11
MAXIMUM THEORETICAL BUILDOUT DEVELOPMENT CAPACITY
UNDER PROPOSED 2035 GENERAL PLAN**

Land Use Designation	Acres	Units	Population	Square Feet	Employees
Residential					
Rural Residential	1,275	6,375	19,125	-	-
Very Low-Density Residential	1,792	3,584	10,752	-	-
Low-Density Residential	7,001	42,006	126,018	-	-
Medium-Density Residential	206	2,060	6,180	-	-
Medium High-Density Residential	186	2,790	8,370	-	-
High-Density Residential	53	2,120	6,360	-	-
<i>Subtotal</i>	<i>10,513</i>	<i>58,935</i>	<i>176,805</i>	<i>-</i>	<i>-</i>
Commercial					
Neighborhood Commercial	33	-	-	862,488	2,464
Community Commercial	206	-	-	5,384,016	15,383
General Commercial	283	-	-	7,396,488	21,133
Office Commercial	59	-	-	1,542,024	5,607
Freeway Service	236	-	-	6,168,096	17,623
Rural Service Commercial	54	-	-	1,411,344	4,032
Commercial Recreation	653	-	-	14,222,340	20,318
<i>Subtotal</i>	<i>1,524</i>	<i>-</i>	<i>-</i>	<i>36,986,796</i>	<i>86,561</i>
Industrial					
Limited Industrial	1,659	-	-	43,359,624	43,360
General Industrial	624	-	-	16,308,864	13,047
Truck Terminals	58	-	-	1,515,888	1,011
<i>Subtotal</i>	<i>2,341</i>			<i>61,184,376</i>	<i>143,978</i>
Other					
Mixed Use	0			0	0
Mountain House ¹	3,062	11,558	28,715	0	18,327
<i>Subtotal</i>					
TOTAL	17,442	70,493	205,520	98,171,172	248,866

NOTE:

¹ The buildout potential and remaining development capacity of Mountain House were calculated separately. See Appendix A, Section 4A.9.

SOURCE: San Joaquin County, 2014a.

Residential growth was chosen as the indicator of maximum theoretical buildout, as it can be relatively constant to measure and easier to extrapolate than other factors. Commercial and industrial parcels were assumed to be fully developed at the same time that housing buildout is reached. Residential growth was estimated using allowed densities for each land use for the primary generating land uses (those associated with single-family residential development).

As shown in Table 3-11, maximum theoretical buildout would result in nearly 70,493 housing units, with an estimated population of 205,520.

Predicting the amount and possibility of growth over an unknown time period can be influenced by a variety of factors (including environmental considerations and technological changes). Maximum theoretical buildout does not take into account a host of local factors that would inhibit growth, such as demographics, economic factors, market forces, environmental constraints, infrastructure constraints, regulatory constraints, or the development interests of individual property owners.

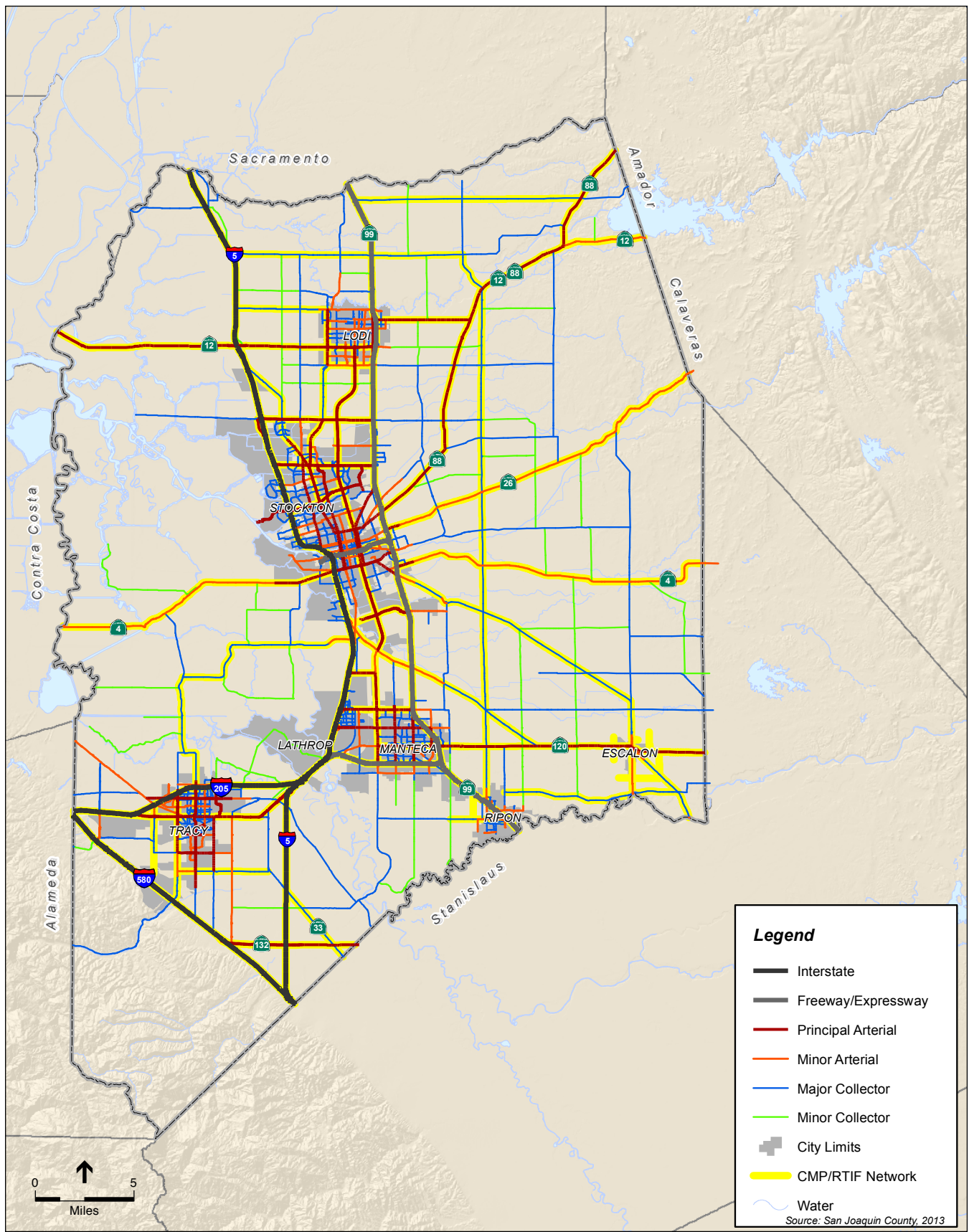
Consideration of these factors makes identifying environmental impacts over an unknown buildout time period extremely speculative, if not completely meaningless. For example, the availability of resources (such as oil and gasoline) and possible technological changes in automobiles make estimating the number of associated vehicle trips extremely uncertain or speculative.

It is not feasible or realistic for a General Plan to project when, if ever, maximum theoretical buildout might occur, or what resource or environmental conditions might exist at this hypothetical time. Therefore, the Draft EIR focuses the impact analysis on reasonably foreseeable growth at the 2035 planning horizon. It does not include CEQA impact analyses based on General Plan maximum theoretical buildout because such impact analyses would be highly speculative and not meaningful. CEQA case law supports the principle that an EIR need not analyze the impacts of speculative, theoretical land use buildout. (See, e.g., *Save Round Valley Alliance v. County of Inyo*, 2007, 157 Cal.App.4th 1437; *Ross v. California Coastal Commission* (2011) 199 Cal.App.4th 900, 944.)

Transportation Infrastructure Changes Proposed by 2035 General Plan

The proposed General Plan circulation diagram for San Joaquin County is shown in **Figure 3-5**. This diagram is derived from the Goals and Policies Report (Part 3 of the 2035 General Plan). This figure shows the county's regional road system. The major roadways are identified by the following types: arterial (major), arterial (minor), collector (major), and freeway. The proposed State Highway classification is also illustrated in the circulation diagram.

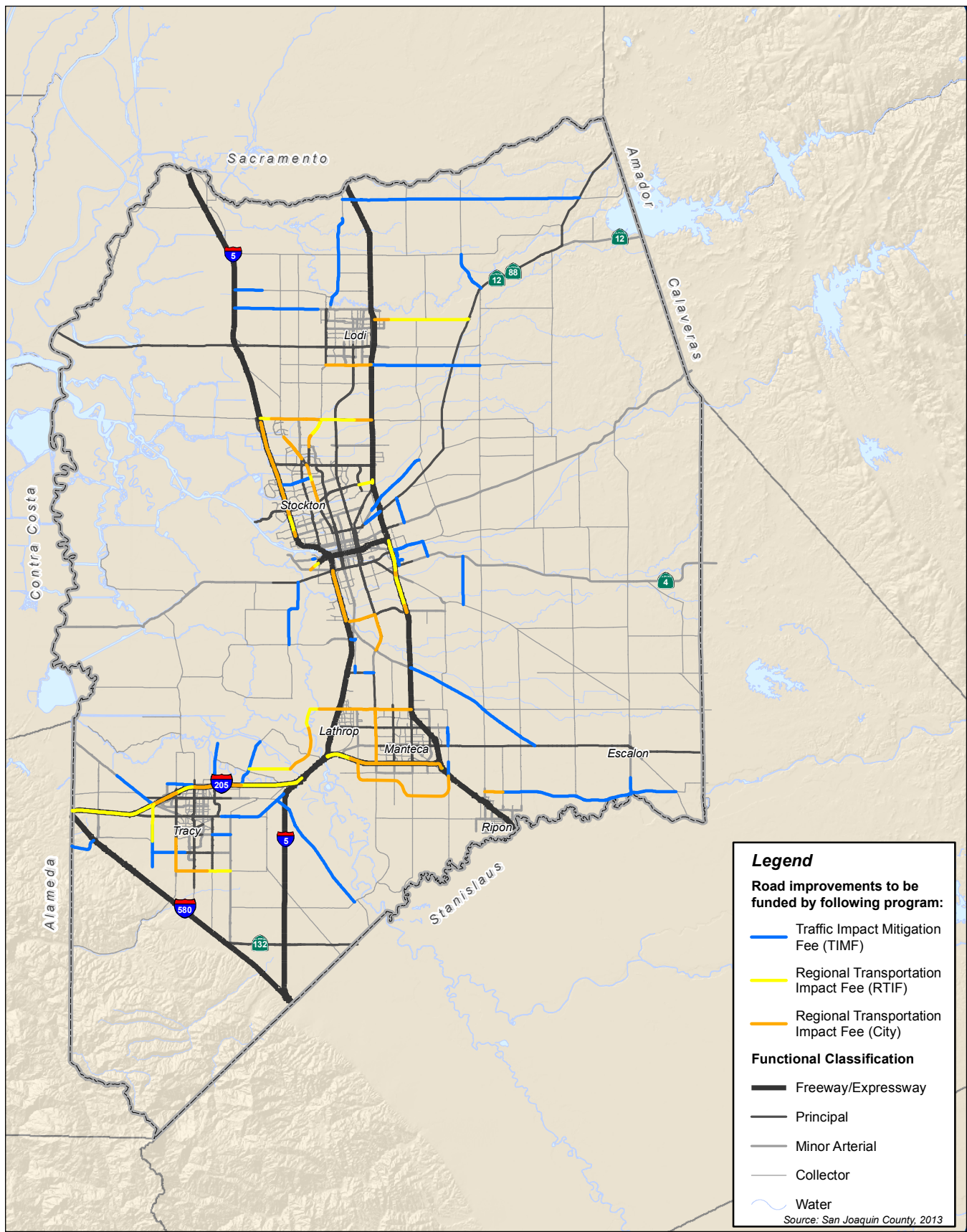
The proposed circulation improvements that would occur under the 2035 General Plan are presented in **Figure 3-6** and listed in **Appendix F**. The circulation improvements cover a large range from interchange improvements to roadway widening to transit-related projects.



SOURCE: San Joaquin County, 2013

San Joaquin County 2035 General Plan . 209529

Figure 3-5
Circulation Diagram



SOURCE: San Joaquin County, 2013

San Joaquin County 2035 General Plan . 209529

Figure 3-6
Proposed Circulation Improvements

References

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CHAPTER 4

Environmental Setting, Impacts, and Mitigation Measures

This chapter contains the analysis of the significant adverse effects on the environment (significant impacts) due to development that could occur under the 2035 General Plan in San Joaquin County. This chapter describes the existing setting for each topic, the significant impacts that could result from the construction and operation of new development and infrastructure in San Joaquin County, and relevant mitigation measures and implementation measures that would avoid or substantially lessen significant environmental impacts. Finally, this chapter identifies mitigation measures that would reduce the significant impacts resulting from the proposed project.

The following provides an overview of the scope of the analysis included in this chapter, the organization of the sections, and the methods for determining significant impacts.

Environmental Topics

The following sections in this chapter analyze the environmental topics as listed below and presented in the Table of Contents at the front of this document:

4.A Land Use and Planning	4.I Geology, Soils, and Seismicity
4.B Agricultural and Forestry Resources	4.J Hydrology and Water Quality
4.C Population and Housing	4.K Hazards and Hazardous Materials
4.D Transportation and Circulation	4.L Aesthetics
4.E Cultural Resources	4.M Public Services and Recreation
4.F Biological Resources	4.N Utilities and Service Systems
4.G Air Quality	4.O Mineral Resources
4.H Noise	4.P Greenhouse Gases and Energy

Format of Environmental Topic Sections, Impact Statements and Mitigation Measures

Each environmental topic section generally includes two main subsections:

- **Existing Setting** – includes baseline conditions, regulatory setting, threshold/criteria of significance; and
- **Impacts and Mitigation Measures** – identifies and discusses significant impacts, and mitigation measures that would avoid or substantially lessen significant impacts.

This EIR identifies all impacts with an alpha-numeric designation that corresponds to the environmental topic addressed in each section (e.g., “4.E-1” for Section 4.E, *Cultural Resources*). The topic designator is followed by a number that indicates the sequence in which the impact statement occurs within the section. For example, “Impact 4.E-1” is the first (i.e., “1”) cultural impact identified in the EIR. All impact statements are presented in bold text.

The impact classification (e.g., less than significant or significant) of the project’s effects prior to implementation of mitigation measures is stated in parentheses immediately following the impact statement.

Similarly, each mitigation measure is numbered to correspond with the impact that it addresses. Where multiple mitigation measures address a single impact, each mitigation measure is numbered sequentially. For example “Mitigation Measure 4.E-1” is the first mitigation identified to address the first cultural impact (i.e., “4.E-1”). The level of significance following mitigation is also identified in parentheses when mitigation measures are identified.

Thresholds/Criteria of Significance

The CEQA *Guidelines* § 15382 defines a significant effect on the environment as “*a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.*” Determinations of significance vary with the physical conditions affected and the setting in which the change occurs. The significance criteria used in this EIR are the thresholds for determining significance of impacts and are based on Appendix G of the CEQA *Guidelines*.

Impact Classifications

The following level of significance classifications are used throughout the impact analysis in this EIR:

- **Less than Significant (LS)** – The impacts of the proposed project do not reach or exceed the defined Threshold/Criteria of Significance. Generally, no mitigation measure is required for a LS impact.
- **Significant (S)** – The impact of the proposed project is expected to reach or exceed the defined Threshold/Criteria of Significance. Potentially feasible mitigation measures are identified to reduce the significant impact to a less than significant level.
- **Significant Unavoidable (SU)** – The impact of the proposed project reaches or exceeds the defined Threshold/Criteria of Significance. No feasible mitigation measure is available to reduce the S impact to LS. In these cases, feasible mitigation measures may be identified to reduce the S impact to the maximum feasible extent, but the significant impact is considered SU. It is important to clarify that SU is an impact classification that only applies *after* consideration of possible mitigation measures.
- **No Impact (N)** – No noticeable adverse effect on the environment would occur.

Environmental Baseline

Pursuant to CEQA *Guidelines* §15125(a), this EIR generally measures the physical impacts of the proposed project (i.e., the development under the San Joaquin County 2035 General Plan) against a “baseline” of physical environmental conditions at the time the Notice of Preparation was published, which is October 9, 2013. For some impact topics, data on physical conditions prior to October 9, 2013 were used to represent existing conditions on October 9, 2013. The baseline conditions (affected environment) relevant to the environmental topic being analyzed are described within each environmental topic section in this chapter.

EIR Impact Analysis Methodology

This EIR has been prepared to determine the overall environmental effects of future development in the unincorporated areas of the County that would be allowed under the proposed 2035 General Plan. As a program EIR, the EIR does not, and cannot, speculate on the individual environmental impacts of specific future development projects in the County because details about these projects are not available. The EIR analyzes impacts of implementation of all 2035 General Plan project goals, policies and programs, including forecasted population and housing unit totals up to Year 2035 (i.e., the horizon year of the General Plan). The term “horizon year buildout” in reference to the General Plan refers to a scenario in which the 2035 General Plan land uses and the roadway network have been developed consistent with Year 2035 forecasted population and housing units, while accounting for developable land and constraints. The scenario is based on the population forecast model and correlates with the transportation model forecast for the unincorporated County. Technical analyses, such as traffic modeling, and GIS data were used to determine how and where development under the 2035 General Plan would result in significant environmental impacts.

Federal, State, and local regulations were also considered for each resource evaluation. In some cases, existing regulations were determined to be sufficient to prevent significant impacts from occurring, since all future development projects would be required to comply with existing regulations that are mandatory. Therefore, the 2035 General Plan was determined to result in a less than significant impact with regard to these issues. For example in Section 4.I, *Geology and Soils*, related to expansive soils, all development in California is required to comply with the California Building Code (CBC), which contains construction and engineering standards for projects located in areas that have high shrink-swell soils. The provisions of the CBC require that a geotechnical investigation be performed to provide data for the architect and/or engineer to responsibly design the project. Because all development under the 2035 General Plan would be required to comply with this regulation, the Plan would not result in a significant impact associated with expansive soils.

However, such universal regulations are not in place to minimize all environmental impacts. Because the 2035 General Plan land use designations would allow development that may result in significant environmental impacts, based on the technical analysis, many environmental impacts were determined to be significant, and mitigation measures are identified to reduce impacts when feasible.

Cumulative Analysis

Approach to the Cumulative Analysis

CEQA defines cumulative as “two or more individual effects which, when considered together, are considerable, or which can compound or increase the other environmental impacts.” CEQA *Guidelines* § 15130(a) requires that an EIR evaluate cumulative impacts when the project’s incremental effect is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past, present, existing, approved, pending and reasonably foreseeable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. (CEQA *Guidelines* §15064(h)(1).) The analysis approach for this EIR includes past, present, and reasonably foreseeable probable future projects.

Cumulative Context

The context used for assessing cumulative impacts typically varies depending on the specific topic being analyzed to reflect the different geographic scope of different impact areas. For example, considerations for the cumulative air quality analysis are different from those used for the cumulative analysis of aesthetics. In assessing aesthetic impacts, only development within the vicinity of the project would contribute to a cumulative visual effect. In assessing air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions are the best means for determining the cumulative effect. Accordingly, the geographic setting and other parameters of each cumulative analysis discussion can vary.

The geographic scope defines the area within which a proposed project and related projects may contribute to a specific cumulative impact. The geographic scope for each environmental issue analyzed in this EIR is identified below.

In addition, CEQA Guidelines Section 15130(b) allows for the use of two alternative methods to determine the scope of projects for the cumulative impact analysis:

- **List Method** – A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.
- **Projections Method** – A summary of projections contained in an adopted general plan or related planning document or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

The proposed project establishes policy to guide future development within San Joaquin County, and implementation is long-term in nature. The Projections Method is considered an appropriate methodology for evaluating the cumulative impacts of the proposed project because cumulative impact analysis can be based on growth projections for the region through 2035. However, for example, the Bay Delta Conservation Plan (BCDP) project is considered outside the control of

San Joaquin County; thus, the list method is the appropriate methodology for considering cumulative impacts of the BCDP project.

Growth Projections

Given the broad geographic scope considered for cumulative impacts associated with implementation of the proposed project, this analysis relies upon the population projections gathered from a variety of sources, in addition to the projections contained in relevant plans. These population projections and sources are summarized below in **Table 4-1**. The table also identifies the long range planning efforts (recent general plan updates) for surrounding jurisdictions, including Sacramento County, Stanislaus County, Amador County, Calaveras County, Contra Costa County, and Alameda County. As appropriate, the key cumulative environmental impacts from the respective environmental documents of these long range planning efforts are also summarized in the table.

**TABLE 4-1
REGIONAL POPULATION PROJECTIONS AND PLANNING EFFORTS**

Jurisdiction/Region¹	Year 2012 Population¹	Population Projections for 2035²	
Alameda County	1,554,720	1,668,918	
Calaveras County	44,742	55,188	
Amador County	37,035	43,150	
Contra Costa County	1,079,597	1,324,740	
Sacramento County	1,450,121	1,817,718	
Stanislaus County	521,726	714,694	
Jurisdiction/Region	General Plan Planning Timeframe	Existing Population	General Plan Horizon Year Population Projection
Alameda County	2010-2040 ¹⁰	2012: 1,554,720 ⁹	2040: 1,965,549 ¹⁰
Calaveras County ³	County is updating their General Plan	1990: 31,998	2010: 57,532
Amador County	County is updating their General Plan	2013: 37,035 ⁹	2040: 61,550 ¹¹
Contra Costa County ^{4,5}	2005-2020	Year 2000: 948,816	Year 2020: 1,128,800
Sacramento County ^{6, 7}	2005-2030	Year 2005: 1,335,283	Year 2025: 1,695,498
Stanislaus County ⁸	1994-2015	1994: 412,676	2015: 709,100

SOURCE:

- ¹ State and County Quickfacts, United States Census Bureau, 2012;
- ² California Department of Finance, Report P-1 (County): State and County Total Population Projections, 2010-2060 (5-year increments), January 2013;
- ³ Calaveras County General Plan, 1996;
- ⁴ Contra Costa General Plan, January 2005;
- ⁵ Contra Costa General Plan EIR Impacts and Mitigation Summary (Appendix D), 2001;
- ⁶ Sacramento County General Plan of 2005-2030, November 2011;
- ⁷ Sacramento County General Plan EIR, Executive Summary and Mitigation Measures, April 2010;
- ⁸ Stanislaus County General Plan (1994);
- ⁹ US Census Bureau, County Quickfacts;
- ¹⁰ Plan Bay Area, 2012;
- ¹¹ Amador County Housing Element 2007-2014.

Geographic Scope

As mentioned earlier, the geographic area that could be affected by cumulative impacts varies depending on the type of environmental resource being considered. The general geographic area associated with different environmental effects of the proposed project, and the location of adopted plans or related projects, define the boundaries of the area considered in the cumulative impact analysis. **Table 4-2** presents the geographic areas for cumulative impact analysis associated with the different resources addressed in this Draft EIR analysis.

**TABLE 4-2
GEOGRAPHIC SCOPE OF CUMULATIVE IMPACTS**

Cumulative Impact Topic	Geographic Scope
Land Use	San Joaquin County
Agricultural and Forestry Resources	San Joaquin County and Central Valley
Population and Housing	San Joaquin County
Transportation and Circulation	San Joaquin County, Sacramento County, Stanislaus County, Amador County, Calaveras County, Contra Costa County, and Alameda County
Cultural Resources	San Joaquin County
Biological Resources	San Joaquin County
Air Quality	San Joaquin Valley Air Basin
Noise	San Joaquin County
Geology/Soils/Mineral Resources	Central Valley
Hydrology and Water Quality	San Joaquin Watersheds
Hazards and Hazardous Materials	San Joaquin County
Aesthetics	San Joaquin County
Public Services, Utilities, and Recreation	San Joaquin County
Energy and Climate Change	California (for GHG Emissions)

The cumulative discussions in each topical section throughout this chapter describe the cumulative geographic context considered for each topic at a level appropriate to the level of analysis presented in this EIR. Cumulative impacts from the proposed project, per CEQA Guidelines §15130, are further addressed in Chapter 6 of this EIR, under B. Cumulative Impacts.

References – Environmental Setting

California Environmental Quality Act (CEQA) Statutes and Guidelines; Public Resources Code 21000-21177) and California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387.

State of California, Department of Finance (DOF, 2013), *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2013, with 2010 Benchmark*, revised May 10, 2013.

U.S. Census Bureau, *State and County Quickfacts*, United States Census Bureau, 2012;

A. Land Use

A.1 Introduction

This section describes the existing and planned land uses in the project area, identifies adopted plans that guide the County's land use and planning decisions, and evaluates land use impacts resulting from implementation of the proposed 2035 General Plan. Much of the environmental setting section was developed and updated from information contained in the General Plan Background Report (see Chapter 3, "Demographic, Economic, and Fiscal Overview," and Chapter 4, "Scenic Landscapes"), incorporated by reference and summarized below (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession of 2009 contributed to significantly slower population and housing growth than what had been projected for San Joaquin County.¹ In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2009 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes. For the land use section, this information was supplemented with field work that included review of sections of the county where land use changes are proposed.

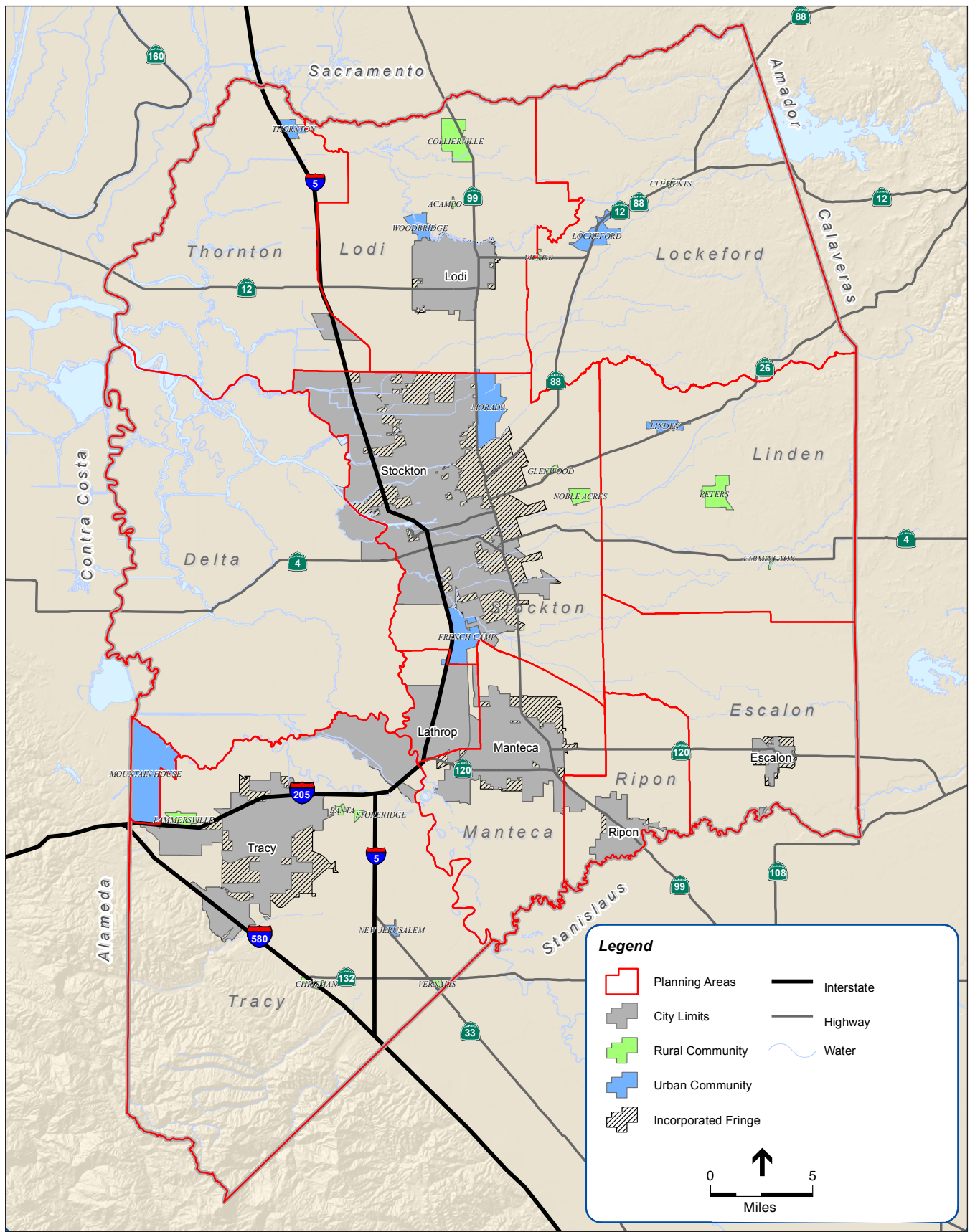
A.2 Environmental Setting

Regional Land Use Patterns and Existing Land Uses

San Joaquin County is located in a geographically diverse region with the peaks of the Sierra Nevada framing its eastern region, while its western portion includes the San Joaquin Valley floor, which is extensively cultivated. Unincorporated land accounts for about 90 percent (822,000 acres) of land in the county, and agriculture is the predominant use in the unincorporated area, totaling about 686,109 acres (83.2 percent of the unincorporated county). The second largest land use, in total acreage of the unincorporated area, is residential land, with about 40,410 acres in this use. Much of this unincorporated residential acreage is concentrated at the edges of existing cities and in urban and rural communities within the county. **Figure 4.A-1** illustrates the areas of incorporated cities and the land uses within the unincorporated areas.

In addition to being a center of agricultural production, the county also is the population and employment center of the northern San Joaquin Valley, serving as a warehousing and distribution center. Cities and urbanized areas are generally located in the center of the county, along Interstate 5 and State Route 99, and in the southwest portion of the county in Tracy between I-580 and I-205 (see Figure 4.A-1). The multiple highway corridors make the county a "transportation hub," especially in conjunction with the rail corridors and the Port of Stockton where large cargo ships

¹ In SJCOG's 2005-2030 Population and Employment Projections (2004) countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three-year period.



SOURCE: Minter-Harnish, 2013

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Figure 4.A-1
Existing Land Use

can dock. West of the urbanized development, in the Delta, is agricultural use, with a variety of irrigated row crops. To the east of the development corridors, orchards, vineyards, and grazing lands are the predominant agricultural uses. Grazing land encompasses large portions of the northeast and southwest corners of the county.

The agricultural edges of San Joaquin County abut Sacramento County to the north, Amador and Calaveras Counties to the northeast and east, Contra Costa and Alameda Counties to the west, and Stanislaus County to the south. The only urbanized areas that abut these adjoining counties are the Mountain House community (an unincorporated community) that abuts Alameda County to the west, and Ripon, an incorporated city that abuts Stanislaus County to the south (see Figure 4.A-1).

Land uses have been organized into generalized categories that are summarized in **Table 4.A-1**. In addition to the agricultural and residential land uses mentioned above, public and quasi-public land uses make up about 1.1 percent of the total county acreage. These lands include airports, cemeteries, hospitals, landfills, schools, public utilities, military facilities and other government-owned land. For example, about 6,000 acres of federally owned land are located in the Tracy Planning Area and 3,000 acres of land owned by the East Bay Municipal Utility District are located in the eastern portion of the county. Commercial and industrial lands also make up about 1.0 percent of the total county acreage.

TABLE 4.A-1
SUMMARY OF ASSESSED LAND BY GENERALIZED USE CATEGORIES,
UNINCORPORATED SAN JOAQUIN COUNTY, 2008

Generalized Land Use Category	Acres	Percentage ¹
Agricultural	681,212	74.6
Residential	27,781	3.0
Commercial, Industrial, and Mining	9,907	1.0
Public / Quasi-Public	14,168	1.1
Open Space and Recreation	82,564	9.0
Other (i.e., rights-of-way, roads, and mixed use land)	495	0.05
Unincorporated County Subtotal	816,127	89.4
Incorporated Cities	96,653	10.6
Total County	912,780	100

¹ Percents may not equal 100 due to rounding.

SOURCE: San Joaquin County, 2014. Also, see Table 3-8 for specific land use designations.

After agriculture (75 percent of the county's overall acreage), the seven incorporated cities make up the next largest portion of the county's acreage, capturing about 10 percent of the entire county (see Table 4.A-1).

Most urban development in the county over the past 20 years has occurred as a result of cities annexing land for development. Since the 2010 General Plan was adopted in 1992, cities in San

Joaquin County have annexed over 27,769 acres, or 3 percent of the total area of the county, for urban development. The City of Lathrop annexed the most land (9,026 acres) and the City of Tracy annexed the next largest amount of land (6,379 acres) (Mintier Harnish, 2009) (see **Figure 4.A-2**). This trend is expected to continue in the years ahead, with cities annexing unincorporated lands prior to approving proposed developments.

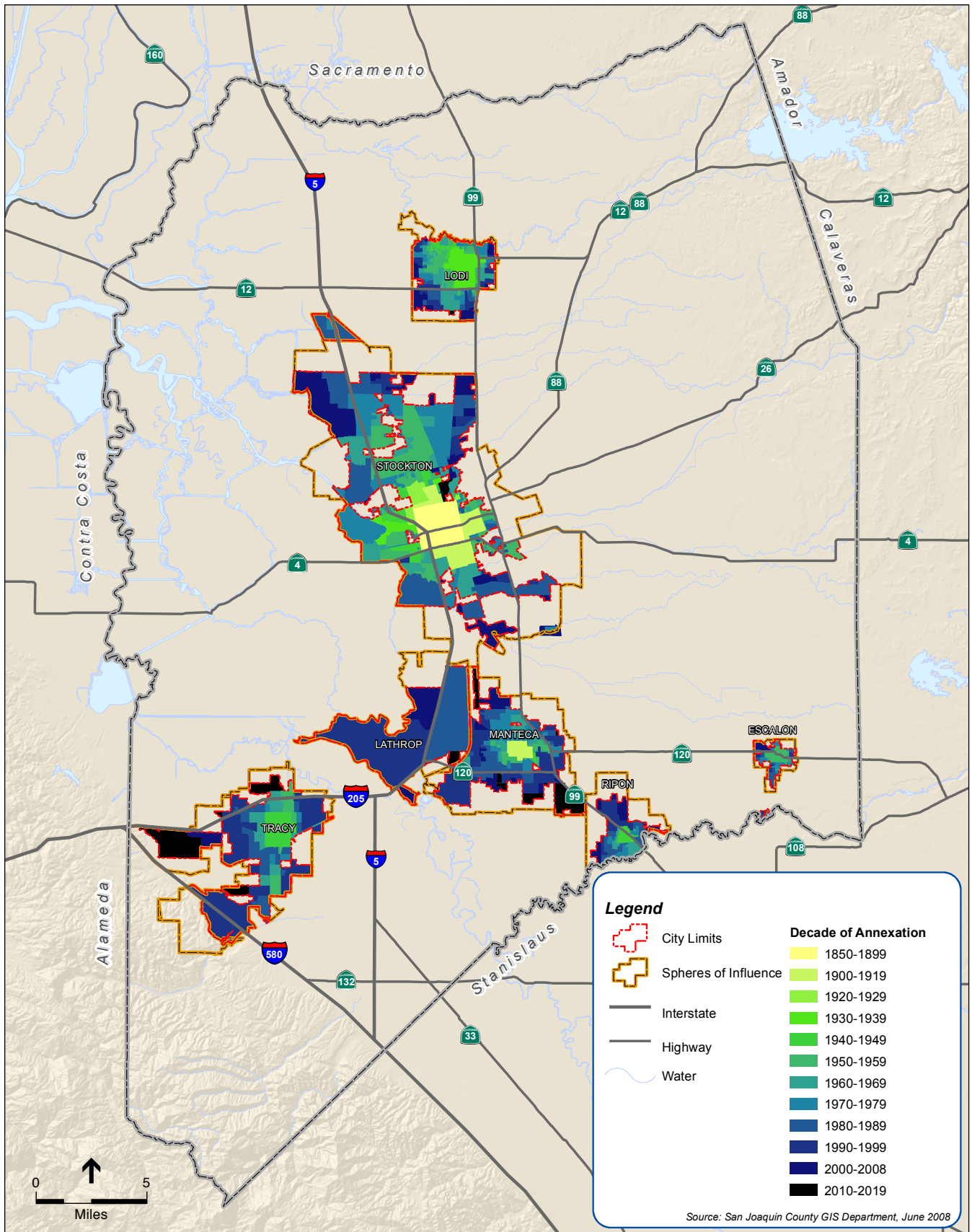
Planning Areas

The proposed 2035 General Plan divides the county's geographic areas into 12 Planning Areas, each having qualities that make it unique and each having specific communities that are either incorporated cities, unincorporated urban communities, or unincorporated rural communities. These are shown in **Table 4.A-2** and Figure 4.A-1. Since the County's 2010 General Plan (adopted in 1992) was prepared, the Mountain House Planning Area has been added. Soon after the adoption of the 2010 General Plan, Mountain House development was begun and now includes an extensive area of residential development, park and school uses, and some limited commercial development. A branch of the Delta Community College is also located within the Mountain House community.

**TABLE 4.A-2
PLANNING AREAS IDENTIFIED BY PROPOSED 2035 GENERAL PLAN**

Planning Area	Cities/City Fringes	Unincorporated Urban Communities	Unincorporated Rural Communities
Delta			
Escalon	Escalon		
Lathrop	Lathrop		
Linden		Linden	Farmington Peters
Lockeford		Lockeford	Clements
Lodi	Lodi	Woodbridge	Acampo Collierville Coopers Corner Victor
Mountain House		Mountain House	
Manteca	Manteca		
Ripon	Ripon		
Stockton	Stockton	French Camp Morada	Glenwood Noble Acres
Thornton		Thornton	
Tracy	Tracy	Mountain House	Banta Chrisman Lammersville New Jerusalem Stoneridge Vernalis

SOURCE: Mintier Harnish, 2009.



SOURCE: San Joaquin County GIS Department

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Figure 4.A-2
Annexation History

A.3 Regulatory Setting

Applicable plans and major policies and regulations that pertain to the proposed 2035 General Plan are presented below. Several land use plans, policies, and regulations apply to the county. Consistent with CEQA, not every plan, policy, or regulation that could apply to the project is included here. Rather, the focus of this analysis is on identifying plans, policies, and regulations that were adopted for the purpose of avoiding or mitigating an environmental effect; conflicts with these plans, policies, and regulations could result in significant adverse physical effects on the environment.

Federal

No federal regulations related to land use are relevant to the proposed 2035 General Plan.

State

Senate Bill (SB) 375 is one of the most important recent pieces of legislation affecting land use within the State of California. It was enacted in 2008 and is formally referred to as “The Sustainable Communities and Climate Protection Act of 2008.” SB 375 relates to regional land use and transportation policies, with an emphasis on policies to reduce statewide greenhouse gas emissions. The law requires the state’s 18 metropolitan planning organizations adopt sustainable communities strategies that, if implemented, would help each region achieve their respective targets for reducing greenhouse gas emissions from automobiles and light trucks. The targets are established by the California Air Resources Board. The San Joaquin Council of Governments (SJCOG), San Joaquin County’s metropolitan planning organization, adopted an updated Regional Transportation Plan and Sustainable Communities Strategy in June of 2014 to address the requirements of SB 375.

Regional

Delta Protection Commission and Delta Stewardship Council

The Delta Protection Commission (DPC) will review the 2035 General Plan and make the specific findings listed in Government Code Section 29761.5 regarding consistency with the Land Use and Resource Management Plan (LURMP). The DPC will consider information in this EIR as part of its review and approval process. In accordance with the Delta Protection Act, the DPC is required to review and, as appropriate, approve by a majority vote, proposed general plan amendments of a local government (DPC, 2013). The Delta Protection Act, which identified the Delta as a natural resource of statewide significance, is intended to ensure protection, maintenance, and enhancement of the Delta. The Act is also intended to balance use of the Delta resources and to improve flood protection. The DPC was made a permanent state agency in 2000, with planning jurisdiction over Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties for those areas located within the Primary Zone of the Delta (see **Figure 4.L-4**).

The DPC adopted the LURMP for the Primary Zone of the Delta in 1995, and the updated plan was approved by the California Office of Administrative Law in 2010. The policies identified in

the LURMP are required to be incorporated into the local general plans of counties with jurisdiction over portions of the Primary Zone. The general priority for use of lands within the Primary Zone is agriculture and open space.

The Delta Stewardship Council is directed by state law to provide advice to local and regional planning agencies regarding the consistency with the Delta Plan, which was adopted in May 2013 (Delta Stewardship Council, 2013). The Delta Plan's regulatory policies became effective in September 2013.

San Joaquin County Local Agency Formation Commission

The San Joaquin County Local Agency Formation Commission (LAFCo) is an independent County agency established by state law. LAFCo has approval authority regarding changes in organization to cities, including annexations, detachments, new formations, and incorporations. In addition, LAFCos must consider and make written determinations related to the following: 1) present and planned land uses in an area, including agricultural and open space lands; 2) present and probable need for public facilities and services in the area; and 3) present capacity of public facilities and adequacy of public services. LAFCo approval is necessary for changes to the city limits of incorporated cities or the cities' Spheres of Influence. The Sphere of Influence defines the primary area within which urban development is to be encouraged (Governor's Office of Planning and Research, 1997). The seven incorporated cities of San Joaquin County are Stockton, Tracy, Manteca, Lodi, Lathrop, Ripon, and Escalon.

San Joaquin County Council of Governments 2014-2040 Regional Transportation Plan and Sustainable Communities Strategy

The San Joaquin County Council of Governments adopted the Final Draft 2014-2040 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) on June 26, 2014. The RTP/SCS serves as the region's comprehensive long-range transportation planning document by encouraging public policy decisions that will result in balanced investments for a wide range of multimodal transportation improvements. The RTP/SCS reflects a region-specific, balanced multimodal plan that achieves the intent of SB 375, and can be implemented through existing and planned programs or policies. The RTP/SCS consists of policies, supportive strategies, and performance indicators which guide new policies and infrastructure development based on recent household and job growth forecasts, market demand and economic studies, and transportation studies.

Local

San Joaquin County 2010 General Plan

The San Joaquin County General Plan applies to all unincorporated lands within San Joaquin County. Land use within incorporated cities is controlled by the General Plans and zoning ordinances of each individual city. The 2010 General Plan includes objectives, policies, and implementation programs that pertain to the following: the type of development to be encouraged; where new development should occur; how new and existing residences should be

provided with services and utilities; and when development should take place. Existing General Plan designations are shown in **Figure 4.A-3**.

San Joaquin County Zoning Ordinance and Development Code

The County's Development Title was adopted in 1992 at the time of the adoption of the 2010 General Plan, as part of the County's Comprehensive Planning Program. The Development Title contains information on land use zones, development application requirements, and standards and regulations relating to such issues as infrastructure, roads, natural resources, safety, and signs. A specific section of the Development Title also addresses the Mountain House development, an unincorporated community northwest of Tracy approved prior to adoption of the Development Title.

City General Plans, Zoning Ordinances, and Spheres of Influence

Each of the seven incorporated cities of San Joaquin County has adopted its own General Plan, and each city has a zoning ordinance that implements the General Plan and provides location-specific regulations such as use restrictions and building height limits. **Table 4.A-3** identifies the dates of adoption of the seven city General Plans and the associated buildout population identified in the General Plans. The project buildout population shown in the City General Plans can be significantly different from the projected 2035 population shown in Table 3-4 of this Draft EIR.

**TABLE 4.A-3
CITY GENERAL PLANS AND PROJECTED BUILDOUT**

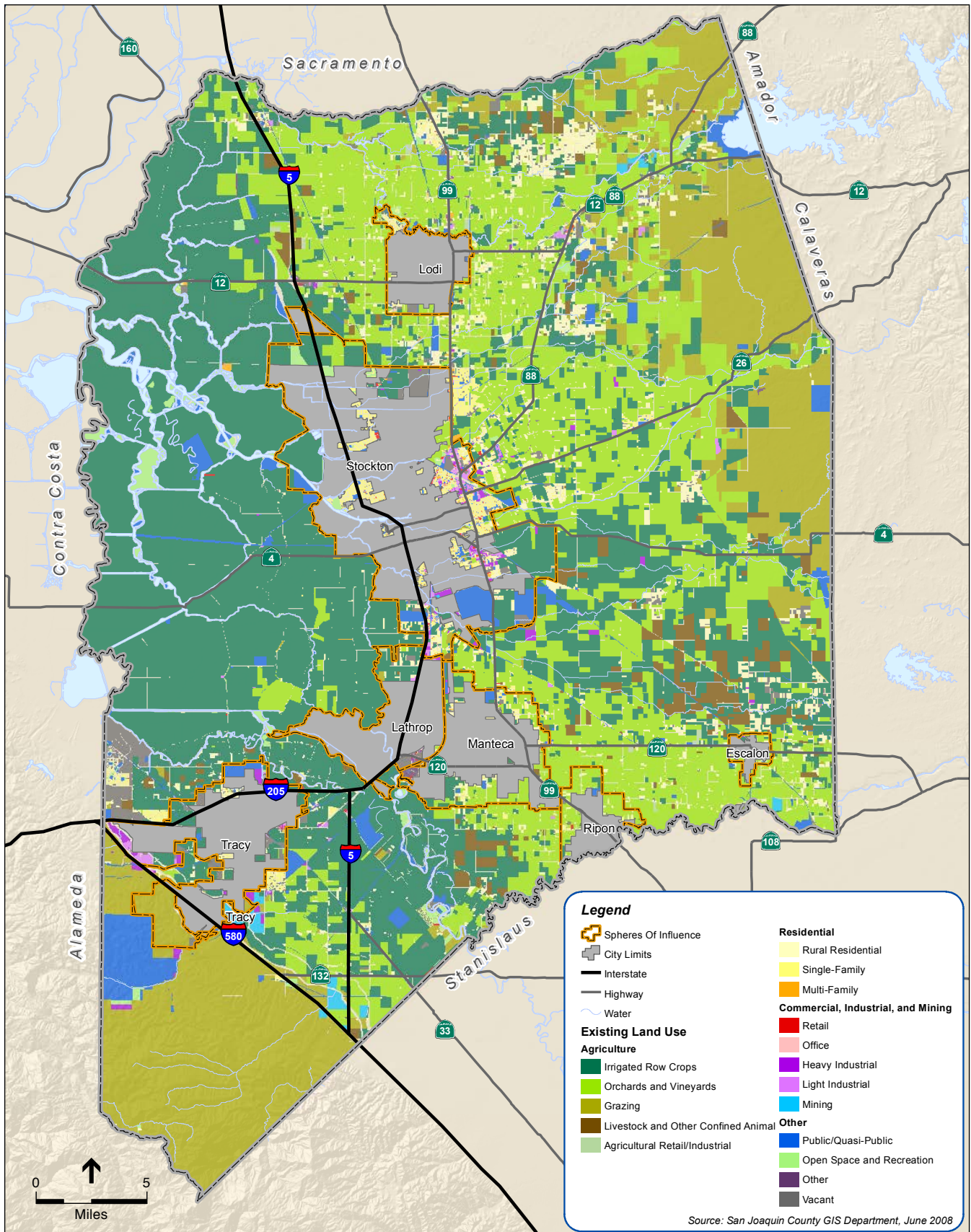
City	Year General Plan Adopted¹	Planning Horizon	2010 Population	Projected General Plan Buildout Population
Escalon	2005	2025 ²	7,100	11,950
Lathrop	1991	2012	18,000	30,000
Lodi	1991	2007	62,100	96,723
Manteca	2003	2023	67,100	94,000 to 144,000
Ripon	2006	2040	14,300	40,000
Stockton	2007	2035	291,700	576,434
Tracy	2006	2025	82,900	109,000

¹ A number of amendments may have been undertaken for each General Plan since the date of formal adoption.

² The City of Escalon General Plan planning horizon extends to 2035; however, the General Plan only estimates population through 2025.

SOURCE: Mintier Harnish, 2009, updated for 2010 population

Each of the seven cities also has adopted formal Spheres of Influence. These Spheres of Influence are established at the edge of cities with the following goals: 1) to promote orderly growth and urban development; 2) to promote cooperative planning efforts among cities, the County, and special districts to prevent premature conversion of agricultural and open space lands and to ensure efficient provision of services/utilities; 3) to serve as a master plan for future local government reorganization; and 4) to guide consideration of proposals for changes of organization or reorganization (Mintier Harnish, 2009). **Figure 4.A-4** illustrates the adopted Spheres of Influence for the seven cities.



SOURCE: San Joaquin County GIS Department, 2014

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Figure 4.A-3
 2010 General Plan Land Use Designations

San Joaquin County Airport Land Use Plan

Currently, the San Joaquin Council of Governments (SJCOG) Board of Directors serves as the designated body to carry out the functions of the Airport Land Use Commission (ALUC). The SJCOG has adopted two Airport Land Use Compatibility Plans (ALUCP) to address the following airports: Kingdon Airport, Lodi (Lind's) Airport, Lodi (Precissi) Airpark, New Jerusalem Airport, Stockton Metropolitan Airport, and Tracy Municipal Airport. The Stockton Metropolitan ALUCP was last adopted in 1993 (SJCOG, 1993), and the other ALUCP, which covers the other five airports, was adopted in 2009. The ALUCP establishes areas of influence within which airport operations are likely to affect land uses or land uses could affect airport operations. Safety and noise criteria are identified in the ALUCP so that land use conflicts with airport operations are minimized.

Prior to amending a general plan, a local agency must "refer" the proposed action to the ALUC (Pub. Util. Code Sec. 21676 et seq.). County and city General Plans must be consistent with the ALUCP (Government Code Section 65302.2).

A.4 Impacts and Mitigation Measures

Significance Criteria

This analysis evaluates the proposed project's impacts on land uses based on the criteria identified in the state CEQA *Guidelines*, Appendix G. A land use impact is considered significant if implementation of the project would:

1. Physically divide an established community;
2. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan, specific plans, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
3. Conflict with any applicable habitat conservation plan or natural community conservation plan.

Relevant Policies

The following relevant policies of the 2035 General Plan address land use (see also the land use diagram [Figure 3-3] which reflects these policies):

LU-1.1: Compact Growth and Development. The County shall discourage urban sprawl and promote compact development patterns, mixed-use development, and higher-development intensities that conserve agricultural land resources, protect habitat, support transit, reduce vehicle trips, improve air quality, make efficient use of existing infrastructure, encourage healthful, active living, conserve energy and water, and diversify San Joaquin County's housing stock. (RDR) (Source: Existing GP, Energy, Land Use and Circulation Patterns, Policy 1, modified)

LU-1.2: Accommodating Future Growth. The County shall ensure that the General Plan designates sufficient land for urban development to accommodate projected population and employment growth. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 1, modified)

LU-1.3: Building Intensity and Population Density. The County shall regulate the levels of building intensity and population density according to the standards and land use designations set out in the General Plan and the San Joaquin County Development Title. Within these designations, cumulative development from 2010 shall not exceed 35,500 new dwelling units and 31,700 new employees by 2035. (RDR) (Source: New Policy)

LU-1.4: Encourage Infill Development. The County shall encourage infill development to occur in Urban and Rural Communities and City Fringe Areas within or adjacent to existing development in order to maximize the efficient use of land and use existing infrastructure with the capacity to serve new development. The County shall balance infill development within outward expansion of communities and new development in other unincorporated areas. (Source: New Policy)

LU-1.5: Clear Boundaries. The County shall strive to preserve agricultural and open space areas that contribute to maintaining clear boundaries among cities and unincorporated communities. (Source: New Policy)

LU-1.6: New Employment-Generating Uses. The County shall direct new employment-generating uses to locate within Urban and Rural Communities and City Fringe Areas, at freeway interchanges, and in other areas designated for commercial or industrial development. The County may allow employment-generating uses in other unincorporated areas when development proposals demonstrate that the project will not conflict with adjacent uses and will provide: jobs to County residents; adequate infrastructure and services (i.e., water, sewer, drainage, and transportation); and positive tax benefits to the County. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Policy 7, modified)

LU-1.7: Farmland Preservation. The County shall consider information from the State Farmland Mapping and Monitoring Program when designating future growth areas in order to preserve prime farmland and limit the premature conversion of agricultural lands. (RDR) (Source: New Policy)

LU-1.8: Support for Alternative Transportation Modes. The County shall encourage land use patterns that promote walking and bicycling and the use of public transit as alternatives to the personal automobile. (Source: Existing GP, Energy, Land Use and Circulation Patterns, Policy 2)

LU-1.9: New Urban Zoning Classifications. The County shall apply new urban zoning classifications to areas planned for urban development only when adequate infrastructure and services (i.e., water, wastewater, drainage, and transportation) can be provided. Until that time, these areas shall be zoned Agriculture-Urban Reserve. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 4, modified)

LU-1.10: LAFCo and City Coordination. The County shall coordinate with San Joaquin LAFCo and cities within the county to ensure future annexation proposals and requests to expand Spheres of Influence reflect the growth and development patterns envisioned in this General Plan. The County shall provide input on annexation proposals and requests to

expand Spheres of Influence in an effort to play a more active role in future expansion of cities into the unincorporated County. (IGC) (Source: New Policy)

LU-1.11: Regional Housing Needs Allocations. The County shall coordinate with the San Joaquin Council of Governments to direct State regional housing needs allocations predominantly to cities in an effort to promote compact development patterns and support the principles of the San Joaquin County Blueprint and implementation of SB 375. (IGC) (Source: New Policy)

LU-1.12: Regional Coordination. The County shall work with the San Joaquin Council of Governments to develop and periodically update the Sustainable Communities Strategy or Alternative Planning Strategy as part of the Regional Transportation Planning process. (IGC) (Source: New Policy)

LU-1.13: Regional Growth Considerations. The County shall consider the San Joaquin Council of Governments' Regional Transportation Plan, including the Sustainable Communities Strategy or Alternative Planning Strategy, and adopted city general plans and those of surrounding counties each time it considers an update to the General Plan or any master plan, strategy, or zoning. (Source: Existing GP, CODP, Growth Accommodation, Implementation 1, modified)

LU-1.14: Incentives and Streamlined Development. The County shall support expanded incentives and CEQA streamlining opportunities for projects that are consistent with the adopted San Joaquin Council of Governments RTP/SCS and implement the objectives of SB 375. (RDR/PSP/IGC) (Source: New Policy)

LU-2.1: Compatible and Complimentary Development. The County shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Policy 10, Policy 11, Policy 12, Policy 22, Policy 13, modified)

LU-2.2: Sustainable Building Practices. The County shall promote and, where appropriate, require sustainable building practices that incorporate a “whole system” approach to designing and constructing buildings that consume less energy, water and other resources, facilitate natural ventilation, use daylight effectively, and are healthy, safe, comfortable, and durable. (RDR) (Source: New Policy)

LU-2.3: Adaptive Reuse. The County shall encourage the retention and the adaptive reuse of existing structures to limit the generation of waste. (RDR/PSP) (Source: New Policy)

LU-2.4: Green Building Retrofit. The County shall encourage the retrofitting of existing structures with green building technologies/practices and encourage structures being renovated to be built to a green building standard (e.g., Leadership in Energy and Environmental Design (LEED)). (RDR) (Source: New Policy)

LU-2.5: Development Standard Manuals. The County shall maintain manuals specifying standards for development. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 7, modified)

LU-2.6: Building Permits. The County shall not issue building permits for a development until all required improvements, which can be made prior to construction, are completed.

(RDR) (Building Inspection) (Source: Existing GP, CODP, Growth Accommodation, Implementation 11)

LU-2.7: High-Impact Uses. The County shall strive to avoid the concentration of uses and facilities that disproportionately affects a particular community or area of the County to ensure that such uses do not result in an inequitable environmental burden being placed on low-income or culturally/ethnically diverse neighborhoods that may suffer from poorer health outcomes. The County acknowledges that such concentrations may be unavoidable in some cases. (RDR/PSP) (Source: New Policy)

LU-2.8: Environmental Assessments and Mitigation. The County shall evaluate proposed new development projects for their potential environmental impacts and shall require all feasible mitigation of identified significant impacts. The County shall require, as appropriate, that projects for which an EIR is prepared the consideration of infill locations for new development in the alternatives evaluation. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 8, modified)

LU-2.14: General Plan Land Use Amendments. When reviewing proposed General Plan amendments to change or modify land use designations or the land use diagram or a zoning reclassification, the County shall consider the following:

- consistency of the proposal with the Vision and Guiding Principles and the goals and policies of the General Plan
- new physical, social, or economic factors that were not present when the time of General Plan was adopted;
- reasonable alternative sites in the vicinity that are already planned for the use and can accommodate the proposal;
- potential for an undesirable, growth-inducing precedent or premature conversion of agricultural land;
- the availability of infrastructure and services; and
- the effect on the fiscal health of the County. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 13, Implementation 14, modified)

LU-2.15: Agricultural Conversions. When reviewing proposed General Plan amendments to change a land use diagram or zoning reclassification to change from an agricultural use to non-agricultural use, the County shall consider the following:

- potential for the project to create development pressure on surrounding agricultural lands;
- potential for the premature conversion of prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and confined animal agriculture;
- potential for impacts on surrounding farming operations and practices; and
- provision of infrastructure and services to the new use and the potential impact of service demands or on the surrounding area (PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 13, Implementation 14, modified)

LU-2.16: Agriculture-Urban Reserve Designation. The County shall require a General Plan amendment to permit urban development on lands the County designates Agriculture-Urban Reserve. (RDR/PSP) (Source: Existing GP, Agricultural Lands, Agricultural Land Use Categories and Densities, Policy 4)

LU-2.17: Delta Primary Zone Amendments. The County shall require proposed General Plan amendment or zoning reclassification for areas in the Primary Zone of the Delta to be consistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta, as required by the State Delta Protection Act of 1992 (Public Resources Code 29700 et seq.). (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 13, Implementation 14, modified)

The following policies address specific residential land use categories:

LU-4.1: New Residential Development. The County shall direct most new unincorporated residential development to areas within Urban and Rural Communities and City Fringe Areas. (PSP) (Source: New Policy)

LU-4.2: Rural Homesites. The County shall ensure that rural homesites are sized and located to limit the conversion of agricultural land, maintain the rural character of the surrounding area, support rural living and adjacent farming activities, and satisfy applicable environmental health requirements. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 8, modified)

LU-4.3: Rural Residential Designations. The County shall limit Rural Residential (R/R) development to Rural Communities and areas of existing R/R densities in Urban Communities. (RDR/PSP) (Source: Existing GP, CODP, Residential Development, Policy 1, modified)

LU-4.4: Second Unit Dwellings. The County shall permit second unit dwellings as provided in the San Joaquin County Development Title, even if such a dwelling results in a density greater than the standard density specified for the residential land use designations. Second Unit Dwellings shall meet well and septic requirements per the State Water Resources Control Board Onsite Wastewater Treatment Systems Policy and shall demonstrate the second unit can be adequately served by existing infrastructure or situated on a site that can accommodate multiple separate septic systems. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 3, modified)

LU-4.5: Residential Neighborhood Size. The County shall encourage large residential developments in Urban Communities to be planned as neighborhoods of 3,000 to 5,000 people in order to promote social interaction, strengthen identity with a community, and foster civic pride. (PSP/RDR) (Source: Existing GP, CODP, Residential Development, Policy 4, modified)

LU-4.6: Residential Support Services. The County shall encourage the development and siting of residential support services (e.g., convenience commercial uses, parks, schools) in Urban Communities that are accessible by all residents. (PSP/RDR) (Source: Existing GP, CODP, Residential Development, Policy 5, modified)

LU-4.7: Non-residential Uses in Residential Designations. The County may permit residential support services, home occupations, and open space recreation uses in areas

designated for residential development, provided they have or obtain through application appropriate underlying zoning. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 7, modified)

LU-4.8: Office Development in Residential Areas. The County may permit office uses in areas designated Medium-High (R/MH) and High Density Residential (R/H), provided the development would not create an imbalance of housing types within a community or area and would not reduce the potential for the development of affordable housing. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 7, modified)

LU-4.9: Residential Mixed-use. The County may permit residential development in commercially designated areas if the residential uses are part of a mixed-use development or if accessory to the commercial use, such as a caretaker residence. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 6, modified)

LU-4.10: Incompatible Land Uses. The County shall ensure that residential development is protected from incompatible land uses through the use of buffers, screens, and land use regulations, while recognizing that agriculture and farming operations have priority in rural areas. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 9, modified)

LU-4.11: Equestrian Facilities. The County may allow equestrian facilities within Urban Communities in areas designated Very Low Density Residential (R/VL) subject to applicable manure management requirements and minimum acreage and locational criteria set forth in the Development Title. (RDR) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

LU-4.12: Golf Course Communities. The County may allow the development of new residential uses adjacent to or incorporated into golf courses, provided the residential density conforms with the underlying Zoning classification. (RDR) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

The following policies address commercial and mixed-use development:

LU-5.1: Market Area Consistency. The County shall require that the location, size, accessibility, and type of activities within commercial areas be consistent with the respective markets. (RDR) (Source: Existing GP, CODP, Commercial Development, Policy 1)

LU-5.2: Strip Commercial Development. The County shall discourage new strip commercial development, and shall ensure the expansion of existing strip commercial development does not encroach into residential or agricultural areas. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 8, modified)

LU-5.3: Commercial Lot Coverage. The County shall limit the lot coverage of new development in the Neighborhood Commercial, Community Commercial, General Commercial, Office Commercial, Freeway Service, and Rural Service Commercial designations to 60 percent of the total development area. Developments in the Commercial Recreation designation shall be limited to 50 percent of the total development area. (RDR) (Source: New Policy, based on existing land use designations)

LU-5.4: Commercial Conflicts and Visual Impacts. The County shall require new commercial development to address potential land use conflicts and visual impacts through

site specific performance standards related to landscaping, screening, lighting, access, signage, setbacks, and architectural design. (RDR) (Source: Existing GP, CODP, Commercial Development, Policy 11, modified)

LU-5.5: Bicycle Access and Parking. The County shall require new commercial development within Urban Communities and City Fringe areas to include bicycle access and secure parking racks. (RDR) (Source: Existing GP, CODP, Commercial Development, Policy 12)

LU-5.6: Commercial Uses in Residential and Industrial Areas. The County shall allow limited commercial uses, with appropriate commercial zoning, in residentially- and/or industrially-designated areas within Urban Communities, provided such uses are:

- located at least one mile from another such business or area designated Neighborhood Commercial;
- located on a Collector or higher classification roadway;
- limited in lot size to 1.0 acre and no more than 10,000 square feet of leasable space;
- developed so that buildings cover no more than 60 percent of the lot and are no more than one story in height; and
- designed and operated such that lighting, signage, and hours of operation do not adversely affect surrounding residential or industrial areas. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 4, modified)

LU-5.7: Crossroads Commercial Uses in Agricultural Areas. The County shall allow crossroads commercial uses, with appropriate commercial zoning, in areas designated Limited Agriculture and General Agriculture, provided such uses are:

- located at an intersection on a Minor Arterial or roadway of higher classification;
- located at least two miles from the nearest area serving a crossroads commercial function or a planned neighborhood or community commercial area;
- limited to one corner of an intersection; and
- able to function safely with a septic system and individual water well. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 5, modified)

LU-5.8: Administrative and Professional Offices. The County shall direct new single-use administrative and professional offices and office complexes to the Office Commercial designation, and shall allow smaller offices in the Community Commercial and Neighborhood Commercial designations as part of a larger commercial development. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 6)

LU-5.9: Special Purpose Plans. The County shall require significant new development to prepare a Special Purpose Plan in areas designated Freeway Service, Commercial Recreation, or Mixed-Use, unless the development is in an area that has an existing Master Plan or Specific Plan that can accommodate the proposed development. The Community Development Director shall determine whether a proposed project shall be required to

prepare a Special Purpose Plan. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Implementation 3, Mixed Use Development, Implementation 2, modified)

LU-5.10: Commercial and Industrial Transition Areas. In areas where a General Commercial land use designation is adjacent to an industrial land use designation, the County shall allow commercial and industrial uses to mix in order to form a transition between the two designated areas. The specific uses that may be allowed must be based upon land use plans and criteria included in an approved Special Purpose Plan, which applies to both designated areas. This policy may not be applied to areas designated by the General Plan as Neighborhood Commercial, Commercial Recreation, or Truck Terminal, and may not be applied to properties that do not have a full range of public infrastructure and services. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 7, modified)

LU-5.11: Freeway Service Development. The County shall require that Freeway Service developments are designed in an attractive manner that creates a favorable impression of the County by considering the relationship to adjacent uses, site design and scale of development, building architecture, landscaping, signage, and circulation and parking. (RDR) (Source: New Policy)

LU-5.12: Limited Freeway Service Centers. The County shall limit the number of Freeway Service designated interchanges to encourage clustering of uses at selected interchanges and maintain the open space and agricultural character of the county experienced by the freeway traveler. (RDR/PSP) (Source: New Policy)

LU-5.13: Freeway Service Master Sign Plans. The County shall encourage comprehensive or integrated master sign plans for significant Freeway Service areas through the preparation of Special Purpose Plans. Integrated sign regulations included in an approved Special Purpose Plan may supersede the County's specific sign regulations for the CFS zone in the Development Title. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 13, modified)

LU-5.14: Commercial Recreation Uses. The County shall ensure that developments within areas designated Commercial Recreation are limited to those serving the recreation area and do not detract from commercial uses within Urban and Rural Communities that provide for the typical commercial and service needs of county residents. (RDR/PSP) (Source: New Policy)

LU-5.15: Commercial Recreation Uses in Agricultural Areas. The County may allow commercial recreation uses in planned agricultural areas because of their unique needs, such as direct access to natural resources or roadways or their need for a large land area. These uses shall be subject to approval of a discretionary permit that includes a review of impacts of the proposed use on the surrounding area. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

LU-5.16: Commercial Recreation Design. The County shall require Commercial Recreation uses to use a unifying theme that incorporates appropriate standards for grading, landscaping, lighting, noise, and circulation to minimize off-site impacts that could adversely impact surrounding uses. (RDR) (Source: New Policy)

LU-5.17: New Marinas. The County shall require proposed new marinas to be evaluated to assess their impacts on the waterways, riparian habitat, adjacent land uses, and traffic circulation. (RDR/PSR) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

LU-5.18: Recreational Vehicle Parks. The County may allow the development of recreational vehicle parks in Freeway Service designated areas to provide accommodations for freeway travelers or for access to nearby recreation areas. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

LU-5.19: Golf Course Development. The County may allow the development of new golf courses in areas designated for residential or agricultural uses based on the size of the facility, distance to the population to be served, availability of existing golf courses, and potential impacts on surrounding land uses and circulation. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

LU-5.20: Mixed-Use Community Centers and Corridors. The County shall encourage both vertical and horizontal mixed-use development within community centers and near or along transportation and transit corridors, bicycle paths, and pedestrian facilities as a means of providing efficient land use, housing, and transportation options for county residents. The County shall ensure that mixed use developments include appropriate transit, bicycle, and pedestrian facilities. (RDR/PSP) (Source: New Policy)

LU-5.21: Mixed Uses. The County shall encourage mixed use development in urban communities, provided it does not create land use conflicts and provides for a close physical and functional relationship of project components. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 9, modified)

LU-5.22: Mixed-Use Development. The County shall require new Mixed-Use developments to be developed under a single plan that details the full buildout of the development and any associated phasing for construction and includes specific design guidelines and standards that address the overall site design, scale of development, relationship to adjacent uses, circulation and parking, architecture, infrastructure, and landscaping. (RDR/PSP) (Source: New Policy)

LU-5.23: Live-Work Development. The County shall encourage mixed-use developments to include live-work floor plans for residents who desire office, commercial, or studio space adjacent to their living space. (RDR) (Source: New Policy)

The following policies address industrial development:

LU-6.1: Employment Centers. The County shall encourage the development of carefully planned employment centers and industrial uses in areas with suitable topography and adequate public infrastructure, including water, sewer, and transportation access. The County shall encourage New Communities to contain employment centers as well as other uses. (PSP) (Source: New Policy)

LU-6.2: Industrial Sites. The County shall designate a sufficient number of industrially areas to allow a variety and choice of sites for new businesses in terms of location, parcel size, transportation access, and availability of services and labor. (PSP) (Source: Existing GP, CODP, Industrial Development, Policy 1, modified)

LU-6.3: Employment Center Access. Where appropriate, the County shall direct new employment centers and industrial developments to locate near existing or future freeway interchanges and major highway intersections and along existing or future transit, bicycle, and pedestrian and trail corridors. (RDR/PSP) (Source: New Policy)

LU-6.4: Industrial Grouping. The County shall group employment centers, industrially designated areas, and truck terminals to reduce conflicts with surrounding land uses and to make efficient use of infrastructure and services. (RDR/PSP) (Source: Existing GP, CODP, Industrial Development, Policy 3, Policy 4, modified)

LU-6.5: Industrial Lot Coverage. The County shall limit the lot coverage of developments in the Limited Industrial (I/L) and General Industrial (I/G) designations to 60 percent of the total development area, except in areas zoned Warehouse Industrial where they shall be limited to no more than 40 percent of the total development area. The County shall discourage the creation of flag lots for industrial uses. (RDR) (Source: Existing GP, CODP, Industrial Development, Policy 4, modified)

LU-6.6: Industrial Development. The County shall require new industrial development provide adequate access, parking, landscaping, loading and storage areas, and buffers. The County shall ensure that industrial uses and employment center developments include appropriate transit, bicycle, and pedestrian facilities. (RDR) (Source: Existing GP, CODP, Industrial Development, Policy 5, modified)

LU-6.7: Sustainable Technologies. The County shall encourage all employment and industrial projects to incorporate sustainable technologies including energy and water efficient practices. (Source: New Policy)

LU-6.8: Truck Terminal Access. The County shall require new Truck Terminal developments to provide adequate space to allow for easy access and maneuvering of trucks in and out of loading docks, and for parking both trucks and employee vehicles. (Source: Existing GP, CODP, Industrial Designations, modified)

LU-6.9: Truck Terminal Screening. The County shall restrict Truck Terminal operations and activities to areas within the boundaries of the terminal property and shall require the development and maintenance of adequate landscaping, screening, and other buffers to protect adjacent properties from potential nuisances associated with truck movements and goods loading/unloading. (RDR) (Source: Existing GP, CODP, Industrial Designations, modified)

The following policies address open space and resource conservation lands:

LU-8.1: Open Space Preservation. The County shall limit, to the extent feasible, the conversion of open space to urban uses and place a high priority on preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water resource protection, and overall community benefit. (PSP) (Source: New Policy)

LU-8.2: Open Space Character. The County shall require new development in Resource Conservation designated areas to be planned and designed to maintain the scenic open space character of the surrounding area, including view corridors from highways. New development should use natural landforms and vegetation in the least visually disruptive

manner possible, and use design, construction, and maintenance techniques that minimize the visibility of structures. (RDR) (Source: New Policy)

LU-8.3: Waterway Conservation and Restoration. The County shall encourage the conservation and restoration of rivers, creeks, and sloughs as multi-functional open space corridors that complement adjoining development and connect city and county recreation facilities (e.g., parks). (RDR) (Source: New Policy)

LU-8.4: New Parks and Open Spaces. The County shall ensure that sufficient parks, open space, waterways, and trails are planned throughout the County, to ensure adequate facilities are available to existing and future residents, including underserved areas and low-income neighborhoods. (PSP) (Source: New Policy)

The following policies address public lands and quasi-public lands:

LU-9.1: Adequate Community Supporting Uses. The County shall encourage the development of a broad range of public and private community-supportive facilities and services within Urban Communities to provide places that serve the varied needs of the community, provide for community meeting places, and provide community and neighborhood landmark buildings and places. (PSP) (Source: New Policy)

LU-9.2: Buffers. The County shall ensure that residential and other non-compatible uses are separated and buffered from major public facilities, such as landfills, airports, and wastewater treatment facilities, using location appropriate measures (e.g., distance, screens, berms). (RDR) (Source: New Policy)

LU-9.3: Excellence in Public Projects. The County shall lead by example, demonstrating design excellence in County projects, and County -subsidized projects. (SO) (Source: New Policy)

LU-9.4: LEED Standard for County-Owned Buildings. The County shall ensure that all new or renovated County-owned buildings are energy efficient and meet, at a minimum, LEED (Leadership in Energy and Environmental Design) Silver or equivalent standard. (RDR/SO) (Source: New Policy)

LU-10.1: Property Uses. The County shall encourage the following types of uses within the Airport East Property:

- those needing direct runway access;
- those that would benefit from the airport proximity;
- those that would benefit from the proximity to State Route 99;
- large corporate tenants; and
- uses serving the employees within the Airport East Property. (PSP) (Source: Existing GP, CODP, Mixed Use Development, Policy 2, modified)

LU-10.2: Property Promotion. The County shall ensure the Airport East Property is developed and maintained in an attractive manner so as to promote the property and the airport. (RDR/PSP) (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

LU-10.3: Development Considerations. The County shall consider the following in any development of the Airport East Property:

- aviation, employee, and customer safety;
- marketability of the airport for aviation uses, including attraction of commercial airlines and passengers;
- use of a portion of the property for a campus-like business park; and
- use of a portion of the property near State Route 99 for uses serving the freeway traveler. (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

LU-10.4: Airport East Property Transit and Bicycle Access. The County shall plan for transit and bicycle access to the Airport East Property. (PSP) (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

LU-10.5: Airport East Property Siting. The County shall require that the location of uses for the highway traveler are easily accessible from State Route 99 on the Airport East Property. (RDR) (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

LU-10.6: Airport East Property Adjacent Uses. The County shall require land uses adjacent to the airport entry road present a campus-like appearance on the Airport East Property. (RDR) (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

LU-10.7: Airport East Property Direct Access. The County shall require direct access to the passenger terminal from the freeway services uses on the Airport East Property. (RDR) (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

LU-10.8: Prohibited Uses on Airport East Property. The County shall not allow the following types of land uses on the Airport East Property:

- uses dealing with significant (non-incidental) amounts of hazardous materials; residential and accessory uses;
- big box retailers, such as warehouse or discount stores and other large retail stores;
- power centers;
- factory outlet malls;
- and the following specific land uses: adult entertainment, boutique sales, community assembly, tent revivals, funeral services, agricultural excavations, religious assembly, quarry excavations, dry cleaning plants, inoperable vehicle storage, animal specialty services, recycling, and scrap operations. (RDR) (Source: Existing GP, CODP, Mixed Use Development, Policy 2)

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan address land use:

LU-A: Development Title Consistency. The County shall update the Development Title to ensure consistency with the General Plan Land Use Diagram and the policies in the General Plan. (RDR) (Source: New Program)

LU-B: County General Plan Consistency. The County shall prepare written comments to the Local Agency Formation Commission (LAFCO) regarding the consistency with the General Plan of any proposed changes in the sphere of influence or other urban boundaries for governmental entities that provide water or sewer services. (RDR/IGC) (Source: New Program)

LU-C: General Plan Review. The County shall annually review the General Plan, focusing principally on actions undertaken in the previous year to carry out the implementation programs of the plan. The review will entail a report to the Planning Commission and Board of Supervisors that includes, if necessary, recommendations for amendments to the General Plan. (PSP/PSR) (Source: New Program)

LU-D: The County shall develop and maintain a GIS database that identifies, by parcel, land use, infrastructure, and environmental information. (PSR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 3)

ED-B: Monitor Jobs/Housing Ratio. The County shall work with the cities in the County to monitor the ratio of employment opportunities to housing, and report annually to the Board of Supervisors on the jobs/housing balance. (PSR) (Source: Existing GP, Economic Development, Implementation 2, modified)

ED-C: Inventory Available Space. Work with the San Joaquin Partnership, cities within the county, chambers of commerce, and real estate representatives to annually inventory existing commercial and industrial space, as well as vacant and underutilized commercial and industrial sites. The County shall report annually to the Board of Supervisors on the availability of commercial and industrial space for new development and new businesses. (PSR) (Source: New Program)

PHS-I: Floodplain Review. The County shall review, as necessary, those portions of the unincorporated area that are subject to flooding, based on mapping prepared by the Federal Emergency Management Agency and/or the Department of Water Resources (DWR), and amend the General Plan as appropriate to reflect any changes. (RDR) (Source: New Program)

NCR-A: Acquisition of Open Space. The County shall conduct a study to identify planned open space areas that are in jeopardy of conversion to other uses. Based on the findings of the study the County shall work for public acquisition of the areas. (PSR) (Source: Existing GP, Open Space, Implementation 6)

NCR-B: Agricultural Mitigation Strategy. The County, in coordination with the Agricultural Technical Advisory Committee, shall review and update the Agricultural Mitigation Strategy every 5 years. (PSP) (Source: New Program, Agricultural Mitigation Ordinance)

NCR-L: Solar Energy Ordinance. The County shall develop, adopt, and implement an ordinance that guides the construction, installation, operation, and decommissioning of solar energy facilities. The ordinance shall describe where solar energy facilities are permitted within the County and the approval process. The ordinance shall provide for the protection of agricultural and biological resources. (RDR) (Source: New Program)

Approach to Analysis

The evaluation of land use impacts resulting from implementation of the proposed 2035 General Plan is based on: 1) a review of existing planning documents pertaining to the county, including the 2010 General Plan and the County's Zoning Ordinance; 2) a limited field visit of the county; and 3) a review of land uses changes proposed under the 2035 General Plan.

Impact Analysis

2035 General Plan Impacts

Impact 4.A-1: Implementation of the proposed 2035 General Plan could physically divide an established community within the county. (Significant)

The 2035 General Plan includes a number of policies, and a land use diagram reflecting these policies, to promote land use compatibility. General Plan policies do not specifically address the potential for physically dividing an existing community, which includes developed residential neighborhoods and urban communities. However, the potential for this impact is considered low because policies are generally aimed at protecting existing development.

The proposed land use changes identified in the 2035 General Plan are primarily new development of industrial lands and freeway service areas. These are located at major freeway interchanges and at the outer edges of Lodi, Stockton, and Tracy (see **Figure 3-4**, which shows the proposed General Plan land use designation changes). This potential development would be located in places where existing, established communities would not be physically divided. The proposed 2035 General Plan encourages infill of existing communities and an orderly growth pattern that depends on the availability of adequate infrastructure. The 2035 General Plan includes policies that aim to prevent inappropriate urban sprawl within San Joaquin County (see Policies LU-1.4, LU-1.8, LU-1.10, LU-2.1, LU-2.15, LU-4.1, and LU-4.10).

A number of road improvements would occur within the county as identified in the Traffic Impact Mitigation Fee (TIMF) Capital Improvement Program (see **Figure 3-6** in Chapter 3 Project Description, of this EIR) and Regional Transportation Impact Fee (RTIF) Program. Such improvements may impact existing communities. It should be noted that no new freeways are proposed in the county at this time.

Policies of the 2035 General Plan also address the need to protect existing development from new development that may not be compatible, that may create visual impacts for existing development, or that may interrupt agricultural operations (see Policies LU-2.1, LU-2.7, LU-4.7, LU-4.10, LU-5.6, LU-5.7, LU-5.10, LU-5.15, LU-5.21, LU-6.6, LU-6.9, and LU-9.2).²

While new areas of development identified in the 2035 General Plan would not result in division of established communities, new infrastructure development to serve General Plan growth has the potential to divide established communities, which would be a potentially significant impact. This

² For a more detailed discussion of potential impacts on agricultural resources, refer to Section 4.B of this Draft EIR.

could include the unforeseen development of large features which are linear in nature, such as: freeways, utility corridors, rail lines, and roadways.

Mitigation Measure 4.A-1: The following new policy shall be included in the 2035 General Plan as a means of reducing the impact of division of an existing community:

LU-1-14: New Infrastructure Developments. The County shall work to reduce or eliminate potential impacts of any new major infrastructure development, especially those that are linear in nature (freeways, utility corridors, rail lines, roadways, etc.), that could physically divide an established community. In this case, the term “established community” shall mean residential neighborhoods or urban communities.

The following corresponding implementation program shall also be included in the 2035 General Plan:

LU-G: Review of New Infrastructure. The County shall comment on any plan that would result in new infrastructure (e.g., freeways/roads, transmission lines, rail lines, surface water conveyance facilities) that would physically divide an established community and shall require that any routing be revised to protect existing communities. The County shall work with special districts, community service districts, public utility districts, mutual water companies, private water purveyors, sanitary districts, and sewer maintenance districts to provide adequate public facilities and to plan/coordinate, as appropriate, future above-ground utility corridors in an effort to minimize future land use conflicts.

With adoption of this policy and implementation measure, this impact is considered less than significant because it would prevent new infrastructure from physically dividing established communities.

Significance after Mitigation: Less than Significant.

Impact 4.A-2: Implementation of the proposed 2035 General Plan could conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (Significant)

The 2035 General Plan is being prepared as the primary land use plan applicable to all of the unincorporated areas of San Joaquin County. It is intended to be internally consistent and also to be consistent with the adopted General Plans of the incorporated cities within the county. As described in Chapter 3, the proposed 2035 General Plan is consistent with Spheres of Influence established by LAFCo; General Plan policies also address working with LAFCo to ensure that new development is appropriately located when annexations are proposed (see Policy LU-1.10).

The proposed areas of land use change at the southwestern edge of Stockton (see **Figure 3-4**) would conflict with the Delta Protection Commission LURMP in the area west of Stockton that would be located within the Primary Zone of the Delta. In these areas, the 2035 General Plan

proposes to change the Agricultural land designations for approximately 607 acres to a General Industrial designation. Rezoning would not occur until the project applicants could document the availability of adequate services to serve the sites. These areas are shown as Prime Farmland in **Figure 4.B-1** (see Section 4.B, *Agricultural and Forestry Resources*). As stated in 2035 General Plan Policy LU-2.17, “The County shall require proposed General Plan amendment or zoning reclassification for areas in the Primary Zone of the Delta to be consistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta, as required by the State Delta Protection Act of 1992.” The change in land use designation proposed by the 2035 General Plan for areas within the Primary Zone of the Delta would therefore be internally inconsistent with proposed Policy LU-2.17 and also inconsistent with the LURMP. This issue is addressed in Mitigation Measure 4.A-2 below. Additional land use designation changes (about 1,380 acres) are proposed in the Secondary Zone of the Delta; however, these land use changes would not be inconsistent with the LURMP.

Some development facilitated by the 2035 General Plan could occur within the areas covered by the Airport Land Use Compatibility Plans. This topic is addressed in more detail in Section 4.K, *Hazards*, of this EIR. Policies included in the 2035 General Plan that would minimize conflicts with public use airports and airstrips include Policy PHS-8.1, which would ensure land use compatibility with operation of aircraft; Policy PHS-8.2, which would ensure coordination with the County ALUC; Policy PHS-8.3, which would require coordination with the Contra Costa County ALUC for areas within the Byron land use plan; Policy PHS-8.4, which would require compliance with FAA Part 77 regulations; Policy PHS-8.5, which would address new air strip locations; and finally Policy PHS-8.6, which would ensure that transmission towers and lines do not interfere with aircraft operations. Because it includes these policies, the 2035 General Plan would not conflict with applicable Airport Land Use Compatibility Plans.

The 2035 General Plan is supportive of the goals, policies, and strategies of SJCOG 2014-2040 RTP/SCS. SB 375 does not allow for an RTP/SCS to dictate local General Plan policies and related implementation; rather, the SCS is intended to provide a regional policy foundation that local governments may build upon. The 2035 General Plan contains policy LU-1.12 and LU-1.13 which state that the County will consider the RTP/SCS when updating its General Plan, and will work with SJCOG to update the RTP/SCS as part of the regional transportation planning process. Furthermore, the 2035 General Plan supports the sustainability goals of the RTP/SCS through policies addressing: energy and water conservation, improved mobility and accessibility, increased safety and security, transportation efficiency, economic vitality, promotion of interagency coordination and decision making, the cost effective use of funds, and the overall enhancement of the quality of life for residents.

As stated in Implementation Program LU-A, the County’s Development Title would be updated to be consistent with the 2035 General Plan after the plan is adopted. Thus, there would not be conflicts between the 2035 General Plan and the County’s Development Title.

Mitigation Measure 4.A-2: The 2035 General Plan shall be revised to retain the existing agricultural land designations for the approximately 607 acres at the southwestern edge of

Stockton that are within the Primary Zone of the Delta and are subject to the Delta Protection Commission Land Use and Resources Management Plan (LURMP).

With implementation of the above mitigation measure, this impact would be considered less than significant.

Significance after Mitigation: Less than Significant.

Impact 4.A-3: Implementation of the proposed 2035 General Plan could conflict with an applicable Habitat Conservation Plan or Natural Community Conservation Plan. (Less than Significant)

San Joaquin County has an adopted Habitat Conservation Plan (HCP) that is addressed in more detail in Section 4.F, *Biological Resources*, of this EIR. The HCP is entitled “San Joaquin County Multi-Species Habitat Conservation and Open Space Plan” (SJMSCP) and it was formally adopted in November 2000. Under the 2035 General Plan, new development would not occur in areas that are protected by lands identified within the SJCMSCP (see Policy LU-8-1), as discussed further in Section 4.B of the EIR. Therefore, the 2035 General Plan would be consistent with the SJCMSCP.

Mitigation: None required.

Cumulative Impacts

Impact 4.A-4: Implementation of the proposed 2035 General Plan, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable probable future development, could contribute to significant cumulative land use impacts in the area. (Less than Significant)

The geographic context considered for the cumulative land use, plans, and policy impacts includes the surrounding area that, when combined with the proposed project, could result in cumulative land use, plans, and policy impacts. Past projects are included in the existing setting described in this section and in the introduction for this chapter. Present projects would include any projects currently under construction, and reasonably foreseeable probable future projects are those that could be developed or occur in the project site area by 2035.

Cumulative land use impacts could occur in conjunction with development allowed by the incorporated cities. However, the County only has jurisdiction over unincorporated areas, and the proposed land use policies of the 2035 General Plan would ensure that no significant cumulative land use impacts would occur. The County also abuts Calaveras, Amador, Alameda, Contra Costa, and Sacramento Counties where cumulative land use impacts could occur. However, the proposed land use changes of the 2035 General Plan do not include any significant change immediately adjacent to the County’s borders. The Mountain House community is the nearest

developed community, adjacent to Alameda County, and the impacts of this development have been thoroughly evaluated in a Master EIR and subsequent project-level CEQA documentation.

Therefore, cumulative land use impacts would be less than significant. The project's contribution to these cumulative land use impacts would be reduced by the multiple land use policies identified herein that would be included in the 2035 General Plan.

Mitigation: None required.

A.5 References – Land Use

- Delta Protection Commission (DPC), 2013. Comment letter on Notice of Preparation for the Draft Program EIR for the San Joaquin County General Plan Update, November 8.
- Delta Stewardship Council, 2013. Comment letter on Notice of Preparation for the Draft Program EIR for the San Joaquin County General Plan Update, November 8.
- Dowling Associates, Inc., 2008. Traffic Impact Mitigation Fee Update Report, Prepared for San Joaquin County, April.
- Dowling Associates, 2011. San Joaquin County Regional Transportation Impact Fee 2011 Update, Prepared for San Joaquin County Council of Governments, December.
- Governor's Office of Planning and Research, 1997. *LAFCOs, General Plans, and City Annexations*, August. Website viewed on February 18, 2013: http://ceres.ca.gov/planning/lafoo/lafoo.htm#sphere_anchor
- Institute for Local Government, 2010. *Understanding California's Sustainable Communities and Climate Protection Act of 2008 (SB 375): A Local Official's Guide*, November 23.
- Mintier Harnish, 2009. *San Joaquin County General Plan Background Report: Public Review Draft*, July 2, 2009.
- Mintier Harnish, 2014. Table entitled "Parcels Within Delta Protection Commission", April 8.
- San Joaquin Council of Governments (SJCOC), 1993. Airport Land Use Compatibility Plan for the Stockton Metropolitan Airport.
- San Joaquin Council of Governments (SJCOC), 2009. Airport Land Use Compatibility Plan (addresses airports other than Stockton Metropolitan Airport).
- San Joaquin County, 2014. *General Plan Update*, prepared by Minter Harnish.

B. Agricultural and Forestry Resources

B.1 Introduction

This section of the Draft EIR addresses impacts to agricultural resources in San Joaquin County. The environmental setting provides a description of agricultural resources in the county, including Important Farmlands (those lands classified and mapped by the Farmland Mapping and Monitoring Program of the California Department of Conservation) and Williamson Act contract lands. The regulatory setting provides a description of applicable federal, state and local regulatory policies. A description of the impacts of the proposed project is provided and includes the identification of proposed 2035 General Plan policies and implementation programs to avoid or lessen the impacts.

The environmental setting section was developed in part using information contained in the General Plan Background Report (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession of 2009 contributed to significantly slower population and housing growth than what had been projected for San Joaquin County¹. In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2009 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes.

B.2 Environmental Setting

Agricultural Productivity

San Joaquin County is one of the nation's top ten agricultural areas in productivity and market value, and agriculture in the county is a 2 billion dollar annual industry. As shown in **Table 4.B-1**, between 2000 and 2012, gross agricultural production values for San Joaquin County increased by approximately \$600,000. The majority of the increased value is focused on fruit and nut crops, and to a lesser extent on field crops. Vegetable crops, seed crops, and nursery products decreased production value during that period. In addition, farmers are taking advantage of value-added opportunities, including crop processing, agri-tourism, produce stands, and local wineries (Mintier Harnish, 2009). As shown in **Table 4.B-2**, between 2000 and 2012, the total harvested acreage for San Joaquin County increased from about 697,300 acres to 817,400 acres.

San Joaquin County agricultural crops and commodities vary annually on their individual rankings based on the amount of acreage dedicated to each commodity. **Table 4.B-3** identifies the rankings for the top 10 commodities in 2012. Although rankings vary from year to year, grapes, walnuts, milk, and almonds consistently rank high in total value.

¹ In SJCOG's 2005-2030 Population and Employment Projections (2004) countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three year period.

**TABLE 4.B-1
SAN JOAQUIN COUNTY TOTAL AGRICULTURAL PRODUCTION VALUES (2000 AND 2012)**

Commodity Type	2000 Gross Production Value (\$)	2012 Gross Production Value (\$)	Net Change (2000 – 2012)
Field Crops	179,075,320	329,973,000	150,897,680
Seed Crops	10,215,733	3,562,000	(6,653,733)
Fruit and Nut Crops	795,060,556	1,640,372,000	845,311,444
Vegetable Crops	302,269,434	265,568,000	(36,701,434)
Nursery Products	117,672,925	87,957,000	(29,715,925)
Apiary Products	9,613,082	21,610,000	11,996,918
Livestock and Poultry	55,435,885	97,151,000	41,715,115
Livestock and Poultry Products	328,782,075	423,279,000	94,496,925
Total	1,798,125,009	2,869,472,000	1,071,346,990

NOTE: All values in 2012 dollars

SOURCES: San Joaquin County Office of the Agricultural Commissioner, 2000 and 2012; Coinnews Media Group, 2013

**TABLE 4.B-2
SAN JOAQUIN COUNTY HARVESTED ACREAGE (2000 AND 2012)**

Commodity Type	2000 Harvested Acreage	2012 Harvested Acreage
Fruit and Nut Crops	190,000	253,000
Vegetable Crops	82,700	55,300
Field Crops	420,000	508,000
Seed Crops	4,650	1,180
Total	697,350	817,480

NOTES: Acreage totals have been rounded.

SOURCE: San Joaquin County Office of the Agricultural Commissioner, 2000 and 2012

**TABLE 4.B-3
SAN JOAQUIN COUNTY AGRICULTURAL COMMODITY VALUES AND RANKINGS (2012)**

Commodity Type	2012 Value (\$)
Grapes	549 million
Walnuts	457million
Milk	404 million
Almonds	300 million
Cherries	225 million
Tomatoes	103 million
Hay	90 million
Silage Corn	72 million
Grain Corn	70 million
Cattle & Calves	67 million

NOTES: Acreage totals have been rounded.

SOURCE: San Joaquin County Office of the Agricultural Commissioner, 2012

The economy of the San Joaquin Valley traditionally has been agricultural-based, particularly in crop production, food manufacturing, and other supportive industries for agricultural industries.

In the county, farms and agricultural services employed 21,788 people in 2007, and this number is expected to increase to 26,768 by 2030. San Joaquin County farm employment represents 6.5 percent of total countywide employment, compared to 2.5 percent of statewide employment. The location quotient for farm employment in the county is 2.63, indicating that farm-related activities substantially contribute to the economic base and have strong multiplier effects into other sectors of the county's economy. However, San Joaquin County has moved from a predominantly agricultural economy to a more diversified economy that includes a significant trade, transportation, retail, and business services economic base (Mintier Harnish, 2009). Consistent with this trend, from 2003 to 2013, about 183 acres of land designated for agricultural use has been re-designated for other uses, including industrial and commercial uses (San Joaquin County Community Development Department, 2014).

Important Farmland

The California Department of Conservation, Division of Land Resource Protection, maintains the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications (discussed below) and uses a minimum mapping unit size of 10 acres. The program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years. The FMMP designates Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance as "Important Farmland."

Prime Farmland (P)

Prime Farmland is farmland with the best combination of physical and chemical features to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Farmland of Statewide Importance (S)

Farmland of Statewide Importance is similar to Prime Farmland but has minor shortcomings, such as greater slopes or a lesser ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Unique Farmland (U)

Unique Farmland has lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Farmland of Local Importance (L)

Farmland of Local Importance is land important to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

Grazing Land (G)

Grazing Land is land on which the vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

Urban and Built-Up Land (D)

Urban and Built-Up Land is land occupied by structures with a building density of at least 1 unit per 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

Other Land (X)

Other Land is land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

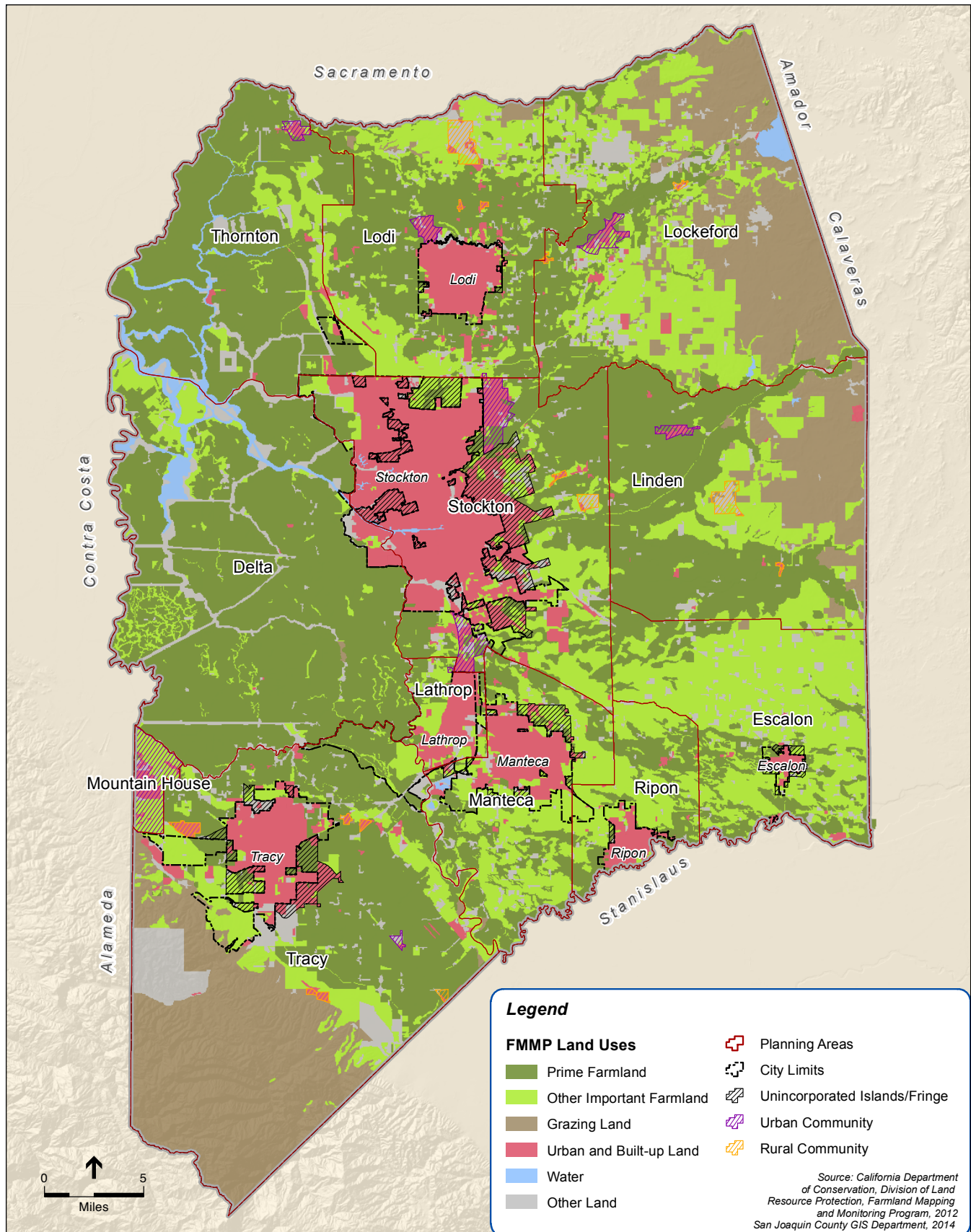
Water (W)

Water is defined as perennial water bodies with an extent of at least 40 acres. While the number of agricultural lands classified as Prime Farmland in San Joaquin County decreased by about 38,000 acres between 2000 and 2010, this change was somewhat offset by increases in Unique Farmland and Farmland of Local Importance over the same period (see **Table 4.B-4**). The locations of these important farmlands are identified in **Figure 4.B-1**. Note that 2010 is the most recent year for which data are available.

**TABLE 4.B-4
SAN JOAQUIN COUNTY AGRICULTURAL LAND BY CATEGORY
2000 AND 2010**

Farmland Category	2000	2010	Total
Prime Farmland	423,158	385,337	-37,821
Farmland of State Wide Importance	93,846	83,307	-10,539
Unique Farmland	57,977	69,481	11,504
Farmland of Local Importance	56,009	76,869	20,860
Grazing Land	150,332	139,235	-11,097
Total	781,322	754,229	-27,093

SOURCE: California Department of Conservation, Division of Land Resource Protection, 2000 and 2010 reports, accessed 2013.



SOURCE: California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, 2006
San Joaquin County GIS Department, 2008,
Mintier Harnish, 2009

San Joaquin County 2035 General Plan . 209529

Figure 4.B-1
Agricultural and Other Land Uses by Planning Area

Important Farmland Trends

Using data collected by the FMMP, trends in the number of acres of various farmland categories can be developed. **Table 4.B-5** shows the net acreage change between 2000–2002, 2002–2004, 2004–2006, 2006–2008, and 2008–2010. As indicated in the table, farmland acreage has been consistently decreasing for each two-year period shown, and prime farmland has decreased more than any other type.

TABLE 4.B-5
SAN JOAQUIN COUNTY FARMLAND ACREAGE CHANGES FOR 2000 – 2010

Farmland Category	Acreage Change					Total
	2000 – 2002	2002 – 2004	2004 – 2006	2006 – 2008	2008 – 2010	
Prime Farmland	-3,700	-3,757	-4,939	-10,624	-11,647	-34,667
Farmland of State Wide Importance	-1,218	-1,337	-1,952	-2,975	-2,990	-10,472
Unique Farmland	2,731	1,505	697	3,392	2,860	11,185
Farmland of Local Importance	-2,399	1,302	2,149	5,823	11,081	17,956
<i>Important Farmland Subtotal</i>	-4,586	-2,287	-4,045	-4,384	-696	-15,998
Grazing Land	-1,631	-1,059	-2,720	-2,473	-3,225	-11,108
Total	-6,217	-3,346	-6,765	-6,857	-3,921	-27,106

NOTE: These numbers include both incorporated and unincorporated agricultural lands.
Previous 2-year data is occasionally revised to reflect better information or new methodologies. Therefore, the 10-year totals in acreage changes in Table 4.B-4 and 4.B-5 do not align, although the overall totals are within 0.04 of 1 percent (0.0004) of one another.

SOURCE: California Department of Conservation, Division of Land Resource Protection (2002, 2004, 2006, 2008, and 2010 reports), accessed 2013

The conversion of important farmlands is the result of a number of activities. **Table 4.B-6** identifies these types of activities and provides acreage amounts of farmland converted by two-year period. As shown in the table, 15,924 acres of important farmlands were converted into urban uses during the period of 2000 to 2010. Since 2000, the conversion of important farmlands to urban uses has fluctuated from 5 to 58 percent of all important farmland conversions to other uses. The changes to urban lands have typically occurred around established cities, communities, and hamlets as agricultural lands have been annexed to incorporated cities within San Joaquin County. While the conversion of lands classified as “Grazing Lands”, “Other Lands”, and “Urban and Built-Up Lands” to the important farmland categories do occur, these conversions generally constitute a much smaller percentage of the overall conversion of important farmlands.

Agricultural “Edge” Issue

Land use conflicts that occur when new urban development is located adjacent to farms and ranches is referred to as the urban-agriculture “edge” issue. The agricultural-urban edge in San Joaquin County totals about 480 miles, almost half of which involves Prime Farmland. Some of the potential conflicts along this edge are summarized in the General Plan background report (Mintier Harnish, 2009):

**TABLE 4.B-6
SAN JOAQUIN COUNTY IMPORTANT FARMLAND¹ CONVERSION**

	2000-2002		2002-2004		2004 - 2006		2006 – 2008		2008 – 2010		Total	
	Acres Converted	% of Converted Important Farmland	Acres Converted	% of Converted Important Farmland	Acres Converted	% of Converted Important Farmland	Acres Converted	% of Converted Important Farmland	Acres Converted	% of Converted Important Farmland	Acres Converted	% of Converted Important Farmland
Important Farmland to Urban and Built- Up Land	5,771	58%	2,645	27%	3,746	33%	2,719	12%	1,043	5%	15,924	21%
Important Farmland to Other Land	629	6%	670	7%	2,871	25%	4,855	22%	3,181	15%	12,206	16%
Important Farmland to Farmland of Local Importance and Grazing Land	1,190	12%	4,094	42%	3,500	31%	11,182	50%	14,117	67%	34,083	46%

¹ The FMMP classifies important farmland as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.

SOURCE: California Department of Conservation, Division of Land Resource Protection, 2013

Agricultural operators experience theft, vandalism, pilferage of crops, dog attacks on livestock, restrictions on pesticide use, congested local roads, proliferation of vectors, and other impacts that reduce productivity and income. Residential neighbors, for their part, are often unhappy with the dust, noise, odors, early morning operations, chemical use, and other agricultural effects on quality of life and even perceived health problems.

The extent of conflict depends on several factors, including farming practices, the urban-rural backgrounds of residents, and how the development is configured. According to the San Joaquin Sheriff's Department, agricultural crimes resulted in lost property value of approximately \$1.6 million in 2007, which is a 600 percent increase in the annual value of lost property since 2001. Theft of recyclables (metals) and farm equipment and tractors were the most common crimes (Mintier Harnish, 2009).

Williamson Act Lands

Table 4.B-7 identifies the categories and amounts of Williamson Act lands in the county. As shown in the table, as of 2010, approximately 533,000 acres of Williamson Act lands existed in the county (California Department of Conservation, Division of Land Resource Protection, 2013). Approximately 38,500 acres of Williamson Act lands (both prime and non-prime lands) are currently under non-renewal.² San Joaquin County contains an additional 60,000 acres of land that are designated as Farmland Security Zone (FSZ) lands, which are areas where contracts are of longer duration than regular Williams Act contracts, initially at least 20 year terms (California Department of Conservation, Division of Land Resource Protection, 2013). There is a greater tax benefit to enroll in an FSZ contract due to its longer duration. The land must meet specified qualitative thresholds in order to be eligible for FSZ enrollment (California Department of Conservation, Division of Land Resource Protection, 2012).

**TABLE 4.B-7
WILLIAMSON ACT CONTRACT LANDS FOR SAN JOAQUIN COUNTY (2010)**

Contract Status	Acres
Prime – Active Contract	292,151
Prime – Non Renewal	31,327
Prime – FSZ Urban	15,215
Prime – FSZ Non-Urban	34,156
Non-Prime	142,149
Non-Prime – Non Renewal	7,340
Non-Prime – FSZ Urban	79
Non-Prime – FSZ Non-Urban	10,550
Total	532,968

SOURCE: California Department of Conservation, Division of Land Resource Protection, 2013

² Agricultural potential refers to the actual or potential agricultural productivity of the land being restricted. Contracted land that meets the Williamson Act definition of prime agricultural land is "Prime." All other land is "Non-Prime." The act defines "Prime" land as (1) All land that qualifies for rating as class I or class II in the Natural Resource Conservation Service land use capability classifications, (2) Land which qualifies for rating 80 through 100 in the Storie Index Rating, (3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture, (4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre, or (5) Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.

Forest Lands

Three native oak species occur in San Joaquin County; valley oak, blue oak, and interior live oak. They are located within San Joaquin County at the following locations:

- Small remnants of valley oak woodland are preserved and maintained in two locations: the 180-acre Oak Grove Regional Park and the 258-acre Micke Grove Park.
- Blue oak habitat is a community that covers about 20,000 acres and is dominated by blue oak, and/or interior live oak, and foothill pine. In the southwest corner of the county, it occurs at mid-to-upper elevations, between 500 and 3,000 feet, and transitions to scrub or annual grassland at the lower elevations. There are also scattered occurrences of Blue oak habitat located throughout the northeast corner of the county.
- A variety of riparian habitats occur along creeks and rivers in the county, accounting for about 5,000 acres of land, which include valley oak. All of these riparian types occur in narrow and mixed fragments along the rivers and creeks of San Joaquin County (Mintier Harnish, 2009).

B.3 Regulatory Setting

Federal

Farmland Protection Policy Act

The U.S. Department of Agriculture (USDA) administers the Farmland Protection Policy Act of 1981. The Act is intended to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The Act also requires these programs to be compatible with state, local, and private efforts to protect farmland.

Agricultural Conservation Easement Program (ACEP)

The Agricultural Act of 2014 established the ACEP, which consolidated previously separate federal farmland conservation programs. Under the ACEP, USDA's National Resource Conservation Service (NRCS) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments, and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land.

State

The Delta Plan, required by the 2009 Sacramento-San Joaquin Delta Reform Act, creates rules and recommendations to further the state's coequal goals for the Delta: improve statewide water supply reliability and protect and restore a vibrant and healthy Delta ecosystem. The plan provides that the goals can be achieved all in a manner that preserves, protects and enhances the Delta's unique agricultural, cultural, and recreational characteristics (DSC, 2014). Specific to agricultural resources, one of the five core strategies of the Delta Stewardship Council (DSC) is to "maintain Delta agriculture as primary land use, food source, a key economic sector, and a way of life" (DSC, 2013). The plan includes specific policies for the protection and promotion of agriculture, such as

those that call for wise location of new urban development, promotion of value-added crop processing, agri-tourism encouragement, wildlife-friendly farming (DSC, 2013).

California Land Conservation Act

Under the provisions of the Williamson Act (California Land Conservation Act of 1965, Section 51200), landowners contract with the county to maintain agricultural or open space use of their lands in return for reduced property tax assessment. The contract is self-renewing; however, the landowner may notify the County at any time of the intent to withdraw the land from its preserve status. Land withdrawal involves a 10-year period of tax adjustment to full market value before protected open space can be converted to urban uses. Consequently, land under a Williamson Act contract can be in either a renewal status or a non-renewal status. Lands with a non-renewal status indicate the owner has withdrawn from the Williamson Act contract and is waiting for a period of tax adjustment for the land to reach its full market value.

Farmland Security Zones

The Farmland Security zone (FSZ) provisions of the Land Conservation Act were added in 1998. An FSZ contract offers landowners greater property tax reduction in return for an initial contract term of 20 years, with renewal occurring automatically each year. Land restricted by an FSZ contract is valued for property assessment purposes at 65 percent of its Land Conservation Act valuation, or 65 percent of its Proposition 13 valuation, whichever is lower. Land contract under existing Williamson Act contracts, as well as non-contracted land, can go directly into an FSZ contract. Cities and special districts that provide non-agricultural services are generally prohibited from annexing land enrolled under an FSZ contract. Similarly, school districts are prohibited from taking FSZ lands for school facilities.

California Civil Code Section 3482.5 (The Right to Farm Act)

The Right to Farm Act is designed to protect commercial agricultural operations from nuisance complaints that may arise during normal operations. The code states that operations that have been in business for 3 or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of a new land use in proximity to the existing farm use.

California Farmland Conservancy Program (CFCP)

Implemented by the California Department of Conservation, the CFCP is a voluntary program that seeks to encourage the long-term, private stewardship of agricultural lands through the use of agricultural conservation easements. The CFCP, formerly known as the Agricultural Land Stewardship Program, was created in 1996, and provides grant funding for projects that use and support agricultural conservation easements for the protection of agricultural lands (CVFT, 2011).

Cortese-Knox-Hertzberg Local Government Reorganization Act

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 established procedures for local government changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. This act requires that development or use of land for other than open-space shall be guided away from existing prime

agricultural lands in open-space use toward areas containing nonprime agricultural lands, unless that action would promote the planned, orderly, efficient development of an area.

Open Space Subvention Act (OSSA)

The OSSA was enacted on January 1, 1972, to provide for the partial replacement of local property tax revenue foregone as a result of participation in the Williamson Act and other enforceable open space restriction programs (Government Code Section 16140 et seq.). Participating local governments receive annual payment on the basis of the quantity (number of acres), quality (soil type and agricultural productivity), and, for Farmland Security Zone contracts, location (proximity to a city) of land enrolled under eligible enforceable open space restrictions.

California Timberland Productivity Act (TPA)

The California Timberland Productivity Act (TPA) of 1982 (Government Code Sections 51100 et seq.) was enacted to help preserve forest resources. Similar to the Williamson Act, this program gives landowners tax incentives to keep their land in timber production. Contracts involving Timber Production Zones (TPZ) are on 10-year cycles.

California Forest Legacy Act of 2007

The California Forest Legacy Act of 2007, codified in Public Resources Code Section 12220(g)), promotes conservation easements in environmentally sensitive forest areas. This act defines “forest land” as “land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.”

Timberland Production Zones

Under the Z’berg-Warren-Keene-Collier Forest Taxation Reform Act of 1976, codified in Government Code Sections 51110-51119.5, counties must provide for the zoning of land used for growing and harvesting timber as Timberland Preserve Zones (TPZ). A TPZ is a 10-year restriction on the use of timberland, similar to the Williamson Act for agricultural lands. Land use under a TPZ is restricted to growing and harvesting timber or to compatible uses. In return, taxation of timberland under a TPZ will be based only on such restrictions in use.

California Timberland Productivity Act of 1982

The California Timberland Productivity Act (CTPA) of 1982, codified in Government Code Sections 51100-51104, describes the authority of local government to protect timberlands. The law is designed to ensure continued availability of timberland by establishing TPZs on all qualifying timberland. The Act discourages premature or unnecessary conversion of timberland to urban or other uses, and encourages investment in timberlands based on reasonable expectation of harvest. Similar to a Right to Farm Ordinance, the CTPA also states that timber operations conducted in accordance with California forest practice rules shall not be restricted due to neighboring conflicting land uses.

CEQA Oak Woodlands Law (Section 21083.4 of the Public Resources Code)

In 2004, the California Senate enacted the CEQA Oak Woodlands Law, which requires counties to evaluate a project's impact on oak woodlands within any CEQA analysis. Except for certain exemptions, this law requires a county, in determining whether CEQA requires an environmental impact report, negative declaration, or mitigated negative declaration, to determine whether a project in its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment, and requires the county, if it determines there may be a significant effect to oak woodlands, to impose one or more of specified mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands. This law also provides that counties may receive grant funds awarded pursuant to the Oak Woodlands Conservation Act to prepare an oak woodlands conservation element for a general plan, an oak protection ordinance or an oak woodlands management plan, or other amendments that meet the requirements of the law.

Regional

Land Use and Resource Management Plan for the Primary Zone

The Delta Protection Commission, created by the Delta Protection Act in 1992, was formed to protect, maintain, enhance, and restore the quality of agriculture, wildlife habitat, and recreational facilities in the Delta environment consistent with the Land Use and Resource Management Plan for the Primary Zone (LURMP).³ The plan states that the priority land use of areas within the Primary Zone shall be agricultural and open space. The Commission also comments on projects in the Secondary Zone that have the potential to impact the Primary Zone. A goal of the LURMP is to support the long-term viability of agriculture and to discourage inappropriate development of agricultural lands. The plan includes specific policies to encourage agricultural use, discourage conversion or subdivision of agricultural lands, promote agricultural conservation easements, and support agri-tourism and education (DPC, 2010).

Local Agency Formation Commission (LAFCo)

The San Joaquin County LAFCo has specific policies and procedures for Spheres of Influence (SOI). These policies were originally adopted in 2007 and most recently revised in 2012. They state that LAFCo shall use SOI to promote cooperative planning efforts among cities and the county to address concerns regarding land use, including premature conversion of agricultural and open space lands. SOIs shall consider city and county general plans, and all SOIs must be included within the applicable city's general plan land use element. Policies indicate that LAFCo prefers an SOI that minimizes the conversion of open space and agricultural land, and that agricultural land shall not be included in an SOI unless its exclusion would impede orderly development (San Joaquin LAFCo, 2012).

³ Within San Joaquin County, the Primary Zone generally comprises the areas north of Tracy and Lathrop and west of Stockton (Mintier Harnish, 2009).

Local

San Joaquin County Multi-species Habitat Conservation & Open Space Plan (SJMSCP)

The SJMSCP, administered by the San Joaquin Council of Governments (SJCOG), is the largest habitat mitigation program in the county. Adopted in 2001, the SJMSCP is centrally concerned with the preservation of habitat land to satisfy the species protection requirements of federal and state law. The plan also has had other indirect benefits, including the protection of agricultural resources. The 2001 SJMSCP calls for the preservation of about 100,000 acres, including 57,000 agricultural acres, over a 50-year period for the protection of a variety of biological species. Most agricultural conservation easements (see discussion below) in the county are the product of the SJMSCP (Mintier Harnish, 2009).

Agricultural Mitigation Ordinance

In 2006, the San Joaquin County Board of Supervisors enacted the Agriculture Mitigation Ordinance (Mintier Harnish, 2009). Finding that the “loss of farmland to development is irreparable” and that zoning and other regulatory measures are an “inadequate” approach to preservation, the ordinance calls for:

- At least a 1:1 ratio between the acres of farmland lost and preserved;
- Preservation through the acquisition of easements either (1) directly by the developer or (2) through payment of in-lieu fees;
- Mitigation of either a General Plan amendment or rezoning that changes land from an agricultural to non-agricultural designation, regardless of the non-agricultural designation;
- Having a “qualified entity” hold the easements and administer the fees—generally assumed to be the Central Valley Farmland Trust (CVFT);
- Coordination with similar mitigation efforts of the cities, the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), and the Delta Protection Commission; and
- Organization of a nine-member Agricultural Technical Advisory Committee (with three members each appointed by the San Joaquin Farm Bureau Federation, the Building Industry Association, and the Board of Supervisors) to develop a Mitigation Strategy, report annually on the effectiveness of the program, and advise the county.

Agricultural Conservation Easements

Agricultural easements are voluntary and combine elements of landowner compensation and regulation. Conservation easements typically eliminate, in perpetuity, the development rights from affected parcels. Landowners voluntarily sell their future development rights for cash, tax benefits, or a mix of both, keeping all other rights of ownership. Typically, the economic benefit of an easement is the difference between its value in agricultural use and its development potential market value. Landowners negotiate terms and sell their easements to government agencies or nonprofit land trusts, which then become responsible for monitoring parcel use to

ensure compliance with the easement terms. Legally recorded in property deeds, easements run with the land and are not affected by ownership changes. California Valley Farmland Trust (CVFT) is emerging as the principal broker and holder of agriculture-oriented easements in the county, and easements in San Joaquin County held by CVFT were first established in 2006.

Right to Farm Ordinance

San Joaquin County's Real Estate Transfer Disclosure Statement (Right to Farm Ordinance) addresses the problem of urban growth encroaching on agricultural land by seeking to reduce nuisance complaints about farm operations from residential neighbors (Minter Harnish, 2009). Using disclosure methods, purchasers and existing owners of residential property are informed about the local importance of agriculture and the possible negative impacts of residing near normal farm operations, such as noise, odors, insects, dust, fumes, operation of machinery, application of pesticides and fertilizers, storage and disposal of manure, and other operational requirements. The ordinance is intended to protect existing farming operations from pressure to cease operations when residential development occurs nearby. The county established an Agricultural Grievance Committee to assist in resolution of disputes that arise regarding such operations or activities (CVAR, 2014; Minter Harnish, 2009).

City Policies

San Joaquin County cities each have General Plan agricultural land preservation policies that apply to conversions of agricultural land, and land use conflicts with agricultural uses, in each city's SOL. These policies are listed below.

City of Escalon General Plan

Natural Resources Policy 3.2: Maximize farmland, open space, and wildlife habitat preservation on lands outside of the City by establishing a greenbelt including all lands not designated for future annexation on the General Plan Land Use Diagram. The City shall use natural or manmade features to transition from urban to non-urban uses.

Residential Land Use Policy 16: All urban services (i.e., storm drainage, schools, sidewalks, lighting) may not be required adjacent to long-term agricultural areas where more intensive future urban development is unlikely because of public safety conflicts such as the airport protection area.

Residential Land Use Policy 16: In areas where the viability of large-scale agriculture may ultimately be threatened due to the encroachment of non-agricultural uses, and which do not warrant designation to a higher density. Subject to the following minimum conditions:

- Developments will not be permitted to have farm animals.
- Full road, sewer, and water improvements shall be installed.
- Development setbacks and buffering will ensure that there will be no conflicts with adjacent rural residential uses (City of Escalon, 2005).

City of Lathrop General Plan

Agricultural Land Policy 1: The extent of urbanization proposed within the three Sub-Plan Areas is based on the principle that the capacity to accommodate population and economic growth is dictated by the need to preserve environmental qualities rather than the potential of Lathrop to grow beyond its planning area boundaries. If future conditions indicate a potential for further urbanization greater than that encouraged by the General Plan west and south of the planning area, such potential is to be satisfied within the sphere of influence of local governments other than Lathrop.

Agricultural Land Policy 2: Exclusive agricultural zoning shall be continued on agricultural lands outside the boundaries of the three sub-plan areas.

Agricultural Land Policy 3: The protection of agricultural lands outside of the three sub-plan areas shall be reinforced by firm policies of the City to not permit the extension of sewerage and water service to such lands.

Agricultural Land Policy 4: The City, the County and affected landowners should develop a comprehensive approach to the cancellation of Williamson Act contracts on lands needed for early phases of urban development. Projects that are intended to take more than five years to complete shall be phased to allow agricultural operations to continue as long as feasible on lands to be developed after five years.

City of Lodi General Plan

Guiding Policy C-G1: Promote preservation and economic viability of agricultural land surrounding Lodi.

Guiding Policy C-G2: Maintain the quality of the Planning Area's soil resources and reduce erosion to protect agricultural productivity.

Implementing Policy C-P1: Work with San Joaquin County and the City of Stockton to maintain land surrounding Lodi in agricultural use.

Implementing Policy C-P2: Work with San Joaquin County, relevant landowners, interested parties, and groups to ensure economic viability of all agricultural businesses and supporting industries.

Implementing Policy C-P3: Support the continuation of agricultural uses on lands designated for urban uses until urban development is imminent.

Implementing Policy C-P4: Encourage San Joaquin County to conserve agricultural soils, preserve agricultural land surrounding the City, and promote the continuation of existing agricultural operations, by supporting the County's economic programs.

Implementing Policy C-P5: Ensure that urban development does not constrain agricultural practices or adversely affect the economic viability of adjacent agricultural practices. Use appropriate buffers consistent with the recommendations of the San Joaquin County Department of Agriculture (typically no less than 150 feet) and limit incompatible uses (such as schools and hospitals) near agriculture.

Implementing Policy C-P8: Maintain the City's Right-to-Farm Ordinance, and update as necessary, to protect agricultural land from nuisance suits brought by surrounding landowners (City of Lodi, 2010).

City of Manteca General Plan

Policy RC-P-19: The City shall support the continuation of agricultural uses on lands designated for urban use, until urban development is imminent.

Policy RC-P-20: The City shall provide an orderly and phased development pattern so that farmland is not subjected to premature development pressure.

Policy RC-P-21: In approving urban development near existing agricultural lands, the City shall take actions so that such development will not unnecessarily constrain agricultural practices or adversely affect the viability of nearby agricultural operations.

Policy RC-P-22: Nonagricultural uses in areas designated for agriculture should be redirected to urban areas.

Policy RC-P-23: Protect designated agricultural lands, without placing an undue burden on agricultural landowners.

Policy RC-P-24: Provide buffers at the interface of urban development and farmland in order to minimize conflicts between these uses.

Policy RC-P-25: The City shall ensure, in approving urban development near existing agricultural lands, that such development will not unnecessarily constrain agricultural practices or adversely affect the economic viability of nearby agricultural operations.

Policy RC-P-26: The City shall restrict the fragmentation of agricultural land parcels into small rural residential parcels except in areas designated for estate type development in the General Plan Land Use Diagram.

Policy RC-P-27: The City shall discourage the cancellation of Williamson Act contracts outside the Primary Urban Service Boundary line.

Policy RC-P-28: The City shall not extend water and sewer lines to premature urban development that would adversely affect agricultural operations.

Policy RC-P-30: The City of Manteca will participate in a Countywide program to mitigate the conversion of Prime Farmland and Farmlands of Statewide Importance to urban uses (City of Manteca, 2011).

City of Ripon General Plan

Open Space and Conservation Policy D1: Discourage premature conversion of agricultural lands to reduce the intrusion of urban development into agricultural areas. Strategies include deterring development of properties subject to Williamson Act contracts, for which a notice of non-renewal has not been filed.

Open Space and Conservation Policy D14: The City shall encourage landowners within the Primary Urban Area to file for non-renewal of Williamson Act contracts if they anticipate development within the planning period.

Open Space and Conservation Policy D15: Prohibit the conversion of agricultural lands to urban uses, unless the property is contiguous to existing or approved urban uses and such conversion is consistent with patterns of urban development (City of Ripon, 2006).

City of Stockton General Plan

Policy LU-2.1: The City shall limit the wasteful and inefficient sprawl of urban uses into agricultural lands.

Policy LU-2.2: The City shall support the establishment of a permanent agricultural/open space buffer along the ultimate edge of the Urban Service Area. Buffer or setback areas would follow along parcel boundary lines and be established with a minimum width of 100 feet.

Policy LU-2.3: The City shall discourage the premature conversion of agricultural land to urban uses within the Urban Service Area (City of Stockton, 2007).

City of Tracy General Plan

Goal OSC-2, Policy P1: The City shall support San Joaquin County's efforts to preserve agricultural uses in the Tracy Planning Area.

Goal OSC-2, Policy P2: The City shall support San Joaquin County policies and zoning actions that maintain agricultural lands in viable farming units for those areas not currently designated for urban uses.

Goal OSC-2, Policy P3: The City shall support the preservation of Williamson Act lands and Farmland Security Zone lands within the Tracy Planning Area.

Goal OSC-2, Policy P4: The City shall encourage the continued agricultural use of land within the Planning Area and outside the Sphere of Influence that is currently being farmed.

Goal OSC-2, Policy P5: The City shall work cooperatively with non-profit organizations, such as land trusts, to preserve agricultural land in the Planning Area.

Goal OSC-2.2, Policy P1: Development projects shall have buffer zones, such as roads, setbacks and other physical boundaries, between agricultural uses and urban development. These buffer zones shall be of sufficient size to protect the agriculture operations from the impacts of incompatible development and shall be established based on the proposed land use, site conditions and anticipated agricultural practices. Buffers shall be located on the land where the use is being changed and shall not become the maintenance responsibility of the City. Land uses allowed near agricultural operations should be limited to those not negatively impacted by dust, noise, and odors.

Goal OSC-2.2, Policy P3: Land uses allowed near agricultural operations should be limited to those not negatively impacted by dust, noise and odors.

Goal OSC-2.2, Policy P3: The City shall review, maintain, and update, as necessary, its Right-to-Farm Ordinance.

B.4 Impacts and Mitigation Measures

Significance Criteria

The significance criteria for this analysis were developed from criteria presented in Appendix G “Environmental Checklist Form” of the CEQA *Guidelines* and based on the professional judgment of the County of San Joaquin and its consultants. The proposed project would result in a significant impact if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Relevant Policies

The relevant policies of the proposed 2035 General Plan that address agricultural resources are identified below. The following Land Use policies encourage preservation of agricultural use, as well as discourage land use conflicts.

LU-1.1: Compact Growth and Development. The County shall discourage urban sprawl and promote compact development patterns, mixed use development, and higher-development intensities that conserve agricultural land resources, protect habitat, support transit, reduce vehicle trips, improve air quality, make efficient use of existing infrastructure, encourage healthful, active living, conserve energy and water, and diversify San Joaquin County's housing stock. (RDR) (Source: Existing GP, Energy, Land Use and Circulation Patterns, Policy 1, modified)

LU-1.4: Encourage Infill Development. The County shall encourage infill development to occur in Urban and Rural Communities and City Fringe Areas within or adjacent to existing development in order to maximize the efficient use of land and use existing infrastructure with the capacity to serve new development. The County shall balance infill development within outward expansion of communities and new development in other unincorporated areas. (RDR) (Source: New Policy)

LU-1.5: Clear Boundaries. The County shall strive to preserve agricultural and open space areas that contribute to maintaining clear boundaries among cities and unincorporated communities. (RDR) (Source: New Policy)

LU 1.7: Farmland Preservation. The County shall consider information from the State Farmland Mapping and Monitoring Program when designating future growth areas in order to preserve prime farmland and limit the premature conversion of agricultural lands. (RDR) (Source: New Policy)

LU-1.10: LAFCo and City Coordination. The County shall coordinate with San Joaquin LAFCo and cities within the county to ensure future annexation proposals and requests to expand Spheres of Influence reflect the growth and development patterns envisioned in this General Plan. The County shall provide input on annexation proposals and requests to expand Spheres of Influence in an effort to play a more active role in future expansion of cities into the unincorporated county. (IGC) (Source: New Policy)

LU-1.11: Regional Housing Needs Allocations. The County shall coordinate with the San Joaquin Council of Governments to direct State regional housing needs allocations predominantly to cities in an effort to promote compact development patterns and support the principles of the San Joaquin County Blueprint and implementation of SB 375. (IGC) (Source: New Policy)

LU-2.1: Compatible and Complimentary Development. The County shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Policy 10, Policy 11, Policy 12, Policy 22, Policy 13, modified)

LU-2.10: Soils Information. The County shall consider the soils information from the Farmland Mapping and Monitoring Program during review of proposed new development projects. (RDR) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Implementation 1, modified)

LU-2.14: General Plan Land Use Amendments. When reviewing proposed General Plan amendments to change or modify land use designations or the land use diagram or a zoning reclassification, the County shall consider the following:

- consistency of the proposal with the Vision and Guiding Principles and the goals and policies of the General Plan;
- new physical, social, or economic factors that were not present when the time of General Plan was adopted;
- reasonable alternative sites in the vicinity that are already planned for the use and can accommodate the proposal;
- potential for an undesirable, growth-inducing precedent or premature conversion of agricultural land; and
- the availability of infrastructure and services; and the effect on the fiscal health of the County.

(RDR/PSR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 13 Implementation 14)

LU-2.15: Agricultural Conversions. When reviewing proposed General Plan amendments to change a land use diagram or zoning reclassification to change from an agricultural use to non-agricultural use, the County shall consider the following:

- potential for the project to create development pressure on surrounding agricultural lands;
- potential for the premature conversion of prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and confined animal agriculture;
- potential for impacts on surrounding farming operations and practices; and
- provision of infrastructure and services to the new use and the potential impact of service demands or on the surrounding area.

(PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 13 Implementation 14, modified)

LU-2.16: Agriculture-Urban Reserve Designation. The County shall require a General Plan amendment to permit urban development on lands the County designates Agriculture-Urban Reserve. (RDR/PSP) (Source: Existing GP, Agricultural Lands, Agricultural Land Use Categories and Densities, Policy 4)

LU-4.1: New Residential Development. The County shall direct most new unincorporated residential development to areas within Urban and Rural Communities and City Fringe Areas. (PSP) (Source: New Policy)

LU-4.2: Rural Homesites. The County shall ensure that rural homesites are sized and located to limit the conversion of agricultural land, maintain the rural character of the surrounding area, support rural living and adjacent farming activities, and satisfy applicable environmental health requirements. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 8, modified)

LU-4.3: Rural Residential Designations. The County shall limit Rural Residential (R/R) development to Rural Communities and areas of existing R/R densities in Urban Communities. (RDR/PSP) (Source: Existing GP, CODP, Residential Development, Policy 1(a))

LU-4.10: Incompatible Land Uses. The County shall ensure that residential development is protected from incompatible land uses through the use of buffers, screens, and land use regulations, while recognizing that agriculture and farming operations have priority in rural areas. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 9, modified)

LU-5.2: Strip Commercial Development. The County shall discourage new strip commercial development, and shall ensure the expansion of existing strip commercial development does not encroach into residential or agricultural areas. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 8, modified)

LU-5.7: Crossroads Commercial Uses in Agricultural Areas. The County shall allow crossroads commercial uses, with appropriate commercial zoning, in areas designated Limited Agriculture and General Agriculture, provided such uses are:

- located at an intersection on a Minor Arterial or roadway of higher classification;
- located at least two miles from the nearest area serving a crossroads commercial function or a planned neighborhood or community commercial area;

- limited to one corner of an intersection; and
- able to function safely with a septic system and individual water well.

(RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 5, modified)

LU-5.15: Commercial Recreation Uses in Agricultural Areas. The County may allow commercial recreation uses in planned agricultural areas because of their unique needs, such as direct access to natural resources or roadways or their need for a large land area. These uses shall be subject to approval of a discretionary permit that includes a review of impacts of the proposed use on the surrounding area. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 3, modified)

LU-6.4: Industrial Grouping. The County shall group employment centers, industrially designated areas, and truck terminals to reduce conflicts with surrounding land uses and to make efficient use of infrastructure and services. (RDR/PSP) (Source: Existing GP, CODP, Industrial Development, Policy 3, Policy 4, modified)

LU-7.1: Protect Agricultural Land. The County shall protect agricultural lands needed for the continuation of viable commercial agricultural production and other agricultural enterprises. (PSP) (Source: Existing GP, Agricultural Lands, Objective 1, modified)

LU-7.2: Agricultural Support Uses. The County shall require new agricultural support development and non-farm activities to be compatible with surrounding agricultural operations. New developments shall be required to demonstrate that they are locating in an agricultural area because of unique site area requirements, operational characteristics, resource orientation, or because it is providing a service to the surrounding agricultural area. The operational characteristics of the use may not have a detrimental impact on the operation or use of surrounding agricultural properties. Developments must be sited to avoid any disruption to the surrounding agricultural operations. (RDR/PSR) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Policy 5, modified)

LU-7.3: Small Parcel Size Viability. The County shall not allow further fragmentation of land designated for agricultural use, except for the purpose of separating existing dwellings on a lot, provided the Development Title regulations are met. (RDR/PSP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Policy 7, modified)

LU-7.5: Right to Farm. The County shall strive to protect agricultural land against nuisance complaints from non-agricultural land uses through the implementation of the San Joaquin County Right to Farm ordinance and, if necessary, other appropriate regulatory and land use planning mechanisms. (RDR/PSP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Policy 9)

LU-7.7: Agricultural Buffers: The County shall ensure non-agricultural land uses at the edge of agricultural areas incorporate adequate buffers (e.g., fences and setbacks) to limit conflicts with adjoining agricultural operations. (RDR) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Policy 10)

LU-7.9: Agricultural-Urban Reserve. The County shall preserve areas designated Agricultural-Urban Reserve (A/UR) for future urban development by ensuring that the operational characteristics of the existing uses does not have a detrimental impact on future urban development or the management of surrounding properties, and by generally not

allowing capital-intensive facility improvements or permanent structures that are not compatible with future urban development. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 5, modified)

LU-7.10: Agricultural Mitigation Program. The County shall continue to require agricultural mitigation for projects that convert agricultural lands to urban uses. (RDR) (Source: New Policy, based on Agricultural Mitigation Ordinance)

LU-7.11: Agricultural Land Preservation Mechanisms. The County shall support regulatory, incentive-based, and financial mechanisms for the preservation of agricultural land. (PSP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Implementation 3, modified)

LU-7.12: Agricultural Land Conversion Mitigation. The County shall maintain and implement the Agricultural Mitigation Ordinance to permanently protect agricultural land within the County. (RDR) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Implementation 3, modified)

LU-7.13: Agricultural Land Conversion. The County shall support LAFCO policies that seek to preserve agricultural lands and consider the impact of annexations and Sphere of Influence amendments on agricultural land. (IGC) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Implementation 4, modified)

LU-7.14: Agricultural Preserves. The County shall encourage all areas designated for agricultural uses to be placed in an agricultural preserve and be eligible for Williamson Act contracts, provided the land is not anticipated for development for at least 10 years. (PSP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Policy 6, modified)

LU-7.15: Williamson Act Contracts. The County shall continue to administer the Williamson Act program and shall maintain procedures for Williamson Act contracts consistent with the policies in the General Plan. (PSP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Implementation 8, modified)

LU-7.16: Williamson Act Contracts Parcel Size. The County shall limit parcels eligible for Williamson Act contracts to those 20 or more acres in size in the case of prime land or 40 or more acres in the case of nonprime land. (MSPP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Policy 6, modified)

LU-7.17. Small Parcel Williamson Act Non-renewals: The County shall file a notice of non-renewal for parcels smaller than ten acres in size which are held in Williamson Act contracts. (PSP) (Source: Existing GP, Agricultural Lands, Preservation of Agricultural Lands/Compatible Uses, Implementation 8, modified)

The following Community policies encourage development of communities while preserving existing agricultural uses.

C-3.2: Development in Rural Communities. The County shall limit development in Rural Communities to those that have adequate public services to accommodate additional population and commercial services that provide for immediate needs of the community's residents or the surrounding agricultural community. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 2, modified)

C-4.1: City Fringe Boundaries. The County shall maintain City Fringe Area boundaries around incorporated cities as the official edge between future urban and agricultural land uses. City Fringe Area boundaries define the area where land uses are presumed to have an impact upon the adjacent incorporated city, and within which the cities' concerns are to be given serious consideration as part of the land use review process. Areas within the City Fringe Areas shall represent the next logical area in which urban development may occur and the area within which cities may ultimately expand. To this end, the County shall generally define City Fringe Areas consistent with adopted City Spheres of Influence, unless otherwise depicted or defined in the General Plan. (PSR/IGC) (Source: New Policy)

C-4.3: Consistent Planning. For land that is within a City Fringe Area, the County shall generally maintain General Plan land use designations that are consistent with the city's adopted General Plan, provided a city's planned growth patterns and development are consistent with the San Joaquin Council of Government's Regional Transportation Plan and Sustainable Communities Strategy, provide for compact growth patterns and higher density, mixed-use development, and include provisions to permanently preserve agricultural land within the county. The County shall maintain jurisdiction over development decisions in all unincorporated areas until annexations occur. (RDR/PSP/IGC) (Source: New Policy)

C-4.4: Agriculture-Urban Reserve. The County shall, as appropriate, apply the Agriculture-Urban Reserve designation to unincorporated properties within City Fringe Areas that are planned for future development by cities in their general plans. (PSP) (Source: New Policy)

C-4.9: Farmland Preservation. The County shall discourage San Joaquin LAFCo from approving city annexations and city SOI expansions onto Prime Farmland if farmland of lesser quality is available and suitable for expansion elsewhere. The County shall encourage the long-term preservation of productive agricultural lands and operations when San Joaquin LAFCo considers such proposals. (PSP/IGC) (Source: New Policy)

C-6.11: New Urban Community Locations. The County shall require that new Urban Communities are directed away from significant environmental resources, located in areas that minimize development of prime agricultural land or productive farmland, and designed to ensure that they will continue to be distinct communities, separate from existing communities and cities. (Source: New Policy)

The following economic development policies indicate a support for continued agricultural use and support uses and infrastructure, as well as compatibility of proposed non-agricultural uses with existing agricultural use.

ED-3.1: Adequate Supply of Industrial and Commercial Land. The County shall ensure an adequate supply of industrial and commercial land is designated for future development to allow the market to continue to expand in a manner that is compatible with agricultural production and existing uses. (PSP) (Source: New Policy)

ED-3.2: Considerations for New Commercial and Industrial Development. The County shall consider the following factors when reviewing proposed non-agricultural commercial and industrial development applications:

- *Access.* New developments should have ready access to major transportation corridors (i.e., freeways and State highways) to limit additional County-funded roadway development and maintenance.

- *Water.* New developments must have long-term water supplies to meet the ultimate demand of the development and surrounding area and ensure the continued viability of existing and future development.
- *Infrastructure.* New developments must contribute their fair share of adequate infrastructure and services that are sufficient to meet the ultimate demand of the development and surrounding area and limit additional County-funded roadway development and maintenance.
- *Efficiency.* New developments uses should make efficient use of land within the County and limit the conversion of agricultural lands to maintain the economic viability of farms and recreational resources. (RDR) (Source: New Policy)

ED-4.1: Recognize Importance of Agriculture. The County shall continue to recognize the importance of agriculture in the County's economy and shall protect and promote its continued viability. (PSP) (Source: Existing GP, Economic Development, Policy 4, modified)

ED-4.8: Protect Agricultural Infrastructure. The County shall recognize and protect agricultural infrastructure, such as farm-to-market routes, water diversion and conveyance structures, airfields, processing facilities, research and development facilities, and farmworker housing. (PSP) (Source: New Policy)

The following policies discourage conflicts of several modes of transportation with agricultural machinery.

TM-2.4: Rural Complete Streets. The County shall strive to serve all users on rural roadways in the County and shall design and construct rural roadways to serve safely bicyclists, transit passengers, and agricultural machinery operators. This includes:

- constructing wide (at least 4 feet) shoulders to provide a safe space for bicyclists, and agricultural machinery vehicles;
- removing visual barriers along rural roads, particularly near intersections, to improve the visibility of bicyclists;
- adding wayfinding signs to direct bicyclists along safe routes to destinations; and
- coordinating with local jurisdictions and SJCOG to ensure multimodal connections are established and maintained between jurisdictions. (RDR/PSP) (Source: New Policy)

TM-2.5: Reconstructed Rural Complete Streets. The County may require, based on community support and financial feasibility, reconstructed streets in rural areas to accommodate bicyclists and agricultural machinery, except where facility improvements are determined to be cost prohibitive. (RDR) (Source: New Policy)

TM-3.11: Rural Road Traffic. The County should monitor the use of rural roads by commuters as bypass routes from gridlocked arterials to gather data for use in any future traffic studies or plans designed to reduce the traffic impact on the operation of agricultural machinery. (PSP/PSR) (Source: New Policy, based on Issues and Opportunities Report)

The following policy encourages avoidance of siting natural resource extraction or generation facilities on land dedicated for agricultural use.

NCR-5.6: Energy Facilities on Prime Farmland. The County shall discourage the placement of energy facilities on Prime Farmland. (RDR) (Source: New Policy)

The following policies are specific to preservation and avoidance of land use conflicts for agricultural uses in the Delta.

D-1.1 Importance of the Delta. The County shall strive to ensure that the Delta continues to be recognized as an area of international importance and as a major agricultural, recreational, wildlife, and economic resource of San Joaquin County. (PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 17)

D-1.2 Delta Support. The County shall preserve the cultural heritage, strong agricultural/economic base, unique recreational resources, and biological diversity of the Delta, and shall support the development of public/private facilities, such as museums, recreational trails, community parks, farm stands, community centers, and water access facilities within the Delta. (PSP) (Source: New Policy)

D-3.2 Delta Agriculture. The County shall support efforts to maintain and enhance the value of Delta agriculture and value-added processing of Delta crops. (PSP) (Source: New Policy)

D-4.1 Preserve Delta Heritage. The County shall protect the unique character and qualities of the Delta Primary Zone by preserving the Delta's cultural heritage and the strong agricultural base. (RDR/PSP) (Source: New Policy)

D-4.2 Emphasize Agricultural Uses. The County shall promote and facilitate agriculture and agriculturally-supporting commercial and industrial uses as the primary land uses in the Primary Zone; recreation and natural resources land uses shall be supported in appropriate locations and where conflicts with agricultural land uses or other beneficial uses can be minimized. (RDR/PSP) (Source: New Policy)

D-4.3: General Plan Amendments in the Primary Zone. The County shall ensure that General Plan amendments affecting areas within the Primary Zone are carried out consistent with criteria set forth in Public Resources Code Section 29763.5, which requires the Delta Protection Commission to make findings as to the potential impact of the amendment on the Primary Delta and agricultural practices within the Primary Delta. (RDR/PSP) (Source: New Policy)

D-4.8: Limit Non-Agricultural Uses on Delta Islands. The County shall generally limit development in the Delta islands to water-dependent uses, recreation, and agricultural uses. (RDR/PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 19, modified)

D-4.9: Conversion of Delta Farmland to Wetlands. The County shall not allow the conversion of prime farmland within the Delta into wetlands. (RDR/PSP) (Source: New Policy, County staff)

Relevant Implementation Programs

The relevant implementation programs of the proposed 2035 General Plan that address agricultural resources are identified below.

LU-A: Development Title Consistency: The County shall update the Development Title to ensure consistency with the General Plan Land Use Diagram and the policies in the General Plan. (RDR) (Source: New Program)

LU-E: The County shall adopt standards for facilities and services in rural communities that protect basic public health and safety and the environment, but are financially supportable at rural densities and do not encourage urban development. (RDR) (Source: New Program)

NCR-A: Acquisition of Open Space. The County shall conduct a study to identify planned open space areas that are in jeopardy of conversion to other uses. Based on the findings of the study the County shall work for public acquisition of the areas. (PSR) (Source: Existing GP, Open Space, Implementation 6)

NCR-B: Agricultural Mitigation Strategy. The County, in coordination with the Agricultural Technical Advisory Committee, shall review and update the Agricultural Mitigation Strategy every 5 years. (PSP) (Source: New Program, Agricultural Mitigation Ordinance)

Approach to Analysis

As more fully described in Chapter 3, Project Description, future development in San Joaquin County will be driven by projected population growth and the manner in which the distribution of this growth will be directed and managed as part of city expansions. It is assumed that the land in each city's SOI will be annexed to each respective city by the 2035 analysis year. Further, within the County's jurisdiction, 85 percent of projected growth would be in a single urban community—Mountain House. It is estimated that about 12,133 acres of county land currently in agricultural / open spaces use would designated for non-agricultural / open spaces uses by 2035 (Mintier Harnish, 2014b). As indicated in Table 3-8 in the Project Description, it is predicted that the 2035 General Plan would result in a loss of 2,217 acres designated specifically for Agricultural/General Use by 2035, or about 18 percent of the 12,133 acres.

To calculate impacts to agricultural resources, the GIS data from the California Department of Conservation's FMMP were used to show the areas of important farmland that existed in 2010 (the most recent year for which data is available). Using the 2035 development scenario provided by the General Plan team, acres of important farmlands with the potential to be affected by 2035 development were quantified (Mintier Harnish, 2014a). The analysis is of the effects on agriculture on the 2035 Planning Horizon, as described in the Project Description.

Impact Analysis

2035 General Plan Impacts

Impact 4.B-1: Implementation of the proposed 2035 General Plan would result in the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to non-agricultural uses. (Significant and Unavoidable)

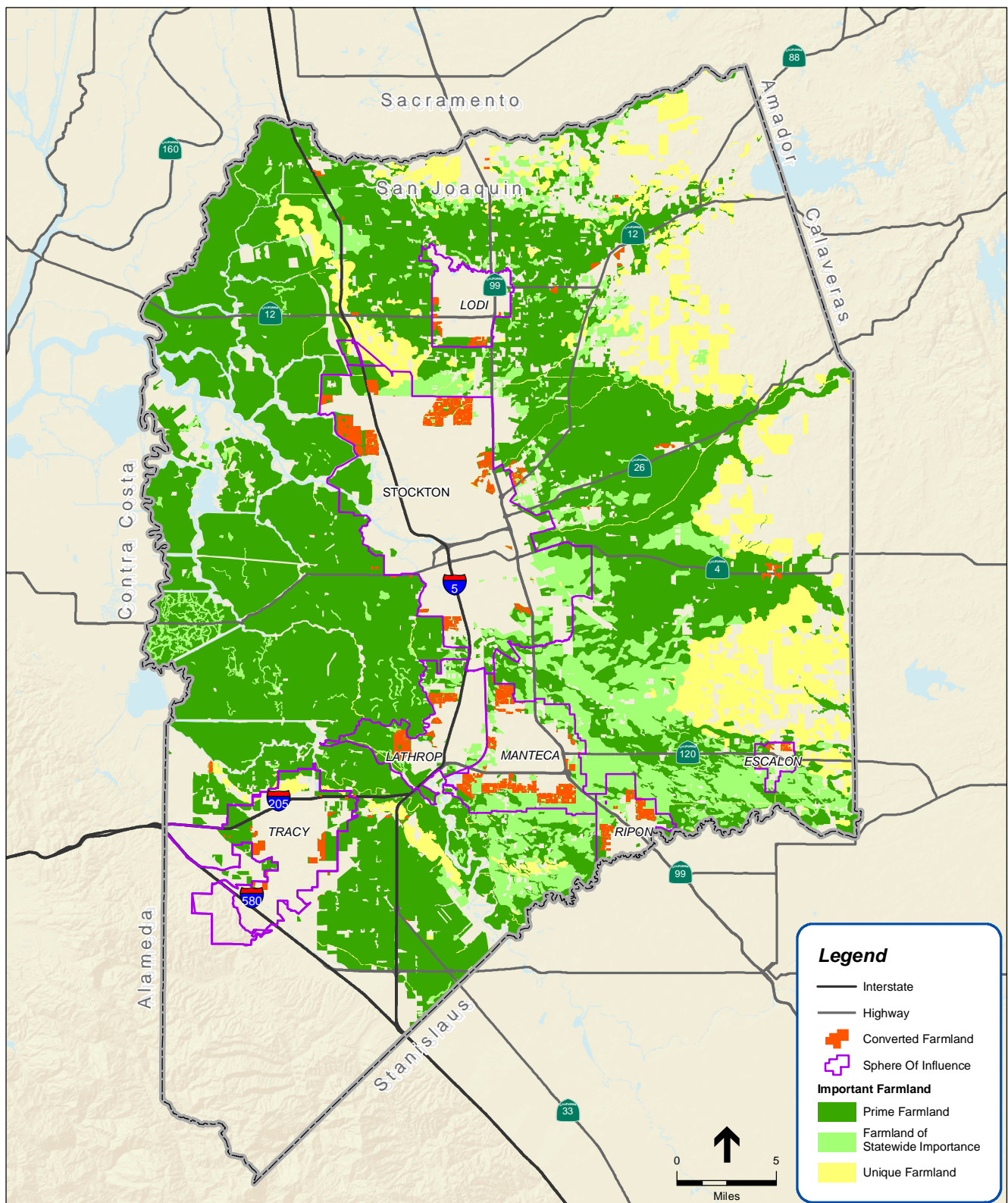
A primary impact to county agricultural lands includes the loss of productive agricultural lands due to the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to other uses. Future growth resulting from implementation of the proposed project would result in both the direct and indirect conversion of these farmlands to urban and other non-farming uses.

In keeping with the primary objectives of the proposed 2035 General Plan, the majority of impacts to farmlands would occur within the 14 rural communities, the urban communities, and the unincorporated lands that are often at the fringe of incorporated cities (see **Figure 4.B-2**). As shown in **Table 4.B-8**, a total of 5,968 acres of Prime, Unique, and Statewide-Important farmland are anticipated to be converted between 2010 and 2035.⁴ However, the majority of the anticipated converted farmland would be within existing incorporated city Spheres of Influence, where farmland would be annexed to the neighboring city and subsequently developed under that jurisdiction's approval process. As indicated in the Regulatory Setting, above, San Joaquin County cities have General Plan policies encouraging the continued use of agricultural land until urban development is imminent, and discouragement of premature conversion of agricultural land more generally. With city adherence to these policies, lands within the SOI would not be annexed until infrastructure placement and development is ready to proceed. Some cities, such as Escalon and Stockton, call for a permanent greenbelt or open space buffer along the ultimate edge of the urban service area, thereby preserving land beyond the SOIs.

Development of county farmland outside these SOIs pursuant to the proposed 2035 General Plan would result in conversion of 537 acres of the total 5,968 acres. The County would not have any control on agricultural land conversion once agricultural land within SOIs is annexed to incorporated cities.

The preservation of agricultural resources is a key goal of the proposed 2035 General Plan, with the inclusion of several related policies in the Land Use Element, as well as other elements. These policies discourage direct conversion of agricultural land and preservation of existing agricultural heritage and use. They include policies LU-1.1, LU-1.5, LU-1.7, LU-1.10, LU-2.10, LU-2.14, LU-2.15, LU-2.16, LU-4.2, LU-5.2, LU-7.1, LU-7.3, LU-7.9, LU-7.10, LU-7.11, LU-7.12, LU-7.13, C-3.2, C-4.3, C-4.9, C-6.11, ED-3.2, ED-4.1, NRC-5.6, D-1.1, D-1.2, D-3.2, D-4.1, D-4.2, D-4.3, D-4.8, and D-4.9.

⁴ As stated above, the most recent important farmland data available from the Farmland Mapping and Monitoring Program (FMMP) is for the year 2010. Given the total acreage of farmland countywide is generally reduced over time, it is reasonable to assume that there would be fewer total acres of important farmland in 2013 (which is the publication date of the Notice of Preparation for the 2035 General Plan, and the "baseline" year for this analysis). As such, use of the 2010 FMMP data provides a conservative analysis of the impacts of the loss of additional farmland by 2035.



SOURCE: CDOC, 2014

San Joaquin County 2035 General Plan. 209529

Figure 4.B-2
Anticipated Converted Farmland by 2035

**TABLE 4.B-8
ANTICIPATED FARMLAND CONVERSION BETWEEN 2010 AND 2035 WITHIN SPHERES OF
INFLUENCE OF INCORPORATED CITIES AND WITHIN UNINCORPORATED COUNTY LANDS**

Jurisdiction Sphere of Influence	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Total
Escalaon	72	55	15	142
Lathrop	461	162	18	641
Lodi	197	14	-	211
Manteca	384	1,115	-	1,499
Ripon	156	327	12	495
Stockton	1,170	841	75	2,086
Tracy	353	-	4	357
Unincorporated County	419	103	15	537
Total	3,212	2,617	139	5,968

SOURCES: San Joaquin County, 2013; FMMP, 2013; Mintier-Harnish, 2014

For example, adherence to policies LU-2.10, LU-2.14, LU-2.15, and LU-2.16 would consider the secondary development pressures and loss of resources created when existing farmland is converted, which would better inform decision-makers as to the effects of individual projects. Policies LU-7.1, LU-7.2, LU-7.3, LU-7.9, LU-7.10, LU-7.11, LU-7.12, and LU-7.13 recognize that important farmland is not protected in isolation, but instead requires protection of support uses, subdivision limitations, right-to-farm enforcement, and agricultural buffers that together would combine to discourage development pressures on important farmland. Delta-specific policies D-1.1, D-1.2, D-3.2, D-4.1, D-4.2, D-4.3, D-4.8, and D-4.9 recognize that agricultural conversion within the Delta is a region- and state-wide concern, further emphasizing the importance of important farmlands in these areas. Specifically, programs NCR-A and NCR-B encourage preservation of existing agricultural and open spaces. The County would review the Agricultural Mitigation Strategy and identify areas of open space in danger of conversion to other uses, which would allow the county to prioritize preservation and conservation efforts on specific parcels. Combined, County adherence to these policies and implementation programs would result in continued coordination with LAFCo, the Delta Protection Commission, cities, and other entities to promote agricultural preservation and direct growth toward existing communities.

The proposed 2035 General Plan also includes a set of policies intended to direct growth and non-agricultural uses toward areas designated for such growth, which primarily include rural communities, urban communities, and unincorporated areas within city's Spheres of Influence. These policies include LU-1.1, LU-1.4, LU-1.11, LU-4.1, LU-4.3, LU-5.7, LU-6.4, LU-7.1, LU-7.13, C-4.1, C-4.3, C-4.4, and ED-3.1. Program LU-E also directs growth toward urban areas. The guidance of development pressures toward areas designated for such growth would allow for concentrated and more efficient growth, as opposed to scattered growth that breaks up larger tracts of agricultural land in a piecemeal fashion, thereby preserving larger tracts farther away from developed areas.

Although these policies would not prevent an overall net loss of farmlands within the county associated with future development within existing agricultural areas, adherence to the policies

would restrict such development. As shown in Table 4.B-4, as of 2010, the county had 385,337 acres of Prime Farmland, 83,307 acres of Farmland of Statewide Importance, and 69,481 acres of Unique Farmland. Development pursuant to the proposed 2035 General Plan would convert 5,968 acres, or 1.1 percent, of these important farmlands to other uses. The majority of these lands are located within existing city SOIs, although they would remain under county jurisdiction until they are annexed. Of these 5,968 acres, 537 acres are located outside SOIs. Conversion that does occur would be directed toward designated locations in unincorporated rural or urban communities.

Note that the FMMP farmland designations apply to parcels larger than 10 acres in size. As such, parcels of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance smaller than 10 acres in size could also be converted to other uses, and these acreage totals would be higher than presented above. In addition, infrastructure projects, such roadway capacity improvements, would constitute a land use change, further reducing the total amount of important farmland.

As stated above under the Regulatory Setting, General Plan amendments and rezonings would have to abide by the County's Agricultural Conversion Ordinance, which requires preservation of farmland at a 1:1 ratio between the acres of farmland lost and preserved; however, the ordinance does not fully compensate for acreage of farmland lost. As shown in **Figure 4.B-2**, the lands outside city SOIs that are anticipated to be converted from agricultural use are located along Routes 4, 12, 28, as well as Interstate 5. These parcels are within or adjacent to the urban and rural communities of Lockeford, Thornton, Lindon, Farmington, as well as adjacent to the City of Stockton.

The conversion of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland in City SOIs and the remaining unincorporated county constitutes a significant impact under CEQA. General Plan policies, implementation programs, the Agricultural Conversion Ordinance, and City agricultural land preservation policies and programs would reduce farmland conversion, but some farmland conversion would still occur. New farmland cannot feasibly be made available because it would require either conversion from an existing, developed use, or conversion from forest land, park land, or open space. Such uses are typically either occupied by existing businesses or residents, or are also protected from conversion under state and local policies and regulations. Therefore, the impact would be significant and unavoidable.

Mitigation: None available; Significant and Unavoidable.

Impact 4.B-2: Implementation of the proposed 2035 General Plan could conflict with existing zoning for agricultural use, or conflict with the provisions of the Williamson Act contracts through early termination of active Williamson Act contracts, which would result in a net loss of farmland to other forms of development. (Less than Significant)

As indicated in Table 3-8 in the Project Description, it is predicted that there would be a loss of 2,217 acres designated for Agricultural/General Use by 2035. As stated in Section 4.A, Program LU-A would require that the County update the Development Title to ensure consistency with the General Plan Land Use Diagram and the policies in the General Plan. Rezonings would occur when project applicants can document the availability of adequate services to serve the sites.

Therefore, the existing agricultural General Plan land use and zoning designations would change as part of the implementation measures of the 2035 General Plan and subsequent specific development approval processes, and new development would be undertaken pursuant to revised designations. Regardless, those developments would conflict with the existing (2013) agricultural land use and zoning designations and zoning for these 2,217 acres.

Figure 3-4 in the Project Description shows the location of parcels that would have a land use change under the proposed 2035 General Plan. Parcels along Route 4 near southwest Stockton, as well as parcels at the intersection of Route 12 and Interstate 5, are currently under Williamson Act contracts (although the parcels near southwest Stockton are designated for Non-Renewal) (DOC, 2013). Therefore, redevelopment pursuant to the plan could result in early termination of contracts for a small acreage of lands currently subject to Williamson Act contracts, which would result in both the direct and indirect conversion of these farmlands to urban and other non-farming uses.

Williamson Act lands within existing incorporated City Spheres of Influence would be annexed to the neighboring city and subsequently developed under that jurisdiction's approval process. However, as described under **Impact 4.B-1**, San Joaquin County cities have General Plan policies encouraging the continued use of agricultural land until urban development is imminent, and discouragement of premature conversion of agricultural land more generally. Lands would not be annexed until infrastructure was in place, which would reduce conversions of agricultural lands and early termination of Williamson Act contracts.

One of the functions of the Williamson Act is to encourage orderly development while discouraging premature development of agricultural lands (with active Williamson Act contracts). This purpose is also reflected in the proposed 2035 General Plan, which contains policies to focus future growth within established community areas in an effort to minimize the conversion of important farmlands. These policies are listed above, under **Impact 4.B-1**. In addition, policies LU-7.14, LU-7.15, LU-7.16, and LU-7.17 support the continuation and expansion of the total acreage of land under Williamson Act contracts. Moreover, as stated above, the preservation of agricultural resources is a key goal of the proposed 2035 General Plan, with the inclusion of several related policies in the Land Use Element, as well as other elements, including policies LU-1.1, LU-1.5, LU-1.7, LU-1.10, LU-2.10, LU-2.14, LU-2.15, LU-2.16, LU-4.2, LU-5.2, LU-7.1, LU-7.3, LU-7.9, LU-7.10, LU-7.11, LU-7.12, LU-7.13, C-3.2, C-4.3, C-4.9, C-6.11, ED-3.2, ED-4.1, NRC-5.6, D-1.1, D-1.2, D-3.2, D-4.1, D-4.2, D-4.3, D-4.8, and D-4.9. Adherence to these policies would reduce the total amount of farmland converted to other uses, as well as discourage the early termination of Williamson Act contracts, thereby reducing physical environmental effects.

If conversions from existing agricultural zoning or Williamson Act designation do occur, they could also result in significant impacts if incompatible uses are considered for these lands such that a physical environmental effect would result. However, as stated below under **Impact 4.B-5**, the General Plan includes policies intended to discourage agricultural land use conflicts: LU-2.1, LU-2.15, LU-4.2, LU-4.10, LU-5.15, LU-7.2, LU-7.5, LU-7.7, LU-7.9, C-4.1, TM-2.4, TM-2.5, TM-3.11, D-4.3, and D-4.8. These policies state that development approvals processes shall consider the impact on, and compatibility with, surrounding agricultural lands, and that such

developments should be sized and located to avoid potential conflicts. They also indicate that the right to farm shall be protected against nuisance complaints through the Right to Farm ordinance and other mechanisms, which would reduce land use conflicts because non-agricultural users would be informed of potential conflicts and have the option of avoiding them.

Potential conflicts with other plans and policies are addressed in Section 4.A, Land Use Consistency and Compatibility. As stated there, implementation of General Plan 2035 would not conflict with agricultural policies of LAFCo, the LURMP, or the SJMSCP. Regarding LAFCo, as described in Section 4.A-2, implementation of the proposed 2035 General Plan would be consistent with SOIs established by LAFCo, and General Plan policies address working with LAFCo to ensure that new development is appropriately located when annexations are proposed. Also, although the proposed areas of land use change in the area east of Stockton that would be located within the Primary Zone of the Delta would conflict with the LURMP, implementation of Mitigation Measure 4.A-2 would ensure that any lands proposed to be removed from agricultural uses that are located within the Primary Zone of the Delta would not be re-designated as part of the 2035 General Plan.

As indicated above, as of 2010, the county had 434,400 acres of land under Williamson Act Contract and 38,677 acres under non-renewed Williamson Act Contract. It can be assumed that some future development subsequent to the proposed 2035 General Plan would occur on lands currently subject to a Williamson Act contract. Future development subsequent to the proposed 2035 General Plan would primarily occur within 14 rural communities, the urban communities, and the unincorporated lands that are identified neither as rural or urban communities but that are often at the fringe of incorporated cities. Proper procedures (including minimizing early termination of active contracts), contained within the Williamson Act itself, would be followed as development within the county occurs under the proposed 2035 General Plan.

Although some Williamson Act contracts may still be cancelled with development under the proposed General Plan by 2035, resulting in a physical net loss of farmland, implementation of the policies and implementation programs included in the proposed Plan would reduce these cancellations. Therefore, the impact would be less than significant.

Mitigation: None required.

Impact 4.B-3: Implementation of the proposed 2035 General Plan would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)). (Less than Significant)

Most of the land use designation changes and growth anticipated under the proposed 2035 General Plan would occur in or near urbanized areas, not in these existing forest lands. Further, both the existing valley woodlands and riparian woodlands are not highly representative of the vegetative communities in San Joaquin County (see Table 4.F-1 in Section 4.F, Biological Resources).

The 20,000 acres of existing oak woodland in the southwest portion of the county qualifies as “forest land” under Public Resources Code section 12220(g), which states, “‘Forest land’ is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.”

According to the 2035 development scenario provided by the General Plan team, none of this woodland would be developed (Minter Harnish 2014a). Moreover, as shown in **Figure 3-4**, 2035 land use designation changes would not occur in the southwest portion of the county (southwest of Interstate 580).

In addition, as presented in Section 4.F, Biological Resources, the General Plan 2035 would not result in significant impacts to oak woodland or other woodland habitats. Specifically, there are no land use changes proposed in the northeast corner of the county that could affect existing patches of blue oak habitat.

Therefore, the 2035 General Plan would not result in conflict with existing zoning for, or cause rezoning of, forest land or timberland, and the impact would be less than significant.

Mitigation: None required.

Impact 4.B-4: Implementation of the proposed 2035 General Plan would not result in the loss of forest land or conversion of forest land to non-forest use. (Less than Significant)

As discussed under Impact 4.B-3, the proposed 2035 General Plan would not result in a net loss of land designated for forest use or timberland use, and development envisioned by 2035 would not occur in areas where there is existing forest land. The impact would be less than significant.

Mitigation: None required.

Impact 4.B-5: Implementation of the proposed 2035 General Plan would involve other land use conflicts between agricultural and urban use or conversion of forest land to non-forest use, that could result in the conversion of Farmland to non-agricultural use, but would not result in the conversion of forest land to non-forest use. (Less than Significant)

As previously described under **Impact 4.B-1**, direct impacts to agricultural resources include the conversion of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses. Indirect changes caused by this development may include a variety of nuisance effects resulting from urban expansion into agricultural areas—also known as “edge effects,” which are described in the Setting. These conflicts may increase costs to the agricultural operation, and combined with rising land values for residential development, encourage

conversion of additional farmland to urban or other non-agricultural uses. The potential for “edge effects” may be greater adjacent to the various unincorporated community areas of the county.

The Right to Farm Ordinance and proposed 2035 General Plan policies adopted as part of the proposed project would minimize this impact. Along with the policies listed under **Impact 4.B-1**, which discourage conversion of farmland, as well as encourage growth in designated areas, the proposed 2035 General Plan includes the following policies intended to discourage agricultural land use conflicts: LU-2.1, LU-2.15, LU-4.2, LU-4.10, LU-5.15, LU-7.2, LU-7.5, LU-7.7, LU-7.9, C-4.1, TM-2.4, TM-2.5, TM-3.11, D-4.3, and D-4.8. These policies state that development approvals processes shall consider the impact on, and compatibility with, surrounding agricultural lands, and that such developments are sized and located to avoid potential conflicts. They also indicate that the right to farm shall be protected against nuisance complaints through the Right to Farm ordinance and other mechanisms, which would reduce land use conflicts because non-agricultural users would be informed of potential conflicts and have the option of avoiding them.

Regarding forest land and timberland, as indicated under Impact 4.B-3, the proposed 2035 General Plan would not result in development in areas adjacent to or within existing forest land or timberland. Therefore, no land use conflicts with forest land uses would ensue.

As such, implementation of the proposed 2035 General Plan—including the adoption of the policies listed above—would result in a less than significant impact.

Mitigation: None required.

Cumulative Impacts

Impact 4.B-6: Implementation of the proposed 2035 General Plan, combined with cumulative development in the Central Valley, including past, present, reasonably foreseeable probable future development, could contribute to significant adverse cumulative impacts on agricultural resources. (Significant and Unavoidable)

The geographic context considered for the cumulative agricultural resources impacts analysis includes plans for the surrounding incorporated areas and other Central Valley counties that, when combined with the proposed project, could result in cumulative agricultural resources impacts. Past projects are included in the existing setting described in this section and in the introduction for this chapter. Present projects would include any projects currently under construction and reasonably foreseeable future probable projects are those that could be developed within the county or neighboring jurisdictions by 2035.

Cumulative agricultural land impacts could occur in conjunction with development allowed by the incorporated cities and other counties. The county also abuts Calaveras, Amador, Alameda, Contra Costa, and Sacramento Counties where cumulative agricultural resource impacts could occur. In 2007, the American Farmland Trust (AFT) projected that approximately 821,000 acres of Central Valley (Sacramento Valley plus San Joaquin Valley) land would be urbanized by 2050 if the rate of

development efficiency continued (AFT, 2007). Although farmland conversion in the Central Valley may have declined since 2007 due to the economic downturn, AFT still projects that up to 300,000 acres of San Joaquin Valley farmland will be lost between 2010 and 2050 if current development patterns continue (AFT, 2013).

Cumulative agricultural impacts would be partially mitigated by the multiple policies identified herein that would be included as part of the proposed 2035 General Plan, as well as by other plans and policies with the other jurisdictions of the Central Valley. Regardless, the proposed 2035 General Plan would result in conversion of almost 6,000 acres of important farmland, termination of Williamson Act contracts, development in areas currently zoned for agricultural use, and land use conflicts with existing agricultural uses. The proposed 2035 General Plan would have a cumulatively considerable contribution to these cumulative impacts on agriculture.

Mitigation: None available; Significant and Unavoidable.

Impact 4.B-7: Implementation of the proposed 2035 General Plan, combined with cumulative development in the Central Valley, including past, present, reasonably foreseeable probable future development, would not have significant adverse cumulative impacts on forestry resources. (Less than Significant)

The geographic context considered for the cumulative forestry resources impacts analysis includes plans for the surrounding incorporated areas and other counties that, when combined with the proposed project, could result in cumulative forestry resource impacts. Past projects are included in the existing setting described in this section and in the introduction for this chapter. Present projects would include any projects currently under construction, and reasonably foreseeable future projects are those that could be developed within the county or neighboring jurisdictions by 2035.

As indicated under Impact 4.B-3 and Impact 4.B-4, the proposed 2035 General Plan would not result in development or land use designation changes in the southwest portion of the county (southwest of Interstate 580) where forest lands are present. Therefore, the 2035 General Plan would not considerably contribute to cumulative impacts on forestry resources, and the impact would be less than significant.

Mitigation: None required.

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C. Population and Housing

C.1 Introduction

This section describes the County's existing and projected population, employment and housing characteristics and evaluates the San Joaquin County 2035 General Plan in terms of impacts on population, employment and/or housing. The environmental setting section was developed in part using information contained in the General Plan Background Report (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession of 2009 contributed to significantly slower population and housing growth than what had been projected for San Joaquin County¹. In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2009 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes. Other data sources used for this section include the U.S. Census Bureau, the California Department of Finance, and the California Employment Development Department.

C.2 Environmental Setting

Population and Housing

Historic Population Growth

San Joaquin County grew rapidly from 1990 to 2010, by 42.5 percent, compared to a 27.9 percent increase statewide. As shown in **Table 4.C-1**, the County grew from a population of 480,628 in 1990 to 685,200 in 2010, an increase of 204,572 people in 20 years. However, it is important to note that the County's incorporated cities experienced the majority of this growth, with the City of Stockton experiencing the largest percentage share of growth (80,757 or 39 percent of overall County growth) between 1990 and 2010.

The percentage share of the County population in the unincorporated areas decreased annually between 1970 and 2010. The unincorporated area made up 36.9 percent of the entire County population in 1970 and decreased to 21 percent in 2010. The decrease in growth in the unincorporated County and the growth in the County overall again reflects a shift to the incorporated areas of the County.

¹ In SJCOC's 2005-2030 Population and Employment Projections (2004) countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three year period.

**TABLE 4.C-1
HISTORIC POPULATION TRENDS FOR SAN JOAQUIN COUNTY – 1970 TO 2010**

Year	Incorporated City Areas of San Joaquin County (population)	Unincorporated Areas of San Joaquin County (population)	County Total Population	California Total Population
1970	190,770	111,400	302,170	20,039,000
1980	234,542	111,900	346,442	23,782,000
1990	355,881	124,747	480,628	29,758,213
2000	433,532	130,066	563,598	33,873,086
2010	543,200	142,000	685,200	37,253,959
Net Change				
1970-2000	+242,762	+18,666	+261,428	+13,834,086
1990-2010	+187,319	+17,253	+204,572	+7,495,746

SOURCE: San Joaquin County, 2014.

Regional Population Growth

The California Department of Finance (DOF) provides population estimates and projections for cities and counties throughout California. As shown in **Table 4.C-2**, the population in San Joaquin County is anticipated to increase by a total of 62 percent between 2010 and 2035, which is significantly higher than the anticipated growth rate for the State (24 percent) and neighboring counties. In general, counties located in the Central Valley (San Joaquin, Sacramento and Stanislaus Counties) tend to have higher anticipated annual growth rates when compared to the Statewide rate of 0.9 percent, and the annual growth rates for counties in the Bay Area or Sierra Nevada Foothills.

**TABLE 4.C-2
COUNTY POPULATION GROWTH ESTIMATES**

City/County	Population 2010	Population 2035	Percent Growth 2010-2035	Percent State Population
San Joaquin County	686,588	1,110,972	61.8	2.4
Sacramento County	1,420,434	1,817,718	28.0	3.9
Stanislaus County	515,205	714,694	38.7	1.6
Amador County	37,853	43,150	14.0	0.1
Calaveras County	45,462	55,188	21.4	0.1
Contra Costa County	1,052,211	1,324,740	25.9	2.9
Alameda County	1,513,236	1,668,918	10.3	3.6
California	37,309,382	46,083,482	23.5	100

SOURCE: DOF, 2013.

Population and Housing in Community Plan Areas

Under the land use changes described in Section 4.A, *Land Use*, housing unit projections have also been developed by General Plan Community Plan Areas, or unincorporated communities. Unincorporated communities in San Joaquin County are classified as either Urban Communities

or Rural Communities. Urban Communities typically have larger population sizes, higher residential densities and public service levels, and an historic role as region-serving, commercial centers that distinguish them from the smaller rural communities. They are typically served by community water and wastewater systems. Rural Communities generally have populations between 100 and 1,000. Their character varies from historic towns originally established as stagecoach or rail stops, to isolated clusters of ranch-style residences on large lots. Many of these communities have small local-serving commercial areas at their major crossroads, an elementary school, a cemetery, and agricultural-support uses.

Housing Characteristics

This section discusses the current housing stock, household tenure, and average household income in San Joaquin County.

Household Type and Size

There are two types of households: family households include married couples with or without children and non-family households generally describe single person households, including the elderly and multi-person households not related by birth, marriage or adoption. In 2010, there were 44,549 households in unincorporated San Joaquin County, an increase of 6 percent from 2000. The majority of households in the County (75 percent) are family households while 25 percent are non-family households. The average household size in San Joaquin County increased from 3.0 persons per household in 2000 to 3.19 persons per household in 2012.

Housing Tenure and Occupancy

Housing tenure refers to the type of occupancy, or whether a unit is owner-occupied or renter-occupied. In this case, an occupied housing unit is equivalent to a household. The U.S. Census estimated that in 2010, the housing unit split for the County as a whole was primarily owner occupied (56 percent), with 44 percent of housing units being renter-occupied. In general, higher proportions of single-family homes equate to higher proportions of owner-occupied units, and multi-family units generally correlate to renter-occupied units.

Housing Stock Profile

As shown in **Table 4.C-3**, housing units in the unincorporated communities represent around 21 percent of the total housing units of the County, or 48,546 units. Of the total units in the unincorporated County, the vast majority are single family homes (85 percent); this reflects the county-wide housing composition that is also a majority (78 percent) single family units. Around 4 percent of the remaining units are mobile homes, while 18 percent are multi-family housing, with 2-4 units and five or more units. While the unincorporated County had the largest number of mobile home units (5,198) in 2013, in general the County had fewer multi-family units than the cities of Lodi, Manteca, Tracy and Stockton.

The existing distribution of housing in San Joaquin County tends to center in and around the spheres of influence of the incorporated cities of Stockton, Lodi, Manteca and Tracy. These areas have higher levels of public services and infrastructure which allows for more dense development and a wider variety of housing units to be built.

**TABLE 4.C-3
SAN JOAQUIN COUNTY HOUSING UNITS 2013**

Area	Total Units		Single Family		Multi-Family 2-4 Units		Multi-Family 5+ Units		Mobile Homes	
	Units	Percent	Units	Percent	Units	Percent	Units	Percent	Units	Percent
Escalon	2,605	1%	2,225	85%	128	5%	84	3%	168	6%
Lathrop	5,535	2%	5,044	91%	42	1%	71	1%	378	7%
Lodi	23,803	10%	16,457	69%	1,846	8%	5,062	21%	438	2%
Manteca	24,242	10%	19,704	81%	1,068	4%	2,673	11%	797	3%
Ripon	5,176	2%	4,561	88%	200	4%	402	8%	13	0%
Stockton	100,003	42%	71,834	72%	9,070	9%	18,007	18%	1,108	1%
Tracy	25,996	11%	22,035	85%	1,592	6%	1,902	7%	467	2%
Unincorporated County	48,546	21%	41,416	85%	952	2%	982	2%	5,198	11%
San Joaquin County	235,906	100%	183,276	78%	14,898	6%	29,183	12%	8,567	4%

SOURCE: DOF, 2013

Employment

Table 4.C-4 shows the most prevalent employment industries in San Joaquin County, and their projected growth as estimated by the California Economic Development Department (EDD). In Census year 2010, the largest industry employer was the government (38,200 jobs), including State and local government, followed by Health Care and Social Assistance (23,800 jobs) and Retail Trade (23,700 jobs). In 2020, these three sectors are expected to remain the largest employers in the County; however, of these three sectors, Health Care and Social Assistance is expected to grow at the fastest rate of 26.5 percent. Industries related to wholesale trade would experience the highest growth relative to all other industries (38.0 percent), while the manufacturing industry is expected to experience the least growth at 2.3 percent.

C.3 Regulatory Setting

This subsection briefly describes regional and local regulations and policies pertaining to population and housing as they apply to the proposed project.

Federal

Title VI of the Civil Rights Act of 1964

Title VI prohibits discrimination on the basis of race, color, or national origin in programs receiving federal financial assistance.

**TABLE 4.C-4
SAN JOAQUIN COUNTY EMPLOYMENT INDUSTRY GROWTH 2010-2020**

Industry	Average Annual Employment		Employment Change	
	2010	2020	Number	Percent
Mining and Logging	100	100	0	0.0
Construction	7,600	9,800	2,200	28.9
Manufacturing	17,600	18,000	400	2.3
Wholesale Trade	10,000	13,800	3,800	38.0
Retail Trade	23,700	29,100	5,400	22.8
Transportation, Warehousing, and Utilities	13,800	18,700	4,900	35.5
Information	2,100	2,200	100	4.8
Financial Activities	7,700	8,800	1,100	14.3
Professional and Business Services	15,400	19,600	4,200	27.3
Educational Services (Private)	4,900	6,400	1,500	30.6
Health Care and Social Assistance	23,800	30,100	6,300	26.5
Leisure and Hospitality	16,100	20,200	4,100	25.5
Government	38,200	41,500	3,300	8.6
Farm Workers	15,700	16,400	700	4.5
Other Services	6,500	8,000	1,500	23.1

SOURCE: Economic Development Department, California Labor Market Information, 2013.

Title VIII of the Civil Rights Act of 1968

Title VIII of the Civil Rights Act, the Fair Housing Act, prohibits discrimination in the sale, rental, and financing of dwellings, and in other housing-related transactions, based on race, color, national origin, religion, sex, familial status (including children under the age of 18 living with parents of legal custodians, pregnant women, and people securing custody of children under the age of 18), and handicap (disability).

Section 504 of the Rehabilitation Act of 1973

Section 504 prohibits discrimination based on disability in any program receiving federal financial assistance.

Section 109 of Title I of the Housing and Community Development Act of 1974

Section 109 prohibits discrimination on the basis of race, color, national origin, sex or religion in programs and activities receiving financial assistance from Housing and Urban Development's (HUD) Community Development and Block Grant Program.

Title II of the Americans with Disabilities Act of 1990

Title II prohibits discrimination based on disability in programs, services, and activities provided or made available by public entities. HUD enforces Title II when it relates to State and local public housing, housing assistance and housing referrals.

Architectural Barriers Act of 1968

The Architectural Barriers Act requires that buildings and facilities designed, constructed, altered, or leased with certain federal funds after September 1969 must be accessible to and useable by handicapped persons.

Age Discrimination Act of 1975

The Age Discrimination Act prohibits discrimination on the basis of age in programs receiving federal financial assistance.

Executive Order 11063

Executive Order 11063 prohibits discrimination in the sale, leasing, rental, or other disposition of properties and facilities owned or operated by the federal government or provided with federal funds.

State and Regional

State Housing Element Law

Pursuant to Section 65580 of the Government Code, a Housing Element of a General Plan must contain local commitments to:

- Provide sites with appropriate zoning and development standards and with services and facilities to accommodate the jurisdiction's Regional Housing Needs Assessment (RHNA) for each income level. The RHNA is the only population and/or housing requirement that applies to the 2035 General Plan. The County's preliminary RHNA allocation for the 2014-2023 period is shown in **Table 4.C-5**.
- Assist in the development of adequate housing to meet the needs of lower and moderate income households.
- Address, and where appropriate and legally possible, remove governmental constraints to the maintenance, improvement, and development of housing, including housing for all income levels and housing for persons with disabilities.
- Conserve and improve the condition of the existing affordable housing stock.
- Promote housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability.
- Preserve assisted housing developments for lower income households.

State Housing Element law mandates specific topics and issues that must be addressed in the Housing Element. These include:

- An analysis of population and employment trends, documentation of projections, and quantification of existing and projected housing needs for all income levels.

**TABLE 4.C-5
SAN JOAQUIN COUNTY PRELIMINARY REGIONAL HOUSING NEEDS ASSESSMENT (RHNA)
ALLOCATIONS, BY COST CATEGORY (2014-2023)**

Income Limits	Extremely Low (\$16,129 & Below)	Very Low (16,130 to \$26,882)	Low (\$26,883 to \$43,011)	Moderate (\$43,012 to 64,517)	Above Moderate (\$64,518 & Above)	Total RHNA
Escalon	57	41	65	65	197	425
Lathrop	503	474	744	959	2,471	5,151
Lodi	233	244	324	333	793	1,927
Manteca	444	455	690	838	2,029	4,456
Ripon	146	148	211	232	741	1,478
Stockton	1,597	1,426	1,964	2,105	4,710	11,802
Tracy	490	450	691	829	2,510	4,970
Unincorporated County	1,199	1,190	1,694	1,728	4,340	10,151
County Total	4,669	4,428	6,383	7,089	17,791	40,360

SOURCE: SJCOG, 2014.

- An analysis and documentation of household characteristics, such as the age of housing stock, tenancy type, overcrowded conditions, and the level of payment compared to ability to pay.
- An analysis and documentation of special needs, such as female-headed households, homeless individuals, persons with disabilities, large households, farmworkers, and the elderly.
- A regional share of the total regional housing need for all income categories.
- An inventory of land suitable for residential development, including vacant land and infill/redevelopment opportunities. This analysis also looks at potential residential sites and their accessibility to adequate infrastructure and services.
- Identification of actual and potential governmental and non-governmental constraints that could potentially impede the maintenance, improvement, and development of housing for all income groups.
- Identification and analysis of opportunities for energy conservation in residential developments.
- An inventory of at-risk affordable units that have the possibility of converting to market rate.
- A statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the improvement, maintenance, and development of housing.

State law requires that adequate opportunity for participation be solicited from all economic segments of the community towards preparation of the Housing Element. Specifically, the jurisdiction must reach out to lower and moderate income persons and persons with special needs. Preparation of the Housing Element must also be coordinated with other local jurisdictions within the regional housing market area.

Article 34

Article 34 of the California Constitution requires a majority vote of the electorate to approve the development, construction, or acquisition by a public body of any “low rent project” within that jurisdiction. In other words, for any project to be built and/or operated by a public agency where at least 50 percent of the occupants are low income and rents are restricted to affordable levels, the jurisdiction must seek voter approval (Article 34 authority).

California Building Standards Code

In 2001, the State of California consolidated the Uniform Building, Plumbing, Electrical, and Mechanical codes into the California Building Standards Code, which is contained in Title 24 of the California Code of Regulations. The California Building Standards Code contains eleven parts: Electrical Code, Plumbing Code, Administrative Code, Mechanical Code, Energy Code, Elevator Safety Construction Code, Historical Building Code, Fire Code, and the Code for Building Conservation Reference Standards Code. These codes promote public health and safety and ensure that safe and decent housing is constructed in the County unincorporated areas. The codes serve to protect residents from hazards and risks, and are not considered to be undue constraints to housing production.

Local

Assisted Housing Programs

The San Joaquin County Housing Authority implements several programs that assist the low to moderate income community with housing costs. In 1999, the Housing Choice Voucher Program (HCVP) was introduced, superseding the 1974 Housing Assistance Payment Program (Section 8), and the 1967 Housing Act Leased Housing Section 23 program. HCVP eliminated the certificate process, providing tenants which greater flexibility in renting affordable units. HCVP also provides greater flexibility for property owners to set initial rent rates, and allows for market based rent adjustments. The County Housing Authority owns four Public Housing developments, which provide assistance for low to moderate income families, and one complex that provides assistance for the elderly.

Sustainable Communities Strategy

The “Valley Visions San Joaquin” Regional Transportation Plan is a long range transportation plan that guides land use policies and transportation improvements in San Joaquin County. The Plan is updated every four years, and in 2014, a new Sustainable Communities Strategy (SCS) will be included as a result of the State’s Sustainable Communities and Climate Protection Act of 2008 (SB375) that will guide development through 2040, specifically indicating priority development areas where the County’s Regional Housing Needs Assessment (RHNA) units will be located. On June 26, 2014, SJCOG adopted the 2014-2040 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) for San Joaquin County.

San Joaquin County Housing Element

The latest San Joaquin County Housing Element was adopted on January 12, 2010. The first part of the Housing Element consists of a background report, which provides information on household characteristics, housing needs, housing supply, land inventory for new development, housing programs, constraints, and incentives for new housing development within the county. The second part of the Housing Element consists of the policy document, which includes the community's goals, policies, quantified objectives, and implementation programs for the maintenance, improvement, and development of housing.

C.4 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA *Guidelines* provides that a project would have a significant population or housing impact if it would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Relevant Policies

The following relevant policies and implementation programs of the 2035 General Plan address population and housing².

C-1.9: Available Infrastructure. The County shall only approve new development in Urban Communities and City Fringe Areas where adequate infrastructure is available or can be made available from an existing City, agency, or special district for the development and there are adequate provisions for long term infrastructure maintenance and operations. (RDR) (Source: New Policy)

C-2.1: Planning for Urban Communities. The County shall plan Urban Communities to accommodate most of the unincorporated County's projected growth; provide a variety of land uses; receive urban services, including community wastewater treatment, water, and storm drainage. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 1, modified)

C-2.2: Urban Community Designation. The County shall limit the designation of Urban Communities to those unincorporated communities that have urban services (i.e., water and

² For General Plan policies and implementation programs that relate to construction of housing, housing affordability, special needs housing, neighborhood preservation and rehabilitation, equal opportunity housing, and discrimination prevention, refer to the San Joaquin County Housing Element, adopted January 12, 2010.

wastewater) provided by a public agency or areas that have been identified in this General Plan as an Urban Community. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 2, modified)

C-2.3: Urban Community Growth. The County shall direct new growth and development to Urban Communities that have available land within their established boundaries and adequate infrastructure and services to accommodate planned residential, commercial services, and employment uses. (PSP) (Source: New Policy)

C-3.1: Rural Community Growth. The County shall plan Rural Communities to have minimal growth, mainly infill development in those communities with available land within their established boundaries, with expansion discouraged. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 2, modified)

C-3.2: Development in Rural Communities. The County shall limit development in Rural Communities to those that have adequate public services to accommodate additional population and commercial services that provide for immediate needs of the community's residents or the surrounding agricultural community. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 2, modified)

C-3.3: Rural Community Size. The County shall limit Rural Communities to areas that have a minimum land area of 50 acres and have populations between 100 and 1,000, or areas that have been identified in the General Plan as a residential area. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 2, modified)

C-3.4: Public Services in Rural Communities. To use financial resources efficiently, reduce growth pressure, and maintain the character of rural communities, the County shall not develop new urban-level infrastructure in Rural Communities (e.g., curbs, gutters, sidewalks, and public water and sewer systems), unless those changes respond specifically to stated local needs (e.g., Safer Routes to School). The County shall discourage other public agencies from developing urban-level infrastructure within Rural Communities, unless it is part of a project or process to convert the community into an Urban Community. (PSP/IGC) (Source: New Policy)

C-3.5: Service Maintenance in Rural Communities. The County may fund, as necessary, the maintenance and upgrading of existing facilities and services within Rural Communities to protect public health and safety. The County shall not fund the upgrading of facilities and services within Rural Communities that would result in additional capacity for new growth. (PSP) (Source: New Policy)

C-5.1: Community Expansions. The County shall require that any General Plan amendment to expand a community maintain consistency with the policies of the General Plan; demonstrate that there is a need for additional land for urban development in the community; and be consistent with and beneficial to the overall jobs/housing balance and the affordable housing goals of the community, and the promotion of active transportation and other quality of life choices. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 21, modified)

C-5.2: Community Expansion Considerations. As part of any General Plan amendment to expand a community, the County shall consider the following:

- impacts to existing neighborhoods, residents, and businesses;
- availability of a variety of housing choices for all socio-economic segments of the community;
- the balance between jobs and housing;
- availability of water for all existing and planned development;
- long-term provision of infrastructure and services for existing and planned development;
- creation of complete streets that provide for automobiles, pedestrians, bicycles, and public transit users;
- connections among pedestrian, bicycle, and open spaces and neighborhoods, commercial areas, and employment centers;
- impacts on the fiscal resources of the County and nearby cities. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 16, modified)

C-6.2: New Urban Community Justification. The County shall ensure any General Plan amendment to add a new Urban Community to the General Plan be accompanied by adoption of revised population projections and allocations for the County, based on credible studies; or justification of the addition to the General Plan of the acreage in the new community. (RDR/PSP/PSR) (Source: Existing GP, CODP, Growth Accommodation, Policy 20, modified)

C-6.6: New Rural Communities. The County shall limit the creation of new Rural Communities to existing unincorporated hamlets, rural service centers, and concentrations of residential development that meet the policies and standards set forth for Rural Communities in this General Plan. (PSP) (Source: New Policy)

C-6.12: New Urban Community Housing. The County shall require new Urban Communities include a balance of housing types and densities that meet the needs of a range of socio-economic segments of the county. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 19, modified)

C-6.13: New Urban Community Commercial Services. The County shall require new Urban Communities plan for a range of commercial services necessary to meet the needs of residents. Commercial services should be designed as mixed-use, neighborhood-oriented centers that accommodate local-serving commercial, employment, and entertainment uses; provide housing opportunities; and are within walking distance of surrounding residents; and are efficiently served by transit. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 19, modified)

C-6.14: New Urban Community Employment. The County shall require new Urban Communities to plan for employment generating uses that maintain a close balance between job type, the workforce, and housing development to reduce the negative impacts of long commutes and provide a range of employment opportunities for all community residents. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 19, modified)

LU-1.1: Compact Growth and Development. The County shall discourage urban sprawl and promote compact development patterns, mixed use development, and higher-development intensities that conserve agricultural land resources, protect habitat, support transit, reduce vehicle trips, improve air quality, make efficient use of existing infrastructure, encourage healthful, active living, conserve energy and water, and diversify San Joaquin County's housing stock. (RDR) (Source: Existing GP, Energy, Land Use and Circulation Patterns, Policy 1, modified)

LU-1.2: Accommodating Future Growth. The County shall ensure that the General Plan designates sufficient land for urban development to accommodate projected population and employment growth. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 1, modified)

LU-1.4: Encourage Infill Development. The County shall encourage infill development to occur in Urban and Rural Communities and City Fringe Areas within or adjacent to existing development in order to maximize the efficient use of land and use existing infrastructure with the capacity to serve new development. The County shall balance infill development within outward expansion of communities and new development in other unincorporated areas. (RDR) (Source: New Policy)

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan address population and housing.

ED-B: Monitor Jobs/Housing Ratio. The County shall work with the cities in the County to monitor the ratio of employment opportunities to housing, and report annually to the Board of Supervisors on the jobs/housing balance. (PSR) (Source: Existing GP, Economic Development, Implementation 2, modified)

Approach to Analysis

The methodology for this analysis included reviewing relevant documents, statistics, and policies about the County's housing population and employment data, including information from the U.S. Census Bureau and California Department of Finance. Additionally, local regulations were reviewed for project applicability. The proposed 2035 General Plan was evaluated based on the effects on the County's housing, population and employment.

Impact Analysis

2035 General Plan Impacts

Impact 4.C-1: Implementation of the proposed 2035 General Plan could induce substantial population or housing growth both directly and indirectly. (Less than Significant)

The 2035 General Plan is the long range, comprehensive land use plan that establishes guidance for future growth and development patterns in the unincorporated County, proposing specific areas for residential, commercial and infrastructure development and expansion. As such, the

2035 General Plan would induce population growth; however, growth would not be considered substantial unless the General Plan Update induced growth beyond State and regional projections.

Implementation of the proposed 2035 General Plan would enable population growth in the County that could reach up to 945,300 people, of which 246,100 would live in the unincorporated areas (including City Sphere of Influence areas). These population projections are less than statewide estimates prepared by the California State Department of Finance (DOF), and regional estimates prepared by San Joaquin Council of Governments (SJCOG). The DOF estimates that San Joaquin County would reach 1,110,972 people by the year 2035 and comprising 2.4 percent of the total estimated population for the State (DOF, 2013). In the Draft Regional Transportation Plan (2014-2020) and Sustainable Communities Strategy, SJCOG's estimates the County could reach 1,003,486 people by 2035 (SJCOG, 2014). Under the 2035 General Plan, 51,000 new jobs would be created for a total of 271,685 jobs in the County by 2035; projections for employment growth under the 2035 General Plan are relatively consistent with SJCOG projections that there would be 282,613 jobs by 2035 (SJCOG, 2014).

Population and Housing Growth Under the 2035 General Plan

The year 2035 is used as the “planning horizon,” reflecting the planning period of the proposed 2035 General Plan. Overall, future development in San Joaquin County would continue to be driven by population growth, the distribution of that growth throughout the County, and the availability of supporting infrastructure and resources (including water supply, utility systems, etc.).

Table 4.C-6 and **4.C-7**, below, provides the estimate for population growth under the proposed 2035 General Plan. These estimates are more conservative than those provided by the DOF and SJCOG above and represent a more fine-grained analysis of projected future growth, taking into consideration the historic county growth rate, and the planning efforts undertaken by the San Joaquin Council of Governments Sustainable Communities Strategy. These estimates focus on growth that is reasonably foreseeable to occur within the 2035 planning horizon of the proposed General Plan.

Table 4.C-6 summarizes the distribution of 2010 population between the cities and unincorporated County and illustrates the projected population growth from 2010 to 2035. These future growth assumptions are consistent with several of the General Plan objectives specific to growth issues. As shown, a majority of new population growth would occur as part of city expansions (155,900 or 59.96 percent) compared to growth resulting from unincorporated county development (104,100 or 40.04 percent).

While nearly two-thirds of the projected population growth is expected to occur in existing (2014) unincorporated areas, much of this unincorporated growth is expected to occur adjacent to cities within Spheres of Influence. As discussed in Section C.3 of Chapter 3, Project Description, consistent with growth patterns and city annexation history under the 2010 General Plan, it can be expected that by 2035, the land currently within each city Sphere of Influence will be annexed into each respective city.

**TABLE 4.C-6
POPULATION AND HOUSING GROWTH WITHIN SAN JOAQUIN COUNTY BY CITY LIMITS**

City/ County	Population 2010		Population Growth (2010-2035)		Population 2035		New Housing Units (2010 to 2035)
	Population	Distribution	Population	Distribution	Population	Distribution	
City							
Escalon	7,100	1.04%	200	0.08%	7,300	0.77%	100
Lathrop	18,000	2.63%	49,700	19.12%	67,700	7.16%	13,700
Lodi	62,100	9.06%	5,800	2.23%	67,900	7.18%	2,200
Manteca	67,100	9.79%	25,400	9.77%	92,500	9.79%	8,600
Ripon	14,300	2.09%	1,100	0.42%	15,400	1.63%	400
Stockton	291,700	42.57%	46,500	17.88%	338,200	35.78%	15,300
Tracy	82,900	12.10%	27,200	10.46%	110,100	11.65%	8,300
Subtotal	543,200	79.26%	155,900	59.96%	699,100	73.96%	48,600
Unincorporated County	142,000	20.72%	104,100	40.04%	246,100	26.03%	35,500
Total	685,300	100.00%	260,000	100.00%	945,300	100.00%	84,000

NOTE: Addresses growth within city limits. However, annexations would occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014.

**TABLE 4.C-7
POPULATION AND HOUSING GROWTH WITHIN SAN JOAQUIN COUNTY
BY CITY SPHERES OF INFLUENCE**

City/County	2010 Population		Population Growth (2010-2035)		2035 Population		New Housing Units (2010 to 2035)
	Population	Distribution	Population	Distribution	Population	Distribution	
City SOIs							
Escalon	7,300	1.07%	2,400	0.92%	9,700	1.02%	900
Lathrop	18,100	2.64%	49,800	19.04%	67,900	7.17%	13,700
Lodi	65,700	9.59%	7,300	2.79%	73,000	7.71%	2,700
Manteca	69,100	10.08%	36,400	13.92%	105,500	11.14%	12,300
Ripon	14,700	2.15%	9,900	3.79%	24,600	2.60%	3,500
Stockton	344,300	50.24%	74,400	28.45%	418,700	44.22%	24,500
Tracy	87,500	12.77%	38,100	14.57%	125,600	13.27%	11,700
Subtotal	606,700	88.53%	218,300	83.48%	825,000	87.14%	69,300
Unincorporated County outside City Spheres of Influence	78,600	11.47%	43,200	16.52%	121,800	12.86%	14,700
Total	685,300	100.00%	261,500	100.00%	946,800	100.00%	84,000

NOTE: Addresses growth within Spheres of Influence of cities as annexations would occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014a.

Table 4.C-7 presents the distribution of 2010 population between the cities and unincorporated County outside of city spheres of influence and summarizes the projected population growth from 2010 to 2035. As shown, a majority of new population growth would occur as part of city expansions (218,300 or 83.48 percent) compared to growth resulting from unincorporated county development outside of city spheres of influence (43,200 or 16.52 percent). While the 2035 General Plan allows for development in some areas within city Sphere of Influences, it is expected that the anticipated growth in Sphere of Influences would occur as a result of city annexations and expansions. It can be expected that by 2035 the land currently within each city Sphere of Influence would be annexed into each respective city.

As can be seen in Table 4.C-7, a majority of the county's existing population resides in the City of Stockton's Sphere of Influence (344,300 or 50.24 percent). The largest projected increases are expected to occur in the Stockton Sphere of Influence (74,400 persons), Lathrop Sphere of Influence (49,800 persons), and Tracy Sphere of Influence (38,100 persons). While about 50 percent of the County's population now resides in the Stockton Sphere of Influence, that percentage is projected to decrease to 44 percent by 2035. Only about 11 percent of the overall Countywide population currently resides within unincorporated areas of San Joaquin County outside of city spheres of influence, and in 2035, this percentage is expected to increase to 13 percent. A large portion of the population growth would occur outside city limits, but within city spheres of influence. Annexations of County land would occur as city boundaries expand outward and much of the new growth is served by existing services and utilities provided by the incorporated cities. It should be noted that much of the growth within the unincorporated County would occur within the community of Mountain House located just north of Tracy.

The 2035 General Plan encourages the provision of diverse housing choices, commercial facilities, and infrastructure to accommodate forecasted growth while protecting the established character of existing urban and rural neighborhood's, and protecting natural resources. The majority of the population growth in the County, approximately 84 percent, would occur within cities and their Sphere of Influences. The County anticipates that as residential development occurs in the city Sphere of Influence areas, each city would individually annex those areas that are currently unincorporated. Policy C-1.9 states that the County would encourage growth in city fringe areas or areas with existing infrastructure that are currently served by infrastructure services. This pattern of growth has generally been occurring over the past 20 years, with extension annexations of Sphere of Influence lands into city boundaries.

Outside of the city fringe (city Sphere of Influence) areas, Policies C-2.1 to C-2.3 direct new growth towards the county's Urban Communities, defined as "unincorporated communities that have urban services (i.e., water and wastewater) provided by a public agency". Policies C-3.1 through C-3.5 restricts growth in Rural Communities, allowing for infill developments in communities with available land and discouraging expansion of existing Rural Communities. Policy C-3.2 restricts growth to only population and commercial services that serve the immediate needs of the community. Policy C-3.5 states that the County shall not fund facilities or services that would result in additional capacity for new growth. Additionally, land use policies LU-1.1, LU-1.2, and LU-1.4 reinforce the policies mentioned above and avoid development that would induce unplanned population growth.

Because the Draft General provides a framework for development in incorporated areas outside Sphere of Influences, it would directly induce population and employment growth in these areas by designating some land for development that is more intense than current designations allow. However, the proposed 2035 General Plan would not induce additional growth beyond what is forecasted for the County. Overall, policies in the proposed 2035 General Plan favor a development pattern that directs future growth to areas where existing or planned infrastructure and services can support the growth within or adjacent to existing communities, thereby preventing the extension of infrastructure services to unserved areas. As such, the proposed 2035 General Plan would not induce substantial growth in the rural areas of the unincorporated county through the extension of infrastructure and public services.

Very few changes are proposed to existing land use designations of the existing General Plan in unincorporated areas outside Sphere of Influences. As illustrated in **Figure 3-4** of the Project Description, the land use changes would primarily be along highway corridors and would occur in small scattered areas throughout the County. Rezoning would be required of such lands and could only occur if adequate infrastructure was available to support the identified use.

The development and infrastructure proposed under the 2035 General Plan would directly and indirectly induce population growth; however, this growth is consistent with forecasted growth for the unincorporated county. The 2035 General Plan is a comprehensive plan to guide future growth and includes a framework for land use and development, as well as goals and policies, to prevent unanticipated or inappropriate population growth in the unincorporated County.

Maximum Theoretical Buildout Beyond 2035

Full buildout at development capacity is identified in **Table 3-11** of Chapter 3, Project Description, and represents the buildout of the County beyond the Planning Horizon of the proposed 2035 General Plan. Maximum theoretical buildout of the unincorporated County resulting from implementation of the proposed 2035 General Plan would result in nearly 70,493 housing units, with an estimated population of 205,520. Although this is a hypothetical growth scenario, the proposed 2035 General Plan includes Policy LU-1.3 to limit growth in both building and population. Therefore, the proposed 2035 General Plan, even under the maximum theoretical buildout scenario, would not and could not induce growth levels higher than those projected for the 2035 horizon year.

RHNA Consistency

As discussed in the Regulatory Framework section, the County's RHNA for 2014-2023 calls for a total of 40,360 units to be constructed for households with above moderate, moderate, low, very low, and extremely low incomes. Consistent with State law, the County's land use plan provides adequate capacity to exceed its RHNA of 10,151 new residential units, including 4,083 low, very low, and extremely low units, by accommodating up to 35,500 new residential units in the unincorporated County outside Sphere of Influences. The County's land use plan also provides adequate capacity within the Sphere of Influences to accommodate the remaining 30,209 total units and 11,397 low, very low, and extremely low income units with up to 48,600 new residential units in the Sphere of Influences.

Conclusion

Because the 2035 General Plan provides a framework for development through its land use map, land use designations, goals, policies, and implementation programs it would directly induce population and employment growth in the unincorporated County by designating land for development that is more intense than current designations allow. However, because the 2035 General Plan does not exceed State and regional projections for population and employment growth impacts would be less than significant.

Mitigation: None required.

Impact 4.C-2: Implementation of the proposed 2035 General Plan could displace a substantial number of people or housing. (Less than Significant)

New land use development or infrastructure accommodated by the proposed project would have the potential to displace existing housing, and would result in a significant impact if replacement housing would be required elsewhere outside of the unincorporated County. Consistent with the objectives of the 2035 General Plan, future County growth is focused within Sphere of Influences, and within urban and rural Community Plan Areas as shown in **Table 4.C-8**. Population projections were determined using the average household size (3.089) for San Joaquin County in 2010.³ As shown in the table, the Urban Community Areas are anticipated to support the majority of future growth (in particular, the areas of Mountain House, Lockeford, and French Camp) by 2035, with smaller amounts of growth also anticipated for designated Rural Community Plan areas (Table 4.C-8).

Within the 2035 planning horizon, additional single family residential development could occur outside of designated Community Plan Areas consistent with allowed densities and zoning for each land use. However, the exact amount of development that could occur outside of designated Community Plan Areas is unknown and would likely be very small as consistent with historic land use patterns.

Table 4.C-9 outlines the expected employment forecasts in San Joaquin County. As can be seen, the majority of employment growth would occur in Stockton, and only 12.5 percent of the Countywide job growth would occur within the unincorporated areas. As with population growth, much of the job growth would occur in the spheres of influence as the cities expand and annex lands now within the County's jurisdiction.

As illustrated in **Figure 3-4** of the Project Description, implementation of proposed 2035 General Plan would largely retain the existing land use pattern of the unincorporated County outside Sphere of Influences and would not result in the displacement of a substantial number of persons or housing. However, displacement of existing housing or people could occur through the conversion of residential areas that contain residences but are designated for commercial or other

³ DOF, 2013.

**TABLE 4.C-8
ALLOCATION OF FUTURE SAN JOAQUIN COUNTY DWELLING UNITS AND POPULATION
GROWTH BY COMMUNITY PLANNING AREA – 2010 TO 2035**

	2010 Population ¹	2035 Population	2010 -2035 Housing Units
Urban Community Area			
French Camp	4,421	4,421	0
Linden	1,814	2,782	330
Lockeford	3,301	6,230	998
Morada	4,387	4,446	20
Mountain House	9,996	45,234	12,008
Thornton	809	1,176	125
Woodbridge	3,787	3,831	15
Subtotal:²	28,515	68,120	13,496
Rural Community Area			
Acampo	462	462	0
Collierville	2,345	2,870	179
Farmington	249	672	144
Peters	520	520	0
Victor	395	483	30
Subtotal:	3,971	5,007	353
Rural Community Area (No Existing 2010 Population Data Available)			
Banta	Not Available	161	55
Chrisman	Not Available	0	0
Clements	Not Available	0	0
Coopers Corner	Not Available	0	0
Glenwood	Not Available	0	0
Lammersville	Not Available	94	32
New Jerusalem	Not Available	6	2
Noble Acres	Not Available	18	6
Stoneridge	Not Available	0	0
Vernalis	Not Available	0	0
Subtotal:		279	95

NOTES:

- 1 2010 population estimate based on Census Defined Place (CDP) boundaries covering each community boundary. May include areas beyond the community boundary.
- 2 From Spheres of Influence Table, population growth (2010-2035) in unincorporated county is 43,200 and net new units (2010 -2035) in unincorporated county is 14,700. The difference is due to unincorporated development located outside a community boundary and City Sphere of Influences (i.e., rural residential or City Fringe Areas outside an Sphere of Influences).

SOURCE: San Joaquin County, 2014.

**TABLE 4.C-9
PROJECTED EMPLOYMENT GROWTH WITHIN SAN JOAQUIN COUNTY BY
CITY SPHERES OF INFLUENCE**

City/County	Existing Employment (2008)	2010 to 2035 Projected Net New Growth in Jobs	Percent of Total	2035 Estimated Jobs
Cities				
Escalon	1,870	300	0.58 %	2,170
Lathrop	5,535	800	1.56%	6,335
Lodi	23,695	4,000	7.8%	27,695
Manteca	15,845	3,300	6.5%	19,145
Ripon	3,845	500	0.98 %	4,345
Stockton	122,200	31,600	61.9%	153,800
Tracy	22,060	4,100	8.0%	26,160
Subtotal	195,050	44,600	87.4%	239,650
Unincorporated County	25,635	6,400	12.5%	32,035
Total	220,685	51,000	100%	271,685

NOTE: Addresses growth within spheres of influence of cities as annexations would occur with increased housing and employment growth.

SOURCE: San Joaquin County, 2014.

non-residential land uses under the proposed 2035 General Plan. As noted in Table 3-8 of Chapter 3, Project Description, only 15 acres of residential land would be redesigned for other uses with the proposed 2035 General Plan, representing a less than 0.1 percent change. Therefore, displacements of housing or population would not be substantial, and the impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 4.C-3: Implementation of the proposed 2035 General Plan, in conjunction with past, present, and future development in the surrounding region could introduce additional population to the region, and would result in unanticipated population, housing, or employment growth, or the displacement of existing residents or housing units on a regional level. (Less than Significant)

The cumulative projects in the San Joaquin County region would have the potential to result in a significant cumulative impact if they would, in combination: directly or indirectly induce substantial unanticipated population growth; displace a substantial amount of housing that would necessitate replacement housing elsewhere; or, displace a substantial number of people that would necessitate replacement housing elsewhere. The geographic area considered in the cumulative analysis is San Joaquin County.

The planning documents, such as general plans prepared by the adjacent jurisdictions, would be guided by regional plans such as the RTP/SCS, similar to the proposed 2035 General Plan for San Joaquin County. The general plans of adjacent jurisdictions have been prepared to be consistent with the population forecasts of the regional planning documents (SJCOG, 2014); thus, these projects would accommodate anticipated future growth and would not induce significant new growth, similar to the proposed project. In addition, the general plans and other planning documents prepared by the adjacent cities and counties would be required to develop a land use plan that would accommodate the existing and forecasted population, and supply their share of the RHNA, similar to the proposed 2035 General Plan.

In order to be approved, private projects in the region which are not included in this 2035 General Plan would be required to comply with the applicable general plan in their jurisdiction and would therefore be consistent with the forecasted growth for the jurisdiction. The replacement of housing outside the jurisdiction where displacement may have occurred would be a rare occurrence and would not result in a cumulative impact.

Because cumulative projects would comply with all applicable land use plans to provide adequate development within a jurisdiction, a significant cumulative impact would not occur. Therefore, the proposed Plan, in combination with the identified cumulative projects, would not contribute to a significant cumulative impact.

Mitigation: None required.

C.5 References – Population and Housing

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- U.S. Census Bureau, *American Community Survey 1-year estimates, Census Summary File 1 for San Joaquin County (DP-1)*. Accessed at: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>, on December 4, 2013.

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D. Transportation and Circulation

D.1 Introduction

This section evaluates potential transportation and circulation impacts resulting from implementation of the proposed 2035 General Plan. This program-level evaluation of environmental effects focuses on potential traffic and circulation impacts on the state highways, county roads, bikeways, bus and rail transit systems, and other related circulation impacts caused by development activity and proposed transportation improvements related to the proposed project. Mitigation measures are identified where necessary.

D.2 Environmental Setting

The environmental setting provides an overview of existing conditions specific to transportation in San Joaquin County. This includes the transportation network (highways and county roadways), public transit system and services, and pedestrian and bicycle facilities. This section provides a baseline description of these facilities in San Joaquin County. Additional details describing the transportation system in San Joaquin County can be found in the General Plan Background Report (Mintier Harnish, 2009).

Streets and Highways

Roads are typically classified and defined by their function. Although federal transportation regulations mandate the use of a federal classification system, local jurisdictions, such as San Joaquin County, also develop classification systems to define their own roadways.

Figure 4.D-1 shows existing roadway classifications throughout San Joaquin County. Common classifications are as follows:

- **Freeways.** Operated and maintained by the California Department of Transportation (Caltrans), these facilities are designed as high-volume, high-speed facilities for intercity and regional traffic. Access to these facilities is limited.
- **Expressways.** These facilities are high-speed roadways for inter-community travel. They generally have four to six lanes, and access and intersections are usually controlled. Expressways typically carry traffic between important centers of activity or employment.
- **Arterials.** These facilities, including major and minor arterials, are the principal network for through-traffic within a community and often between communities. Carrying 25,000 to 45,000 trips per day, arterials provide access routes to shopping areas, places of employment, recreational areas, and other places of assembly. Minor arterials include two to four lanes, and principal arterials have four to six lanes.
- **Collectors.** Two-lane facilities, collectors function as the main interior streets within neighborhoods and business areas. They are designed to carry fewer than 10,000 vehicles per day and serve to connect these areas with the higher classification roadways. Collectors in San Joaquin County are divided into two categories: major collector and minor collector.

- **Local Roads.** These facilities are two-lane streets that provide local access and service. They include residential, commercial, industrial, and rural roads. Local roads are not shown in **Figure 4.D-1**.

Interstate Freeways and State Highways

San Joaquin County is served by three interstate routes (I-5, I-205, and I-580) and eight state routes (SR 4, SR 12, SR 26, SR 33, SR 88, SR 99, SR 120, and SR 132). **Figure 4.D-1** shows the highway network in San Joaquin County.

The primary north-south arterials within San Joaquin County are I-5 and SR 99. Within San Joaquin County, these two facilities carry approximately 40 percent of the daily traffic using the state highway system on any given day.

Primary east-west arterials include I-205, SR 4, SR 12, and SR 120. In addition to serving local intra-county travel needs, these three state facilities (SR 4, SR 12, and SR 120) serve a significant amount of inter-county travel demand to areas west of San Joaquin County. Primary east-west arterials that support travel to the eastern portions of the county as well as to and from counties located east of San Joaquin County include SR 12, SR 88, and SR 26.

A brief description of key freeways and state highways that serve San Joaquin County is provided below.

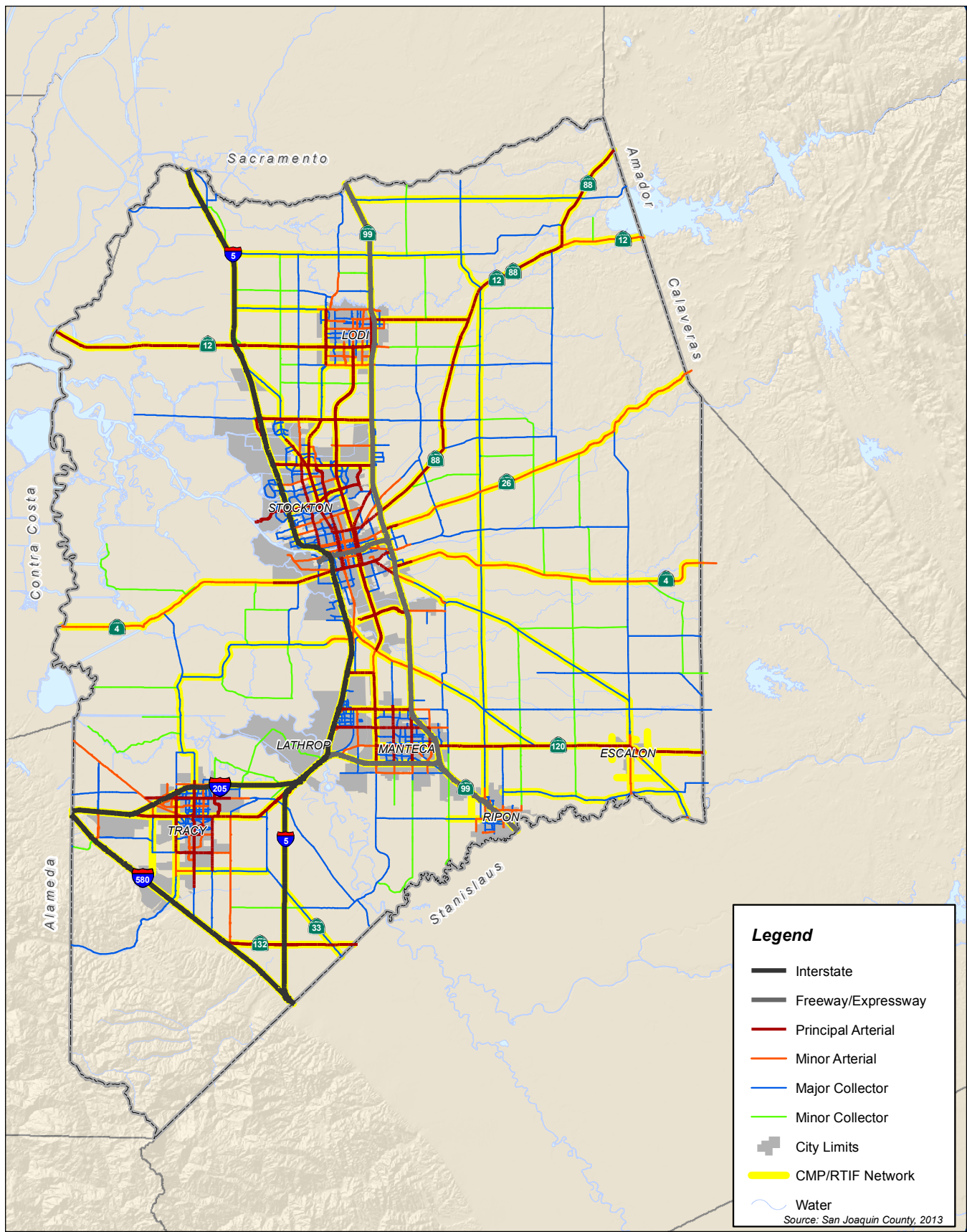
Interstate 5

Interstate 5 (I-5) is the major north-south freeway serving San Joaquin County. The highest volume on I-5 within San Joaquin County in 2012 occurred at the SR 120 East Junction, where the annual average daily traffic volume was 142,000. Trucks account for 15 to 33 percent of total traffic. Approximately 25 full or partial interchanges exist along the 50-mile stretch of I-5 within San Joaquin County. I-5 is functionally classified as a Principal Arterial-Interstate.

The I-5 2020 Concept Facility¹ would provide six lanes from Stanislaus County line to the junction with SR 132 (postmile 0.00 to 3.44), eight lanes from SR132 to 11th Street (postmile 3.44 to 11.80), ten lanes from 11th Street to SR 12 (postmile 11.80 to 39.57), and eight lanes from SR 12 to the Sacramento County line (postmile 39.57 to 49.82). The Ultimate Transportation Corridor (UTC)² concept is eight lanes from Stanislaus County line to 11th Street (postmile 0.00 to 11.80) and ten lanes from 10th Street to the Sacramento County Line (postmile 11.80 to 49.82).

¹ A Transportation Concept Report (TCR) is a long-term planning document that each Caltrans District prepares for every State highway, or portion thereof, in its jurisdiction, and is where long-range corridor planning in Caltrans usually begins. The purpose of a TCR is to determine how a high-way will be developed and managed so that it delivers the targeted level of service (LOS) and quality of operations that are feasible to attain over a twenty-year period as indicated in the route concept.

² In addition to the 20-year route concept in the TCR- the TCR includes an ultimate concept, which is the ultimate goal for the route beyond the twenty-year planning horizon.



SOURCE: San Joaquin County, 2013

San Joaquin County 2035 General Plan . 209529

Figure 4.D-1
Roadway Network Classifications

Interstate 205

Interstate 205 (I-205) is a six-lane east-west freeway between the Alameda-San Joaquin County line running east-west to I-5. The highest volume on I-205 within San Joaquin County in 2012 occurred at the Mountain House Parkway Interchange, where the annual average daily traffic volume was 104,000. Trucks accounted for approximately 12 percent of the total traffic. Six interchanges exist along the 13 miles of I-205 within in the county.

Interstate 580

Interstate 580 (I-580) is a four-lane freeway that passes through the southwest portion of San Joaquin County for 15 miles and is a major connection to I-5. The highest volume on I-580 within San Joaquin County in 2012 occurred at the Alameda County line, where the annual average daily traffic volume was 31,000. Trucks account for 16 percent of the total traffic.

The I-580 2020 Concept Facility would provide four lanes from its junctures with I-5 and SR 132 (postmile 0.00 to 4.34), and eight lanes from SR 132 to the San Joaquin County and Alameda County line (postmile 4.34 to 15.34). The UTC concept is eight lanes for the entire corridor of I-580 within San Joaquin County.

State Route 4

State Route 4 (SR 4) outside of Stockton is a two-lane facility that traverses the central part of San Joaquin County for nearly 40 miles in an east-west direction. The maximum daily traffic volume on the two-lane segments of SR 4 in 2012 was 10,500. Between I-5 and SR 99 in Stockton, SR 4 is a six-lane freeway facility that carried an annual average daily traffic volume of 91,000 in 2012.

SR 4 is functionally classified as a Minor Arterial in the rural area from the Contra Costa County line to postmile 12.6, 1.40 miles west of Roberts Island Road in San Joaquin County. It is then classified as an Urban Principal Arterial through the Stockton urbanized area to the route break at SR 99. East of SR 99, SR 4 is classified as a Minor Arterial through the end of the route.

The SR 4 2020 Concept Facility would provide four lanes starting at the Contra Costa County and San Joaquin County border to its southern juncture with I-5 (postmile 0.00 to 15.91), five lanes from the I-5 juncture to the Stockton Port facility (postmile 15.91 to 16.06), eight lanes from the I-5 Junction North to SR 99 Junction North (postmile 16.06 to 19.44), and four lanes from South Junction SR 99 to the San Joaquin County and Stanislaus County line (postmile 19.75 to 38.06). The UTC concept is the same as the 2020 Concept Facility.

State Route 12

State Route 12 (SR 12) is a two-lane conventional highway traversing San Joaquin County in an east-west direction for 28 miles between Contra Costa and Calaveras Counties. The highest volume on SR 12 within the county in 2012 occurred at South Ham Lane, where the annual average daily traffic volume was 35,000. Trucks accounted for about 6 to 15 percent of the total traffic.

State Route 26

State Route 26 (SR 26) is a two-lane conventional highway serving eastern San Joaquin County for 20 miles between SR 99 and Calaveras County. The highest volume on SR 26 within the county in 2012 occurred at its western end near SR 99, where the annual average daily traffic volume was 15,500. Trucks accounted for about 4 to 11 percent of the total traffic. SR 26 is functionally classified as a Minor Arterial for the entire route except through Stockton, where it is functionally classified as a Principal Arterial.

The SR 26 2020 Concept Facility would provide five lanes at the junction of SR 99 from postmile 1.10 to 1.89 at Cardinal Avenue and two lanes from postmile 1.89 to 20.50 at the San Joaquin County and Calaveras County line. The UTC concept is the same as the 2020 Concept Facility.

State Route 33

State Route 33 (SR 33) is a two-lane conventional highway that connects I-5 with Stanislaus County over a distance of five miles. SR 33 carried an annual average daily traffic volume of 2,400 at its peak location in 2012. Trucks accounted for about 16 to 21 percent of the total traffic. SR 33 is functionally classified as a Major Collector.

The SR 33 2020 Concept Facility would provide two lanes for the entire corridor within San Joaquin County. The UTC concept is the same as the 2020 Concept Facility.

State Route 88

State Route 88 (SR 88) is a two-lane conventional highway that connects SR 99 to Amador County and passes through Stockton, Lockeford, and Clements. The highest volume on SR 88 within the county in 2012 occurred at its western end near SR 99, where the annual average daily traffic volume was 24,100. Trucks accounted for about 7 to 9 percent of the total traffic. SR 88 is functionally classified as a Principal Arterial.

State Route 99

Paralleling I-5, State Route 99 (SR 99) is a major north-south roadway in San Joaquin County that connects Stanislaus County in the south and Sacramento County in the north. The highest volume on SR 99 within the county in 2012 occurred at Jack Tone Road and at Milgeo Street, where the annual average daily traffic volume was 113,000. Trucks accounted for about 13 to 17 percent of the total traffic. SR 99 is functionally classified as a Principal Arterial.

The SR 99 2020 Concept Facility would provide eight lanes starting at the Stanislaus County and San Joaquin County Line to the juncture with SR 12 in Lodi (postmile 0.00 to 30.97), and six lanes from the SR 12 juncture to the San Joaquin County and Sacramento County line (postmile 30.97 to 38.78). The UTC concept is eight lanes for the entire corridor of SR 99 within San Joaquin County.

State Route 120

Between I-5 and SR 99 in Manteca, State Route 120 (SR 120) is a four-lane freeway facility that carried an annual average daily traffic volume of 78,000 in 2012. East of SR 99, SR 120 is a two-

lane conventional highway that connects to Stanislaus County. The highest volume on this portion of SR 120 within San Joaquin County in 2012 occurred east of SR 99, where the annual average daily traffic volume was 14,100. Trucks accounted for about 6 to 18 percent of the total traffic. SR 120 is functionally classified as a Principal Arterial.

The SR-120 2020 Concept Facility would provide eight lanes from the juncture with I-5 to SR-99 in Manteca (postmile 0.00 to 6.87), six lanes SR 99 to Austin Road (postmile 6.20 to 6.83), and four lanes from Austin Road at the San Joaquin County and Stanislaus County line (postmile 6.83 to 21.18). The UTC concept is eight lanes from postmile 0.00 to 6.87. The UTC for the remainder of the SR 120 corridor within San Joaquin County is pending according to the Transportation Concept Report for this facility.

State Route 132

State Route 132 (SR 132) traverses the southern part of San Joaquin County between I-580 and Stanislaus County over a distance of about seven miles. SR 132 carried an annual average daily traffic volume of 15,000 at its peak location in 2012. Trucks accounted for about 16 to 18 percent of the total traffic. SR 132 is functionally classified as a Principal Arterial in all of San Joaquin County.

The SR 132 2020 Concept Facility would provide four lanes for the entire corridor within San Joaquin County. The UTC concept is six lanes at the Junction of I-580 from postmile 0.00 to 3.24 at the junction of I-5 and four lanes from postmile 3.81 to 7.01 at the San Joaquin County and Stanislaus County line.

County Roads

In addition to the interstate and state routes, San Joaquin County is also served by an extensive roadway network of local county roadways. Local classifications are used to establish the average daily traffic (ADT) threshold capacities for each of the major local roadways serving San Joaquin County. Traffic operations for local roadways are evaluated by comparing the daily volumes to the San Joaquin County's ADT threshold capacities, which were established as part of San Joaquin County development title process.

Key county roadways that are either in whole or in part classified as either Principal or Minor Arterials in rural or urban areas are as follows:

- Arch-Sperry Road
- Escalon-Bellota Road
- E. Mariposa Road
- Eight Mile Road
- French Camp Road
- Grant Line Road
- Hammer Lane
- Howard Road
- Jack Tone Road
- Lower Sacramento Road
- McHenry Avenue
- N. Elliott Road
- Roth Road
- Tracy Boulevard
- W. Ripon Road
- West Lane
- Yosemite Avenue

Portions of these facilities are designated as part of the San Joaquin Council of Governments (SJCOG) Regional Congestion Management Program and Regional Traffic Impact Fee program network. These major local roadways are presented graphically in **Figure 4.D-1**.

Travel Activity in San Joaquin County

Table 4.D-1 presents daily vehicle miles traveled (DVMT) for the state highway system and the local jurisdiction roadway systems. These data indicate that between 2007 and 2012, the annual average growth rate of vehicular travel has decreased by 0.89 percent per year on the state highway system. Travel on the local jurisdiction roadway systems has slightly grown by 0.15 percent per year. Combined, countywide annual average travel growth in San Joaquin County has decreased by 0.49 percent per year since 2007. **Table 4.D-2** presents DVMT on unincorporated county roadways only. Based on this information, DVMT has decreased by 0.06 percent per year on local county roadways between 2007 and 2012. What this indicates is that due to the Great Recession, San Joaquin County baseline vehicular travel is just now reaching levels experienced in 2007. Therefore, 2007/2008 traffic counts are considered representative of existing conditions in 2012/2013. **Appendix D** provides a more detailed analysis of this baseline travel assessment explaining the use of the 2007 counts for existing conditions.

**TABLE 4.D-1
REGIONAL DAILY VEHICLE MILES TRAVELED (DVMT) TRENDS**

Year	State Highway System DVMT	Local Jurisdiction Roadway Systems DVMT	Total DVMT
2007	11,102,610	6,804,780	17,907,390
2011	10,646,750	6,898,740	17,545,490
2012	10,617,710	6,854,680	17,472,390
Growth Rate, 2007-2012	-0.89%	+0.15%	-0.49%

SOURCE: Federal Highway Administration, 2012.

**TABLE 4.D-2
UNINCORPORATED DAILY VEHICLE MILES TRAVELED (DVMT) TRENDS
SAN JOAQUIN COUNTY**

Year	Total DVMT
2007	2,345,000
2012	2,338,450
Growth Rate, 2007-2012	-0.06%

SOURCE: Federal Highway Administration, 2012.

Regional Travel Behavior

A number of transportation modes are available in San Joaquin County. Regional and local bus services are provided; complimentary paratransit and dial-a-ride services exist throughout the most populated areas of the county; rail service connects several of the county's cities to the Bay Area, Sacramento, and cities to the south; and a well-connected network of bicycle and pedestrian facilities exists, with many additions planned for the future. San Joaquin County residents can receive information on their transportation options through Commute Connection, a service administered by the SJCOG.

The distribution of households and employment within San Joaquin County requires that many county residents commute longer distances that can be conveniently served by transit, with many people commuting out of the county to the Bay Area, Sacramento, or Modesto. This has resulted in San Joaquin County residents relying on their personal vehicles at a higher rate than the California state average. However, the carpool percentage in the County is higher than the state average.

Table 4.D-3 presents the 2010 U.S. Census journey-to-work mode split for San Joaquin County.

**TABLE 4.D-3
JOURNEY-TO-WORK MODE SPLIT, SAN JOAQUIN COUNTY, 2010**

Mode	County Trips	Percent	California Trips	Percent
Drive Alone	195,995	76.6%	11,650,145	73.2%
Carpool	36,376	14.2%	1,831,538	11.5%
Public Transportation	2,373	0.9%	820,349	5.2%
Bicycle	1,516	0.6%	160,016	1.0%
Walk	4,247	1.7%	429,786	2.7%
Other Means	1,843	0.7%	205,336	1.3%
Worked at Home	3,359	1.3%	824,305	5.2%
TOTAL	245,709	100.0%	15,921,475	100%

SOURCE: U.S. Census, 2010 (Table B08006).

Existing Traffic Conditions

Existing traffic service conditions are presented in the General Plan Background Report (Mintier Harnish, 2009), and are summarized below.

Interstate Freeways and State Highways

The methodology used to analyze roadway level of service (LOS) is from the 2010 Highway Capacity Manual (Transportation Research Board, 2010). This methodology is consistent with both the Regional Congestion Management Plan (RCMP) and Caltrans guidelines. This method computes LOS for two-lane highway facilities based on the percent of time spent following and volume-to-capacity ratios. LOS for freeway and multi-lane highway facilities is based on density, which is measured in passenger cars per mile per lane. LOS is defined for freeways in

Table 4.D-4, multi-lane highways in **Table 4.D-5**, and two-lane highways in **Table 4.D-6**.

**TABLE 4.D-4
BASIC FREEWAY SEGMENT LEVEL OF SERVICE (LOS) CRITERIA**

Level of Service (LOS)	Density (Passenger Cars per Mile per Lane)
A	≤ 11
B	> 11 and ≤ 18
C	> 18 and ≤ 26
D	> 26 and ≤ 35
E	> 35 and ≤ 45
F	> 45 (Demand exceeds capacity)

SOURCE: Transportation Research Board, 2010.

**TABLE 4.D-5
MULTI-LANE HIGHWAY LEVEL OF SERVICE (LOS) CRITERIA**

Level of Service	Free-Flow Speed (miles per hour)	Density (passenger cars per mile per lane)
A	All	≤ 11
B	All	> 11 and ≤ 18
C	All	> 18 and ≤ 26
D	All	> 26 and ≤ 35
E	60	> 35 and ≤ 40
	55	> 35 and ≤ 41
	50	> 35 and ≤ 43
	45	> 35 and ≤ 45
F	Demand exceeds capacity	
	60	> 40
	55	> 41
	50	> 43
	45	> 45

SOURCE: Transportation Research Board, 2010.

For each state highway segment, the LOS is calculated for each direction of travel during both the morning and evening peak hours. Under existing conditions, a total of 48 state highway segments operate unacceptably at LOS E or F in either direction during at least one peak hour in San Joaquin County. Holistically, during the AM and PM peak hours combined, approximately 226 lane miles of state highway operate deficiently. The two state facilities that experience the most deficient lane miles are I-5 (100 deficient lane miles) and I-205 (58 deficient lane miles). State highway deficiencies are summarized as follows:

- Three roadway segments on SR 4 currently operate unacceptably at LOS E or F during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 4.5.

**TABLE 4.D-6
TWO-LANE HIGHWAY LEVEL OF SERVICE (LOS) CRITERIA**

K-Factor	D-Factor	Class I Highway – Level				Class I Highway - Rolling				Class II Highway - Rolling			
		LOS B	LOS C	LOS D	LOS E	LOS B	LOS C	LOS D	LOS E	LOS B	LOS C	LOS D	LOS E
0.09	50%	5,500	9,300	16,500	31,200	4,200	8,400	15,700	30,300	5,000	9,800	18,200	31,200
	55%	4,900	8,700	14,900	30,200	3,700	7,900	14,000	29,200	4,100	8,700	16,000	30,200
	60%	4,400	8,100	13,900	27,600	3,700	6,200	12,800	26,800	3,700	7,900	14,600	27,600
	65%	4,100	7,900	12,900	25,500	3,400	5,900	11,400	24,700	3,300	5,900	13,200	25,500
0.10	50%	5,000	8,400	14,800	28,000	3,800	7,600	14,200	27,200	4,400	8,800	16,300	28,000
	55%	4,400	7,900	13,400	27,100	3,300	7,100	12,600	26,300	3,700	7,900	14,400	27,100
	60%	4,000	7,300	12,500	24,900	3,300	5,600	11,500	24,100	3,300	7,100	13,100	24,900
	65%	3,700	7,100	11,600	23,000	3,000	5,300	10,300	22,300	3,000	5,300	11,900	23,000
0.12	50%	4,100	7,000	12,400	23,400	3,100	6,300	11,800	22,700	3,700	7,400	13,600	23,400
	55%	3,700	6,500	11,200	22,600	2,800	5,900	10,500	21,900	3,100	6,500	12,000	22,600
	60%	3,300	6,100	10,400	20,700	2,700	4,700	6,900	20,100	2,700	5,900	10,900	20,700
	65%	3,100	5,900	9,600	19,100	2,500	4,400	8,500	18,500	2,400	4,400	9,900	19,100
0.14	50%	3,500	6,000	10,600	20,000	2,700	5,400	10,100	19,400	3,200	6,300	11,700	20,000
	55%	3,100	5,600	9,600	19,400	2,400	5,100	9,000	18,800	2,600	5,600	10,300	19,400
	60%	2,800	5,200	8,900	17,700	2,300	4,000	8,200	17,200	2,300	5,100	9,400	17,700
	65%	2,600	5,100	8,200	16,400	2,100	3,800	7,300	15,900	2,100	3,800	8,500	16,400

NOTES:

K-Factor is the proportion of traffic occurring in the peak hour for the study segment; D-Factor is the proportion of traffic occurring in the peak direction for the study segment.

Class I Highway – Level is a roadway on flat terrain on which motorists expect to travel at relatively high speeds. It can be a major intercity route, primary arterial connecting major traffic generators, daily commuter route, or primary link in state or national highway networks.

Class I Highway – Rolling is similar in use to Class I – Level, but motorists may need to travel at lower speeds than on a Class I – Level due to horizontal or vertical changes in the terrain.

Class II Highway – Rolling is a highway on which motorists expect to travel at moderate speeds. It can be a highway serving as an access route to Class I facilities, serving as a scenic or recreational route, or passing through rugged terrain.

SOURCE: Transportation Research Board, 2010.

- Sixteen roadway segments on I-5 currently operate unacceptably at LOS E or F during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 100.
- One roadway segment on SR 12 currently operates unacceptably at LOS E during the evening peak hour. Total deficient lane miles during AM/PM peak hours combined = 3.4.
- Two roadway segments on SR 26 currently operate unacceptably at LOS E during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 3.1.
- Five roadway segments on SR 88 currently operate unacceptably at LOS E during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 9.8.
- Eleven roadway segments on SR 99 currently operate unacceptably at LOS E or F during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 28.1.
- Two roadway segments on SR 120 currently operate unacceptably at LOS E during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 5.9.
- Four roadway segments on SR 132 currently operate unacceptably at LOS E during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 13.6.
- All four roadway segments on I-205 currently operate unacceptably at LOS E or F during at least one peak hour. Total deficient lane miles during AM/PM peak hours combined = 58.

Detailed tables showing the LOS by state highway segment by direction for AM and PM peak hours can be found in **Appendix E**.

Local Roadways

Traffic operations for local roadways are evaluated by comparing the daily volumes to San Joaquin County's average daily traffic (ADT) threshold capacities. The ADT thresholds were established as part of the San Joaquin County Development Title process and have been used for the purpose of evaluating roadway deficiencies in many subsequent traffic studies, including but not limited to the San Joaquin County Traffic Impact Mitigation Fee Program (adopted June 2008).

The San Joaquin County ADT thresholds are generally consistent with the arterial capacity estimates documented in the National Cooperative Highway Research Program NCHRP-187 and NCHRP-365 publications. The ADT thresholds are based on the county's local roadway functional classification relative to the total number of lanes (for both directions) of the roadway. The LOS standard for local roadways in San Joaquin County is LOS C. County roadways were evaluated using the threshold capacity volume corresponding to LOS C as summarized in **Table 4.D-7**.

The ADT threshold analysis indicates that a total of 21 segments spanning 15 roadways currently exceed the county's ADT thresholds of LOS C. This equates to approximately 46.3 deficient lane miles of roadway.

**TABLE 4.D-7
THRESHOLD CAPACITY VOLUMES (LEVEL OF SERVICE C)
SAN JOAQUIN COUNTY, AUGUST 2008**

Roadway Classification	Lanes	Capacity (vehicles)
Major Arterial	2	12,500
with two-way center left	3	15,000
	4	30,100
with two-way center left	5	35,000
	6	45,000
Minor Arterial	2	12,500
with two-way center left	3	15,000
	4	25,000
Collector (Commercial/Industrial)	2	10,000
Collector (Residential)	2	7,000
Local (Commercial/Industrial)	2	7,000
Local (Residential)	2	2,000

SOURCE: San Joaquin County.

Sections of the following 15 county roadways currently exceed San Joaquin County's ADT thresholds operating unacceptably at LOS D or worse.

- Benjamin Holt Drive
- Escalon-Bellota Road
- Fresno Street*
- Lathrop Road
- Lower Sacramento Road
- McHenry Avenue
- Newton Road
- Pershing Avenue
- Roth Road
- Tracy Boulevard
- Yosemite Avenue

* Scheduled removal of access to Fresno Street from SR 4 is anticipated to address the current LOS deficiency.

Total deficient lane miles of local county roadways equal 46.32. Existing ADT and segment thresholds can be reviewed in **Table 4.D-B4** in **Appendix E**.

Improvements that are already programmed are expected to mitigate the deficiencies on Roth Road, Lathrop Road, Lower Sacramento Road, and Yosemite Avenue. The new thresholds can be reviewed in **Table 4.D-B5** in **Appendix E**.

For those local county roadways designated are part of the RCMP system of roadways, LOS is based on the 2010 Highway Capacity Manual (HCM) planning method. LOS is based on daily volume-to-capacity (v/c) ratios combining both directions of travel. Given that the RCMP standard is LOS D, the County's ADT threshold of LOS C is more stringent for purposes of determining regional traffic impacts on local arterial roadways.

Local and Regional Public Transit Network

The San Joaquin Regional Transit District (RTD), the transit provider for San Joaquin County, provides public transit services in the Stockton metropolitan area, as well as intercity, interregional, and rural transit services countywide. Additionally, the county is served by municipal transit service providers in Tracy, Lodi, and Manteca as well as regional transit service providers based out of neighboring Solano, Calaveras, and Sacramento Counties.

Bus service in San Joaquin County is provided by the RTD and individual cities in the county. Total annual ridership for fiscal year 2013 was 4.3 million trips, with interregional ridership accounting for 5 percent of the total trips.

San Joaquin Regional Transit District Bus Service

RTD provides fixed-route, route-deviation, and paratransit dial-a-ride bus service within San Joaquin County. RTD serves 17.1 passengers per revenue mile and per revenue hour for its fixed route services. By comparison, other fixed route services in the county serve five or fewer passengers per revenue mile/hour. The following is a brief description of the existing bus services in San Joaquin County as provided by RTD.

Metro Routes

RTD provides fixed route service consisting of 28 bus routes in the Stockton metropolitan area, including one Bus Rapid Transit (BRT) route connecting downtown Stockton to post-secondary educational facilities and shopping. The bus routes operate 365 days a year with typical headways of 30 to 60 minutes.

Intercity Routes

RTD provides fixed route service consisting of four routes that connect Stockton with Lathrop, Manteca, Ripon, Tracy, and Lodi. Intercity routes connect with bus routes provided by other service operators at their respective destinations.

San Joaquin Commuter Service

RTD provides a subscription bus service consisting of 18 routes that connect San Joaquin County with the Bay Area and Sacramento. Advance reservations are necessary to ride daily or monthly. Monthly subscription pass fares range from \$128 to \$207 and are determined by distance traveled.

Hopper Routes

RTD provides a deviated fixed route service consisting of five routes that connect Stockton, Tracy, and Lodi with Ripon, Escalon, Manteca, Lathrop, Thornton, Woodbridge, French Camp, Morada, and Linden. Most Hopper routes will deviate up to three-quarters of a mile for Americans with Disabilities Act (ADA) certified elderly and disabled passengers who are not able to reach the fixed route stops. Reservations are required 1 to 2 days in advance for all Hopper deviations.

Dial-a-Ride Service

RTD provides curb-to-curb paratransit bus service for passengers who, due to their disability or age, are unable to use fixed route services.

Other Bus Services

Additional bus services are provided by agencies based outside of San Joaquin County. The following is a brief description of these services and routes:

Calaveras Transit

Route 6 provides fixed route bus service between the Lodi Transportation Center in San Joaquin County and Valley Springs and San Andreas in Calaveras County. Other stops in San Joaquin County include Victor, Lockeford, and Clements. Four bus routes operate in each direction Monday through Friday from 5:50 AM to 7:40 PM.

Rio Vista Delta Breeze

Route 53 provides deviated fixed route bus service between the Lodi Transportation Center in San Joaquin County and Rio Vista in Solano County. The bus also makes several stops in the City of Lodi. Rio Vista Delta Breeze operates one round trip on Tuesdays only.

South County Transit (SCT)/LINK

The Community Transportation Agency based out of the city of Galt runs the Delta Route, a fixed route weekday bus service linking Galt to the Lodi Transportation Center in San Joaquin County, and Isleton in Solano County four times per day. SCT/LINK also operates the Highway 99 Express Route that provides service between the Lodi Transportation Center in San Joaquin County and Sacramento with stops in the cities of Galt and Elk Grove. SCT/LINK Highway 99 Express Route provides hourly service from 5:20 AM to 7:20 PM Monday through Friday.

Greyhound Bus Lines

Greyhound Bus Lines is a national bus carrier providing services in and through the county. Bus depots are located in Stockton, Lodi, and Tracy.

Amtrak Thruway Buses

Amtrak is a national passenger rail carrier providing services in and through the county. They operate buses from Lodi, Tracy, and Stockton (San Joaquin Street station) that connect to the San Joaquin train routes.

Social Services Transportation

There are a number of organizations that currently provide social services transportation in San Joaquin County, primarily for access to medical care and social activities.

School Bus Transportation

San Joaquin County is home to 14 school districts, some of which operate bus services to facilitate student access to schools.

Transit Stations

Multi-modal transportation stations in San Joaquin County serve as transfer points for buses serving local and regional destinations, as well as rail service. The following are key stations in the county:

- The Lodi Transportation Center located at Pine Street and Sacramento Street in downtown Lodi serves as a transfer point for several bus lines as well as Amtrak rail service.
- The Stockton Downtown Transit Center (DTC) located at 421 East Weber Avenue is the City of Stockton's regional public transit hub. It features 20 sheltered off-street bus stops on two passenger boarding platforms and serves as the transfer point for nearly all RTD routes.

Rail Service

The following is a brief description of the existing rail services in San Joaquin County.

Amtrak

Amtrak operates the San Joaquin Route intercity rail service between Oakland or Sacramento and Bakersfield. Amtrak operates six daily round trips with two trains in each direction stopping at Lodi Station and Cabral Station in Stockton, and four trains stopping at the San Joaquin Street Station in Stockton. Amtrak Thruway connections provide additional service to Emeryville and San Francisco in northern California and Los Angeles, Santa Ana, Oceanside, and San Diego in southern California. Annual ridership on the San Joaquin Route has been trending upward over the years, with almost 1.2 million trips taken in the 2012/2013 calendar year. Ridership at the Stockton station in San Joaquin County was over 295,344 for the 2012/2013 fiscal year.

Altamont Commuter Express (ACE)

ACE provides service between downtown Stockton and Diridon Station in downtown San Jose. The trains also make stops in Lathrop and Tracy within San Joaquin County. ACE provides four westbound trips in the morning and four eastbound trips in the afternoon each weekday. Annual ridership on the ACE was highest in 2001 when there were 923,000 trips. Annual ridership has been trending upward since 2003, with 718,226 trips taken in the 2011 calendar year.

Bicycle Transportation

Bikeway facilities in San Joaquin County include Class I bicycle paths, Class II bike lanes, and Class III shared lane/signed bike routes in the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy and the unincorporated areas of San Joaquin County. Existing bikeway facilities in unincorporated San Joaquin County are limited due to insufficient funding for the construction of major bikeway projects. The existing facilities include:

- B Street between Stockton city limit and Ralph Avenue (Class II);
- Golden Gate between Waterloo Road and East Roosevelt Street (Class II);
- Sanguinetti Lane between Alpine Avenue and Wilson Way (Class II);
- Filbert Street between Waterloo Road and East Harding Way (Class II);
- Davis Road between Woodbridge Road and Kettleman Lane (Class III);
- DeVries Road between Armstrong Road and Thornton Road (Class III);
- Schulte Road between Hansen Road and Lammers Road (Class III);
- Armstrong Road between Davis Road and DeVries Road (Class III);
- Armstrong Road between SR 99 and Lower Sacramento Road (Class III);
- Austin Road between Lathrop Road and Louise Avenue (Class III);
- Austin Road between French Camp Road and Lathrop Road (Class III);
- Wilson Way between Alpine Avenue and SR 99 (Class III);
- South Tradition Street between East Legacy Drive and Amaudo Boulevard (Class III);
- South Providence Street between East Legacy Drive and Amaudo Boulevard (Class III);
- East Legacy Drive between South Central Parkway and Historic Street (Class III);
- Historic Street between East Legacy Drive and East Heritage Drive (Class III);
- East Heritage Drive between South Central Parkway and Historic Street (Class III);
- South Tradition Street between East Heritage Drive and Mascot Boulevard (Class III);
- Prosperity Street between East Heritage Drive and Mascot Boulevard (Class III); and
- Wicklund Way Crossing between Historic Street and Mountain House Parkway (Class III).

D.3 Regulatory Setting

This section identifies the laws, regulations, policies, and programs related to the physical environment that pertain to the project's effects on transportation and circulation on the highways and local roadways within San Joaquin County.

Federal

Federal highway standards are implemented in California by Caltrans (see discussion under "State" below).

State

Caltrans is responsible for planning, designing, constructing, and maintaining all state-owned and -operated roadways in San Joaquin County. Any improvements or modifications to the state highway system within San Joaquin County must be approved by Caltrans. San Joaquin County and other local agencies have no ability to unilaterally make improvements to the state highway system.

California Complete Streets Act of 2008

This law requires cities and counties to include complete streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, the elderly, and persons with disabilities, as well as motorists. This Act will complement an existing policy, which directs Caltrans to “fully consider the needs of non-motorized travelers (including pedestrians, bicyclists, and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products.” As of January 2011, any substantive revision of the circulation element in the general plan of a California local government must include complete streets provisions.

The SJCOG, in coordination with the County of San Joaquin, has designated multi-modal corridors on several county roadways as part of its RCMP. The RCMP is a key partner document to the General Plan as it helps guide the prioritization of improvements.

California Transportation Development Act (TDA)

The California TDA provides a dedicated state funding source for use by local jurisdictions at the county level to improve existing public transportation and encourage regional public transportation coordination. Transit agency audits are performed on a triennial basis to ensure that transit agencies are meeting minimum service performance standards (e.g., passengers per revenue mile and hour, annual passengers served etc.). Use of TDA monies is also tied to identifying and allocating funds to unmet transit needs, a process that requires local transportation planning agencies to identify and assess unmet transit needs on an annual basis. Unmet transit needs are defined in the Regional Transportation Plan (RTP) as transit service to those residents who use or would use public transportation regularly, if available, to meet their life expectations, such as trips for medical and dental services, shopping, employment, personal business, education, social services, and recreation. TDA funds can be allocated to non-transit uses if there are no unmet transit needs within the jurisdiction that are reasonable to meet with the use of TDA funds. Reasonableness is determined by community interest, equity, potential ridership, cost effectiveness, operational feasibility, and funding.

Local

Regional Transportation Plan

As the regional transportation planning agency for San Joaquin County, the SJCOG developed and adopted the RTP. The RTP complies with state and federal transportation planning requirements required of urbanized counties for a comprehensive and long-range transportation plan. The RTP is a fiscally constrained multi-modal plan that identifies regional transportation improvements needed to improve system maintenance and operations and to improve mobility and accessibility countywide. The operable RTP at the time of the CEQA Notice of Preparation for the San Joaquin County 2035 General Plan EIR was SJCOG’s 2011 RTP. The 2014 update of the RTP was adopted on June 26, 2014.

Congestion Management Program

The Congestion Management Program (CMP) is the State Legislature's effort to reduce congestion on highways and local regionally significant roadways in California (Government Code Section 65089). It includes a land use analysis program to address regional transportation impacts of local land use decisions. It stipulates that a two-tiered review of affected CMP roadways must be completed for proposed residential, commercial, retail, and industrial development in the county. The first tier is a qualitative assessment of consistency with the designated Congestion Management Agency (in this case, SJCOG) regional planning documents and initiatives. The second tier determines whether the development project generates 125 or more peak-hour trips or 500 or more daily trips. Development projects that meet the tier two requirements must be evaluated for significant impacts per the CMP significance criteria under CEQA. Specific projects excluded from this requirement are high-density residential and mixed-use projects within one-quarter mile of a fixed-rail passenger station and low-income housing.

San Joaquin Regional Transit District

The San Joaquin Regional Transit District (RTD) is governed by a five-member board of directors, consisting of two members appointed by the Stockton City Council, two members appointed by the San Joaquin County Board of Supervisors, and one member appointed jointly by five members of the San Joaquin County Board of Supervisors and five members of the Stockton City Council. The SJCOG has a Social Services Transportation Advisory Committee, whose purpose is to monitor and promote improvements to those public transportation services for persons with disabilities and seniors residing in San Joaquin County.

Regional Transportation Impact Fee (RTIF) – AB 1600

The Regional Transportation Impact Fee (RTIF) program is intended to impose a fee to provide funding for transportation and transit improvements that help mitigate the impact of new growth. New development throughout the county will be subject to the fee, which will be proportional to the impact on the regional transportation network caused by such new development. The funding derived from the RTIF program must be used in combination with other funding available to complete the needed transportation and transit improvements. The list of projects that are eligible for RTIF funding was most recently updated in 2011 by the SJCOG.

San Joaquin Regional Rail Commission (SJRRRC)

This agency owns, operates, and is the policy-making body for the Altamont Commuter Express. SJRRRC is governed by a board of directors who are appointed by the SJCOG from nominations by the local agencies.

San Joaquin Valley Unified Air Pollution Control District Air Quality Attainment Plan

Under state and federal requirements, the San Joaquin Valley is mandated to implement transportation control measures (TCMs) and other mobile source control measures to

significantly decrease emissions. Bicycle programs are one of the TCMs recommended in the San Joaquin County Transportation Control Measures Program.

San Joaquin County Bicycle Master Plan (2010)

This plan provides a blueprint for developing a bikeway system, support facilities, and programs throughout the unincorporated areas of San Joaquin County. It is an update of the County's 2002 Bikeway Master Plan and incorporates new initiatives that had been developed by the seven incorporated cities by identifying key connections to existing or planned bikeway facilities in these jurisdictions.

Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan (2012)

Bicycle, Pedestrian, and Safe Routes to School (BP-SRTS) is a regional plan for San Joaquin County, developed by the SJCOG, that serves as a guide to planning, developing, and managing a regional bicycle and pedestrian network. The plan aims to increase commuter walking and bicycling, and support active and safe transportation to and from school.

County Traffic Impact Study Guidelines (November 2008)

The County of San Joaquin has developed specific guidelines that govern the analysis of traffic impacts of development applications within the unincorporated areas. For development projects that are shown to create either a project-specific impact and/or a cumulative-plus-project traffic impact, identification of mitigation of impacted local roadways is required. Assessment of traffic impacts is based on maintaining the County's adopted intersection and roadway level of service standards.

San Joaquin County Traffic Impact Mitigation Fee (TIMF)

The County of San Joaquin has a program to collect traffic impact mitigation fees. The fees are collect to finance transportation facilities needed to accommodate new or expanded development within the unincorporated areas of San Joaquin County.

D.4 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of an impact are based on Appendix G of the *CEQA Guidelines*. For this analysis, implementation of the proposed project may result in a significant impact if it would:

- a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

- b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- e. Result in inadequate emergency access; or
- f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

These criteria are further defined using the thresholds of significance discussed below for impacts on state highways and local roadways as well as regional transit facilities, bikeways, and other modes. These thresholds are consistent with the currently adopted general plan or published guidelines of the County of San Joaquin.

Thresholds of Significance for State Highways and Local Roadways

Pursuant to the RCMP, analysis of potential RCMP roadway network impacts is required under CEQA if a development project or a plan that accommodates additional future development would generate 125 or more peak-hour trips or 500 or more daily trips. For any RCMP designated roadway or intersection currently operating or expected to operate at LOS D or better under No Project conditions, the project would result in a significant impact if the project-added traffic would result in LOS E or F operating conditions. For RCMP intersections or roadways currently operating or expected to operate at LOS E or F under No Project conditions, the project would result in a significant impact if it would increase:

- Average delay by 4 seconds or more (intersections); or
- The volume-to-capacity (v/c) ratio by 1.0 or more.

Thresholds of Significance Related to Adopted or Approved Regional Plans

A list of adopted and approved regional plans, that are part of the CEQA process and applicable to the project, is provided below. During the project review period, SJCOG staff will identify any inconsistencies with regional planning documents such as:

- Regional Transportation Demand Management Plan
- Regional Expressway System Plan (System Management and Transportation Demand Management [TDM] components)
- Park-and-Ride Master Plan
- Regional Bikeway Plan
- Smart Growth Infill Opportunity Zone Plan

- Regional Transit Systems Plan
- Regional Transportation Impact Fee Program
- Regional Transportation Plan
- Interregional Surface Transportation Assistance Act (STAA) Study for I-5 and SR-99

Significant impacts would occur if implementation of the San Joaquin 2035 General Plan would result in any of the following:

- Per the RCMP criterion, a state highway roadway segment that currently operates at LOS D or better degrading to LOS E or F; or
- Per the County of San Joaquin's ADT thresholds, a local roadway segment that currently operates at LOS C or better, degrading to LOS D or worse; or
- Per the RCMP criterion, any deficient roadway segment experiencing an increase in volume-to-capacity (v/c) ratio by 0.01 or more (i.e., 100+ ADT).

Threshold of Significance for Transit Services

Significant impacts would occur if implementation of the San Joaquin 2035 General Plan would result in:

- Lack of efficient and convenient transit services accessible to all unincorporated county residents.

Relevant Policies

The following relevant policies of the 2035 General Plan address transportation and circulation:

TM-1.1: Transportation System Safety. The County shall require new development to provide transportation system improvements necessary to serve the development. (RDR/FB) (Source: Existing GP, Transportation, Transportation System, Policy 8, Existing GP, Transportation, Roadways, Policy 7, modified)

TM-1.2: Emergency Services. The County shall coordinate the development and maintenance of all transportation facilities with emergency service providers, where feasible, to ensure continued emergency service operation and service levels. (PSP/IGC) (Source: New Policy)

TM-1.3: Multimodal System. The County shall encourage, where appropriate, development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrianways, public transportation, roadways, bikeways, rail, waterways, and aviation, and reduces air pollution and greenhouse gas emissions. (RDR/PSP) (Source: New Policy)

TM-1.4: Regional Transportation Facilities. The County shall work with Caltrans, SJCOG, and the cities in the County to plan, develop, and maintain regional transportation facilities, and to identify existing and future transportation corridors that should be linked across

jurisdictional boundaries so that sufficient right-of-way may be preserved. (PSP/IGC)
(Source: Existing GP, Transportation, Transportation System, Policy 1, modified)

TM-1.5: Regional Transportation Plan Development. The County shall provide input into the development of the San Joaquin Council of Governments' Regional Transportation Plan as appropriate to ensure County roads and facilities are adequately addressed. (PSP/IGC)
(Source: Existing GP, Transportation, Transportation System, Implementation 1, modified)

TM-1.6: Automobile Dependency Reduction. The County shall support public and private efforts where appropriate to provide alternative choices to single occupant driving.
(IGC/JP) (Source: Existing GP, Transportation, Transportation System, Policy 5, modified)

TM-1.7: Energy Conservation. The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions. (RDR/PSP) (Source: Existing GP, Transportation, Transportation System, Policy 7, Existing GP, Transportation, Transportation System, Implementation 4, modified)

TM-1.8: Multimodal Congestion Management. The County shall support, as appropriate, SJCOG efforts to monitor multimodal corridors within the County as part of the Regional Congestion Management Program. The County shall also encourage the consideration of additional multimodal corridors, where appropriate, as part of future updates to the Regional Congestion Management Program. (PSP/IGC) (Source: New Policy)

TM-1.9: Facilities and Infrastructure. The County shall, based on available resources, effectively operate and maintain transportation facilities and infrastructure to preserve the quality of the system. (PSP/SO) (Source: New Policy)

TM-1.10: Eliminate Gaps. The County shall eliminate “gaps” in roadways, bikeways, and pedestrian networks by planning and seeking funding to construct grade-separated crossings of rail lines, canals, creeks, and other barriers to improve connectivity and encourage construction of new bikeways and pedestrianways in and between existing communities where appropriate. (RDR/PSP/FB) (Source: New Policy)

TM-1.11: Transportation System Improvements. The County shall require new development to provide transportation system improvements necessary to serve the development. (RDR/FB) (Source: Existing GP, Transportation, Transportation System, Policy 8, Existing GP, Transportation, Roadways, Policy 7, modified)

TM-1.12: Transportation and Land Use. The County shall ensure that transportation system investments and improvements support existing and future sustainable land use patterns. (RDR/PSP/FB) (Source: Existing GP, Transportation, LU Coordination, Policy 1, modified)

TM-1.13: Smart Growth. The County shall encourage “smart growth” and sustainable planning principles where appropriate, including the development of high density and commercial development near inter-modal transit facilities. (RDR/PSP) (Source: Existing GP, Transportation, LU Coordination, Policy 4, modified)

TM-1.14: Abandoned Railroad Rights-of-Way. The County shall consider acquiring abandoned railroad rights-of-way for use in the County's circulation system where appropriate. (PSP) (Source: Existing GP, Transportation, Transit, Policy 6)

TM-1.15: Transportation Funding. The County shall support transportation system improvements by collecting fair share transportation impact fees from new development, supporting ballot measures to maintain existing and/or establish new sales tax revenue for the maintenance and improvement of transportation infrastructure, and applying for federal and state discretionary transportation funds. (PSP/FB) (Source: Existing GP, Transportation, Costs and Revenues, Implementation 2, modified)

TM-1.16: Transportation Capacity and Development. The County shall schedule transportation improvements to coordinate with land use development and transportation demand. Transportation investments and service capacity shall be planned to correspond to the development and travel demand identified by plans of local communities. (RDR/PSP) (Source: Existing GP, Transportation, LU Coordination, Policy 2)

TM-1.17: Minimize Disruptions. The County shall minimize social and economic disruptions to communities resulting from the maintenance and construction of the transportation system. (PSP/SO) (Source: Existing GP, Transportation, LU Coordination, Policy 7, modified)

TM-1.18: Capital Improvement Program. The County shall maintain a Transportation Capital Improvement Program consistent and commensurate with developer fees established as part of the County's AB1600 compliant traffic impact mitigation fee program. (PSP/FB) (Source: Existing GP, Transportation, Costs and Revenues, Implementation 1)

TM-2.1: Urban Complete Streets. The County shall require new streets within Urban Communities to be designed and constructed to serve all users, including pedestrians, bicyclists, and transit passengers of all ages and abilities. This includes:

- creating multi-modal street connections in order to establish a comprehensive, integrated, and connected transportation network for all modes of travel;
- minimizing curb cuts along non-local streets to improve safety and capacity;
- planting street trees adjacent to curbs and between the street and sidewalk to provide a buffer between pedestrians and vehicular traffic, where appropriate;
- constructing sidewalks and bike lanes on both sides of streets, where feasible;
- including parking options to provide a buffer between pedestrians and vehicular traffic, where appropriate;
- coordinating with local jurisdictions and SJCOG to ensure multimodal connections are established and maintained between jurisdictions; and
- incorporating traffic calming devices such as roundabouts, bulb-outs at intersections, and traffic tables into the transportation system where appropriate to improve safety and encourage travel by active transportation modes. (RDR/PSP) (Source: New Policy)

TM-2.2: Reconstructed Urban Complete Streets. The County may require, based on community support and financial feasibility, reconstructed streets in Urban Communities to accommodate pedestrians and bicyclists, except where pedestrian or bicycle facility improvements are not feasible or determined to be cost prohibitive. New and reconstructed streets in Urban Communities shall be designed to create an environment that provides

opportunities for pedestrian and bicycle activity and complementary development and land uses. (RDR/PSP) (Source: New Policy)

TM-2.3: Land Use Patterns. The County shall encourage the development of uses in Urban Communities that support the use of public transit, bicycling, walking, and other alternatives to the automobile. (PSP) (Source: Existing GP, Transportation, LU Coordination, Policy 6, modified)

TM-2.4: Rural Complete Streets. The County shall strive to serve all users on rural roadways in the County and shall design and construct rural roadways to safely serve bicyclists, transit passengers, and agricultural machinery operators. This includes:

- constructing wide shoulders to provide a safe space for bicyclists, and agricultural machinery vehicles;
- removing visual barriers along rural roads, particularly near intersections, to improve the visibility of bicyclists; and
- coordinating with local jurisdictions and SJCOG to ensure multimodal connections are established and maintained between jurisdictions. (RDR/PSP) (Source: New Policy)

TM-2.5: Reconstructed Rural Complete Streets. The County may require, based on community support and feasibility and the County's Bicycle Master Plan, reconstructed streets in rural areas to accommodate bicyclists and agricultural machinery, except where facility improvements are determined to be cost prohibitive. (RDR) (Source: New Policy)

TM-2.6: Funding for Complete Streets. The County shall support efforts to fund transit agencies and improvements for public transit systems, bicycle and pedestrian routes, and other alternative modes of transportation. (PSP) (Source: Existing GP, Transportation, Costs and Revenues, Policy 3)

TM-2.7: New Development. The County shall require all new developments to provide their fair share of roadway facilities for alternative transportation modes to reduce automobile demand. (RDR) (Source: Existing GP, Transportation, Transit, Policy 5)

TM-2.8: Private Complete Streets. The County shall encourage large private developments (e.g., office parks, apartment complexes, retail centers) to provide internal complete streets that connect to the existing roadway system. (RDR) (Source: New Policy)

TM-3.1: Roadway Provision. The County shall provide and maintain a roadway system that satisfies the needs of County residents and businesses for safe, efficient, cost effective, convenient and reliable movement of people and goods within and through the County. (PSP) (Source: Existing GP, Transportation, Roadways, Objective 1, modified)

TM-3.2: Urban Roadways. The County shall require, where feasible, new development in Urban Communities to construct roadways to County standards and complete streets principles, including curb, gutter, and sidewalks. Bike lanes shall be required, where feasible, for improvements identified in the San Joaquin County Bicycle Master Plan. (RDR) (Source: New Policy).

TM-3.3: Onsite Circulation Systems. The County shall require new development to design on-site circulation systems and parking facilities to minimize backup on County roadways. (RDR) (Source: New Policy, County staff)

TM-3.4: Roadway Plan Coordination. The County shall coordinate roadway improvements with regional plans, such as the countywide Regional Transportation Plan and Regional Transportation Improvement Plan Program, the Congestion Management Program, and the Measure K Strategic Plan Funding Program. (PSP/IGC) (Source: Existing GP, Transportation, Roadways, Policy 4, modified)

TM-3.5: Variations in Roadway Alignment. The County shall consider variations in the alignment of designated roadways to be in conformity with the General Plan if the alignment does not result in traffic safety problems or reductions in needed capacity, does not constrain the proper development of contiguous properties, and does not conflict with or preempt other General Plan-specified uses or facilities; or if the alignment is in conformance with an adopted special purpose plan or specific plan. (RDR/PSP) (Source: Existing GP, Transportation, Roadways, Policy 5)

TM-3.6: Right of Way Preservation. The County shall preserve road rights-of-way necessary to implement the circulation system included in the General Plan using Special Purpose Plans or other means where appropriate. (PSP) (Source: Existing GP, Transportation, Roadways, Implementation 5, modified)

TM-3.7: Frontage Standards. For developments that are located adjacent to a County roadway, the County shall require access onto County roads (i.e., driveways) to be built to County standards. (RDR) (Source: Existing GP, Transportation, Roadways, Policy 6, modified)

TM-3.8: Level of Service Implementation. The County shall base the Level of Service for intersections and roadways on AM or PM peak-hour volumes. (RDR/PSP) (Source: Existing GP, Transportation, Roadways, Policy 9)

TM-3.9: CMP Level of Service. The County shall maintain and enforce Level of Service (LOS) standards consistent with the San Joaquin Council of Governments (SJCOG) Congestion Management Program (CMP) for State highways and designated County roadways and intersections of regional significance. Per the CMP, all designated CMP roadways and intersections shall operate at an LOS D or better except for roadways with “grandfathered” LOS. LOS for State highways shall be maintained in cooperation with Caltrans. The County LOS standards for intersections is LOS “D” or better on Minor Arterials and roadways of higher classification and LOS “C” or better on all other roads. The County shall maintain the following:

- on State highways, LOS D or Caltrans standards whichever is stricter.
- within a city’s sphere of influence, LOS D, or the city planned standards for that level of service.
- on Mountain House Gateways, as defined in the Master Plan, LOS D, on all other roads, LOS C.

For State highways that are designated as part of SJCOG’s CMP, both the Caltrans and CMP LOS standards shall apply. Where roadways are designated as part of SJCOG’s CMP, both the County and CMP LOS standards shall apply. (RDR/PSP) (Source: Existing GP, Transportation, Roadways, Policy 8, modified)

TM-3.10: Functional Classification. The County shall plan for a road system of adequate capacity and design to provide reasonable and safe access by vehicles with minimum delay.

The road system shall be based on a functional classification and shall contain the types of roads outlined in **Table 4.D-8** and **Table 4.D-9**. General alignments for Minor Arterials and higher classifications are shown on the General Plan Circulation Diagram (**Figure 4.D-1**). Table 4.D-9 presents standards and a description of each road. Roads carrying recreational traffic may require higher standards. (RDR/PSP) (Source: Existing GP, Transportation, Roadways, Policy 1, modified)

TM-3.11: Rural Road Traffic. The County should monitor the use of rural roads by commuters as bypass routes from gridlocked arterials to gather data for use in any future traffic studies or plans designed to reduce the traffic impact on the operation of agricultural machinery. (PSP/PSR) (Source: New Policy, based on Issues and Opportunities Report)

TM-3.12: Rural Traffic Management Areas. The County shall mitigate excessive commuter diversion traffic through the development and adoption of rural traffic management plans. Where applicable, the County shall prepare a rural traffic management plan when public concerns are raised about excessive traffic or the County identifies issue areas, the County Public Works Director confirms that a defined rural area is experiencing excessive commuter traffic due to diversion, and a survey of an area's property owners, with at least 33 percent responding, shows at least 50 percent are in support the preparation of a plan. (PSP) (Source: New Policy)

TM-3.13: Development Rights-of-Way. The County shall require dedication and improvement of necessary on and off-site rights-of-way at the time of new development, in accordance with the County's Functional Classification, Standard Drawings, and Level of Service Standards. (RDR) (Source: Existing GP, Transportation, Roadways, Implementation 2)

TM-3.14: HOV Lanes and Ramp Metering. The County shall coordinate with Caltrans to ensure installation of HOV lanes and ramp metering devices along congested commuter corridors, as identified by SJCOG's Northern San Joaquin Valley Regional Ramp Metering and HOV Master Plan, do not negatively impact County roads. (PSP/IGC) (Source: Existing GP, Transportation, Transportation System, Implementation 3, modified)

TM-3.15: Reduced Parking Requirements. The County may reduce automobile parking area requirements for new developments in exchange for owner-supplied amenities or facilities (e.g., transit facilities, secure bicycle storage facilities) or in-lieu fee payments for public transit. (RDR) (Source: Existing GP, Energy, Implementation 1, modified)

TM-4.1: Pedestrian and Bicycle Network Continuity. The County shall strive to eliminate gaps in the rural bicycle network by constructing or designating new bike facilities, where appropriate, and in accordance with the San Joaquin County Bicycle Master Plan. (RDR/PSP/IGC) (Source: New Policy, Based on findings in Background Report)

TM-4.2: Speed Management Policies. The County shall strive to implement current CVC codes for uses as speed management policies that support driving speeds on all streets within Urban and Rural Communities and City Fringe Areas that are safe for pedestrians and bicyclists. (RDR) (Source: New Policy)

TM-4.3: Bicycle Safety. The County shall support bicycle safety programs for children and commuters in the county. (PSP/IGC) (Source: New Policy, Based on policies in the 2009 San Joaquin County Bicycle Master Plan)

**TABLE 4.D-8
FUNCTIONAL CLASSIFICATION DESCRIPTIONS**

Classification	Description
Freeway	Designed as the primary facility for intercity and regional traffic
Expressway	Designed for high speed intercommunity traffic between important centers of activity or employment; may be a two-lane undivided roadway in rural areas or a multi-lane divided roadway in urban areas. Access in areas of development should be limited to freeways, arterials, and rural roads.
Major Arterial	Designed 1) as the highest type of road carrying local traffic within urban communities, providing access routes to shopping areas, places of employment, community centers, recreational areas, and other places of assembly and freeways; and 2) as a principal carrier of traffic between communities, providing access routes to places of employment, recreation areas, and freeways. Access should be limited to that from commercial and industrial areas and should generally be no closer together than one-quarter mile.
Minor Arterial	Designed as a secondary type of facility carrying local through traffic to areas similar to those served by Major Arterials and feeding the Major Arterials. Access should be limited to that from commercial, industrial, and multi-family properties.
Collector	Designed to provide principal access to residential areas or to connect streets of higher classifications to permit adequate traffic circulation.
Local Residential	Designed to provide access to adjacent residential lots and to feed traffic to Collectors.
Local Commercial and Industrial	Designed to provide access to adjacent commercial and industrial properties and to feed to Minor Arterials.
Rural Residential	Designed to provide local access in rural residential areas.
Rural	Designed to provide access in agricultural areas.

SOURCE: Existing General Plan, Transportation, Roadways, Policy 1, modified

**TABLE 4.D-9
FUNCTIONAL CLASSIFICATION STANDARDS**

Functional Classification	Right-of-Way	Lanes	Access Control	Capacity (Vehicles/Day)	On-Street Parking
Freeway	225'	4 – 8	No intersections, fully controlled access	74,000 – 148,000	No
Expressway	Urban	110 – 202'	4 -6	35,000 – 55,000	No
	Rural	84'	2		
Major Arterial	110' – 136'	4 – 6	Partially controlled intersections and access; at grade	35,000 – 50,000	No
Minor Arterial	84' – 110'	4	Intersections at grade; partially controlled access	31,000	Yes
Collector	60'	2	Intersections at grade; driveway access	14,000	Yes
Local Residential	50'	2	Intersections at grade; frequent driveways	5,000	Yes
Local Commercial and Industrial	60'	2	Intersections at grade; driveway access	10,000	Discouraged
Rural Residential	50'	2	Intersections at grade; driveway access	5,000	Discouraged
Rural	50'	2	Intersections at grade; driveway access	28,000	Discouraged

SOURCE: Existing General Plan, Transportation, Roadways, Policy 1, modified

TM-4.4: Safe Pedestrian Crossings. The County shall continue to enhance pedestrian safety at intersections in Urban and Rural Communities and City Fringe Areas by providing safe, well-placed pedestrian crossings, bulb-outs that reduce crossing widths, and/or audio sound warnings, where applicable, warranted, and financially feasible. (PSP) (Source: New Policy)

TM-4.5: Bicycle Storage. The County shall encourage bicycle storage facilities (i.e., bicycle racks, lockers) at all new major transportation terminals and employment centers consistent with Development Title, Section 9. (RDR) (Source: New Policy, Based on policies in the 2009 San Joaquin County Bicycle Master Plan)

TM-4.6: Bicycle Route System. The County shall encourage bicycle facilities and routes in unincorporated areas to interface with city bicycle routes and provide for inter- and intra-county bicycle circulation. (RDR/PSP/IGC) (Source: Existing GP, Transportation, Bicycles, Policy 1, modified)

TM-4.7: Bicycle Connectivity. The County shall support development of the bicycle system to connect residential areas with commercial areas, employment centers, educational facilities, local and regional recreational facilities, and other major attractions. (PSP) (Source: Existing GP, Transportation, Bicycles, Policy 1, modified)

TM-4.8: Bicycle Route Facilities (RDR). The County shall ensure County roads planned as part of the regional bicycle route network are constructed to have adequate width. (RDR/PSP) (Source: Existing GP, Transportation, Bicycles, Policy 4, Existing GP, Transportation, Bicycles, Implementation 1, modified)

TM-4.9: Parking Facility Design. The County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings. (RDR/PSP) (Source: New Policy)

TM-4.10: Bicycle Master Plan. The County shall maintain the Bicycle Master Plan and implement it as funding is made available. (PSP) (Source: New Policy)

TM-4.11: Pedestrian Planning. The County shall consider the safety and accessibility of pedestrians when producing transportation plans, studies, and reports. (PSP/PSR) (Source: New Policy, based on findings in Background Report)

TM-4.12: Sidewalk Design. The County shall require that sidewalks in Urban Communities and City Fringe Areas be developed at sufficient width to accommodate pedestrians in accordance with the Americans with Disabilities Act. (RDR) (Source: New Policy)

TM-5.1: Transit for All. The County shall encourage a well-designed transit system that meets the transportation needs of San Joaquin County residents and visitors including seniors, the disabled, and transit-dependent persons. (PSP) (Source: New Policy)

TM-5.2: Maintain Services. The County shall encourage transit providers to maintain services within the county that are timely, cost-effective, and responsive to growth patterns and enhance transit where feasible. (PSP/IGC) (Source: New Policy)

TM-5.3: Variety of Transit Types. The County shall consider a variety of transit types including regional rail, bus rapid transit, regional and local buses, express buses, and neighborhood shuttles, to meet the needs of residents, workers, and visitors. (PSP) (Source: New Policy)

TM-5.4: Alternative to the Automobile. The County shall promote public and private transit systems in addition to the automobile. (PSP) (Source: Existing GP, Transportation, Transit, Policy 1, Existing GP, Transportation, Transit, Implementation 4, modified)

TM-5.5: Access to Services. The County shall support the expansion of public transit service to provide county residents with access to commercial services (e.g., grocery stores) and other essential services, such as medical, social service, and personal business destinations. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 3, Source: Existing GP, Transportation, Transit, Implementation 3, modified)

TM-5.6: Unmet Needs. The County shall encourage the San Joaquin Council of Governments and San Joaquin Regional Transit to identify unmet transit needs and collaborate with appropriate agencies and entities to serve those who have no other reasonable alternatives for transportation. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Implementation 2, modified)

TM-5.7: Intercity Bus Service. The County shall encourage the San Joaquin Regional Transit District and other regional bus service providers to support intercity bus service that connects all cities in San Joaquin County, as well as major passenger destinations, including airports and train stations. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 12, modified)

TM-5.8: Increased Rail Frequency. The County shall encourage increased passenger rail service (e.g., Amtrak, ACE, High Speed Rail) frequency to the county. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 7)

TM-5.9: Commuter Transit Service. The County shall advocate commuter transit service (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 2, modified)

TM-5.10: Multimodal Rail Stations. The County shall support the development of multi-modal rail stations in Stockton, Lodi, Manteca, and Tracy that include park and ride facilities, commuter bus service, express bus service, and/or cross-platform transfer capabilities. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 11, modified)

TM-5.11: Amtrak Service. The County shall support Amtrak stations in all cities of the County. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 9)

TM-5.12: Higher Speed Rail. The County shall support the concept of developing passenger service along existing rail corridors to Sacramento and the Bay area to a capability of 79 miles-per-hour in the short term. In the longer term, the County supports upgrading rail service to a capability of 125 miles-per-hour along existing or new alignments. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 10)

TM-5.13: High Speed Rail. The County shall coordinate with the California High Speed Rail Authority, cities, and other local agencies to locate High Speed Rail corridors in San Joaquin County in a manner that minimizes disruptions. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 10, modified)

TM-5.14: Rail Crossings. The County shall ensure all at-grade rail crossings with roads have appropriate safety equipment. (RDR/PSR) (Source: Existing GP, Transportation, Transit, Implementation 9, modified)

TM-6.1: Increase Vehicle Occupancy. The County shall work with a broad range of agencies (e.g., San Joaquin Council of Governments, San Joaquin Regional Transit, San Joaquin Valley Air Pollution Control District, Caltrans) to comply with state laws that increase vehicle occupancy including the provision of traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, and other methods. (PSP/IGC) (Source: New Policy)

TM-6.2: Regional Travel Demand Management Plan. The County shall encourage implementation of the current San Joaquin Council of Governments Regional Travel Demand Management Plan. (PSP/IGC) (Source: New Policy)

TM-6.3: Transportation Demand Management. The County shall support efforts by the San Joaquin Council of Governments Commute Connections to facilitate implementation of the Federal Requirement established in Rule 9410 (eTRIP rule). (Source: New Policy, Based on Background Report, eTRIP Rule, and SJCOG TDM Plan)

TM-6.4: Park-and-Ride Facilities. The County shall support implementation of the San Joaquin Council of Governments Park and Ride Plan and collaborate with Caltrans to identify locations for future park-and-ride lots to facilitate more carpooling, vanpooling, and transit use. (PSP/IGC) (Source: Existing GP, Transportation, Transit, Policy 4, Existing GP, Transportation, Transit, Implementation 5, modified)

TM-6.5: Transportation Management Associations. The County shall encourage commercial, retail, and residential developments to participate in or create Transportation Management Associations (i.e., a public/private partnership to address regional transportation issues). (RDR) (Source: New Policy)

TM-6.6: Bicycle Facilities at Park-and-Ride Lots. The County shall encourage bicycling to park-and-ride lots through the provision of bicycle facilities such as bicycle parking. (RDR) (Source: New Policy, Based on Background Report)

TM-6.7: Bicyclist Amenities. The County shall encourage new large employers to provide bicycle racks. (RDR) (Source: New Policy, Based on policies in the 2009 San Joaquin County Bicycle Master Plan)

TM-7.1: Efficient Goods Movement. The County shall encourage infrastructure improvements and the use of emerging technologies that facilitate the timely and efficient movement of goods the efficient intermodal transfer of goods between truck, rail, marine, and air transportation modes. (PSP) (Source: New Policy)

TM-7.2: Critical Facilities Access. The County shall require new development to provide adequate access to facilities critical to goods movement, including railroad yards, intermodal facilities, the Port of Stockton, the Stockton Metropolitan Airport, and Interstate highways. (RDR) (Source: Existing GP, Transportation, Goods Movement, Policy 1)

TM-7.3: Goods Movement Connections. The County shall work with Caltrans, cities, and major shipping entities to improve and enhance the STAA Terminal Access routes and connections between and among goods movement modes and facilities (e.g., truck routes/terminals, railroads/yards, shipping lanes/ports, and air-transport/airports). This will include at a minimum adequate STAA Terminal “T” and “S” signage as appropriate. (RDR/PSP/IGC) (Source: New Policy)

TM-7.4: Intermodal Freight Facilities. The County shall continue to encourage the modernization and expansion of intermodal freight facilities that support goods movement by rail and improve the efficiency of goods movement among various types of transport (e.g., truck to rail). (RDR/PSP) (Source: New Policy)

TM-7.5: Mode Conflicts and Hazards. The County shall strive to minimize traffic conflicts among automobiles, trucks, and trains, and shall strive to ensure adequate safety measures are in place to protect residents from truck and rail hazards. (RDR/PSP) (Source: Existing GP, Transportation, Goods Movement, Policy 2, modified)

TM-7.6: Surface Transportation Assistance Act. The County shall coordinate with Caltrans to identify appropriate truck routes consistent with the Surface Transportation Assistance Act (STAA) of 1982 and shall assist with future planning/programming of truck routes and signage within the County. (PSP/IGC) (Source: New Policy))

TM-7.7: Truck Traffic Noise Minimization. The County shall seek to minimize noise and other impacts of truck traffic, deliveries, and staging in residential neighborhoods. (RDR) (Source: New Policy)

TM-7.8 Short Line Rail Facilities. The County shall encourage State or Federal programs designed to expand short haul rail lines within the county as a way of reducing the number of trucks on County roads. (PSP/IGC) (Source: New Policy, Based on the San Joaquin Valley Interregional Goods Movement Plan)

TM-7.9: Port of Stockton. The County shall encourage Port of Stockton efforts to maintain and enhance the deep water shipping channel and future facility expansion plans. (IGC) (Source: New Policy)

TM-7.10: Stockton Metropolitan Airport. The County shall maintain Stockton Metropolitan Airport as an essential part of the County's goods movement system. (PSP) (Source: New Policy)

TM-8.1: Stockton Metropolitan Airport. The County shall develop the Stockton Metropolitan Airport with sufficient capacity to accommodate forecasted needs for commercial air facilities for the region. (RDR/PSP) (Source: Existing GP, Transportation, Aviation, Policy 1)

TM-8.2: Airport Promotion. The County shall promote Stockton Metropolitan Airport to the public and businesses for commute and long-distance passenger flights and for air cargo. (PSP) (Source: Existing GP, Transportation, Aviation, Implementation 2)

TM-8.3: Public Access Airports. The County shall support the continued operation of public access airports to accommodate local aviation demand. (PSP) (Source: Existing GP, Transportation, Aviation, Policy 2, modified)

TM-8.4: Efficient Ground Connections. The County shall promote efficient ground connections to its air transport facilities. (RDR/PSP) (Source: New Policy)

TM-8.5: Compatible Land Uses. The County shall require that only compatible land uses be permitted near airports, in accordance with the Airport Land Use Plan. (RDR) (Source: Existing GP, Transportation, Aviation, Policy 3)

TM-8.6: Airport Operations. The County shall ensure that airport operations are protected from:

- projections of structures into navigable airspace;
- light and glare;
- emissions affecting visibility;
- interference with communications; and
- bird hazards, such as from ponds and landfills.

(RDR) (Source: Existing GP, Transportation, Aviation, Policy 4)

TM-9.1: Facilities for Emerging Technologies. The County shall support the development of alternative fueling stations (e.g., electric and hydrogen) for emerging technologies. (RDR/PSP) (Source: New Policy)

TM-9.2: Use of Public Right-of-Way. The County shall encourage the use of parking lots of major employers, commercial shopping centers, and truck stops for alternative fueling stations (e.g., electric) for automobiles and goods movement trucks. (RDR/PSP) (Source: New Policy)

Relevant Implementation Programs

The following are relevant implementation programs contained in the 2035 General Plan as related transportation and circulation:

TM-A: Traffic Mitigation Fee. The County shall review and update, as necessary, its traffic impact mitigation and road improvement fees every five years. (RDR/FB) (Source: Existing GP, Transportation, Roadways, Implementation 6)

TM-D: Update Roadway Standards. The County shall review and update the Roadway Standards within the Development Title to reflect the policies of the General Plan. (RDR) (Source: New Program)

TM-E: Traffic Studies. The County shall develop standards, criteria for defining significant impacts, and procedures for traffic studies to determine needed road improvements. (RDR) (Source: Existing GP, Transportation, Roadways, Implementation 3, modified)

TM-G: Driveway Standards. The County shall develop and adopt access standards for driveways and other encroachments on County roads. On State highways, these standards shall be coordinated with Caltrans. (RDR) (Source: Existing GP, Transportation, Roadways, Implementation 7)

TM-H: Bicycle Master Plan. The County shall review and update the Bicycle Master Plan every five years to ensure its applicability to the current state of the bicycle network, bicycle facilities, and bicycle ridership numbers. (PSP) (Source: New Program)

Approach to Analysis

Since the proposed 2035 General Plan is a long-range plan, the impacts were determined comparing the future (2035) cumulative with project condition to the baseline (existing) condition as well as with the future no project condition (i.e., future baseline). To best isolate the impacts of the 2035 General Plan growth on the circulation system, only the future baseline comparison was used for purposes of identifying needed with-project mitigation for CEQA impacts. Given that the contribution of incorporated area growth and interregional travel is reflected under both future scenarios (i.e., traffic growth not related to the County's General Plan is controlled for), the future baseline assessment provides the most meaningful assessment of the project's cumulative impacts.

Traffic Forecast

To develop the future year (2035) cumulative traffic conditions, the SJCOG regional transportation model was used. The SJCOG model allows for an average daily traffic (ADT) and AM and PM peak period and peak-hour forecasts. Freeway volumes, K-factors (percent of AM/PM peak hour of daily traffic), and D-factors (directional split) were based on the most recent data published by Caltrans. The SJCOG model used to develop the most recently adopted SJCOG 2011 Regional Transportation Plan (RTP) was used for this analysis. The baseline model was calibrated and validated by SJCOG in 2008 consistent with federal and state travel demand model guidelines. The SJCOG model provides traffic projections for a 2035 horizon year.

To address systematic modeling error, post-processing adjustments were performed on the SJCOG 2035 travel model forecasts. The recommended procedure is based on the NCHRP Report 255 (Transportation Research Board, 1982). NCHRP-255 adjustments entail using model-generated link-based adjustment factors (i.e., computed variation between base year model volumes and traffic counts) to adjust the model forecasts. For all roadway segments analyzed (entire state highway system and significant local county roads), traffic growth estimates were generated using both the Ratio and the Difference method, as well taking the average between the two methods.

Land Use Structure and Data

The basis for the out-year 2035 cumulative analysis used the most recent baseline population, household, and employment estimates developed by the Business Forecasting Center at the University of the Pacific (UOP). All future model land use assumptions are based on the most recently approved regional growth forecasts for San Joaquin County. SJCOG develops its population and employment projections based on historic trends. The projections are based on historical trends from past U.S. Census, Department of Finance, and Office of Economic Development estimates. County and city projections are adopted by the SJCOG board. A projected countywide control total is adopted first, and then projected growth is apportioned to cities – down to the traffic analysis zone (TAZ) level. Some TAZs in urban areas are determined to be “built out” and no new growth is attributed to these zones.

For the unincorporated areas, the proposed 2035 General Plan (Preferred Alternative) land use was apportioned to the TAZ level. For the incorporated areas of the county, all travel projections are based on the most recently approved assumptions of countywide housing and employment growth forecasts consistent with the 2011 RTP for San Joaquin County. These inputs were also modified to accurately reflect the General Plan alternatives for CEQA purposes.

Travel Model Networks

Consistent with the Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002), only programmed roadway improvements with an identified funding source were assumed to be in place as part of this traffic analysis. All future improvement assumptions are consistent with the implementation schedules documented in the most recently adopted SJCOG Federal Transportation Improvement Program, SJCOG RTIF, and San Joaquin County Traffic Impact Mitigation Fee (TIMF). **Figure 4.D-2** shows planned capacity improvements that have been assumed as part of the Future Baseline Scenario. Documentation of these improvements is based on the project descriptions and timelines documented in the SJCOG RTP, SJCOG RTIF, San Joaquin County TIMF Capital Project list, and Measure K Renewal.

Future Forecast Traffic

Given that it more effectively captures the true magnitude of change in on-road vehicle activity resulting from the proposed 2035 General Plan, vehicle miles of traveled (VMT) is considered a more meaningful holistic performance metric than trip generation for programmatic traffic analyses. This approach is consistent with SJCOG's RTP programmatic environmental analyses for assessing the level of vehicle activity across alternatives. The proposed 2035 General Plan is forecast to result in less VMT in both the incorporated and unincorporated parts of the county compared with the baseline. **Table 4.D-10** compares the estimated 2035 VMT totals for the 2035 Baseline and 2035 General Plan scenarios.

**TABLE 4.D-10
REGIONAL DAILY VEHICLE MILES TRAVELED (DVMT)
SAN JOAQUIN COUNTY, STATE HIGHWAYS**

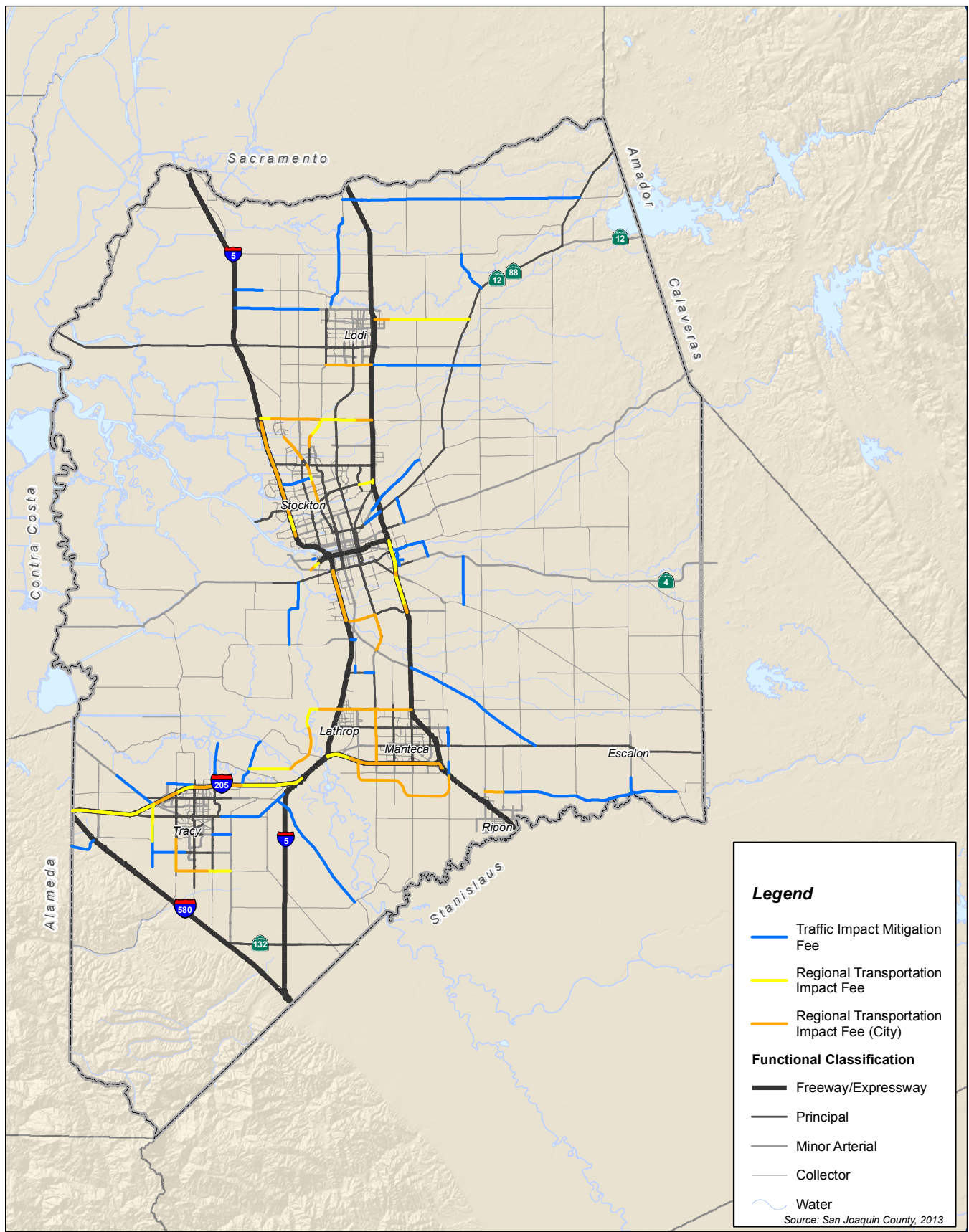
Jurisdiction	Daily Vehicle Miles Traveled		
	2010	2035 Baseline	2035 General Plan Scenario
Incorporated Cities ¹	9,706,241	16,335,671	16,334,595
Unincorporated County ²	5,626,663	10,644,040	10,643,820
Total	15,332,904	26,979,711	26,978,415

NOTES:

¹ Includes state highway DVMT within incorporated areas of the county

² Includes state highway DVMT within unincorporated areas of the county

SOURCE: SJCOG Model



SOURCE: San Joaquin County, 2013

San Joaquin County 2035 General Plan . 209529

Figure 4.D-2
Planned Roadway Capacity Improvements

Another meaningful comparative metric for comparing alternatives at the programmatic level of analysis is congested lane miles. This approach is also consistent with SJCOG's RTP programmatic environmental analyses for assessing the level of vehicle activity across alternatives. The proposed 2035 General Plan is anticipated to have fewer congested lane miles on state highways through unincorporated parts of the county compared with the future baseline. **Table 4.D-11** compares 2035 congested lane miles for the 2035 Baseline and 2035 General Plan scenarios.

TABLE 4.D-11
2035 CONGESTED LANE MILES, SAN JOAQUIN COUNTY

Roadway Type	Congested Lane Miles	
	2035 Baseline	2035 General Plan Scenario
Local County Roadways	42.70	42.70
Unincorporated State Highways	270.37	208.42
Total	313.07	251.12

Impact Analysis

This section discusses the potential impacts of implementation of the 2035 General Plan based upon the CEQA significance criteria previously discussed. Where significant project impacts on traffic conditions are identified, measures are recommended to mitigate those impacts. The mitigations described focus on physical changes to the intersections and roadways to increase vehicular capacity. Note that the 2035 General Plan already includes policies and programs that may reduce impacts and also encourages strategies to enhance travel modes other than the single-occupant auto.

The impact analysis compares the impact of the 2035 General Plan to existing conditions as well as future Baseline conditions (2035 without the proposed General Plan). The comparison of 2035 General Plan to the existing conditions is provided for informational purposes. Given that growth in the unincorporated county areas is combined with growth within the county's incorporated cities and growth in interregional travel, comparing the proposed 2035 General Plan growth scenario to the existing condition would not effectively isolate the impacts of the proposed General Plan over the 20-year planning horizon. Hence, for the purposes of this analysis, the significance of impacts is judged by comparing the proposed 2035 General Plan to the Future Baseline, or 2035 conditions. The differences observed between these two future year scenarios provide a much more meaningful comparative analysis framework for purposes of CEQA.

2035 General Plan Impact Analysis

State Highways

Table 4.D-12 shows the segments expected to be impacted based under existing conditions in either the AM or PM peak hour, while **Table 4.D-13** shows the impacted segments occurring in either the AM or PM peak hour under based on Future Baseline and 2035 General Plan Scenario LOS. As shown in Table 4.D-13, only two segments of SR 88 would be impacted by the proposal project. **Appendix E** provides further LOS comparisons among the 2035 proposed General Plan, existing conditions, and the Future Baseline scenario.

TABLE 4.D-12
2035 IMPACTED ROADWAY SEGMENTS – COMPARED WITH EXISTING CONDITIONS
(AM or PM Peak Hour)

Roadway	From	To	Existing Level of Service (LOS)	2035 General Plan Scenario LOS
State Route 4	Contra Costa County	Tracy Boulevard	D	E
Interstate 5	State Route 132	State Route 33	B	E
Interstate 5	Kasson Road	Old Route 50	B	F
Interstate 5	Eleventh Street	Interstate 205	C	F
Interstate 5	Eight Mile Road	State Route 12	C	F
Interstate 5	State Route 12	Peltier Road	C	E
Interstate 5	Peltier Road	Walnut Grove Road	C	E
State Route 12	Sacramento County	Glasscock Road	D	F
State Route 12	Glasscock Road	Guard Road	E	F
State Route 12	Guard Road	Interstate 5	D	F
State Route 26	State Route 99	Cardinal Avenue	E	F
State Route 26	Cardinal Avenue	Alpine Road	D	F
State Route 26	Alpine Road	Jack Tone Road	D	F
State Route 26	Jack Tone Road	Duncan Road	C	F
State Route 26	Duncan Road	Mill Street	C	F
State Route 26	Mill Street	Flood Road	C	F
State Route 26	Flood Road	Escalon-Bellota Road	C	F
State Route 26	Bellota Road	Calaveras County	C	F
State Route 88	State Route 12	Liberty Road	D	E
State Route 99	Stanislaus County	Main Street	D	F
State Route 99	Main Street	Milgeo Avenue	E	F
State Route 99	Milgeo Avenue	Jack Tone Road	E	F
State Route 99	Jack Tone Road	State Route 120 S	E	F
State Route 99	State Route 120 S	State Route 120 N	C	F
State Route 99	State Route 120 N	Lathrop Road	D	E
State Route 99	Lathrop Road	Turner Station	D	F
State Route 99	Turner Station	Mariposa Road	D	F
State Route 99	Mariposa Road	State Route 4 E	E	F
State Route 99	State Route 4 E	State Route 26	D	F
State Route 99	State Route 26	State Route 4 W	D	F
State Route 99	Hammer Lane	Morada Lane	D	F
State Route 99	Morada Lane	Harney Lane	C	F
State Route 99	Harney Lane	State Route 12 W	E	F
State Route 99	State Route 12 W	State Route 12 E	E	F
State Route 99	State Route 12 E	Turner Road	C	F
State Route 99	Turner Road	Woodbridge Road	D	F
State Route 99	Woodbridge Road	Acampo Road	C	F
State Route 99	Acampo Road	Jahant Road	C	F
State Route 99	Jahant Road	Sacramento County	C	F
State Route 132	State Route 33	Stanislaus County	E	F

TABLE 4.D-13
2035 IMPACTED ROADWAY SEGMENTS – COMPARED WITH FUTURE BASELINE

Roadway	From	To	Future Baseline Level of Service (LOS)	2035 General Plan Scenario LOS
State Route 88	Wilcox Road	White Lane	D	E
State Route 88	State Route 12 East	Liberty Road	D	E

County Roadways

Based on the analysis, a total of eight county roadways, spanning nine segments, shown in **Table 4.D-14**, that would not meet the ADT threshold under Future Baseline conditions would experience traffic growth of more than 100 ADT (i.e., a v/c increase greater than 0.1 percent) as a result of the 2035 General Plan. These are all two- and three-lane county roadways with varying local classifications. **Appendix E** shows detailed LOS calculations for County roadways.

TABLE 4.D-14
2035 LOCAL COUNTY ROADWAY AVERAGE DAILY TRAFFIC (ADT) THRESHOLD EVALUATION
(ROADWAYS EXCEEDING ADT THRESHOLD)
SAN JOAQUIN COUNTY

Street Name	Location Limits	2035 ADT Assuming Construction of TIMF Projects			
		Lanes	ADT Threshold	Future Baseline	2035 General Plan
Chrisman Rd	North of Schulte Rd	2	12,500	15,400	15,400
Escalon-Bellota Rd	Mahon Ave To Magnolia Ln	2	7,000	8,600	8,800
French Camp Rd	East of Airport Way	2	12,500	17,200	17,400
Howard Rd.	Clifton Court Rd To Grimes Rd	2	7,000	8,500	8,700
Jack Tone Rd.	French Camp Rd To SR 120	2	7,000	9,100	9,300
Jack Tone Rd.	Leroy Ave To Graves Rd	2	7,000	7,300	7,500
Lower Sac Rd	North of Mokelumne St	2	12,500	15,200	15,400
McHenry Ave	Jones Road to Stanislaus County Line	3	15,000	19,200	19,500
Tracy Blvd	South of Finck Rd	2	7,000	10,600	10,800

NOTES:

TIMF = Traffic Impact Mitigation Fee

All segments meet the Regional Congestion Management Plan (RCMP) HCM 2010 Planning Method Level of Service (LOS) D Standard (18,600 ADT: 45 miles per hour [mph], K-Factor .09, D-Factor .55)

SOURCE: Kittelson & Associates

Roadway Operations

Impact 4.D-1: Implementation of the proposed 2035 General Plan could result in increased traffic volumes, delay, and a decrease in level of service (LOS) on two SR 88 roadway segments during the peak hours that exceed both the Regional Congestion Management Plan (RCMP) and Caltrans LOS standards. Given that facilities are designated as part of San Joaquin County's RCMP, this impact is also identified as a congestion management program impact. (Significant and Unavoidable)

Two state highway roadway sections within the county are anticipated to experience a worse level of service under the buildout of the proposed 2035 General Plan. As shown in **Table 4.D-13**, the traffic volumes on these two segments of SR 88 would result in LOS E conditions. For the segment of SR 88 from Wilcox Road to White Lane, the LOS E would occur in the westbound direction during the AM peak hour and eastbound during the PM peak hour. For the segment of SR 88 between SR 12 East and Liberty Road, the LOS E condition would occur in both directions during the AM peak hour and eastbound during the PM peak hour. Though not measured as a part of this planning process, it is also understood that this corridor experiences peak conditions due to recreational traffic on Fridays and Sundays. Based on the applicable significance threshold—a state highway segment operating at LOS D or better but degrading to LOS E or F—these impacts are significant.

Both of these sections of SR 88 lie within the unincorporated part of San Joaquin County and are designated as part of the Regional Congestion Management Plan (RCMP) for San Joaquin County. As such, the County would be required to develop and adopt RCMP Deficiency Plans in the event that these segments become deficient (drop from LOS D to LOS E). Given that all state highways are included as part of SJCOG's Regional Transportation Impact Fee (RTIF) network, capacity improvements (i.e., widening from two to four lanes) for these sections should also be considered for inclusion in the next update to the Regional Transportation Impact Fee (RTIF) program.

However, in the event that capacity improvements to these SR 88 segments are deemed infeasible either from a cost, political, or right-of-way perspective, the County can develop an RCMP system-wide deficiency plan in lieu of a "direct fix" Deficiency Plan. A system-wide deficiency plan identifies improvements or programs that will improve system-wide traffic circulation and air quality. Under a system-wide deficiency plan approach, the identified improvements need not improve operating conditions of the deficient roadway itself. The roadway in question is allowed to remain deficient in perpetuity. The legislative intent of an RCMP system-wide deficiency plan approach is to mitigate the negative impacts on circulation and air quality caused by the congested condition. This is done by improving system-wide circulation and air quality within the vicinity of the deficient roadway. Although not required, ostensibly the system-wide deficiency planning efforts would indirectly relieve congestion at the deficient location. A system-wide deficiency plan involves developing a systems management or alternative mode capital improvement plan (e.g., pedestrian, bicycle, transit, trip reduction program etc.) that allows for the more efficient use of the existing transportation system by decreasing single-occupancy vehicle trips. Unlike the direct fix approach, a system-wide deficiency plan capital improvement

program list must receive concurrence from the San Joaquin Valley Unified Air Pollution Control District before it can be approved by the local agency and SJCOG (Section 65089.4(c)(3)).

In addition to the physical improvements, there are many 2035 General Plan policies and implementation programs that would address this impact. Policies that address this issue through increased roadway capacity and revenue sourcing are Policies TM-1.2, TM-1.4, TM-1.5, TM-1.7, TM-1.8, TM-1.11, TM-1.12, TM-1.15, TM-1.16, TM-1.18, TM-2.3, TM-3.1, TM-3.9, and TM-3.10. Additional policies are in place to shift demand away from single-occupant vehicle trips and to better coordinate land uses with transportation infrastructure development, including Policies TM-1.3, TM-1.6, TM-1.13, TM-3.4, TM-3.12, TM-3.14, TM-5.1, TM-5.4, TM-5.7, TM-5.8, TM-5.9, TM-6.1, TM-6.2, TM-6.3, TM-6.4, and TM-6.5. This impact is also reduced by Implementation Programs TM-A and TM-E that would improve funding for roadway improvements and help set priorities for these improvements.

Mitigation Measure 4.D-1: The following new policy shall be included in the 2035 General Plan:

TM-1.19: At the time these sections of State Route 88 are shown through Regional Congestion Management Plan (RCMP) traffic count monitoring to exceed the RCMP standards, the County of San Joaquin shall coordinate with the San Joaquin Council of Governments (SJCOG) to evaluate the need for a RCMP Deficiency Plan. If needed, the RCMP Deficiency Plan shall identify improvements to add roadway capacity to allow the facility to achieve the RCMP level of service (LOS) standard (“direct fix”). Alternatively, the County may prepare an RCMP system-wide deficiency plan to improve multi-modal circulation and air quality. Improvements identified in the RCMP Deficiency Plan shall be programmed for inclusion and construction under the Regional Transportation Impact Fee (RTIF) program, payable at the time of building permit applications. Construction of the “direct fix” improvements would improve LOS at both of these segments to an acceptable LOS D or better.

Because San Joaquin County, as Lead Agency, does not have jurisdiction over this improvement, and the impact would arise under cumulative conditions, there are no other feasible mitigation measures apart from preparation of an RCMP Deficiency Plan and payment of RTIF mitigation fees by future development that are part of a reasonable, enforceable plan or program that is sufficiently tied to the actual mitigation of the traffic impacts at issue. Because it is uncertain whether full funding will be achieved for construction of this improvement, and, if so, whether and when such improvement will be constructed even with implementation of this mitigation measure, and therefore, whether this improvement will be constructed prior to project buildout, this impact would be significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.D-2: Implementation of the proposed 2035 General Plan could result in increased daily traffic volumes on local County roadways forecast to be deficient under future baseline conditions per the County's average daily traffic (ADT) threshold. (Significant and Unavoidable)

As shown in **Table 4.D-14**, when comparing the results of the proposed 2035 General Plan to the 2035 Baseline, the proposed 2035 General Plan would add more than 100 ADT to eight local roadways (spanning nine segments) that would already exceed the County's ADT threshold under 2035 Baseline conditions. Based on the applicable ADT significance thresholds, these impacts are significant. Although all of these roadway sections are also designated as part of the Regional Congestion Management Program (RCMP) for San Joaquin County, their projected ADT forecasts are within the RCMP Local Roadway LOS D Threshold. They are therefore not also considered an RCMP impact.

The County's ADT threshold can be achieved on these roadways by widening these facilities from two to four lanes. Alternatively, the impact of the project can be mitigated by reducing the added ADT to less than 100 trips. The same 2035 General Plan policies and implementation programs identified under Impact 4.D-1 would help mitigate this impact. Policies that address this issue through increased roadway capacity and revenue sourcing are Policies TM-1.2, TM-1.4, TM-1.5, TM-1.7, TM-1.8, TM-1.11, TM-1.12, TM-1.15, TM-1.16, TM-1.18, TM-2.3, TM-3.1, TM-3.9, and TM-3.10. Additional policies are in place to shift demand away from single-occupant vehicle trips and to better coordinate land uses with transportation infrastructure development, including Policies TM-1.1, TM-1.6, TM-1.13, TM-3.4, TM-3.12, TM-3.14, TM-5.1, TM-5.4, TM-5.7, TM-5.8, TM-5.9, TM-6.1, TM-6.2, TM-6.3, TM-6.4, and TM-6.5. This impact is also reduced by Implementation Programs TM-A and TM-E that will improve funding for roadway improvements and help set priorities for these improvements. Reducing reliance on single-occupancy vehicles, strategic roadway system capacity increases, developer impact fees, and closer coordination between land use and transportation system development will reduce future congestion.

Mitigation Measure 4.D-2: The following new implementation program shall be included in the 2035 General Plan:

TM-K: The County shall widen the following local roadways from two to four lanes or, alternatively, implement demand management strategies to reduce daily traffic to less-than-significant levels. As part of the next Traffic Impact Mitigation Fee (TIMF) update, the County shall consider including these roadways improvements in the TIMF Capital Improvement Program where they are not already addressed in the Regional Transportation Improvement Fee Program.

- Chrisman Road, North of Schulte Road
- Escalon-Bellota Road from Mahon Ave to Magnolia Lane
- French Camp Road, East of Airport Way
- Howard Road from Clifton Court Road to Grimes Road
- Jack Tone Road from French Camp Road to SR 120
- Jack Tone Road from Leroy Ave to Graves Road
- Lower Sac Road, North of Mokelumne Street

- McHenry Ave from Jones Road to the Stanislaus County Line
- Tracy Boulevard, South of Finck Road

Significance after Mitigation: Significant and Unavoidable.

Impact 4.D-3: Implementation of the proposed 2035 General Plan could conflict with San Joaquin Council of Governments (SJCOG) adopted/approved regional plans. (Less than Significant)

As described in the Regional Congestion Management Program (Land Use Analysis Program), all local agency projects must go through a Tier 1 review by the designated Congestion Management Agency for San Joaquin County, i.e., SJCOG. The purpose of the review will be to ensure that the proposed project is consistent with SJCOG's regional planning documents (Tier 1 Review).

General Plan policies that would ensure consistency with the SJCOG's regional planning documents include roadway capacity and revenue sourcing are Policies TM-1.2, TM-1.4, TM-1.5, TM-1.7, TM-1.8, TM-1.11, TM-1.12, TM-1.15, TM-1.16, TM-1.18, TM-2.3, TM-3.1, TM-3.9, and TM-3.10. Additional policies are in place to shift demand away from single-occupant vehicle trips and to better coordinate land uses with transportation infrastructure development, including Policies TM-1.3, TM-1.6, TM-1.13, TM-3.4, TM-3.12, TM-3.14, TM-5.1, TM-5.4, TM-5.7, TM-5.8, TM-5.9, TM-6.1, TM-6.2, TM-6.3, TM-6.4, and TM-6.5. Implementation programs such as TM-A, TM-D, TM-E, and TM-H will all serve to improve consistency and coordination among regional transportation planning initiatives. The impact would therefore be less than significant.

Mitigation: None required.

Transit System

Impact 4.D-4: Implementation of the proposed 2035 General Plan could decrease the efficient and convenient transit services accessible to all unincorporated county residents; conflict with adopted policies, plans, or programs regarding public transit; or otherwise decrease the performance or safety of such facilities. (Less than Significant)

San Joaquin County lags behind the state average for transit use by commuters, particularly in the unincorporated areas. Within the unincorporated areas, transit provision priority will continue to be focused on serving the transit dependent. This includes expanding social service transportation services and meeting ADA requirements applicable to transit services commensurate with county population growth. With the increasing interaction and growing market demand for intercity and interregional alternative modes of transportation, specifically for commuting, the need for both inter-city and interregional transit service is becoming more apparent.

There are several policies in the proposed 2035 General Plan that would enhance transit services in San Joaquin County. Transit is directly addressed through service increases, funding opportunities, or related infrastructure development. These policies include Policies TM-1.8, TM-5.1, TM-5.2, TM-5.3, TM-5.4, TM-5.5, TM-5.6, TM-5.7, TM-5.8, TM-5.9, TM-5.10, TM-5.11, and TM-5.13. Additional policies indirectly support increased transit use by improving system accessibility or by making it more competitive with other transportation modes. These include Policies TM-1.3, TM-1.6, TM-1.12, TM-1.13, TM-2.1, TM-2.2, TM-2.3, TM-2.4, TM-2.6, TM-5.14, and TM-6.4. The impact would therefore be less than significant.

Mitigation: None required.

Bicycle and Pedestrian Facilities

Impact 4.D-5: Implementation of the proposed 2035 General Plan could conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, leading to additional single-occupant vehicle trips. (Less than Significant)

Greater emphasis on complete streets and construction of new regional bicycle facilities to connect communities within the county would encourage more people to walk and ride their bicycles for short-distance trips, leading to reduced single-occupant vehicle trips and greenhouse gas production. Proposed 2035 General Plan policies that support alternative transportation modes and facilities in San Joaquin County through increased accessibility of bicycle and pedestrian amenities such as complete streets include Policies TM-2.1, TM-2.2, TM-2.4, TM-2.5, TM-6.6, and TM-6.7. Other policies oriented toward system expansion and gap closures are Policies TM-1.10, TM-1.14, TM-4.4, TM-4.6, and TM-4.7. Improved safety for pedestrians and cyclists is addressed in Policies TM-4.2, TM-4.3, and TM-4.4. There are also a number of policies that support more bicycle- and pedestrian-friendly land uses and general multi-modal strategies, including Policies TM-1.3, TM-1.6, TM-1.12, TM-1.13, TM-2.3, TM-4.11, and TM-4.12. The programs included in the 2035 General Plan that support alternative transportation modes and facilities are Implementation Program TM-D for a review of roadway standards, and Implementation Program TM-H for more focused planning for bicycles and pedestrians.

While implementation of the 2035 General Plan could conflict with existing or planned pedestrian or bicycle facilities, the policy provisions of the proposed 2035 General Plan would provide for continued and improved pedestrian and bicycle opportunities and would reduce potential impacts on bicycle and pedestrian facilities to less-than-significant levels.

Mitigation: None required.

Design Features Hazards

Impact 4.D-6: Implementation of the proposed 2035 General Plan could result in an increase in traffic volumes, which could increase the potential opportunities for safety conflicts. (Less than Significant)

Implementation of the proposed 2035 General Plan could result in an increase in traffic hazards due to a design feature or incompatible uses. However, the General Plan is a policy document and includes policies and programs to avoid or reduce future hazards. At the point of detailed designs, projects would be required to meet the County's design standards at the time of project approval. Any potentially adverse or hazardous impact on the transportation network would be identified and addressed during project design review. Further, the proposed 2035 General Plan includes a number of policies that directly address safety and design issues, including Policies TM-3.5, TM-4.2, TM-4.4, and TM-5.14. Additional policies that address safety are Policies TM-1.2, TM-4.3, and TM-7.5. The proposed 2035 General Plan also includes Implementation Program TM-D to review roadway design standards.

Implementation of the proposed 2035 General Plan policy provisions to maintain roadways and improve traffic flow, in conjunction with enforcement of modern design standards in the construction of new roadway facilities, would ensure that construction or modification of roadway facilities in the county would not result in unacceptable safety conflicts. Therefore, the impact is considered less than significant.

Mitigation: None required.

Air Traffic Patterns

Impact 4.D-7: Implementation of the proposed 2035 General Plan could directly result in a change to air traffic patterns. (Less than Significant)

The proposed 2035 General Plan would not directly result in a change to air traffic patterns to and from the Stockton Metropolitan Airport and the other smaller airports in the county. There are a number of policies in the proposed 2035 General Plan that would improve the efficiency and accessibility of the Stockton Municipal Airport and other smaller airports, including Policies TM-7.10, TM-8.1, TM-8.2, TM-8.3, TM-8.4, TM-8.5, and TM-8.6. The impact would be less than significant.

Mitigation: None required.

Emergency Access

Impact 4.D-8: Implementation of the proposed 2035 General Plan would not result in inadequate emergency access. (Less than Significant)

The proposed 2035 General Plan has a policy addressing emergency access (Policy TM-1.2), which states that emergency access would be handled on a project-by-project basis to ensure continued emergency service operation and service levels. The proposed 2035 General Plan would not directly result in inadequate emergency access. The impact would be less than significant.

Mitigation: None required.

Temporary Construction Impacts

Impact 4.D-9: Implementation of the proposed 2035 General Plan could generate temporary increases in traffic volumes and temporary effects on transportation conditions. (Less than Significant)

During the construction of future development under the 2035 General Plan, temporary and intermittent transportation impacts may result from truck movements as well as construction worker vehicles to and from the development sites, or temporary closure of sidewalks and/or bicycle lanes. The construction-related traffic may temporarily reduce capacities of County roadways because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Truck traffic that occurs during the peak commute hours (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM) may cause temporary reduced levels of service and higher delays at study intersections during the construction period. Also, if parking of construction workers' vehicles cannot be accommodated within the development sites, it would temporarily increase parking occupancy levels in the adjacent area. Future, construction could also affect the operations of transit buses as certain street segments are temporarily closed or if access is restricted on streets that constitute current bus routes.

The County requires that a Construction Traffic Management Plan be developed and implemented as part of a larger Construction Management Plan for each development project to address potentially significant impacts during the project's construction. The impact would therefore be less than significant.

Mitigation: None required.

Cumulative Impacts

This scenario evaluates the impacts on traffic and circulation that would occur in 2035 with and without the proposed 2035 General Plan combined with cumulative development in the defined geographic area, including past, present, and reasonably foreseeable probable future development.

The Cumulative No Project scenario, or Future Baseline traffic projections, establish background conditions for the evaluation of development under the 2035 General Plan in the future and form the basis for determining and comparing cumulative impacts. Additional development projects are expected to be completed by 2035, beyond those anticipated in the proposed 2035 General Plan, and would contribute to a long-term increase in background traffic regardless of County development. These projects include anticipated growth within the cities' urban growth limit, the Regional Transportation Plan (RTP), and the Bay Delta Conservation Plan. This step in the analysis makes it possible to identify long-term traffic impacts, regardless of the proposed 2035 General Plan.

Impact 4.D-10: Implementation of the proposed 2035 General Plan, combined with cumulative development in the defined geographic area, including past, present, and reasonably foreseeable probable future development, could contribute to significant cumulative transportation and circulation impacts. (Significant and Unavoidable)

The proposed 2035 General Plan cumulative analysis is considered in Impacts 4.D-1 and 4.D-2 above, as the analysis addresses the buildout of the 2035 General Plan and the cumulative contributions of the 2035 General Plan buildout. The traffic modeling includes land use assumptions for both the incorporated and unincorporated areas in the year 2035. As discussed, policies outlined in the 2035 General Plan and Mitigation Measures 4.D-1 and 2.D-2 would help lessen some of the impacts of the 2035 General Plan buildout, but the impacts would remain significant and unavoidable. In addition, it is noted that other projects such as the Bay Delta Conservation Plan (BDCP) are not captured in the traffic model. The BDCP is a part of California's overall water management portfolio. It is being developed as a 50-year habitat conservation plan with the goals of restoring the Sacramento-San Joaquin Delta ecosystem and securing California water supplies.

Mitigation Measure 4.D-10: Implement Mitigation Measures 4.D-1 and 4.D-2.

Significance after Mitigation: Significant and Unavoidable.

D.5 References – Transportation and Circulation

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E. Cultural and Paleontological Resources

E.1 Introduction

This section presents a summary of the prehistory and history in San Joaquin County and an overview of known cultural resources. Cultural resources include historic-era architectural resources, prehistoric and historic-era archaeological resources, paleontological resources, and human remains. The regulatory setting provides a description of applicable federal, state, and local regulatory policies. The potential for adverse impacts on cultural resources is assessed and feasible mitigation is identified to avoid or lessen the impacts.

The following environmental and regulatory settings were developed from information contained in the General Plan Background Report (see Chapter 13.2 “Paleontological, Archaeological, and Historical Resources”). References are included in the General Plan Background Report (Mintier Harnish, 2009) and summarized below.

San Joaquin County is located in an archaeologically, historically, and paleontologically rich part of the San Joaquin Valley. The primary sources of data for this section are cultural and paleontological resources such as the *National Register of Historic Places*, the *Historic American Building Survey/Historic American Engineering Record* (HABS/HAER), the *California Register of Historical Resources*, *California Historical Landmarks*, the San Joaquin County Historical Society list of historic resources, the files of the Central California Information Center, California State University, Stanislaus, Turlock, and the files of the Museum of Paleontology, University of California, Berkeley, and the Society of Vertebrate Paleontology, Deerfield, Illinois.

E.2 Environmental Setting

Paleontological Resources

The following summary of the geological evolution of the Central Valley is summarized in the General Plan Background Report (Mintier Harnish, 2009). During the Mesozoic Era (208–65 million years ago), the Sierra Nevada formed, but the region that would become the San Joaquin Valley lay several thousand feet below the surface of the Pacific Ocean. During the Late Cretaceous Period (75–65 million years ago [mya]), flowering plants, early dinosaurs, and the first birds and mammals appeared. The basic form of the Great Central Valley took shape during the Cenozoic period, first as islands, then as mountains. During the late Cenozoic Era (65–2 mya), the Sierra Nevada eroded to mere hills compared to their earlier appearance, the Coast Ranges rose, and the San Joaquin Valley began to form.

During the Paleocene Epoch (65–53 mya), dinosaurs became extinct and mammals gradually evolved as the dominant group of animal life. During the Eocene Epoch (53–39 mya), the western edges of the San Joaquin Valley rose above sea level. Sedimentation and tectonic uplift of geological formations continued until two million years ago. In the subsequent Oligocene Epoch (39–23 mya), sedimentation continued, and during the Miocene Epoch (23–5 mya) the Diablo

Range was uplifted. The Pliocene Epoch (5–2 mya) was a time of tremendous uplift, and great quantities of sediment eroded from the nearby mountain ranges accumulated in the valley, eventually forming a deposit thousands of feet thick. In the Pleistocene Epoch (2 million to 10,000 years ago), the Sierra Nevada range was increasingly elevated and glaciated, resulting in the formation of spectacular features such as Yosemite Valley. During the Holocene Epoch (10,000 years ago to the present), the San Joaquin Valley was above sea level and achieved its present appearance, 466 miles long and 19 to 50 miles wide, enclosed by the Siskiyou, Sierra Nevada, Tehachapi, and Coast Ranges on the north, east, south, and west, respectively. The valley contained fresh water lakes and rivers attractive to herds of prehistoric grazing animals, including Columbian Mammoth, camel, bison, and native horse. The fossil remains of these creatures have been found in San Joaquin County and adjacent areas.

According to standards and guidelines published by the Society of Vertebrate Paleontology, sedimentary rock units with a high potential for containing significant nonrenewable paleontological resources are those within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. Significant paleontological resources are fossils or assemblages of fossils, which are unique, unusual, rare, uncommon, diagnostically or stratigraphically important, and those which add to the existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (SVP, 1995; SVP, 1996).

The vast majority of paleontological specimens from San Joaquin County have been found in rock formations in the foothills of the Diablo Mountain Range. However, remains of extinct animals such as mammoth, could be found virtually anywhere in the county, especially along watercourses such as the San Joaquin River and its tributaries.

Prehistoric Overview

Little is known of the earliest occupants of San Joaquin County, although it is probable that the San Joaquin Valley, Sierra Nevada foothills, and the eastern flanks of the Diablo Range were occupied throughout most of the latter part of the Holocene Epoch (~10,000 years ago to the present). Finding evidence of early cultures in the Central Valley is, however, a daunting task, due to the mantle of alluvial sediment covering most of the Valley, a deposit up to six miles thick and ranging in age from the late Mesozoic to the Historic Period. The more recently deposited alluvium may conceal evidence of early human habitation.

The background of archaeological research in the Central Valley is summarized in the General Plan Background Report (Mintier Harnish, 2009). Archaeological investigations in the Central Valley commenced in the Delta area of San Joaquin County, where from 1880 to 1906, James M. Barr excavated numerous prehistoric burial mounds. Beginning in 1912, Elmer Dawson excavated sites near Lodi. Collections of artifacts from mounds near Stockton were obtained for the University of California, Berkeley, by P. M. Jones in the 1920s. Central Valley researchers and associated references are listed in the General Plan Background Report (Mintier Harnish, 2009).

One of the most important archaeological research projects undertaken in the Central Valley and the Delta occurred in the 1930s through a series of excavations conducted by Lillard et al., yielding evidence that verified Dawson's earlier work, and lead to the development of three major periods of Central Valley prehistory: the "Early," "Transitional," and "Late" periods. Subsequently, Heizer referred to these periods as "horizons." The sequence proposed by Heizer was adopted by Beardsley and is now applied to the Bay Area and also to the lower Central Valley. These three horizons are each explained below.

Early Horizon: 2500 BC-500 BC

The early horizon burials were found oriented in the prone position, fully extended, often face down, head to the west. Other important aspects of this horizon included the discovery of material cultures that included well-made charmstones often used for ceremonies, large, heavy projectile points, flat slab milling bases, stone bowl mortars, and pestles. Other discoveries included fiber-tempered, hand-molded baked clay objects substituted for cooking stones. This period is represented in Sacramento County at CA-SAC-107 (Windmill Mound) and in San Joaquin County at five sites (CA-SJO-56, -68, -112, -142, and -168). These five sites attributed to the Windmill Culture.

Middle Horizon: 500 BC-AD 800

Middle horizon patterns suggest the people of this period were less concerned with the orientation of burials. Many burials were found tightly flexed, and cremations, although rare, were often accompanied by funerary goods. There is evidence of warfare; however, less than 5 percent of skeletons have imbedded projectile points. Material culture included coiled basketry inferred by the presence of numerous bone awls or fragments of awls, used to make baskets. Charmstones, presumably used in ceremonies and baked clay objects, were also common objects. Sites attributed to this phase include CA-SAC-66 (Morse Mound) and CA-SAC-43 (Brazil Mound).

Late Horizon: AD 800-AD 1820

Archaeological investigations during this period indicate cremations frequently took place. The material culture includes: quantities of shell beads; serrated, small side-notched obsidian projectile points; and bowl mortars, pestles, and steatite pipes. Sites include CA-CCO-138 (Hotchkiss Mound), and CA-STA-44 (Hoods Creek site).

Central Valley Archaeology and San Joaquin County

The prehistory of the Central California Valley is revealed through archaeological investigations and a typology of artifacts found with burials during excavations. Evidence from this period suggests that the Central Valley Delta region has been occupied since the Early and Middle Horizon (2500 BC to 800 AD). California "horizons," their salient, characteristic and cultural traits, the time periods subsumed by each, and many other topics concerning them have been extensively discussed in the California archaeological literature (Jones and Klar, 2007; Moratto, 1984). For example, in 1972, Ragir referred to the three horizons as "cultures," respectively the Windmill, Cosumnes, and Hotchkiss cultures. Fredrickson (1974) regarded these entities as "patterns," the Windmill, Berkeley, and Augustine patterns, and later proposed three cultural

periods: Paleo-Indian, Archaic, and Emergent. Another researcher, Rosenthal et al. (2007) defined the following temporal divisions based on calibrated radiocarbon dates: Paleo-Indian (11,550 to 8550 BC), Lower Archaic (5550 to 550 BC), Upper Archaic (550 BC to AD 1100), and Emergent (AD 1100 to Historic-era). While the radiocarbon dates imply a high degree of accuracy, the data supporting some of the postulated periods (Paleo-Indian and Archaic) are meager. For example, evidence of Paleo-Indians in the Central Valley, according to Rosenthal et al. (2007), “consists of basally thinned and fluted projectile points found at scattered surface locations, primarily in the southern portion of the basin. . . . To date, only three localities in the San Joaquin Valley have produced early concave base points . . . including Tracy Lake [northwest of Woodbridge], the Woolfsen [Wolfsen] Mound (CA-MER-215), and the Tulare Lake basin.” At a latter location is the Witt Site, reported by earlier researchers Riddell and Olsen, where fluted points were found on the ancient lakeshore.

Early archaeological remains attributable to Paleo-Indians are extremely scarce in and near San Joaquin County. Existing archaeological finds include a fluted projectile point from the vicinity of former Lake Tracy. This find was characterized by Heizer in 1938 as “Folsom-like,” referring to projectile points found at the famous site near Folsom, New Mexico, dated by radiocarbon assays of associated bison bone at 10,500 years before present. Another find from the Lake Tracy area is a crescent-shaped artifact comparable to similar specimens found elsewhere in California and Nevada and regarded by many scholars as ancient. These finds are exciting, but do not conclusively demonstrate the presence of early humans in the Central Valley. Therefore, more substantial remains are those attributed to the Early Horizon (“Windmill Pattern”), the earliest well-established cultural manifestation of occupation evident in the Central Valley.

Windmill takes its name from the Windmill Ranch, Sacramento County, where some of the earliest regional archaeological investigations were conducted by Lillard et al. in the 1930s. The excavation reveals substantial evidence of a prehistoric culture that apparently flourished in the Central Valley, particularly in the Stockton-Delta region and elsewhere from approximately 2500 BC to the beginning of the Common Era. Unfortunately, fewer than a dozen Windmill sites are known; six are located in San Joaquin County near or within the City of Stockton, one of which, the “Blossom Mound” (CA-SJO-68), is the oldest known Windmill site. Another, the Bear Creek site (CA-SJO-112), is one of the latest sites attributed to this cultural phase. Radiocarbon dates of this excavation period indicate that this culture or phase flourished from 4,350 to 990 years ago yet ongoing studies demonstrate more details on the lifestyles of these early cultures, including food sources and cooking methods and tools.

One of the principal foods consumed by Windmill people was acorn meal. Groundstone tools found at some of the known sites indicated the possible collection of plants, such as the acorn meal. These findings were determined from the discovery of numerous amorously-shaped baked clay objects that were interpreted by archaeologists as local substitutes for cooking stones. Suitable stones (or hand-molded globs of clay) were heated in fires and placed in baskets containing acorn or other vegetal meal making it possible to cook meal in baskets without exposing them directly to flame. However, it is assumed that repeated use of the stones or clay globs eventually caused them to fracture since the discarded, thermally-altered fragments of

cooking stones and clay globs form a significant part of the debris found at many Central Valley archaeological sites.

Other artifacts characteristic of the Windmill pattern found at sites consist of several types of artifacts, including large projectile points made of obsidian, carefully polished ground stone implements archaeologists call “charmstones,” which had ceremonial significance. While much has been learned about the Windmill culture through evident archaeological deposits in the lower Central California Region, many aspects of this distinctive but enigmatic cultural expression remain to be studied.

Several of the most important archaeological sites in San Joaquin County are located along the San Joaquin River, its tributaries, and the Delta (Moratto, 1984; Rosenthal et al., 2007). These sites (CA-SJO-56, -68, and -112) were tested or partially excavated by professional archaeologists as well as avocationalists, yielding evidence of cemetery features and anthropic deposits referred to as the “Windmill Culture.” On the basis of cumulative research in the Sacramento-San Joaquin Delta region, Heizer and his colleagues considered Windmill to be the oldest known, well-established cultural manifestation in west-Central California, a conclusion essentially unchallenged today despite the paucity of known sites ascribed to this archaeological pattern.

Other archaeological sites in San Joaquin County found later include the French Camp Slough site (CA-SJO-91) also known as the Mormon Slough site excavated by Fenenga in the 1960s, the Safflower site (CA-SJO-145), and the Brown site (CA-SJO-165), located on the east side of the San Joaquin River. Recent investigations required by state and federal laws have documented numerous prehistoric and historical sites in San Joaquin County.

Ethnographic Setting

Most of San Joaquin County was part of the former territory of the Penutian-speaking Northern Valley Yokuts. Their territory extended from the foothills of the Coast Range east into the foothills of the Sierra Nevada, north to the Calaveras River and south to the San Joaquin River. Yokuts villages, consisting of a few families to several hundred people, usually were located along principal watercourses. One of the primary sources of food for California Native Americans, the acorn, is scarce in many parts of the Yokuts territory, but they made use of other edibles, gathering nuts, seeds, and roots of many plants. Acorns and other seeds were processed in portable mortars made of stone or white oak. River-cobble pestles were used in mortars to pulverize vegetal materials.

Yokuts made pottery simply by smoothing or pressing out a lump of clay obtained from riverbanks. Unmodified rocks or cobbles of suitable size and shape were used as “cooking stones” to heat processed vegetal foods, such as acorn mush, in baskets. When rocks were not locally available “baked clay globs” were substituted. The Yokuts used flaked stone tools (arrowheads and knives) made of chert or obsidian, the latter obtained from sources east of the Sierra Nevada through trade with neighboring Paiute or Miwok. The Northern Valley Yokuts constructed several types of dwellings, including the mat-covered gabled kawi, a communal

dwelling, and a wedge-shaped family dwelling (te) made of tule, in which each family had separate quarters. Other structures included flat-roofed shades supported by posts. Sweathouses were built by digging a pit several feet deep and building within it a pole framework covered with earth. Water was poured on hot rocks inside the structure to produce steam.

Ethnographic information for the Yokuts of San Joaquin County is based primarily on what was known prior to 1925 concerning the Southern Valley Yokuts, the “northerners” having been virtually wiped out by malaria and smallpox epidemics in the 1830s. The destruction of Native American tribal cultures in the Central Valley from 1776 to 1900 was due to disease and other forms of cultural disruption.

It is believed that during prehistoric times, part of San Joaquin County was occupied by Miwok, a tribe consisting of five distinctive cultural groups, each of which spoke a different Miwokean language (Kroeber, 1925; Levy, 1978). The foothill and mountain reaches of the Mokelumne and Calaveras rivers were occupied by the Northern Sierra Miwok, and part of the Central Valley by the Plains Miwok.

Levy discusses the territory and village sites of the Eastern Miwok. Unfortunately, ethnographically documented knowledge of Plains Miwok village locations is confined for the most part merely to lists of villages; often only the approximate location and estimated population of a village is known. Kroeber, Levy, and Bennyhoff respectively, published information regarding village locations, but the scale of their maps is so small that the depictions give only the approximate positions of most of the villages, the majority of which of course no longer survive. A few have been identified as archaeological sites. Kroeber (1925) lists four ethnographically known Native American villages in the county, located on the lower Mokelumne River.

Today, Native Americans continue to reside in San Joaquin County. According to the U. S. Census Bureau in 2008, approximately 1.3 percent of the county’s population was composed of American Indians and Alaska Native persons. As of 2014, this percentage was 2 percent of the county’s population (U.S. Census, 2014).

Historic Overview

Hispanic Era

Catholic missionaries and soldiers of Spain entered southern California from Mexico in 1769, and founded San Diego. They subsequently established a chain of 21 missions, as well as presidios, secular cattle ranches, and villages northward along the coast. Their presence in the Central Valley, however, was limited to occasional expeditions and forays undertaken to capture Native Americans who had fled the coastal missions. The Spanish explored the Central Valley in a cursory way but failed to build missions there, and did not venture into the Sierra Nevada. Juan Crespi and Pedro Fages in 1772 were the first to see the San Joaquin River, followed by Jose Moraga, who probably reached the vicinity of the mouth of the Calaveras River in 1776. Other explorers followed, but Spain gradually declined as an imperial power, and its influence in California ended in 1821, followed by the ascendancy of Mexico. The Mexican Period lasted

from 1822-1848. Spanish influence persisted due to the establishment of ranchos. Six Spanish and later Mexican land grants were wholly or partly within the present-day county. They are Arroyo Seco, Campo de los Franceses (including Stockton), Estanislao (Thompson's), Zanjón de Mokelumnes, Pescadero (claimed by Pico) and Pescadero claimed by Higuera), and two unnamed and ultimately rejected grants applied for by José Castro and John Rowland (Mintier Harnish, 2009).

American Era

American exploration of the Central Valley began with the arrival of trappers, traders, and explorers, including Jedediah Smith in 1827, the Ewing-Young expedition in 1832–1833, and the J. R. Walker party in 1834. In 1844, John Frémont and his party headed south through the San Joaquin Valley. The mountain men experienced numerous clashes with Native Americans along the Mokelumne and Calaveras rivers.

John Marshall's epochal discovery of gold in the tailrace of Sutter's Mill in January 1848 brought thousands of gold-seekers to the Sierra Nevada "Mother Lode" region. One of the indirect but far-reaching consequences of the Gold Rush was occupation of the valley by ferry operators, storekeepers, innkeepers, and others who supplied the miners with goods and services. Numerous ferries operated along the San Joaquin and its tributaries. Most appeared overnight and disappeared just as quickly when the flow of Sierra-bound miners and prospectors dwindled. In 1850, the few settlements in San Joaquin County included Stockton, San Joaquin City, French Camp, Chalmer's Ranch, and the ranchos. San Joaquin City, an agricultural settlement established in 1849, consisted of several one-story houses and numerous tents. It served as a terminal for boats traveling along the San Joaquin River between Stockton and Tuolumne City in Stanislaus County. French Camp, founded by French-Canadian trappers, was the southernmost camp of the Hudson's Bay Company and the western terminus of the Oregon Trail from about 1832 to approximately 1845. French Camp is a California State Historic Landmark.

Stockton was established by Charles Weber, who saw the advantage of its location as a supply center for miners bound for the Mother Lode. Weber laid out the town, originally known as Tuleberg, in 1847. It was renamed Stockton for Commodore Robert F. Stockton, and by 1850 the little settlement had a population of 5,000.

During the 1850s, the more productive parts of the Central Valley were taken up by farmers and stockmen. In 1872, the Central Pacific Railroad entered the county, connecting the San Joaquin Valley with markets to north and south, and, importantly, the east. By 1885 much of San Joaquin County was under cultivation, wheat being a major crop. The remaining grasslands were occupied by huge herds of cattle, the era of the "cattle kings," typified in the Central Valley south of San Joaquin County by the vast land holdings of Miller and Lux. As agriculture increased in the Central Valley most of the former land grants were broken up into numerous small farms, and the valley began to take on its present densely settled, highly productive aspect. The key to intensive agriculture was a means of overcoming seasonal aridity and the equally damaging seasonal floods produced when the Valley fields were inundated by melt water from the Sierra Nevada snow pack. Seasonal floods were controlled by constructing reservoirs and gradually

releasing water during the growing season, providing reliable water supplies throughout what was to become one of the leading California food-producing counties. The Port of Stockton was opened in 1933, the first inland seaport in California (Mintier Harnish, 2009).

Summary of Cultural Resources within San Joaquin County

Data obtained from the Central California Information Center (CCIC) indicates that as of November 2013 (CCIC File No. 8773L), approximately 108,688 acres (12 percent of the county) in San Joaquin County have been surveyed for cultural resources. It is likely that many prehistoric sites, historic-era remains, and paleontological resources might be found on the surface, as well as in subsurface contexts, throughout the county, particularly but not exclusively in riparian (streamside or riverside) settings and on the elevated landforms flanking the county.

According to the CCIC, San Joaquin County contains 5,152 documented historical resources, including 271 prehistoric archaeological sites, 313 historic-era archaeological sites, 15 multi-component archaeological sites, and 4,553 historic-era buildings or structures that need to be preserved to share significance of cultural resources through interpretive education opportunities with the community and visitors.

The Office of Historic Preservation (OHP) Historic Property Data File for San Joaquin County (April 2012) lists 3,490 evaluated cultural resources. Of these, 34 are of national importance and are listed on the National Register of Historic Places (NRHP), 381 are of state importance and are listed on the California Register of Historical Resources (CRHR), 26 are listed as California Historical Landmarks (CHL), and 9 as California Points of Historical Interest (CPHI), which provides an opportunity to support a cultural resources program or larger preservation effort within the county.

In addition to the many recorded and evaluated historic resources in San Joaquin County, there may also exist many previously unknown historic buildings or structures, as only a small percentage of the county has been systematically surveyed and evaluated for the existence of such resources. For example, numerous buildings or structures in the county that were built prior to 1964 and are at least 50 years old as of 2014 (the minimum age threshold for eligibility for listing in the NRHP or CRHR) have never been professionally surveyed or evaluated for their potential historical significance, especially in rural areas outside of the incorporated city limits.

Many archaeological sites in the county have been destroyed by construction, agriculture, and river erosion. Remaining archaeological sites in San Joaquin County represent about 5 percent of the original inventory and are of exceptional importance for the study of regional prehistory. Significant, and/or important cultural resources may exist in the subsurface of farmland or other highly modified localities, such as within cities. For example, archaeological investigations within the City of Stockton demonstrated that significant cultural remains can be found below the surface of “disturbed,” cultivated, or industrialized areas in San Joaquin County.

Paleontological specimens are found in western San Joaquin County and may be unearthed elsewhere in the county during project activities. Research indicates that 11 localities in San

Joaquin County have yielded Late Pleistocene-Age large mammals, including bison, Jefferson's Ground Sloth, Yesterdays Camel, Columbian Mammoth, horse, and American Mastodon. The files of the Museum of Paleontology, University of California, Berkeley (accessed November 2013), lists 814 fossil specimens from 97 localities within the county.

E.3 Regulatory Setting

Federal

The majority of applicable federal regulations concerning cultural resources are established by the National Historic Preservation Act of 1966 (NHPA) and the National Environmental Policy Act of 1969 (NEPA).

National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470 et seq.)

A federal law enacted to avoid unnecessary harm to historic properties, NHPA includes regulations that apply specifically to federal land-holding agencies, but also includes regulations (Section 106) which pertain to all "undertakings" funded, permitted, or approved by any federal agency that have the potential to affect cultural resources. Provisions of NHPA establish the National Register of Historic Places (NRHP), the Advisory Council on Historic Preservation, State Historic Preservation Offices, and the federal grants-in-aid programs.

National Environmental Policy Act (NEPA) of 1969 (16 U.S.C. 4321, and 4331-4335, as amended)

The act establishes guidelines to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." All federal actions that are subject to NEPA are considered "undertakings" subject to compliance with Section 106 of the NHPA and all NEPA requirements concerning cultural resources.

American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996 and 1996a, as amended) and Native American Graves and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., as amended)

These acts establish as National policy that Native American traditional religious practices and beliefs, sacred lands (including right of access), and the use of sacred objects shall be protected and preserved. Native American remains are further protected by the Native American Graves Protection and Repatriation Act of 1990.

Secretary of the Interior's Standards

The Secretary of the Interior is responsible for establishing professional standards and providing guidance related to the preservation and protection of all cultural resources listed in, or eligible for listing in, the NRHP. The Secretary of the Interior's Standards for the Treatment of Historic Properties apply to all grants-in-aid projects assisted through the National Historic Preservation Fund, and are intended to be applied to a wide variety of resources, including buildings, structures, sites, objects, and districts. The treatment standards, developed in 1992, are entitled

“The Secretary of the Interior’s Standards for the Treatment of Historic Properties” codified as 36 CFR 68. The standards address four treatments:

- **Preservation** means the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses on the ongoing maintenance and repair of historic materials and features, rather than extensive replacement and new construction.
- **Rehabilitation** means the act or process of making possible an efficient compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- **Restoration** means the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.
- **Reconstruction** means the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

In addition, CEQA Section 15064.5(3)(b) states that, “Generally, a project that follows the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.”

Other Federal Legislation

Federal historic preservation legislation was initiated by the Antiquities Act of 1906 (16 U.S.C. 431-433) to protect historic and archaeological sites. The law established the procedure for issuing permits to conduct archaeological studies on federal land, as well as setting penalties for noncompliance. Permits are currently issued under this act and the Archeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470aa-mm). The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands. The Historic Sites Act of 1935 (16 U.S.C. 461-467) states that it is national policy to “preserve for public use historic sites, buildings, and objects of national significance.”

National Register of Historic Places (NRHP)

Archaeological and historical sites can be given a measure of protection if they are eligible for the *NRHP* (36CFR60.4 and 36CFR800). The criterion most often applied to archaeological sites is criterion (4), which addresses the potential of a site to yield information important in prehistory or history. The NRHP criteria and other information issued by the Advisory Council on Historic Preservation, present the legal measures of significance relevant to cultural resources. The NRHP criteria are the following:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

- are associated with events that have made a significant contribution to the broad patterns of our history; or
- are associated with the lives of persons significant in our past; or
- embody the distinctive characteristics of a type, period, method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack distinction; or
- have yielded, or may be likely to yield, information important to prehistory or history [36CFR60.4 (a-d)].

Additionally a Traditional Cultural Property (TCP) may possess a traditional cultural significance that may make it eligible for inclusion in the Register. Examples of TCPs possessing such significance include:

- a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- a rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents;
- an urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices;
- a location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; and
- a location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity [NPS, 1998].

Pursuant to the intent and specification of the criteria quoted above, prehistoric and historic cultural resources may be eligible for nomination to the *NRHP* in the event that they have yielded, or upon further investigation may be likely to yield, information important in prehistory or history. This evaluation is based on inspection of the features of the site, examination of artifacts and features, the age of the site, the apparent *integrity* of the site's context, and the location and integrity of the site in its local and regional context. Under criterion (d), it is implicit that further scientific investigation of a site based on research goals, objectives, problem domains, testable hypotheses and other research questions that have been identified in applicable research designs will be likely to yield information important to the explication and interpretation of local and or regional prehistory and history.

In addition to meeting one or more of NRHP criteria, a cultural resource must possess physical and geographic integrity. An eligible cultural resource must be essentially in the same physical condition as when it was used or constructed, and, if it is not, its condition must be such that it may be renovated to its near original condition. A cultural resource must also have integrity of location – it must be in its original location of use or construction. The setting of a cultural resource must impart a feeling characteristic of the time when the resource achieved its significance. In reference to archaeological sites, a cultural resource must have sufficient integrity so that available data can be recovered and analyzed in meaningful ways.

State

Cultural Resources

California Environmental Quality Act (Public Resources Code 21000 et seq.)(CEQA)

Under CEQA, a project that would cause a substantial adverse change in the significance of an “historical resource” is a project that may have a significant effect on the environment. (CEQA Guidelines Section 15064(b).) An “historical resource” is a resource that meets one of the following criteria (CEQA Guidelines Section 15064[a]):

- The resource is listed in or determined eligible for listing in the California Register of Historical Resources.
- The resource is included in a local register of historical resources, as defined in Section 5030.1[k] of the PRC,
- The resource is identified as significant in an historical resource survey meeting the requirements of Section 5024.1[g] of the PRC, unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or
- The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record.

CEQA also requires consideration of impacts on “unique archeological sites.” (CEQA Guidelines Section 15069.5(c)(3).) Most archeological sites that meet the definition of a unique archeological site also meet the definition of an “historical resource.”

California Register of Historical Resources (CRHR)

On September 27, 1992, Assembly Bill 2881 (Statutes of 1992, Chapter 1075) was signed into law amending the Public Resources Code (PRC) as it affects historical resources (PRC Section 4850 *et seq.*) This legislation, which became effective on January 1, 1993, also created the CRHR. A historical resource must be significant at the local, state, or national level, under one or more of the following four CRHR criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
- It is associated with the lives of persons important to local, California, or national history;

- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Integrity is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. All resources nominated for listing on the CRHR must have integrity. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criteria under which a resource is proposed for eligibility. Alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance.

It is possible that historical resources may not retain sufficient integrity to meet the criteria for listing in the NRHP, but they may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if it maintains the potential to yield significant scientific or historical information or specific data.

Section 15064.5 of the CEQA Guidelines states: "Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, shall be considered as mitigated to a level of less than a significant impact on the historical resource."

Senate Bill 18 (Chapter 905, amends Section 815.3 California Civil Code "Traditional Tribal Cultural Places")

Section 65351 of the California Government Code: "During the preparation or amendment of the general plan, the planning agency shall provide opportunities for the involvement of citizens, California Native American tribes, public agencies, public utility companies, and civic, education, and other community groups, through public hearings and any other means the city and county deems appropriate." Compliance with SB 18 will be documented as part of the 2035 General Plan.

Native American Heritage Commission (NAHC)

This commission, established in 1976, was created in response to demands from Native Americans to protect their burial grounds from destruction. NAHC authorizes California's Most Likely Descendants (MLDs) the right to determine the treatment, disposition, and analysis of Native American human remains. NAHC is located at 915 Capitol Mall, Room 364, Sacramento, CA 95814 (916-653-4082). The NAHC and its authority were established by California Public Resource Code (PRC) 5097.9. Among the functions of NAHC is maintenance of lists of Native American Contacts and Most Likely Descendants.

- **Native American Contacts.** Project proponents or their designees are required by law to contact NAHC and advise the Commission of the purpose and location of proposed projects, and request NAHC to provide a list of Native American individuals and organizations that may have concerns regarding the project or its potential effects. Upon receipt of the list, the project proponent is responsible to contact the individuals and organizations listed, furnishing each with a statement of the project's purpose and a map of its location. If the Native American contacts do not respond within two weeks, the proponent should undertake contact by telephone, and maintain a log documenting all efforts to communicate with the Native American contacts. The Native American contacts are not to be confused with MLDs, discussed below.
- **Most Likely Descendant (MLD).** The NAHC maintains a list of Most Likely Descendants, those persons regarded as most likely descended from a deceased Native American. In the event that human remains are found in a location other than a dedicated cemetery and the remains are identified as Native American, the county coroner is required to contact NAHC. Designated MLDs have the authority to specify the treatment and disposition of Native American human remains. MLDs constitute a separate group from Native American contacts.

Paleontological Resources

The significance of paleontological resources is evaluated using state and nationally-applicable guidelines. CEQA guidelines state that a project could have a significant effect on the environment if project activities disrupt or adversely affect a paleontological site (CEQA Checklist, Appendix G). PRC Section 5097.5 prohibits excavation or removal of any "vertebrate paleontological site, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission from the public agency having jurisdiction over such lands." Public lands are defined as lands owned by or under the jurisdiction of the state or any city, county, district, authority, or public corporation. Any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public land is considered a misdemeanor.

E.4 Impacts and Mitigation Measures

Significance Criteria

A cultural resource impact would be considered significant if the project would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource, pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

A “substantial adverse change” to an historical resource is defined in Section 15064.5(b)(1) of the CEQA Guidelines as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” The significance of a historical resource is “materially impaired,” according to Guidelines Section 15064(b)(2), when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that:

- convey its historic significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR (including a determination by the lead agency that the resource is eligible for inclusion in the CRHR);
- account for its inclusion in a local register of historical resources adopted by local agency ordinance or resolution (in accordance with PRC Section 5020.1(k)); or
- account for its identification in a historical resources survey that meets the requirement of PRC Section 5024.1(g), including, among other things, that “the resource is evaluated and determined by the [State Office of Historic Preservation] to have a significance rating of Category 1 to 5 on DPR Form 523,” unless the lead agency “establishes by a preponderance of evidence that the resource is not historically or culturally significant.”

The State CEQA Guidelines indicate that projects that are consistent with the *Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* generally “shall be considered as mitigated to a level of less than a significant impact on the historical resource” (Section 15064.5(b)(3)).

When a project would adversely affect an archaeological site, a lead agency shall first determine whether the site is a historical resource, as defined above. If it is determined that the archaeological site is a historical resource, the provisions of PRC Section 21084.1 (Historical Resources) apply. If an archaeological site does not meet the criteria, but does meet the definition of a “unique archaeological resource” in PRC Section 21083.2 (Archaeological Resources), the site must be treated in accordance with the provisions of PRC Section 21083.2. PRC Section 21083.2, subdivision (g), states that “unique archaeological resource” means 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:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Relevant Policies

The following relevant policies of the 2035 General Plan address historic and cultural resources.

NCR-6.1: Protect Historical and Cultural Resources. The County shall protect historical and cultural resources and promote expanded cultural opportunities for residents to enhance the region's quality of life and economy. (RDR) (Source: New Policy)

NCR-6.2: No Destruction of Resources. The County shall ensure that no significant architectural, historical, archeological, or cultural resources are knowingly destroyed through County action. (RDR) (Source: Existing GP, Heritage Resources, Policy 3)

NCR-6.3: Encourage Public and Private Preservation Efforts. The County shall continue to encourage efforts, both public and private, to preserve the historical and cultural heritage of San Joaquin County and its communities and residents. (PSP) (Source: Existing GP, Heritage Resources, Policy 1, modified)

NCR-6.4: Registration of Historic Properties. The County shall encourage owners of eligible historic properties to apply for State and Federal registration and to participate in tax incentive programs for historical restoration. (PSP) (Source: Existing GP, Heritage Resources, Implementation 5)

NCR-6.5: Protect Archeological and Historical Resources. The County shall protect significant archeological and historical resources by requiring an archaeological report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archeological artifacts that could be disturbed by project construction. (RDR/PSR) (Source: Existing GP, Heritage Resources, Policy 2, modified)

NCR-6.6: Tribal Consultation. The County shall consult with Native American tribes regarding proposed development projects and land use policy changes consistent with the State's Local and Tribal Intergovernmental Consultation requirements. (RDR/IGC) (Source: New Policy)

NCR-6.7: Adaptive Reuse of Historic Structures. The County shall encourage the adaptive reuse of architecturally significant or historic buildings if the original use of the structure is no longer feasible and the new use is allowed by the underlying land use designation and zoning district. (RDR) (Source: New Policy)

NCR-6.8: Land Use and Development. The County shall encourage land uses and development that retain and enhance significant historic properties and sustain historical community character. (RDR) (Source: New Policy)

NCR-6.9: Educational Programs. The County shall support educational and outreach programs that promote public awareness of and support preservation of historical and cultural resources. (IGC/PI) (Source: Existing GP, Heritage Resources, Policy 5, modified)

Relevant Implementation Programs

The relevant implementation programs of the proposed 2035 General Plan that address cultural resources are identified below.

NCR-N: Historic Preservation Commission. The County shall establish a Historic Preservation Commission to promote heritage preservation programs. (PSP) (Source: Existing GP, Heritage Resources, Implementation 2(b))

NCR-O: Historic Resource Inventory. The County shall work with the Historical Society to inventory heritage resources in the County. The County shall designate additional Historic Landmarks based on the findings of inventory efforts. (PSR/IGC) (Source: Existing GP, Heritage Resources, Implementation 3, modified)

NCR-P: Historic and Cultural Resource Preservation Regulations. The County shall update the Development Title to include archaeological, paleontological, and historic resource regulations, which will specify procedures to be followed in the event that significant resources are discovered during the development process. (RDR) (Source: Existing GP, Heritage Resources, Implementation 4)

Impact Analysis

This following impact analysis focuses on impacts of the proposed project related to cultural and paleontological resources.

Historic Architectural Resources

Impact 4.E-1: Implementation of the proposed 2035 General Plan could cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5, within San Joaquin County. (Significant and Unavoidable)

In developing the 2035 General Plan, the County has taken a key role in the preservation and enhancement of its historical architectural resources with the development of several policies contained in the Natural and Cultural Resources (NCR) Element. For example, Policies NCR-6.1 through NCR-6.4 promote the protection of historical resources, ensure that no historical resources are knowingly destroyed through County actions, encourage public and private preservation efforts, and encourage owners of eligible historic properties to apply for state and federal registration for tax incentive programs. Policies NCR-6.7 and NCR-6.8 encourage the adaptive reuse of architecturally significant or historical buildings, as well as land uses and development that retain and enhance significant historic properties. These policies would help to reduce impacts to historical resources within the spheres of influences proposed for growth under the 2035 General Plan.

However, even with implementation of the above mentioned policies, County actions could still result in a substantial adverse change to historical resources due to demolition or inappropriate alteration, which would be considered a significant impact. Although unlikely, these actions cannot be entirely ruled out on a countywide level, nor can it be assumed that all future projects could feasibly conform to the Secretary of the Interior's Standards. Finally, as much of the county remains unsurveyed for historical resources, and contains numerous buildings or structures which are 50 years old or older (the minimum age threshold for eligibility for listing in the NRHP and CRHR), there exists the potential for unintended damage to, or destruction of, previously unknown historic resources as a result of County projects or programs.

Mitigation Measure 4.E-1 includes revisions to Policy NCR-6.7 that would ensure that adaptive reuse efforts conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.

Mitigation Measure 4.E-1: The following revision to NCR-6.7 “Adaptive Reuse of Historic Structures,” in the 2035 General Plan would reduce the impact of the inappropriate adaptive reuse efforts of designated or eligible historical resources in San Joaquin County.

NCR-6.7: Adaptive Reuse of Historic Structures. The County shall encourage the adaptive reuse of architecturally significant or historical buildings if the original use of the structure is no longer feasible and the new use is allowed by the underlying land use designation and zoning district. Adaptive reuse efforts shall conform to the Secretary of the Interior’s Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.

As stated above, the County will continue to ensure that a variety of preservation efforts are implemented to preserve and protect historic resources. Implementation of Mitigation Measure 4.E-1a would reduce future impacts to historic resources from development projects. However, implementation of the General Plan policies may nonetheless result in a “substantial adverse change” (physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings) in CEQA-defined historical resources through various development activities for which no possible mitigation may be available to maintain the historic integrity of the affected resource or its surroundings. Regarding architecturally significant or historical buildings, as stated above, even with implementation of Policy NCR-6.7, as revised, such actions cannot be entirely ruled out, nor can it be assumed that all future actions can feasibly conform to the Standards. For this reason, impacts to historical resources would still result in a significant and unavoidable impact. No additional feasible mitigation is currently available.

Significance after Mitigation: Significant and Unavoidable.

Archaeological Resources

Impact 4.E-2: Implementation of the proposed 2035 General Plan could cause a substantial adverse change in the significance of a known unique archaeological resource, pursuant to Section 15064.5. (Significant)

In developing the 2035 General Plan, the County has provided for the protection of archaeological resources with the development of Policies NCR-6.5 and NCR-6.6 contained in the NCR Element. Policy NCR-6.5 requires a report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts that could be disturbed by project construction. Policy NCR-6.6 states that the County shall consult with Native American tribes regarding proposed development projects and land use policy changes consistent with the State’s Local and Tribal Intergovernmental Consultation requirements.

With implementation of the above mentioned policies, the impact to unique archaeological resources would remain significant. Prior to project implementation a cultural resources specialist and the affiliated Native American tribe(s), if applicable, would determine whether impacts to

known or as yet undiscovered archaeological resources could occur. However this policy does not include procedures in the event that significant archaeological resources could potentially be impacted. Mitigation Measure 4.E-2 includes revisions to Policy NCR-6.5 that would require the report to contain feasible mitigation measures, such as avoidance, testing, or data recovery efforts, that would mitigate impacts to significant archaeological resource to a less-than-significant level.

Mitigation Measure 4.E-2: The following revision to NCR-6.5 “Protect Archaeological and Historical Resources,” in the 2035 General Plan would reduce impacts to significant archaeological resources from issuance of any discretionary permit or approval in San Joaquin County. [Note that revisions address both Impact 4.E-2 and 4.E-3].

NCR-6.5: Protect Archaeological, Paleontological, and Historical Resources. The County shall protect significant archaeological, paleontological, and historical resources by requiring that ~~an archaeological~~ a cultural resources report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts or paleontological resources that could be disturbed by project construction. The County shall require feasible mitigation identified in the report, such as avoidance, testing, or data recovery efforts, to be implemented.

Significance after Mitigation: Less than Significant.

Impact 4.E-3: Implementation of the proposed 2035 General Plan could cause a substantial adverse change resulting from the inadvertent discovery of unique archaeological resources, pursuant to Section 15064.5. (Significant)

In developing the 2035 General Plan, the County has not provided for the protection of archaeological resources inadvertently discovered during ground-disturbing activities. Impacts to previously undiscovered archaeological resources could be a significant impact. Implementation of Mitigation Measure 4.E-3 would reduce impacts to a less than significant level by requiring that in the event of an inadvertent discovery, a Secretary of the Interior qualified archaeologist assess the find and determine whether additional treatment is necessary.

Mitigation Measure 4.E-3: The following new policy “Inadvertent Discovery of Cultural Resources,” in the 2035 General Plan would reduce impacts to accidentally discovered archaeological resources during ground disturbing activities in San Joaquin County.

NCR-6.10: Inadvertent Discovery of Cultural Resources. If prehistoric or historic-period archaeological resources are encountered during ground disturbing activities in the county, all activities within 100 feet shall halt and the County shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that a project could damage a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the

resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the County. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Significance after Mitigation: Less than Significant.

Paleontological Resources

Impact 4.E-4: Implementation of the proposed 2035 General Plan could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Significant)

The 2035 General Plan does not address paleontological resources. As noted in the Environmental Setting above, 11 localities in San Joaquin County have yielded Late Pleistocene-Age large mammals, including bison, Jefferson's Ground Sloth, Yesterdays Camel, Columbian Mammoth, horse, and American Mastodon. The files of the Museum of Paleontology, University of California, Berkeley list 814 fossil specimens from 97 localities within the county. Given the paleontological sensitivity of the county, there is the potential to uncover additional paleontological resources and implementation of the 2035 General Plan would not mitigate impacts to previously undiscovered paleontological resources.

For this reason, **Mitigation Measure 4.E-4** contains the following changes to Policy NCR-6.5. This change would include a review for paleontological resources prior to project implementation so that appropriate actions could be taken in the event of known or as yet undiscovered resources.

Mitigation Measure 4.E-4: The following revision to NCR-6.5 "Protect Archaeological and Historical Resources," in the 2035 General Plan would reduce impacts to paleontological resources from issuance of any discretionary permit or approval in San Joaquin County. [Note that revisions address both Impact 4.E-2 and 4.E-3]

NCR-6.5: Protect Archaeological, Paleontological, and Historical Resources. The County shall protect significant archaeological, paleontological, and historical resources by requiring ~~an archaeological~~ a cultural resources report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts or paleontological resources that could be disturbed by project construction. The County shall require feasible mitigation identified in the report, such as avoidance, testing, or data recovery efforts, to be implemented. (Source: Existing GP, Heritage Resources, Policy 2, modified)

Significance after Mitigation: Less than Significant.

Human Remains

Impact 4.E-5: Implementation of the proposed 2035 General Plan could disturb human remains, including those interred outside of formal cemeteries. (Less than Significant)

In developing the 2035 General Plan, the County has provided for the protection of human remains with the development of Policies NCR-6.5 and NCR-6.6 contained in the NCR Element. Policy NCR-6.5 requires a report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts that could be disturbed by project construction. This would include an analysis for the potential for human remains related to prehistoric or historic-era archaeological sites. Policy NCR-6.6 states that the County shall consult with Native American tribes regarding proposed development projects and land use policy changes consistent with the State's Local and Tribal Intergovernmental Consultation requirements. This would ensure that Native American tribes are aware of and included in the process for proposed development projects that could impact known or unknown burial sites.

Additionally there are state laws pertaining to human remains, including PRC Section 5097 and Health and Safety Code Section 7050.5. These regulations require that the county coroner be contacted and if the coroner determines the remains are Native American, the coroner is required to contact the Native American Heritage Commission (NAHC). As provided in PRC Section 5097.98, the NAHC will identify the person or persons believed most likely to be descended from the deceased Native American. The most likely descendent will make recommendations for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98. With implementation of the above mentioned policies and the state regulations, the impact to human remains would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 4.E-6: Implementation of the proposed 2035 General Plan, in conjunction with, past, present, and reasonably foreseeable probable future projects, could have significant cumulative impacts on historical resources in the county. (Significant and Unavoidable)

The 2035 General Plan provides for the protection of historical resources with the implementation of Policies NCR-6.1-4 and NCR-7 and -8. These policies, in addition to Mitigation Measure 4.E-1a which would revise NCR-6.7 (Adaptive Reuse of Historic Structures), would reduce impacts to historic resources from past, present, and future development throughout the county. City General Plans and programs have similar types of policies that would also reduce impacts to historical

resources associated with city growth. However, implementation of the General Plan policies may nonetheless result in a “substantial adverse change” (physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings) through various development activities for which no possible mitigation may be available to maintain the historic integrity of the affected resource or its surroundings. For this reason, cumulative impacts to historical resources and unique archeological resources would be significant, and the proposed 2035 General Plan’s incremental contribution would be cumulatively considerable and thus significant.

Mitigation Measure 4.E-6: Implement Mitigation Measures 4.E-1.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.E-7: Implementation of the proposed 2035 General Plan, in conjunction with, past, present, and reasonably foreseeable probable future projects, could have significant cumulative impacts on unique archaeological resources, and paleontological resources, as well as human remains, in the County. (Significant)

The 2035 General Plan provides for the protection of archaeological resources and human remains with the implementation of Policies NCR-6.5 and NCR-6.6 contained in the NCR Element. City General Plans and programs have similar types of policies that would also reduce impacts to historical resources associated with city growth. Additional state regulations provide protection of human remains. With the editorial edits recommended in this EIR to Policy NCR-6.5, the protection of paleontological resources would be provided for. Implementation of these policies and additional mitigation would reduce cumulative impacts on archaeological and paleontological resources, as well as human remains, to a less-than-significant level. Therefore impacts to unique archaeological and paleontological resources, as well as human remains would not be cumulatively considerable.

Mitigation Measure 4.E-7: Implement Mitigation Measures 4.E-3 and 4.E-4.

Significance after Mitigation: Less than Significant.

E.5 References – Cultural and Paleontological Resources

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F. Biological Resources

F.1 Introduction

This section of the Draft EIR addresses impacts to biological resources that could result from implementation of the 2035 General Plan. The environmental setting provides a description of biological resources in the county, including special-status species and sensitive habitats. The regulatory setting provides a description of applicable state and local regulatory policies. An assessment of the potential impacts of 2035 General Plan is also provided, and feasible mitigation measures are provided as new or revised general plan policies to avoid or lessen the impacts is identified.

The following environmental and regulatory settings were developed from information contained in the General Plan Background Report (see Chapter 10, “Natural Resources” [Mintier Harnish, 2009]). Information was also obtained from pertinent literature and agency database queries that were conducted for the entire county. A list of special-status species with the potential to occur in the county was compiled from the following data sources and includes the following:

- “Federal Endangered and Threatened Species that may be Affected by Projects in San Joaquin County” (USFWS, 2014a);
- California Natural Diversity Database (CNDDB), Rare find computer program (v4.1.0)(CDFW, 2014a);
- CNDDB reported occurrences of special-status species within San Joaquin County (CDFW 2014b); and
- California Native Plant Society’s Inventory of Rare and Endangered Plants (v8-01a) (CNPS, 2014).

These agency databases are typically considered in the preparation of environmental documents for a variety of projects including those for general plan updates. In reviewing this information, it should be noted that these databases are not intended to provide a comprehensive inventory of all species occurrences within a particular area. The information contained in these databases is based on recorded occurrences provided to these agencies from a number of sources to help provide a planning-level inventory of plant and animal species within a particular area.

F.2 Environmental Setting

This section contains an overview of the biological resources of San Joaquin County as of 2009 when the San Joaquin County General Plan Public Review Draft Background Report was written. Much of the environmental setting section was developed and updated from information contained in the General Plan Background Report (see Chapter 10, “Natural Resources”), incorporated by reference and summarized below (Mintier Harnish, 2009). Species occurrence data was updated using 2014 databases provided from federal and state agencies as described in detail below under the Special-Status Species section.

Regional Setting

The 900,000+ acre, 1,400+ square-mile county is characterized by an extensive north-south trending valley floor through the central county. Foothills rise along the eastern county; the Sacramento-San Joaquin Delta is located in the northwest portion of the county, and the coastal foothills occur to the southwest. San Joaquin County is bordered to the north by Sacramento County, to the west by Contra Costa and Alameda Counties, to the south by Stanislaus County and to the west by Amador, Calaveras and Stanislaus Counties.

Several rivers flow through the county, predominantly east to west, including the Mokelumne River to the north, the Calaveras River and Mormon Slough in the center and the Stanislaus River along the county's southern border. The San Joaquin River flows north into the Delta through the south-central portion of the county. Old River forms a portion of the county's western boundary and defines the southern boundary of the Primary Zone of the Delta within the county. The Delta-Mendota Canal and the California Aqueduct trend northwest to southeast in the southwest portion of San Joaquin County.

Primary creeks in the county include Dry Creek to the north; Corral Hollow, Hospital Creek, and Lone Tree Creek in the southwest; Little Johns Creek, Duck Creek, and a second Lone Tree Creek in the southeast; Mosher Slough, Bear Creek and Paddy Creek in the northeast; and Potter Creek in the mid-east portion of the county. The northwest portion of the county is drained by the extensive sloughs and rivers of the Sacramento-San Joaquin Delta. Forty-three percent of the Sacramento-San Joaquin Delta Primary Zone is located in San Joaquin County.

Habitats (or vegetation communities) provide food, shelter, movement corridors, and breeding opportunities for a variety of wildlife species. In this section, the classification and discussion of vegetation types in San Joaquin County follows the Manual of California Vegetation (Sawyer et al. 2009) reference, with minor variations. It should be noted that community types and their subtypes often overlap and intermingle. The Biological Analysis of the San Joaquin Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) (San Joaquin Council of Governments [SJCOG] 2000) identified 52 vegetation types in San Joaquin County. Many vegetation types can be clustered into larger groups that resemble the Manual of California Vegetation classifications for this discussion. For example, the SJMSCP identified eight separate habitats with blue oak as a dominant species, with differing percentages of canopy closure. Only Blue Oak is used as the primary designation. The SJMSCP divided the county into five sections termed “index zones”: the vernal pool zone; central zone; primary zone of the Delta; riparian zone; and southwest zone (see **Table 4F-1**). The most prevalent habitat types occurring within San Joaquin County as summarized in **Table 4F-1** are shown in detail in **Figures 4F-1** and **4F-2**.

This section discusses the few land cover types most prevalent in San Joaquin County. These are the types that are visible at the coarsest scale, including agriculture and non-vegetated regions such as urbanized areas and open water. The vegetation classification(s) described below are from *A Manual of California Vegetation* (1995 and 2009).

**TABLE 4.F-1
VEGETATION COMMUNITIES AND WILDLIFE HABITATS WITHIN SAN JOAQUIN COUNTY**

Habitat Type	Acres in County¹	Percent Composition of County
Agriculture	793,000	65.35
Annual Grassland	170,000	14.01
Blue Oak Woodland	20,000	1.65
Valley Oak Woodland	500	0.04
Blue Oak- Foothill Pine	N/A	--
Mixed Riparian Woodland	N/A	--
San Joaquin Delta ²	190,000	15.66
Riverine	N/A	--
Lacustrine (Lakes and Ponds)	14,000	1.15
Riparian	5,000	0.41
Freshwater Emergent Wetland	5,000	0.41
Vernal Pools	16,000	1.32
Total	1,213,500	100

NOTE: N/A – acreage not available

¹ Acreages shown may not be exact; were taken from the 2009 San Joaquin County General Plan Public Review Draft Background Report.

² Shown as 'water' on Figure F-1.

SOURCE: San Joaquin County General Plan Public Review Draft Background Report, 2009

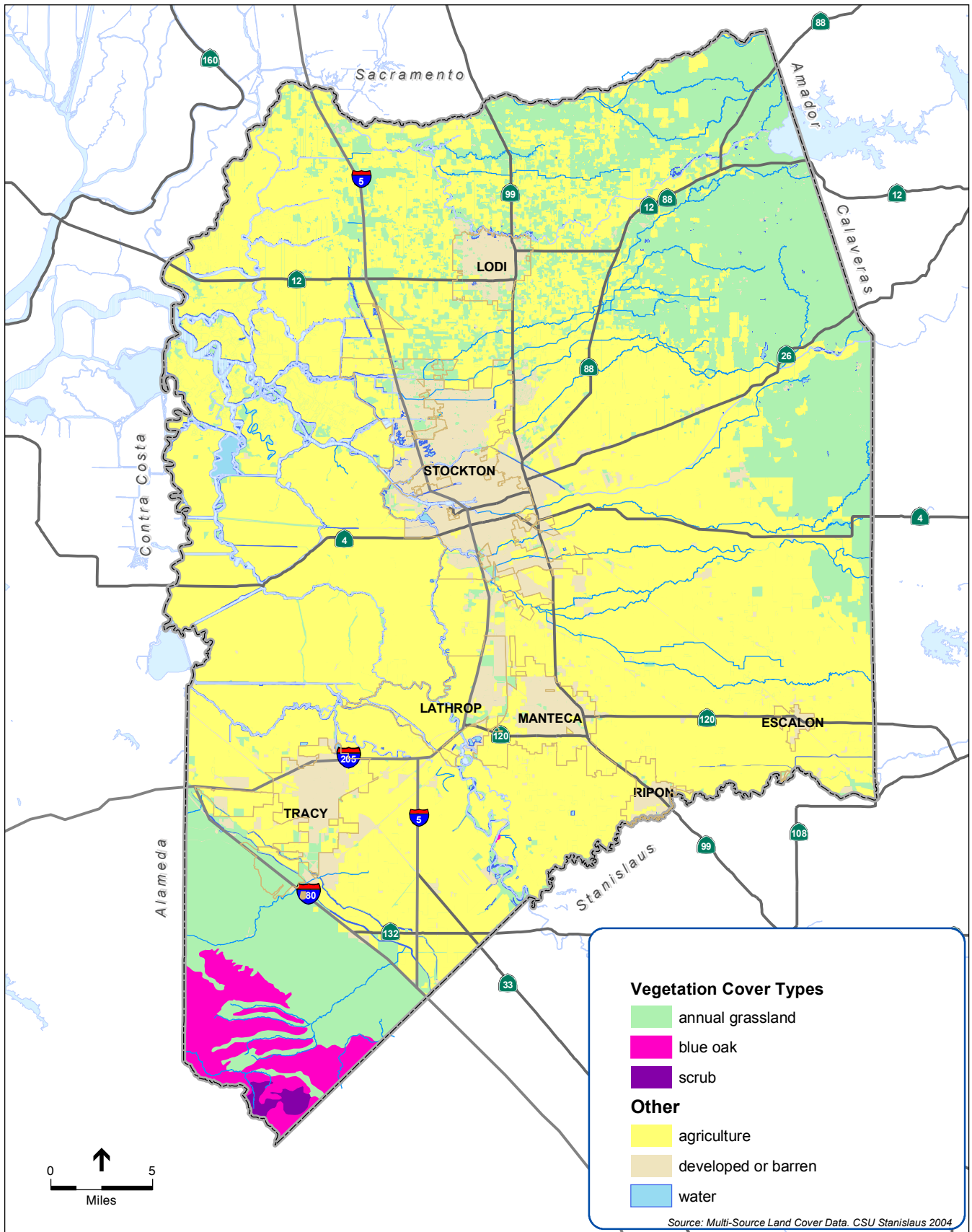
Upland Plant Communities

Agriculture

Agricultural land accounts for about 793,000 acres of land in the county and is a habitat/vegetation cover type that includes row crops, orchards, vineyards, and some ruderal vegetation. Agricultural rangelands are primarily classified as annual grassland and are discussed below. Agriculture is the dominant cover type in San Joaquin County, accounting for two-thirds of the county's total acreage, and is found primarily on the valley floor and in the Delta (California Department of Forestry Forest and Range Assessment Program [FRAP] 2003). Agriculture is not a natural community and has no Manual of California Vegetation designation.

Due to extensive land manipulation and pesticide applications associated with agricultural operations, agricultural lands do not provide high-quality habitat for native plants and animals. However, some opportunistic species are well adapted to this land cover type, including small mammals, raptors that prey on them, and migratory waterfowl that take advantage of flood irrigation and perched water tables in the winter.

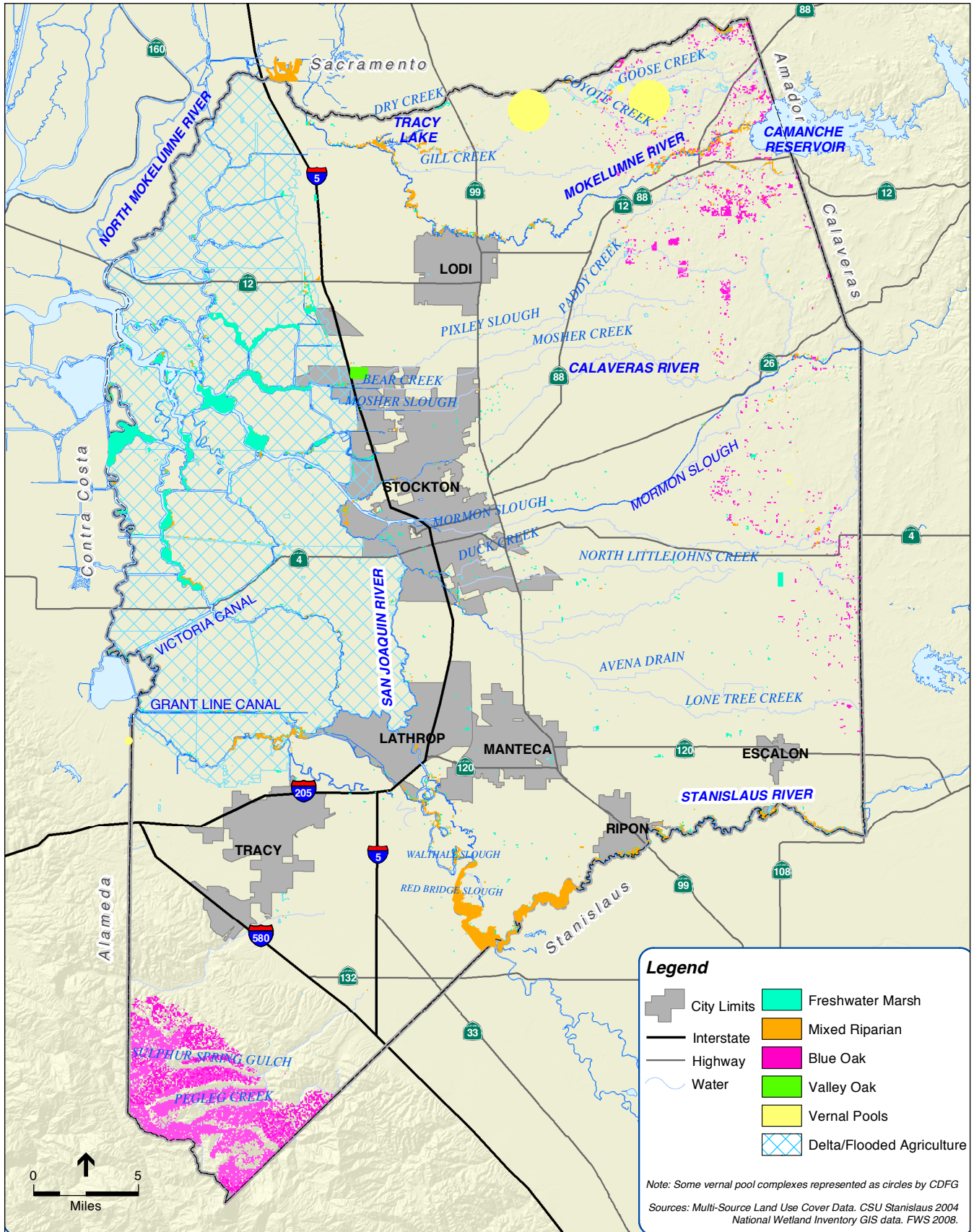
Additionally, along the edges of many fields and orchards, protective cover for wildlife and food for birds is available where stands of weeds, blackberry brambles, and brush are left undisturbed. Burrowing owl (*Athene cunicularia*), a California Species of Special Concern and Federal Bird of Conservation Concern, occurs in agricultural and open space areas of the valley floor. However,



SOURCE: Multi-Source Land Cover Data, CSU Stanislaus 2004

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Figure 4.F-1
Common Habitat Types within San Joaquin County



SOURCE: Multi-Source Land Use Cover Data, CSU Stanislaus 2004
 National Wetland Inventory GIS data, FWS 2008

San Joaquin County 2035 General Plan . 209529

Figure 4.F-2
 Special Habitat Types within San Joaquin County

within San Joaquin County, burrowing owl habitat is primarily limited to the grassland hills south and west of Tracy and on urban, commercial, and vacant lands in Tracy and Stockton. Other rangeland and row crop agricultural areas can and do provide habitat for wildlife. In some cases, these agricultural areas provide higher quality habitat than the original habitat. Drainage ditches in agricultural areas collect and convey irrigation runoff water and provide habitat for ruderal wetland plant species. Many wildlife species also use the water in agricultural drainage ditches, including great blue heron (*Ardea herodias*), great egret (*Ardea alba*), blackbirds (*Aegialius* sp.), pond turtle (*Emys marmorata*), garter snake (*Thamnophis* sp.), and crayfish.

California Annual Grassland

Annual grassland is one of the most common plant communities in San Joaquin County, particularly in the eastern and southwestern areas, and accounts for about 170,000 acres. As in other Central Valley counties, native grassland species have been largely replaced over time by non-native species, which are now dominant. This community occurs on ridges, hill slopes, and valley floors. Species composition varies but typically includes non-native grasses such as soft chess (*Bromus hordeaceus*), red brome (*Bromus madritensis*), ripgut brome (*Bromus diandrus*), barley (*Hordeum* spp.), wild oat (*Avena* spp.), and annual fescues (*Festuca* spp.), intermixed with forbs such as mustard (*Brassica* spp.), lupine (*Lupinus* spp.), owl's clover (*Castilleja* spp.), and poppy (*Eschscholzia* spp.). Frequent human activities, such as maintenance measures along roadsides, aid in the spread of non-native grasses into annual grassland habitat. The annual grassland vegetation in these areas is often dominated by introduced weedy and invasive species, such as yellow star-thistle (*Centaurea solstitialis*).

Grasslands are important habitats because they support pollinating insects, amphibians, reptiles, and small birds and mammals that are prey for other wildlife, such as red-tailed hawks (*Buteo jamaicensis*), northern harriers (*Circus cyaneus*), American kestrels (*Falco sparverius*), burrowing owls, coyotes (*Canis lupus*), and gray foxes (*Urocyon cinereoargenteus*). Grasslands near open water and woodland habitats are used by the greatest number of wildlife species because the woodlands provide additional places for resting, breeding, foraging, and escape. Annual grassland is a common plant community both regionally and statewide. It stabilizes soils, protects watersheds from erosion, and provides forage for wildlife and livestock.

Vernal pools, a specialized wetland habitat type discussed in more detail below, occur in a grassland matrix in San Joaquin County.

Blue Oak Woodland

In San Joaquin County, blue oak woodland habitat is a community that covers about 20,000 acres and is dominated by blue oak (*Quercus douglasii*), with interior live oak (*Quercus wislizeni*) and foothill pine (*Pinus sabiniana*) occurring as occasional associates. In the southwest corner of the county, it occurs at mid- to upper elevations, between 500 and 3,000 feet, and transitions to scrub or annual grassland at the lower elevations. The Manual of California Vegetation notes that stands of this series include those described as blue oak woodland, blue oak forest, and blue oak savannah. The understory is a mix of annual grassland species and shrubs from adjacent scrub

communities, such as western redbud (*Cercis occidentalis*), ceanothus (*Ceanothus* spp.), coffeeberry (*Rhamnus californica*), and California buckeye (*Aesculus californica*). This habitat provides essential breeding, foraging, and cover for wildlife species common to the region. The upper canopy provides nesting, foraging, and cache sites for many birds, such as Lewis' woodpecker (*Melanerpes lewis*), acorn woodpecker (*Melanerpes formicivorus*), northern flicker (*Colaptes auratus*), oak titmouse (*Baeolophus inornatus*), western bluebird (*Sialia mexicana*), mourning dove (*Zenaida macroura*), and red-tailed hawk. The understory shrub layer provides habitat for other common bird species, such as golden-crowned and white-crowned sparrows (*Zonotrichia atricapilla* and *Zonotrichia leucophrys*), and small mammals, such as dusky-footed woodrat (*Neotoma fuscipes*).

Valley Oak Woodland

Only 500 acres of valley oak woodland remain in San Joaquin County. Valley oak communities generally occur on deep, well-drained alluvial soils found in valleys and foothills below 2,400 feet. However, valley oaks can occur up to 5,600 feet as components of other vegetation types in the south Coast Range and Tehachapi Mountains.

These widely scattered but sparsely occurring woodlands are dominated by valley oaks (*Quercus lobata*). Associated tree species in the Central Valley include California sycamore (*Platanus racemosa*), Northern California black walnut (*Juglans hindsii*), California boxelder (*Acer negundo* var. *californicum*), Oregon ash (*Fraxinus latifolia*), interior live oak, California buckeye, and blue oak. In the Coast Range, foothill pine and coast live oak (*Quercus agrifolia*) occur in valley oak woodlands, while California black oak (*Quercus kelloggii*) occurs with valley oaks at higher elevations. At low elevations close to water, valley oak is associated with Fremont cottonwood (*Populus fremontii*) and tree willows (*Salix* spp.). Valley oak woodlands vary from open savannahs to closed canopy forests. Dense stands occur along natural drainages in deep soils. Tree density tends to decrease as one moves from lowlands to uplands. The understory shrub layer can be dense along drainages and very sparse in uplands. Understory grasses and forbs are mostly introduced annuals. Mature valley oaks have well-developed crowns and reach maximum heights of 50 to 120 feet. The massive trunks (often up to 6 feet diameter at breast height [DBH]) and branches of mature trees dominate valley oak woodlands.

In many areas, there is little valley oak recruitment to replace mature tree losses due to both natural and human causes. This is presumed to be related to moisture competition with grasses and forbs, wild and domestic animals feeding on acorns and seedlings, and flood control projects. Also, fire suppression has encouraged live oak and pine invasion in upland valley oak sites. Valley oaks tolerate flooding and young trees will sprout when damaged by fire (Oak Woodland Conservation Group 2014). Valley oak woodlands should be able to maintain themselves with natural disturbances such as fire and flooding. However, suppression of fire and flooding has adversely affected the sustainability of valley oak woodlands.

Valley oaks are endemic to the state, meaning that they are found only in California. They occur in a patchy distribution throughout most major lowland valleys including the Sacramento-San Joaquin and those valleys occurring in the Coast Range and Transverse Range. Many valley oak

woodlands occur as isolated stands in areas where surrounding habitats have been modified by agricultural, urban, and suburban activities. Annual grasslands, riparian forests, and other oak woodland types occur adjacent to valley oak woodlands. Conversion of valley oak woodlands to irrigated agricultural land uses has had the largest effect on the acreage decline of this vegetation type. Wildlife species common to valley oak woodlands are similar to those found in other woodland habitats.

In 1844, John C. Fremont, one of the first European American explorers in the county, wrote about open groves of oak trees with “a form the most symmetrical and beautiful we had ever seen in the country. The ends of the branches rested on the ground, forming somewhat more than a half sphere of regular figure” (as cited in *Valley Oak Woodland Habitat Description*, Oak Woodland Conservancy Group 2014). By 1900, most of the large valley oak trees had been cut for timber and firewood, and to make room for development and agriculture. Today, only small remnants of valley oak woodland in San Joaquin County are preserved and maintained in two locations: the 180-acre Oak Grove Regional Park and the 258-acre Micke Grove Park.

Blue Oak-Foothill Pine Woodland

Blue oak-foothill pine woodlands have a diverse mix of hardwoods, conifers, and shrubs, and widely variable overstories. Foothill pine and blue oak typically form most of the overstory of this highly variable habitat type. Blue oak is usually most abundant, although foothill pine is taller and dominates the overstory when present. Stands dominated by foothill pine have low blue oak density because of its shade intolerance. In the Sierra Nevada foothills, interior live oak and California buckeye are often associated with this vegetation type. Interior live oak becomes more abundant on steeper slopes, shallower soils, and at higher elevations. Coast live oak, valley oak, and California buckeye occur with this community in the Coast Range. In the southern Coast Range and Tehachapi Mountains, California juniper (*Juniperus californica*) also occurs. Shrub associates include several ceanothus and manzanita (*Arctostaphylos* spp.) species, poison-oak (*Toxicodendron diversilobum*) and western redbud, and are usually clumped in areas of full sunlight. Blue oak-foothill pine woodland occurs in close association with blue oak woodlands and is found sparsely on the foothills on the eastern side of the county, and in dense stands in the southwestern foothills.

Blue oak and foothill pine are relatively long-lived, but foothill pine tends to grow faster than blue oak. Historically, fires occurred every 5 to 25 years in this vegetation community. Regeneration is generally thought to be infrequent throughout California. Following fire, young, vigorous blue oaks sprout well, but older, more decadent¹ trees do not (Oak Woodland Conservation Group 2014). Therefore, younger stands are more likely to replace themselves after fires. Foothill pine is susceptible to severe damage from fire. This is due to the thin bark of young trees and high resin content in the sap. Furthermore, foothill pine does not reproduce by sprouting, so fire management as a tool should be carefully considered.

¹ Decadent: Stands of trees with greatly reduced growth, usually occurring as one of three types: (1) over-mature trees nearing end of normal life, (2) younger trees limited by site conditions such as soil deficiencies, and (3) overcrowding due to exclusion of natural and cultural fires (ProTrails 2014)

Blue oak-foothill pine woodlands are found on steeper, dryer slopes with shallower soils than blue oak woodlands. At lower elevations on gentle slopes, these two communities intermix with grasslands. At higher elevations on steeper slopes, the communities are mixed with grasslands and shrublands. Riparian woodlands may bisect these mosaics along permanent and intermittent watercourses. Blue oak-foothill pine woodlands are found throughout the range of blue oak and form a nearly continuous band along the Sierra Nevada-Cascade foothills of the Sacramento-San Joaquin Valley, except for a gap in Tulare and southern Fresno counties. Elevation ranges from 500 feet in the north to 3000 feet in the south. This woodland type occurs on a variety of well-drained soils. Terrain is hilly and generally dry, and water is unavailable for much of the year.

Riparian

A variety of riparian habitats occur along creeks and rivers in the county, accounting for about 5,000 acres of land. The Manual of California Vegetation uses several forest series for riparian habitats of the Central Valley. They include valley oak, California sycamore, Fremont cottonwood, and arroyo willow (*Salix lasiolepis*). All of these riparian types occur in narrow and mixed fragments along the rivers and creeks of San Joaquin County.

Riparian woodland communities have developed along the county's four main rivers (Mokelumne, San Joaquin, Calaveras, and Stanislaus rivers, see **Figure 4.J-1**). The riparian vegetation composition varies along the different county waters, but generally consists of willows, Fremont cottonwood, valley oak, box elder, Northern California black walnut, and Oregon ash. Despite widespread disturbances resulting from urbanization, agricultural conversion, and grazing, riparian habitats remain important resources because of their scarcity regionally and statewide, and because the riparian community is vital to many wildlife species. This habitat supports numerous aquatic and terrestrial invertebrates that are prey for amphibians and reptiles, such as common garter snakes, western skinks (*Eumeces skiltonianus*), and ringneck snakes (*Diadophis punctatus*), as well as insectivorous birds including warblers, northern flickers, downy woodpeckers (*Picoides pubescens*), and flycatchers. Small mammals found in riparian habitats include shrews, voles, bats, and mice. Raptor species that nest in large riparian trees include great-horned owl (*Bubo virginianus*), red-tailed hawk, and Swainson's hawk (*Buteo swainsonii*). Cavity-dependent species such as woodpeckers, American kestrel, bats, squirrels, and raccoons (*Procyon lotor*) require mature stands of trees found in riparian habitats. Striped skunks (*Mephitis mephitis*), gray foxes, and badgers (*Taxidea taxus*) forage in riparian habitats and use them for cover and travel.

Black Sage Scrub

Black sage scrub accounts for about 5,000 acres in the county and is dominated by shrubs. This habitat occurs in San Joaquin County on the inner Coast Range, south of I-580, and was often previously mapped and described as chaparral, though it does not have the appropriate shrub species mix for that community. The SJMSCP termed it Diablan scrub, which occurs on shallow, rocky soils, typically on hot southern exposures. Dominant plants of black sage scrub habitat include black sage (*Salvia mellifera*), buckwheat (*Eriogonum fasciculatum*), California sage

(*Artemisia californica*), yucca (*Yucca* sp.), coyote brush (*Baccharis pilularis*), and chaparral mallow (*Malacothamnus fasciculatus*). There is generally very little understory in this habitat type.

A variety of birds use this habitat including Anna's hummingbird (*Calypte anna*), which feeds on sage flowers. Raptors often seen include American kestrel, northern harrier, and red-tailed hawk. Mammals include San Joaquin kit fox (*Vulpes macrotis mutica*), coyote, California ground squirrel (*Spermophilus beecheyi*), and black-tailed deer (*Odocoileus hemionus columbianus*). The habitat intermingles with annual grassland series and blue oak series.

Aquatic Plant Communities

San Joaquin Delta

The San Joaquin Delta is a network of tidally-influenced natural and human-made channels (locally called sloughs) and islands. The Delta covers about 190,000 acres and occupies the western part of San Joaquin County north of Lathrop and west of Stockton and Lodi. The primary freshwater inputs to the Delta within the county are the San Joaquin, Calaveras, and Mokelumne Rivers.

Fish species use Delta habitats for migration, rearing, and spawning. Native salmonids use the Delta principally as a migration corridor between marine and higher elevation riverine environments. Elsewhere in their range, juvenile salmonids make great use of shallow sub-tidal and inter-tidal habitats for growth and metamorphosis prior to ocean entry. That behavior is not common in the San Joaquin Delta, either because it was never common or it is made impossible today by the lack of acceptable physical and chemical conditions.

Many sought after sport fish species use Delta habitats as a migratory corridor to and from upstream spawning habitats and as important feeding and rearing habitat. Representatives of this group include sturgeon (*Acipenser* spp.), shad (*Alosa* sp.), and striped bass (*Morone saxatilis*). These fish are tolerant of or reliant on the warm water conditions that persist in the Delta during summer months. However, it should be noted that some of these sport fish species are actually exotic species that compete with native species for food and habitat.

Other fish species spawn and complete their early life in the Delta and then migrate out of the Delta to complete the rest of their life. Longfin smelt (*Spirinchus thaleichthys*) and Delta smelt (*Hypomesus transpacificus*) use the freshwater Delta in this way and, consequently, their spawning location and distribution depends heavily on freshwater flows through the Delta and local hydrodynamics. High freshwater flows through the Delta are also positively correlated with population size for longfin smelt (Rosenfield and Baxter 2007). Several, mostly non-native, fish species are resident in the Delta throughout the year. These species capitalize on slow and warm habitats common to the managed Delta. This group includes several catfish, sunfish/bass, and minnow species. Most of these species are piscivorous² and are thus considered detrimental to the native fish fauna of the Delta.

² Fish which feed on other fish.

All fish in the Delta are impacted by poor water quality and reduced flows from the San Joaquin River. Most or all of the flow in the lower San Joaquin River is “return flow” from agricultural operations in the San Joaquin Valley. This run-off carries concentrations of fertilizers, pesticides, and trace elements (e.g. selenium) that can be toxic in high concentrations. Proposals to restore flows to the San Joaquin River are part of a legal settlement regarding operation of Friant Dam (a large dam upstream of San Joaquin County).

Depending on whether and how they are implemented, these plans may facilitate improved water and sediment quality in the freshwater Delta. Such improvements would benefit native fish populations.

State and federal water export facilities are located just west of the county border. The pumps associated with these facilities entrain all species of fish found in the Delta; individuals are killed when sucked into the pumps and filters. When in operation, these pumps alter hydrodynamics in the Delta, thereby adversely affecting fish populations. For example, out-migrating Chinook salmon (*Oncorhynchus tshawytscha*) juveniles are frequently pulled across the Delta as a result of altered flow patterns caused by export pumping. Maintenance of export pumping requires that the hydrosystem is operated to maintain freshwater in the southern Delta, including the entire portion of the Delta in San Joaquin County. Historically, brackish water may have encroached into this area occasionally and these salinity fluctuations likely produced a more patchy distribution of brackish and fresh water benthic organisms and prevented establishment of dense areas of submerged vegetation.

Riverine (Rivers)

Several large rivers end in San Joaquin County where they flow into the Delta. The largest of these, the San Joaquin River, divides into three channels as it enters the Delta: “Old River”, “Middle River”, and the mainstem. The Mokelumne, Calaveras, and Stanislaus Rivers are the other major rivers in the county.

According to the County’s official website, the county has more than 1,000 miles of waterways (Mintier Harnish, 2009). Fish use the rivers in San Joaquin County for spawning, rearing, and migration. Anadromous fish species, including salmonids, sturgeon, Sacramento splittail (*Pogonichthys macrolepidotus*), and lamprey may migrate into some or all of the major rivers to reach spawning grounds upstream. Sacramento splittail specialize in spawning and rearing in floodplain habitats. Most floodplain habitats have been converted to agriculture throughout San Joaquin County. In the San Joaquin River, anadromous fish head upstream towards spawning grounds in the Stanislaus, Tuolumne, and Merced rivers. Migrants in the Mokelumne River spawn within the county, as upstream migration is blocked by Camanche Dam; or they may spawn in the Cosumnes River, a tributary to the Mokelumne that flows outside of San Joaquin County. Juveniles of these anadromous species migrate downstream in the winter and spring when flows are high and water temperatures are cold. Striped bass, threadfin shad (*Dorosoma petenense*) and American shad (*Alosa sapidissima*) also migrate into rivers to spawn; spawning runs occur in spring and summer and their semi-buoyant eggs float downstream soon afterwards.

The rivers of San Joaquin County also host several resident species. Many of these year-round residents are non-native, including a variety of catfish, bass/sunfish, and minnows. Native resident species include rainbow trout and minnows such as hardhead (*Mylopharodon conocephalus*), hitch (*Lavinia exilicauda*), roach (*Lavinia* sp.), dace (*Leuciscus* sp.), and pikeminnow (*Ptychocheilus oregonensis*). Resident fish species occupy a variety of riverine sub-habitats such as backwater sloughs, pools, riffles, or high-velocity main channels. In general, the native species are less tolerant of warm water conditions than the non-natives; during the summer and fall in most years, cold water habitats are limited to areas just below dams.

Lacustrine (Lakes and Ponds)

Two major types of lakes and ponds exist in San Joaquin County: remnant side channel ponds of major rivers and streams that have become disconnected from the main stream; and reservoirs formed behind dams. These lake and pond types cover about 14,000 acres of the county.

Larger side-channel ponds may be habitat for three-spine stickleback (*Gasterosteus aculeatus*), tule perch (*Hysterocarpus traskii*), and San Joaquin roach (*Lavinia symmetricus* ssp.) among native species. These habitats are also likely to support a number of non-native catfish, bass/sunfish, and minnow species (e.g. carp and goldfish) that compete with and prey upon native species.

Reservoirs that establish a thermocline (separation between warm surface waters and cold deep water) support both cold and warm water fish fauna. Reservoirs in San Joaquin County include Camanche Reservoir and Woodward Reservoir. These reservoirs may support habitat for native species such as rainbow trout (*Oncorhynchus mykiss*) and Sacramento sucker (*Catostomus occidentalis*). However, they are also home to non-native sunfish/bass, catfish, and minnow species that are believed to have eliminated other native species, such as Central Valley steelhead trout (*Oncorhynchus mykiss*), striped bass, American shad, and Pacific lamprey (*Lampetra tridentata*) (Light and Marchetti 2007). Reservoir management for irrigation, hydropower, and downstream habitat impacts the ability of these waterbodies to support a diverse fish assemblage. The diversity of fish in ponds and lakes in San Joaquin County has been artificially supplemented by human introductions of fishes from the aquarium trade and non-native sport fish.

Freshwater Marsh (Emergent Wetland)

Freshwater marsh habitat covers about 5,000 acres of land in San Joaquin County. The Manual of California Vegetation uses several freshwater marsh series which include bulrush (tule), bulrush-cattail, cattail, and duckweed. This wetland type is permanently but shallowly flooded by freshwater and is dominated by perennial emergent monocot plant species such as cattail (*Typha* spp.) and bulrush (tule) (*Schoenoplectus* spp.). Emergent plants are rooted in saturated soil and grow with their stems and leaves partly in and out of the water. Freshwater marshes provide extremely valuable wildlife habitat. They furnish forage and cover for aquatic and semi-aquatic birds, mammals, and reptiles; nesting habitats for waterfowl and other birds, such as tricolored blackbird (*Agelaius tricolor*); and habitat other special-status species including Sanford's arrowhead (*Sagittaria sanfordii*), western pond turtle and giant garter snake (*Thamnophis gigas*). The county's largest areas of freshwater marsh habitats occur in the Delta.

Vernal Pools

Vernal pools account for about 16,000 acres in San Joaquin County and are an uncommon habitat type that occurs in annual grasslands. Vernal pools are seasonally flooded depressions over an impermeable layer of hardpan, claypan, or volcanic basalt. These pools are usually small and very shallow, although some are as large as a few hundred acres and a few feet in depth. The impermeable layer allows the pools to retain water much longer than surrounding uplands, but they are shallow enough to evaporate relatively quickly. Vernal pools usually fill and empty several times during the rainy season.

Only uniquely adapted plants and animals are able to survive the cycle of wetting and drying in vernal pools over time. As winter rains fill the pools, freshwater invertebrates, crustaceans, and amphibians emerge and reproduce. Many vernal pool plants sprout underwater, some using special floating leaves and air-filled stems to stay afloat. In spring, flowering plants on the pool edges produce concentric rings of flowers, following the retreating moisture, as the pool evaporates toward the center. Native bees pollinate vernal pool flowers. Insects and crustaceans produce cysts and eggs, and vernal pool plants produce seeds, all of which sift down and become buried in the muddy pool bottom. The mud protects cysts, eggs, and seeds from the hot, dry summer. As the pool evaporates, amphibians dig deep into the mud and go dormant, awaiting the next rainy season. By summer, vernal pools have completely dried out and most of the plant and animal species have either disappeared into the soils or set seed and died. In this dry phase, vernal pools are really biological "banks" of resting seeds, cysts, and eggs that can survive through summer, and extended droughts, until the onset of rains begin the life cycle again. Several endemic vernal pool plants and animals are special-status species, such as the vernal pool fairy shrimp (*Branchinecta lynchi*) and various plant species.

Vernal pools support mostly native annual species. Many vernal pool plants are related to species with medicinal values. Vernal pools are therefore considered an important reservoir of genetic material that could provide natural pharmaceutical compounds and also commercially important genetic materials in the future.

The Central Valley is part of the Pacific Flyway, a migratory route for waterfowl species extending from Alaska to South America. In spring, migrating waterfowl are often observed feeding and resting in Central Valley vernal pools. Recent studies suggest that the protein-rich invertebrates and crustaceans, as well as the roots and leaves of vernal pool plants, provide an important seasonal food source for migrating waterfowl as well as non-migratory bird species.

California's vernal pools occur on a variety of landscapes, most often on alluvial formations deposited by ancient waterways and seas. The greatest extent of this type of landscape formation is in the Central Valley. San Joaquin County has two types of vernal pools: northern claypan and northern hardpan. Both vernal pool types occur on the east side of the county, in an annual grassland and open woodland matrix, and are described below

Northern Claypan Vernal Pool. Northern claypan vernal pools occur in silica-cemented hardpan soils which are often saline. Light livestock grazing appears to assist in

maintaining plant species diversity in this type of vernal pool. They often persist in areas where livestock has grazed for many decades.

Northern Hardpan Vernal Pool. Northern hardpan vernal pools occur on old, very acidic iron-silica cemented soils, most commonly on old alluvial fans along the edge of the Central Valley. Area topography is usually swale and mound (mima mound topography). Plant species composition varies.

Habitat Connectivity/Wildlife Movement and Corridors

Wildlife corridors refer to contiguous tracts of habitat that connect larger areas of habitat and facilitate genetic exchange within a population or between subpopulations by allowing for movement within or between habitat patches. Habitat reduction and fragmentation are among the primary causes of species decline; consequently, the identification and preservation of key corridors is important to retaining native populations in San Joaquin County. Habitat connectivity can be assessed at many levels. On a landscape or regional scale, connectivity typically refers to how mobile mammals (e.g., deer) are able to move between prominent landscape features such as mountain ranges and meadows. The type of natural habitats between those features combined with the distance would be used to determine the connectedness or permeability of the landscape. At a smaller scale, habitat connectivity is often important for seasonal migrations (e.g., steelhead) or local (daily) movements by some wildlife species between nesting and foraging habitat (e.g., golden eagles). The built environment further alters the connectivity of a landscape by removing natural habitat and restricting the opportunities for species movement. Currently, built environment habitat corridors are recognized as a way to retain some connectivity across a landscape.

Within San Joaquin County, there are several areas that are considered essential habitat connectivity areas (Spencer et. al. 2010). The Sierra Nevada in the eastern portion of the county, the Delta channels within the northwestern portion of the county, and the Diablo Range in the southwest portion of the county. The Sierra Nevada and the Diablo Range are areas that consist of large, tracts of contiguous habitat, such as annual grassland and oak woodlands, which provide important migratory and dispersal corridors for terrestrial species, particularly the San Joaquin kit fox.

Native salmonids use the Delta principally as a migration corridor between marine and higher elevation riverine environments. Fish species, such as sturgeon, shad, and striped bass, use Delta habitats as a migratory corridor to and from upstream spawning habitats and as important feeding and rearing habitat. Several large rivers end in San Joaquin County where they flow into the Delta. The largest of these, the San Joaquin River, divides into three channels as it enters the Delta: “Old River”, “Middle River”, and the mainstem. The Mokelumne, Calaveras, and Stanislaus Rivers are the other major rivers in the county. These rivers, and associated tributaries and sloughs, provide important movement corridors for areas between the Sierra Nevada Mountains and the Delta. Fish use the rivers in San Joaquin County for spawning, rearing, and migration. Anadromous fish species, including salmonids, sturgeon, Sacramento splittail, and lamprey may migrate into some or all of the major rivers to reach spawning grounds upstream. In the San Joaquin River, anadromous fish head upstream towards spawning grounds in the Stanislaus, Tuolumne, and Merced Rivers.

The riparian corridors along the major river systems provide important movement corridors for terrestrial species, including several endangered animal species such as the riparian brush rabbit and the riparian woodrat. Even the vernal pool ecosystems scattered along the valley floor of the county are essential for dispersal of vernal pool flora and fauna and provide habitat for migrating species. San Joaquin County is part of the Pacific Flyway, a migratory route for waterfowl species extending from Alaska to South America. In spring, migrating waterfowl are often observed feeding and resting in vernal pools along the valley floor of San Joaquin County (Mintier Harnish, 2009). Providing continuity within the vernal pool landscape is important to ensure that vernal pool species do not become isolated geographically and genetically from neighboring populations.

Special-Status Species

Table 4.F-2 provides a list of special-status species and known natural communities (larger assemblages of various plants and animals) with the potential to be affected through implementation of the 2035 General Plan. The information was obtained through queries of the CDFW Natural Diversity Database (CDFW, 2014), U.S. Fish and Wildlife Service (USFWS, 2014a) online species list, and the California Native Plant Society's (CNPS) Online Inventory (CNPS, 2014). Recorded observations of special-status species within San Joaquin County are shown in **Figure 4F-3** (CDFW, 2014).

The "Potential for Occurrence" category in **Table 4.F-2** is defined as follows:

- **Unlikely:** The county does not support suitable habitat for a particular species. The county is outside of the species known range.
- **Low Potential:** The county only provides limited habitat for a particular species. In addition, the known range for a particular species may be outside of the county.
- **Medium Potential:** The county provides suitable habitat for a particular species, and habitat for the species may be impacted.
- **High Potential:** The county provides ideal habitat conditions for a particular species and/or known populations occur in the county.

Invasive Species

The remnants of San Joaquin County's natural ecosystems are stressed due to habitat conversion, fragmentation, and degradation. Habitat area is regularly being lost to land conversion for agriculture or urban development. Non-native competitors and predators that are being introduced to these ecosystems are jeopardizing the survival of some native species. Invasive, non-native species of plants, animals, and disease organisms are adversely affecting the ecosystems they enter, altering the pattern of energy and nutrient flow. Like "biological wildfires," they quickly spread and affect nearly all terrestrial and aquatic ecosystems. According to the National Institute of Invasive Species Science (2008), invasive species have become the greatest environmental challenge of the 21st century in terms of economic, environmental, and human health costs. Impacts can affect economic factors such as production and trade by reducing the efficiency of

**TABLE 4.F-2
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY**

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Invertebrates			
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/--	Found in ephemeral freshwater habitats including alkaline pools, clay flats, vernal pools, vernal lakes, vernal swales, and other types of seasonal wetlands.	Low. Vernal pools and seasonal wetlands are present within the undeveloped portions of the county. There are no CNDDDB records of this species within the county.
<i>Branchinecta longiantenna</i> longhorn fairy shrimp	FE/--	Found in clear to rather turbid vernal pools in or near the eastern foothills of the Central Coast Mountains. Typically found in clear-water depressions in sandstone outcroppings near Tracy, grass-bottomed pools in Merced County, and claypan pools around Soda Lake in San Luis Obispo County	Low. Vernal pools and seasonal wetlands are present within the undeveloped portions of the county. There are no CNDDDB records of this species within the county.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT/--	Found in ephemeral freshwater habitats including alkaline pools, clay flats, vernal pools, vernal lakes, vernal swales, and other types of seasonal wetlands.	High. Vernal pools and seasonal wetlands are present within the undeveloped portions of the county. The CNDDDB reports documented occurrences within San Joaquin County.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT/--	Breeds and forages exclusively on elderberry shrubs (<i>Sambucus</i> spp.) typically associated with riparian forests, riparian woodlands, elderberry savannas, and other Central Valley habitats. Occurs only in the Central Valley of California. Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for “stressed” elderberries.	High. Habitat for this species (blue elderberry shrubs) is present within the riparian areas throughout the county. The CNDDDB reports documented occurrences within San Joaquin County.
<i>Elaphrus viridis</i> delta green ground beetle	FT/--/--	Associated with larger vernal pools or playa pools. Typically known to forage on the margins of the pools. Life is synchronized with habitat availability - generally emerges in Jan, breeds Feb-Mar, and enters dormancy in May.	Unlikely. Species distribution is restricted to a small portion of Solano County.
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	FE/--	Found in ephemeral freshwater habitats including alkaline pools, clay flats, vernal pools, vernal lakes, vernal swales, and other types of seasonal wetlands which range in size from small, clear, well-vegetated vernal pools to highly turbid, alkali scald pools to large winter lakes.	High. Vernal pools and seasonal wetlands are present within the undeveloped portions of the county. The CNDDDB reports documented occurrences within San Joaquin County.
Fish			
<i>Acipenser medirostris</i> green sturgeon	FT/--	Found in both marine and freshwater along the entire CA coast. Spawn in turbulent, deep and large freshwater rivers.	Unlikely. San Joaquin County is not within the known breeding range of this species.
<i>Hypomesus transpacificus</i> Delta smelt	FT/ST	Open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	High. Suitable habitat is present within the Delta estuaries located within the western portion of the county. The CNDDDB reports documented occurrences within San Joaquin County.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Fish (cont.)			
<i>Mylopharodon conocephalus</i> hardhead	--/SSC	Found in small to large streams in a low to mid-elevation environments. May also inhabit lakes or reservoirs.	High. Suitable habitat is present within the streams and creeks along the valley floor within the county.
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/--	This Evolutionarily Significant Unit (ESU) enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	High. Present within the Delta and tributaries to the Delta within the county.
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run chinook salmon	FT/ST	This ESU enters the Sacramento and San Joaquin Rivers and tributaries March to July, spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	High. Present within the Delta and tributaries to the Delta within the county.
<i>Oncorhynchus tshawytscha</i> Sacramento River winter run chinook salmon	FE/--	This ESU enters the Sacramento River December to May; spawning peaks May and June. Upstream movement occurs more quickly than in spring run population. Young move to rearing areas in and through the Sacramento River, Delta, and San Pablo and San Francisco Bays.	Low. Largely confined to the Sacramento River system however may occasionally be present within the Delta and tributaries to the Delta within the county.
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	--/SSC/--	Found mostly in slow-moving marshy sections of rivers, sloughs, backwaters, lakes and rivers in the northern San Francisco Estuary and Central Valley of California. Require floodplains that stay flooded for several weeks for spawning. With the exception of spawning, largely confined to Delta, Suisun Bay, Suisun Marsh, and lower Napa River, lower Petaluma River and parts of the San Francisco Estuary.	Low. May be present during spawning within the slow-moving marshy sections of the Delta within the western portion of the county.
<i>Spirinchus thaleichthys</i> longfin smelt	FC/ST/--	Primary habitat is the open water of estuaries and lakes, where they can be found in both the seawater and freshwater areas, typically in the middle or deeper parts of the water column.	Medium. Suitable habitat is present within the San Joaquin River and tributaries in the western portion of the county. The CNDDDB reports documented occurrences within San Joaquin County.
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander	FT/ST,SSC/--	California tiger salamanders are generally restricted to vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities from sea level to about 1,500 feet in central California.	High. Vernal pools and seasonal wetlands are present within the undeveloped portions of the county with stock ponds occurring in the rural, agricultural areas. The CNDDDB reports documented occurrences within San Joaquin County.
<i>Rana boylei</i> foothill yellow-legged frog	--/SSC/--	Found in shallow, slow, gravelly streams and rivers with sunny banks, in forests, chaparral, and woodlands.	Medium. Suitable habitat is present within the undeveloped areas of the southwestern portion of the county. Southwestern portion of the county is the only area within the known range of this species.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Amphibians (cont.)			
<i>Rana draytonii</i> California red-legged frog	FT/SSC/--	The California red-legged frog occupies a fairly distinct habitat, combining both specific aquatic and riparian components. The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water.	High. Suitable habitat is present within the undeveloped areas of the southwestern portion of the county. Southwestern portion of the county is the only area within the known range of this species. The CNDDDB reports documented occurrences within San Joaquin County.
<i>Spea hammondi</i> western spadefoot	--/SSC/--	Occurs seasonally in grasslands, prairies, chaparral, and woodlands, in and around wet sites. Breeds in shallow, temporary pools formed by winter rains. Takes refuge in burrows.	High. Suitable habitat is present within the undeveloped portions of the county. The CNDDDB reports documented occurrences within San Joaquin County.
Reptiles			
<i>Anniella pulchra pulchra</i> silvery legless lizard	--/SSC/--	Occur primarily in areas with sandy or loose loamy soils such as under sparse vegetation of beaches, chaparral, or pine-oak woodland; or near sycamores, cottonwoods, or oaks that grow on stream terraces.	Low. Not common within San Joaquin County.
<i>Emys marmorata</i> western pond turtle	--/SSC/--	Lakes, ponds, reservoirs, and slow-moving streams and rivers, primarily in foothills and lowlands	High. Stock ponds and drainages within the county as well as the intermittent drainages and swales provide suitable habitat for this species. The CNDDDB reports documented occurrences within San Joaquin County.
<i>Masticophis flagellum ruddocki</i> San Joaquin whipsnake	--/SSC/--	Open grassland, pasture, and alkali scrub.	High. Grasslands and pasture areas within the county provide suitable habitat for this species. The CNDDDB reports documented occurrences primarily in the southwest portion of the county.
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake	FT/ST/--	Coastal ranges, in chaparral and riparian habitat and adjacent grasslands.	High. Grasslands, woodlands, and other non-scrub habitat within the county provides suitable habitat for this species. The CNDDDB reports documented occurrences primarily within the southwest portion of the county.
<i>Phrynosoma blainvillii</i> coast horned lizard	--/SSC/--	Valley woodland, coniferous forest, riparian, and grassland habitats; most commonly in sandy washes with scattered shrubs	High. Suitable habitat is present within the county. The CNDDDB reports documented occurrences primarily within the western/southwestern portion of the county.
<i>Thamnophis gigas</i> giant garter snake	FT/ST/--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields that have water from early spring till mid-fall. Emergent vegetation (cattails and bulrushes), open areas for sunning and high ground for hibernation and cover.	High. Suitable habitat is present along various perennial drainages with freshwater emergent habitat, primarily along the valley floor in the central portion of the county. The CNDDDB reports occurrences within the central portion of the county.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Birds			
<i>Agelaius tricolor</i> tricolored blackbird	--/SSC/--	Nests in freshwater marshes with dense stands of cattails or bulrushes, occasionally in willows, thistles, mustard, blackberry brambles, and dense shrubs and grains	Medium. Nesting sites available at disjunctive locations along drainages and other watercourses with freshwater marsh habitat. The CNDDDB reports occurrences scattered along the valley floor within the county.
<i>Aquila chrysaetos</i> Golden eagle	--/SFP/--	Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Golden eagles nest on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	Medium. Suitable habitat is present within the mountainous ridge area in the southwest corner of the county. Only one CNDDDB recorded occurrence exists within the county.
<i>Athene cunicularia</i> burrowing owl	--/SSC/--	Open, dry, annual or perennial grasslands and scrublands characterized by low-growing vegetation. Subterranean nester dependent upon burrowing mammals, specifically California ground squirrel. May also be found around golf courses, and disturbed/ruderal habitat in urban areas.	High. Suitable habitat is present throughout the county and there are numerous CNDDDB occurrences recorded throughout the county.
<i>Buteo swainsonii</i> Swainson's hawk	--/ST/--	Forages in open and agricultural fields and nests in mature trees usually in riparian corridors.	High. Suitable habitat is present within the riparian corridors throughout the county and there are numerous CNDDDB occurrences recorded throughout the county.
<i>Circus cyaneus</i> northern harrier	--/SSC/--	Nests in wet meadows and tall grasslands, forages in grasslands and marshes.	Medium. Suitable habitat is present in limited areas within the county. There is one CNDDDB occurrence reported along the Delta-Mendota Canal.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	FPT/SE/--	Nests in densely foliated deciduous trees and shrubs especially willow, in broad riparian forest.	Unlikely. Very limited suitable habitat is present within the county and surveys have indicated that this species is now limited to the Sacramento River from Red Bluff to Colusa and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve.
<i>Dendroica petechia brewsteri</i> yellow warbler	--/SSC/--	Breeds in shrubby thickets and woods, particularly along watercourses and in wetlands. Common trees include willows, alders, and cottonwoods. May also be found in suburban or less densely settled areas, orchards and parks, and may breed there.	Unlikely. While suitable habitat is present within the county, extensive surveys in 1998 and 1999 failed to locate breeders along the San Joaquin River and its lower tributaries in San Joaquin, Stanislaus, Merced, Madera, Fresno, and Kings counties (Shuford and Gardali, 2008).
<i>Elanus leucurus</i> White-tailed kite	--/SFP/--	Nests in shrubs and trees next to grasslands, forages over grasslands and agricultural lands	High. Suitable habitat is present within the grasslands and agricultural areas throughout the county. The CNDDDB reports two recorded occurrences.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Birds (cont.)			
<i>Icteria virens</i> yellow-breasted chat	--/SSC/--	Typically require riparian woodland or riparian shrub thickets with dense vegetation typically comprised of Himalayan blackberry (<i>Rubus armeniacus</i>), wild grape (<i>Vitis</i> spp.), and/or willows (<i>Salix</i> spp.) Tall willows, cottonwood (<i>Populus</i> spp.), and sycamore (<i>Platanus</i> spp.) are often used for song perches.	Low. This species is confined to the Mokelumne River at the Camanche Reservoir dam.
<i>Lanius ludovicianus</i> loggerhead shrike	--/SSC/--	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	High. Suitable habitat is present within the undeveloped rural portions of the county and the CNDDDB reports several occurrences.
<i>Laterallus jamaicensis coturniculus</i> California black rail	--/ST, SFP/--	Majority of population found in the tidal salt marshes of the northern San Francisco Bay region, primarily in San Pablo and Suisun Bays; also found in freshwater marshes in the foothills of the Sierra Nevada.	Low. Suitable habitat is only present within the far western portion of the county within the Delta cuts around Bacon and King Island and Empire Tract. CNDDDB occurrences are from the late 1980s and early 1990s.
<i>Melospiza melodia</i> song sparrow ("Modesto" population)	--/SSC/--	Emergent freshwater marshes dominated by tules (<i>Schoenoplectus</i> spp.) and cattails (<i>Typha</i> spp.) as well as riparian willow (<i>Salix</i> spp.) thickets. Also nest in riparian forests of valley oak (<i>Quercus lobata</i>) with a sufficient understory of blackberry (<i>Rubus</i> spp.), along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites	High. Suitable habitat is present within the northwestern portion of the county and recent surveys have found this species to be locally numerous along riparian corridors, such as the Cosumnes and Stanislaus rivers and sparse along vegetated irrigation canals and levees (Shuford and Gardali, 2008).
<i>Riparia riparia</i> Bank swallow	--/ST/--	Nests in steep banks next to moving water. Rarely occurs west of the Sierra Nevada in California.	Low. Although the CNDDDB has one recorded occurrence, the county is outside of the normal range for this species.
<i>Vireo bellii pusillus</i> least Bell's vireo	FE/SE/--	Found in dense, shrubby riparian and forest habitat, brushy fields, chaparral, scrub oak, and mesquite brush lands.	Unlikely. There is marginally suitable habitat within the southern portion of the county and there is only one CNDDDB recorded occurrence from 1898.
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	--/SE/--	Nests in freshwater marshes or reedy lakes; during migration and winter prefers open cultivated lands, fields, and pastures.	Medium. Suitable habitat is present within the undeveloped areas consisting of marsh and lake habitat within the county. The CNDDDB reports one recorded occurrence however it was from 1894.
Mammals			
<i>Antrozous pallidus</i> Pallid bat	--/SSC/--	Favors rocky outcrops with desert scrub, but commonly ranges up to forested areas with oak and pine. Roosts in caves, rock crevices, mines, hollow trees, and buildings. Maternity colonies form in rock crevices, in buildings, and other man-made structures.	Medium. Suitable habitat is present within the undeveloped rural areas of the county and within the orchards. The CNDDDB has three recorded occurrences however the most recent is from 1991.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Mammals (cont.)			
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	--/SCT, SSC/--	Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. May use separate sites for night, day, hibernation, or maternity roosts. Hibernation sites are cold, but not below freezing. Roosting sites are the most important limiting resource.	Medium. The mountainous region in the southwestern portion of the county provides suitable habitat for this species and one CNDDDB occurrence has been recorded there.
<i>Eumops perotis californicus</i> western mastiff bat	--/SSC/--	Cliff-dwelling species, roosting generally under exfoliating rock slabs (e.g., granite, sandstone or columnar basalt). It has also been found in similar crevices in large boulders and buildings. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 9.1 feet below the entrance for flight. Most frequently encountered in broad open areas and foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas. Known to travel considerable distances from roosting sites.	Medium. The mountainous region in the southwestern portion of the county provides suitable habitat for this species and one CNDDDB occurrence has been recorded there.
<i>Neotoma fuscipes riparia</i> riparian (=San Joaquin Valley) woodrat	FE/SSC/--	Found where shrub cover is dense and in riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. They are common where there are deciduous valley oaks, but few live oaks.	Low. Species is restricted to small remnant patches of riparian forest along the Stanislaus River. CNDDDB reports three occurrences within in the south central portion of the county however two of those were recorded in 1932 and 1935.
<i>Sylvilagus bachmani riparius</i> riparian brush rabbit	FE/SE/--	Found in dense, brushy areas of Valley riparian forests, marked by extensive thickets of wild rose (<i>Rosa</i> spp.), blackberries (<i>Rubus</i> spp.), and willows (<i>Salix</i> spp.).	Low. Currently only known populations occur within Caswell State Park.
<i>Taxidea taxus</i> American badger	--/SSC/--	Found in dry, open grasslands, fields, and pastures. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Medium. The open grassland areas within the undeveloped portions of the county, particularly in the southwestern portion provides suitable habitat. There are several recorded occurrences within the CNDDDB however the most recent is from 2000.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/ST/--	Found in grassland, scrubland, wetlands, agricultural, and urban habitats in the San Joaquin Valley.	Medium. The large tracts of undeveloped grassland habitat within the southwestern portion of the county provides suitable habitat for this species. There are several recorded occurrences within the CNDDDB however the most recent is from 2002.
Plants			
<i>Acanthomintha lanedolata</i> Santa Clara thorn-mint	--/--/4.2	An annual herb that occurs on rocky or serpentinite soils in chaparral, cismontane woodland and coast scrub. Blooms March through June. Elevations 80 – 1,200 meters.	Low. No CNDDDB occurrences of this species are present in the county.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Plants (cont.)			
<i>Amsinckia grandiflora</i> large-flowered fiddleneck	FE/SE/1B.1	An annual herb generally found in cismontane woodland and valley and foothill grasslands at 275 – 550 meters in elevation. Blooms April-May.	Medium. The CNDDDB has three occurrences; one extirpated and two current locations situated in the southern portion of the Tracy Planning Area.
<i>Androsace elongate</i> ssp. <i>acuta</i> California androsace	--/--/4.2	An annual herb generally found in chaparral, cismontane woodland, coastal scrub, meadows/seeps, pinyon and juniper woodland, and Valley and foothill grassland. Occurs between 150 – 1200 meters in elevation. Blooms March-June.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	--/--1B.2	An annual herb generally found on alkaline soils in playas, valley and foothill grasslands with adobe clay soils, and vernal pools at 3-550 feet in elevation. Blooms March-June.	Low. The only known CNDDDB occurrence of this species located in Stockton has been extirpated.
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	--/--/1B.2	An annual herb found in chenopod scrub, alkali seasonal wetlands, and grassland. Often found in the sandy soils of alkaline flats and scalds in the Central Valley at 1-500 feet in elevation. Blooms April-October.	Medium. The CNDDDB has one historic occurrence, presumed extant, located in Stockton.
<i>Atriplex coronata</i> var. <i>coronata</i> crownscale	--/--/4.2	An annual herb found in chenopod scrub, seeps, playas, and Valley and foothill grassland. Often found in alkaline or clay soils and occur between 1-590 meters in elevation. Blooms March-October.	Medium. The CNDDDB has one historic occurrence, presumed extant, located outside of Stockton.
<i>Atriplex joaquinana</i> San Joaquin spearscale	--/--/1B.2	An annual herb generally found in chenopod scrub, alkali seasonal wetlands and grassland, meadows and playas at 3-2,750 feet in elevation. Blooms April-October.	Medium. The CNDDDB has one historic occurrence, presumed extant, located in Stockton.
<i>Blepharizonia plumosa</i> big tarplant	--/--/1B.1	An annual herb generally found in Valley and foothill grasslands at 30-505 meters in elevation. Blooms July-October.	Medium. The CNDDDB has two historic and 11 current occurrences presumed extant located near Stockton and Tracy.
<i>Brasenia schreberi</i> watershield	--/--/2B.3	A perennial rhizomatous herb generally found in freshwater marshes and swamps at 98-7,218 feet in elevation. Blooms June-September.	Medium. The CNDDDB has two historic occurrences, one presumed extirpated on Boulton Island and one presumed extant, located in Stockton.
<i>California macrophylla</i> round-leaved filaree	--/--/1B.1	An annual herb generally found in Valley grasslands and foothill woodlands, particularly in clay soils at 49 – 3,937 feet in elevation. Blooms March-May.	Medium. The CNDDDB has four historic occurrences located near Stockton and Tracy.
<i>Carex comosa</i> bristly sedge	--/--/2B.1	A perennial rhizomatous herb generally found in lake-margin and edge habitats at 0-625 feet in elevation. Blooms May-September.	Medium. The CNDDDB has one historic occurrence, presumed extant, located outside of Stockton.
<i>Castilleja campestris</i> var. <i>succulenta</i> succulent owl's-clover	--/--/1B.2	A hemiparasitic annual herb generally found in vernal pools (often acidic) at 50-750 meters in elevation. Blooms April-May.	Medium. The CNDDDB has one historic occurrence, presumed extant, located northeast of Lodi.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Plants (cont.)			
<i>Caulanthus lemmonii</i> Lemmon's jewelflower	--/--/1B.2	An annual herb generally found in pinyon and juniper woodland, and Valley and foothill grassland at 80 – 1220 feet in elevation. Blooms March-May.	Medium. The CNDDDB has two historic occurrences located in the southern portion of the Tracy Planning Area.
<i>Centromadia parryi</i> ssp. <i>rudis</i> Parry's rough tarplant	--/--/4.2	An annual herb generally found in Valley and foothill grasslands, vernal pools. Also may occur in alkaline, vernal, mesic seeps or roadsides. Grows at 0-100 meters in elevation. Blooms May-October.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Chloropyron palmatum</i> palmate-bracted bird's-beak	--/--/1B.1	A hemiparasitic annual herb generally found in alkaline soils in chenopod scrub and Valley and foothill grassland at 5-155 meters in elevation. Blooms May-October.	Medium. The CNDDDB has one historic occurrence, presumed extant, located in Stockton.
<i>Cirsium crassicaule</i> slough thistle	--/--/1B.1	An annual/perennial herb found in chenopod scrub, marshes, swamps, sloughs and riparian scrub. Grows at 3-100 meters elevation. Blooms May-August.	Low. The CNDDDB has two historic occurrences on the San Joaquin River near Lathrop; one possibly extirpated and one possibly extant.
<i>Convolvulus simulans</i> small-flowered morning-glory	--/--/4.2	An annual herb found in clay soils and serpentinite seeps within chaparral openings, coastal scrub, and Valley and foothill grassland habitats. Grows at 30-700 meters in elevation. Blooms March –July.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Delphinium californicum</i> ssp. <i>interius</i> Hospital Canyon larkspur	--/--/1B.2	A perennial herb found in open chaparral, mesic cismontane woodland, and coastal scrub. Grows at 195-1095 meters in elevation. Blooms April-June.	Medium. The CNDDDB has one historic occurrence, presumed extant, located in Hospital Canyon, at the southern county boundary.
<i>Delphinium recurvatum</i> recurved larkspur	--/--/1B.2	A perennial herb found on alkaline soils in chenopod scrub, cismontane woodland, Valley and foothill grassland. Grows at 3-790 meters in elevation. Blooms March-June.	Medium. The CNDDDB has one historic occurrence, presumed extant, located southeast of Stockton.
<i>Downingia pusilla</i> dwarf downingia	--/--/2B.2	An annual herb generally found along lake margins, vernal pools and wet places sometimes playas and grasslands at elevations of 3-1,460 feet. Blooms March-May.	Medium. The CNDDDB has one historic occurrence, presumed extant, located near Goose Creek in the northeast corner of the county.
<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i> bay buckwheat	--/--/4.2	A perennial herb generally found in rocky, often serpentinite soils in cismontane woodland, and lower montane coniferous forest. Grows at 700-2,200 meters in elevation. Blooms July-September.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Eryngium racemosum</i> Delta button-celery	--/--/1B.1	An annual/perennial herb generally found in vernal mesic clay depressions within riparian scrub habitat between 3-30 meters in elevation. Blooms June-October.	Medium. The CNDDDB has four historic occurrences located near Lathrop and Stockton, all possibly extirpated.
<i>Eschscholzia rhombipetala</i> diamond-petaled California poppy	--/--/1B.1	An annual herb generally found on alkaline or clay soils in Valley and foothill grasslands. Grows at 0-975 meters in elevation. Blooms March-April.	Medium. The CNDDDB has two historic occurrences; one possibly extirpated located near Mountain House and one possibly extant located southwest of Tracy.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Plants (cont.)			
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	--/--/1B.2	An annual herb found in marshes and swamps, lake margins, and in clay substrate in vernal pools at elevation ranges of 33-7,792 feet. Blooms April-August.	Medium. The CNDDDB has three historic occurrences located in the Delta Islands.
<i>Hesperevax caulescens</i> hogwallow starfish	--/--/4.2	An annual herb generally found in mesic, clay soils in Valley and foothill grasslands, or shallow vernal pools between 0-505 meters elevation. Blooms March-June.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> woolly rose-mallow	--/--/1B.2	A perennial rhizomatous herb that prefers freshwater marshes and swamps at elevation ranges of 0-394 feet. Blooms June-September.	High. The CNDDDB has numerous recorded occurrences in the Delta region near the western county boundary.
<i>Lasthenia ferrisiae</i> Ferris' goldfields	--/--/4.2	An annual herb generally found in vernal pools with alkaline or clay soils at elevations of 20-700 meters. Blooms February-May.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	--/--/1B.2	A perennial herb that occurs in both tidal freshwater and brackish marshes in the Central and San Joaquin Valleys and in the Bay Area between 0-15 feet in elevation. Blooms May-July (September).	High. The CNDDDB has numerous recorded occurrences in the Delta region near the western county boundary.
<i>Legenere limosa</i> legenere	--/--/1B.1	An annual herb that occurs in vernal pool beds at elevations of 1-2,887 feet. Blooms April-June.	Medium. The CNDDDB has two historic and five current occurrences presumed extant located in the north-northeast portion of the county.
<i>Leptosiphon ambiguus</i> serpentine leptosiphon	--/--/4.2	An annual herb typically found in serpentinite soils in cismontane woodland, coast scrub, and Valley and foothill grasslands at 120-1,130 meters in elevation. Blooms March-June.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	--/--/1B.1	A perennial rhizomatous herb that generally occurs in riparian scrub, freshwater-marsh and brackish-marsh habitats at 0-35 feet in elevation. Blooms April-November.	High. The CNDDDB has numerous recorded occurrences in the Delta region near the western county boundary.
<i>Limosella australis</i> Delta mudwort	--/--/2B.1	A perennial stoloniferous herb usually found on mud banks of marshes, swamps (freshwater or brackish), and riparian scrub at 0-3 meters in elevation. Blooms May-August.	High. The CNDDDB has numerous recorded occurrences in the Delta region near the western county boundary.
<i>Madia radiata</i> showy golden madia	--/--/1B.1	An annual herb found in cismontane woodland, Valley and foothill grassland at 25-1,215 meters in elevation. Blooms March-May.	Medium. The CNDDDB has one historic occurrence located in the southern portion of the Tracy Planning Area.
<i>Micropus amphibolus</i> Mt. Diablo cottonweed	--/--/3.2	An annual herb that occurs on rocky soils in broadleaf upland forest, chaparral, and cismontane woodland at 45-825 meters in elevation. Blooms March-May.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Monardella candicans</i> Sierra monardella	--/--/4.3	An annual herb found on sandy or gravelly soils in chaparral, cismontane woodland, lower montane coniferous forest at 65 - 1,080 meters in elevation. Blooms April-July.	Low. No CNDDDB occurrences of this species are present in the county.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Plants (cont.)			
<i>Navarretia nigelliformis</i> ssp. <i>radians</i> shining navarretia	--/--/1B.2	An annual herb found in vernal pool grasslands and vernal pools, sometimes on clay depressions, at 656-3,280 feet in elevation. Blooms April –July.	Medium. The CNDDDB has one historic occurrence located on the Lawrence Livermore Lab lands.
<i>Psilocarphus brevisiumus</i> var. <i>multiflorus</i> Delta woolly-marbles	--/--/4.2	An annual herb found in vernal pools from 0-8,202 feet in elevation. Blooms May-June.	Low. No CNDDDB occurrences of this species are present in the county.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--/--/1B.2	Found in assorted freshwater habitats including marshes, swamps, and seasonal drainages from 0-2,133 feet in elevation. Blooms May-October.	Medium. The CNDDDB has three historic and five current occurrences in the Stockton and Thornton Planning Area.
<i>Scutellaria galericulata</i> marsh skullcap	--/--/2B.2	Perennial rhizomatous herb found in lower montane coniferous forest, meadows and seeps, marshes and swamps at 0-2,100 meters in elevation. Blooms June-September.	Medium. The CNDDDB has three historic occurrences in the Delta Islands.
<i>Scutellaria lateriflora</i> side-flowering skullcap	--/--/2B.2	Perennial rhizomatous herb found in meadows and seeps, marshes and swamps from 0-1,640 feet in elevation. Blooms July-September.	Medium. The CNDDDB has one historic and five current occurrences in the Thornton Planning Area.
<i>Symphyotrichum lentum</i> Suisun Marsh aster	--/--/1B.2	Rhizomatous herb occurring in tidal brackish and freshwater marshes at 0-10 feet in elevation. Blooms May-November.	High. The CNDDDB has a total of 45 occurrences; 12 historic and 33 current all located in the western portion of the county in Stockton, Delta, and Thornton Planning Areas.
<i>Trichocoronis wrightii</i> var. <i>wrightii</i> Wright's trichocoronis	--/--/2B.1	Annual herb found on alkaline soils in meadows, seeps, marshes, swamps, riparian forest and vernal pools at 5-435 meters in elevation. Blooms May-September.	Medium. The CNDDDB has one historic occurrence along the San Joaquin River in Lathrop.
<i>Trifolium hydrophilum</i> saline clover	--/--/1B.2	An annual herb found in marshes and swamps, Valley and foothill grassland (mesic and alkaline sites), vernal pools at elevation range of 0-1,000 feet. Blooms April-June.	Medium. The CNDDDB has one historic occurrence in Stockton.
<i>Tropidocarpum capparideum</i> caper-fruited tropidocarpum	--/--/1B.1	Annual herb found in alkaline hills of vernal pool grasslands at elevation range of 1-455 meters. Blooms May-September.	Medium. The CNDDDB has one occurrence in Mountain House that is assumed extant. The remaining five occurrences are all extirpated or potentially extirpated.
<i>Tuctoria greenei</i> Greene's tuctoria	--/--/1B.1	Annual herb found in vernal pools at elevation range of 30-1,070 meters. Blooms May-September.	Low. The CNDDDB has only two recorded historic occurrences east of Stockton. Both of these have been extirpated.
Natural Communities			
Coastal and Valley Freshwater Marsh	Natural Community	Quiet sites (lacking significant current) permanently flooded by fresh water (rather than brackish, alkaline, or variable). Prolonged saturation permits accumulation of deep, peaty soils. Dominated by perennial, emergent monocots to 4-5m tall. Often forming completely closed canopies.	High. The CNDDDB has nine recorded occurrences of this community within the northwestern portion of the county in the Delta.

TABLE 4.F-2 (Continued)
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN SAN JOAQUIN COUNTY

Species	Fed/State/ CNPS Status	General Habitat	Potential to Occur
Natural Communities (cont.)			
Elderberry Savanna	Natural Community	Grassland ecosystem dominated by elderberry shrubs. Community intergrades with the Great Valley Cottonwood Riparian Forest in lower lying areas and the Great Valley Valley Oak Riparian Forest in higher areas.	Low. The CNDDDB has only one recorded occurrence within the Caswell State Park in the south central portion of the county along the Stanislaus River.
Great Valley Cottonwood Riparian Forest	Natural Community	A dense, broadleafed, winter-deciduous riparian forest dominated by <i>Populus fremontii</i> and <i>Salix goodingii</i> . Understories are dense, with abundant vegetative reproduction of canopy dominants.	Medium. The CNDDDB has two recorded occurrences of this community in the south central portion of the county along the Stanislaus River.
Great Valley Mixed Riparian Forest	Natural Community	Tall, dense, deciduous, broad-leaved riparian forest found along floodplains of low gradient streams in California's Sacramento and San Joaquin Valleys.	Medium. The CNDDDB has two recorded occurrences within the county; one in the northern portion and the second in the south central portion.
Great Valley Valley Oak Riparian Forest	Natural Community	A medium to tall (rarely to 100 feet) broadleafed, winter-deciduous, closed-canopy riparian forest dominated by <i>Quercus lobata</i> . Understories include scattered <i>Fraxinus latifolia</i> , <i>Juglans hindsii</i> , and <i>Platanus racemosa</i> as well as young <i>Quercus lobata</i> .	Medium. The CNDDDB has three recorded occurrences of this community in the west central portion of the county along Old River.
Northern Claypan Vernal Pool	Natural Community	Similar to Northern Hardpan Vernal Pool (described below) but with lower microtopography and lower overall cover. Found on lower terraces and basin rims.	Low. The CNDDDB has one recorded occurrence of this community on the border of San Joaquin County and Alameda County however it is recorded as occurring within Alameda County.
Northern Hardpan Vernal Pool	Natural Community	Low, amphibious, herbaceous community dominated by annual herbs. Found primarily on alluvial terraces on the east side of the Great Valley in CA.	High. The CNDDDB has five recorded occurrences of this community in the central portion of the county within the undeveloped areas outside of and east of Stockton and Lodi.

KEY:

Federal: (USFWS)

FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FC = Candidate for listing by the Federal Government

State: (CDFW)

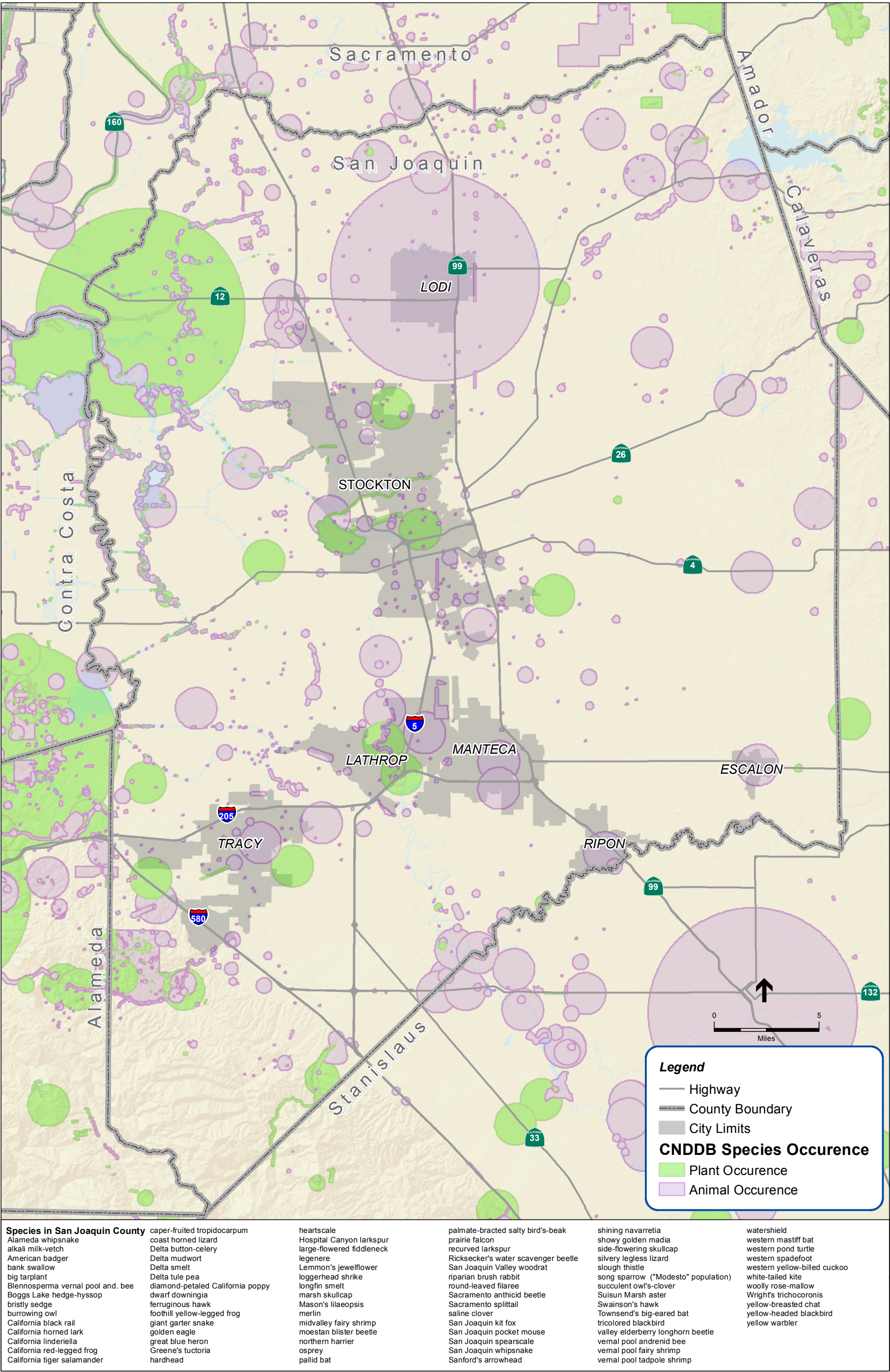
SE = Listed as Endangered by the State of California
ST = Listed as Threatened by the State of California
SR = Listed as Rare by the State of California (plants only)
SSC = California Species of Concern
FP = Fully Protected
WL = Watch List

CNPS: (California Native Plant Society)

Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B = Plants rare, threatened, or endangered in California and elsewhere
Rank 2A = Plants presumed extirpated in California, but more common elsewhere
Rank 2B = Plants rare, threatened, or endangered in California but more common elsewhere
Rank 3 = Plants about which more information is needed – a review list
Rank 4 = Plants of limited distribution – a watch list
0.1 = Seriously endangered in California
0.2 = Fairly endangered in California
0.3 = Not very endangered in California

– = No Listing

SOURCE: USFWS, 2014; CDFW, 2014; CNPS, 2014.



SOURCE: CDFW, 2014

San Joaquin County 2035 General Plan. 209529
Figure 4.F-3
CNDDDB Species Occurrence

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agricultural production yield and the quantities of commodities supplied. Invasive species result in financial implications related to agricultural inspections and environmental monitoring. Many invasive species are poorly understood and large budgets can be spent on research trying to understand the species.

Plants/Invasive Weeds

Invasive weeds are non-native plants that have invaded and dominated the county's natural plant communities. They have reduced the quality of habitat for wildlife, have been extremely costly to eradicate, have resisted control efforts, and continue to be a major source of concern for natural resource managers. Non-native plants dominate major portions of the Central Valley landscape, with infestations greatest in fallow agricultural fields, roadsides, canal banks, grazed pastures, and other disturbed sites. In grasslands, some of the more challenging plant invaders include eucalyptus, Russian thistle, fountain grass, gorse, medusahead, tree of heaven, and yellow starthistle. In riparian and wetland areas, invading plants include edible fig, giant reed or arundo, Himalayan blackberry, pampas grass, Russian olive, tamarisk (or saltcedar), pennyroyal, peppergrass and tree of heaven. Oak woodlands are invaded by plants such as Scotch broom and French broom. Riparian, stream and wetland habitats face alien species such as Brazilian waterweed, egeria, Eurasian watermilfoil, waxy managrass, hydrilla, water hyacinth, water pennywort, and parrot feather. Over one dozen non-native invasive plant species are found in the Delta and the adjacent Suisun Marsh (Cal-IPC 2014).

F.3 Regulatory Setting

This subsection briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources and wetlands as they apply to the 2035 General Plan.

Local, state, and federal laws and regulations have been enacted to provide for the protection and management of sensitive biological and wetland resources. On the federal level, the U.S. Fish and Wildlife Service (USFWS) is responsible for protection of terrestrial and freshwater organisms through implementation of the federal Endangered Species Act ³ and the Migratory Bird Treaty Act. The National Marine Fisheries Service (NOAA Fisheries or NMFS) is responsible for protection of anadromous fish and marine wildlife. The Corps has primary responsibility for protecting wetlands under Section 404 of the Clean Water Act. At the state level, the California Department of Fish and Wildlife (CDFW) is responsible for administration of the California Endangered Species Act and for protection of streams and waterbodies through the Streambed Alteration Agreement process under Section 1600 of the California Fish and Game Code. Certification from the California Regional Water Quality Control Board (RWQCB) is also required when a proposed activity may result in discharge into navigable waters, pursuant to Section 401 of the Clean Water Act and EPA Section 404(b)(1) Guidelines. The RWQCB has also taken an increasingly important role in regulating waters no longer considered jurisdictional by the Corps due to recent federal Supreme Court rulings.

³ The federal Endangered Species Act (ESA) of 1973 declares that all federal departments and agencies shall use their authority to protect endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of the ESA and pertains to California species.

Special-Status Species Regulations

Special-status species⁴ are plants and animals that are legally protected under the California and/or federal Endangered Species Acts or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Species with legal protection under the federal and California Endangered Species Acts often represent major constraints to development, particularly when they are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a “take” of these species. “Take” as defined by the federal Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.) means to “harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect” a threatened or endangered species. “Harm” is further defined by the USFWS to include the killing or harming of wildlife due to significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modifications or degradation. CDFW also considers the loss of listed species habitat as “take,” although this policy lacks statutory authority and case law support under the California Endangered Species Act (CESA).

The primary information source on the distribution of special-status species used for this EIR is the California Natural Diversity Database (CNDDDB) inventory, which is maintained by the Biogeographic Data Branch of the CDFW. The CNDDDB inventory provides the most comprehensive statewide information on the location and distribution of special-status species and sensitive natural communities. Occurrence data are obtained from a variety of scientific, academic, and professional organizations, private consulting firms, and knowledgeable individuals, and entered into the inventory as expeditiously as possible. The occurrence of a species of concern in a particular region is an indication that an additional population may occur at another location if habitat conditions are suitable. However, the absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from the area in question; only that no data have been entered into the CNDDDB inventory. A site assessment and possibly detailed field surveys may be necessary to provide a conclusive determination on presence or absence of sensitive resources from a particular location where there is evidence of potential occurrence.

Delta Stewardship Council Delta Plan

The Delta Plan is a comprehensive, long-term management plan for the Delta. Required by the 2009 Delta Reform Act, it creates new rules and recommendations to further the state’s coequal goals for the Delta: Improve statewide water supply reliability, and protect and restore a vibrant

⁴ For this EIR, special-status species are defined to include designated (rare, threatened, or endangered) and candidate species for listing by CDFW; designated (threatened or endangered) and candidate species for listing by the USFWS; species considered to be rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those identified on lists 1A, 1B, and 2 in the 2001 *Inventory of Rare and Endangered Plants of California* by the California Native Plant Society (CNPS); and possibly other species which are considered sensitive due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 in the CNPS Inventory or identified as animal Species of Special Concern by CDFW. Species designated as a Species of Special Concern have no legal protective status under the California Endangered Species Act but are of concern to CDFW because of severe decline in breeding populations and other factors.

and healthy Delta ecosystem, all in a manner that preserves, protects and enhances the unique agricultural, cultural, and recreational characteristics of the Delta.

Developed through eight drafts, hundreds of hours of public meetings and thousands of public comments over two years, the Delta Plan is guided by the best available science. The Delta Plan is founded on cooperation and coordination among affected agencies. The Delta Plan is also enforceable through regulatory authority, as spelled out in the Delta Reform Act that requires state and local agencies to be consistent with the Delta Plan.

The Delta Plan was unanimously adopted by the Delta Stewardship Council on May 16, 2013. Subsequently its 14 regulatory policies were approved by the Office of Administrative Law, a state agency that ensures the regulations are clear, necessary, legally valid, and available to the public. The Delta Plan became effective with legally-enforceable regulations on September 1, 2013.

The Delta Plan builds on work by the Department of Water Resources, Department of Fish and Wildlife, and the State Water Resources Control Board. Collectively, its required policies and numerous recommendations:

- Reduce reliance on water from the Delta by requiring those who take water from, transfer water through, or use water in the Delta to describe and certify that they are using all feasible options to use water efficiently and to develop additional local and regional water supplies.
- Identify ways to improve statewide water supply reliability throughout California by calling for state investments in improved local and regional supplies and water use efficiency. The Plan also calls for improved Delta conveyance and expansion of groundwater and surface storage.
- Protect, restore and enhance the Delta ecosystem by designating six high priority locations in the Delta and Suisun Marsh to recover endangered species, rebuild salmon runs and enhance habitat for wildlife. The Plan also prioritizes actions to reduce pollution, ensure improved water quality and limit invasive species, while moving to establish a more natural pattern of water flows in the Delta.
- Protect the uniqueness of the California Delta by preserving rural lands for agriculture and habitat use, and requiring that new residential, commercial or industrial development is located in areas currently designated for urban use.
- Reduce risks to people, property, and state interests in the Delta by prohibiting encroachment on floodways and floodplains, requiring a minimum level of flood protection for new residential development of five or more parcels, and committing to develop priorities for state investment in Delta flood protection by 2015.
- Integrate governmental actions and the best available science through both regulatory policies and non-binding recommendations.
- Call for swift and successful completion of the Bay Delta Conservation Plan, which seeks to modernize the existing water conveyance system, and improve the health of the estuary. If the BDCP meets the requirements of law it would be incorporated into the Delta Plan.

Delta Protection Commission's Land Use and Resource Management Plan

The mission of the Delta Protection Commission (DPC) is to adaptively protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment consistent with the State of California's Delta Protection Act. This mission includes, but is not limited to, lands and other resources devoted to agriculture, wildlife habitat, and recreational activities. The goal of the Commission is to ensure orderly, balanced conservation and development of Delta land resources and improved flood protection.

As called for in the Delta Protection Act, a Land Use and Resource Management Plan (LURMP) for the Primary Zone of the Delta was prepared and adopted by the DPC in 1995 and revised in 2002. The LURMP sets out findings, policies, and recommendations resulting from background studies in the areas of environment, utilities and infrastructure, land use, agriculture, water, recreation and access, levees, and marine patrol/boater education/safety programs. The LURMP also provides guidance to state agencies undertaking activities in the Primary Zone. However, the DPC is not authorized to exercise any jurisdiction over matters within the jurisdiction of, or to carry out its powers and duties in conflict with, the powers and duties of any other state agency. This plan, therefore, applies to development subject to approval by the Delta counties (Contra Costa, Sacramento, San Joaquin, Yolo and Solano). Should cities propose to expand into the Delta Primary Zone, or acquire land in the Primary Zone for utility or infrastructure facility development, those actions are to be carried out in conformity with the Delta Protection Act. Relevant policies of the LURMP are summarized below.

Natural Resources Goals

Preserve and protect the natural resources of the Delta. Promote protection of remnants of riparian and aquatic habitat. Encourage compatibility between agricultural practices and wildlife habitat.

Policies

P-1. Preserve and protect the natural resources of the Delta. Promote protection of remnants of riparian and aquatic habitat. Encourage compatibility between agricultural practices, recreational uses and wildlife habitat.

P-2. Encourage farmers to implement management practices to maximize habitat values for migratory birds and other wildlife. Appropriate incentives, such as: purchase of conservation easements from willing sellers or other actions, should be encouraged.

P-3. Lands managed primarily for wildlife habitat should be managed to maximize ecological values. Appropriate programs, such as "Coordinated Resource Management and Planning" (Public Resources Code Section 9408(c)) should ensure full participation by local government and property owner representatives.

P-4. Support the non-native invasive species control measures being implemented by the California Department of Fish and Game, the California Department of Boating and Waterways, the California Emergency Management Agency, the California Department of Food and Agriculture, the State Water Resources Control Board, the Central Valley and San Francisco Bay Regional Water Quality Control Boards, and the Agricultural

Commissioners for the five Delta Counties (Yolo, Solano, Sacramento, San Joaquin, and Contra Costa), which include controlling the arrival of new species into the Delta.

P-5. Preserve and protect the viability of agricultural areas by including an adequate financial mechanism in any planned conversion of agricultural lands to wildlife habitat for conservation purposes. The financial mechanism shall specifically offset the loss of local government and special district revenues necessary to support public services and infrastructure.

P-6. Support the implementation of appropriate buffers, management plans and/or good neighbor policies (e.g. safe harbor agreements) that among other things, limit liability for incidental take associated with adjacent agricultural and recreational activities within lands converted to wildlife habitat to ensure the ongoing agricultural and recreational operations adjacent to the converted lands are not negatively affected.

P-7. Incorporate, to the maximum extent feasible, suitable and appropriate wildlife protection, restoration and enhancement on publicly-owned land as part of a Delta-wide plan for habitat management.

P-8. Promote ecological, recreational and agricultural tourism in order to preserve the cultural values and economic vitality that reflect the history, natural heritage and human resources of the Delta including the establishment of National Heritage Area designations.

P-9. Protect and restore ecosystems and adaptively manage them to minimize impacts from climate change and other threats and support their ability to adapt in the face of stress.

P-10. Ensure that design, construction, and management of any flooding program to provide seasonal wildlife and aquatic habitat on agricultural lands, duck club lands and additional seasonal and tidal wetlands, shall incorporate "best management practices" to minimize vectors including mosquito breeding opportunities, and shall be coordinated with the local vector control districts, (each of the four vector control districts in the Delta provides specific wetland/mosquito management criteria to landowners within their district).

Federal

The USFWS and NOAA Fisheries have jurisdiction over species that are formally listed as threatened or endangered under the federal ESA. The federal ESA is a complex law enacted in 1973 to protect and recover plant and animal species in danger of becoming extinct and to conserve their ecosystems, with an ultimate goal being the recovery of a species to the point where it is no longer in need of protection. An "endangered" plant or animal species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A "threatened" species is one that is likely to become endangered within the foreseeable future (16 U.S.C. 1531 et seq.). The USFWS also maintains a list of species proposed for listing as endangered or threatened, and a list of candidate species for which sufficient information is available to support issuance of a proposed listing rule (USFWS 2014b).

It is illegal to take any listed species without specific authorization. Any activity that could result in take of a federally listed species requires a Section 10 take permit authorization from the USFWS or NOAA Fisheries. Should another federal agency be involved with permitting a

project, such as the Corps under jurisdiction of the Clean Water Act, Section 7 of the ESA requires the federal lead agency to consult with the USFWS and/or NOAA Fisheries before permitting any activity that may result in take of a listed species. Section 9 of the ESA and its applicable regulations restrict certain activities with respect to endangered and threatened plants. However, these restrictions are less stringent than those applicable to fish and wildlife species. The provisions prohibit the removal of, malicious damage to, or destruction of any listed plant species from areas under federal jurisdiction.

If the USFWS cannot issue a non-jeopardy opinion for a proposed project, a Habitat Conservation Plan (HCP) is prepared pursuant to Section 10(a) of the federal ESA. HCPs include the development of an overall conservation plan for a particular species (or more than one species) in an area expected to have a number of projects affecting that species. An HCP is typically proposed by a local government in consultation with affected landowners. Once the HCP is approved by the USFWS, projects in the HCP area can all go forward without individual Section 10 consultations. The USFWS will not issue Section 10(a) permits if it determines that the continued existence of a species would be jeopardized by a particular project or action.

In addition to the protection offered under the ESA, the federal Migratory Bird Treaty Act (MBTA) provides for protection of migratory bird species, birds in danger of extinction, and their active nests. It is illegal to possess or take any bird protected under the MBTA without a depredation permit from the USFWS, which includes protection of eggs, young, and nests in active use. Although the MBTA technically provides for protection of most bird species, it is typically applied as a mechanism to protect active nests of raptors and colonial nesting species through the breeding and nesting season.

State

CDFW has jurisdiction over threatened or endangered species that are formally listed under the CESA. The CESA is similar to the federal ESA both in process and substance, providing additional protection to listed species in California. The CESA does not supersede the federal ESA, but operates in conjunction, with some species having different listing status. The CESA is intended to conserve, protect, restore, and enhance listed species and their habitat. Compliance with the CESA is required when a take is considered likely by CDFW.

CDFWG also maintains informal lists of “Species of Special Concern.” These species are broadly defined as animals that are of concern to CDFW because of population declines and restricted distribution, and/or because they are associated with habitats that are declining in California. These species are inventoried in the CNDDDB, focusing on nesting, roosting, and congregation sites for non-listed species. In addition, wildlife species designated as “Fully Protected” or “Protected” may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW. The CESA prohibits the take of any plant listed as endangered, threatened, or rare.

A “rare” plant species is one not presently threatened with extinction but may become endangered if its present environment worsens. State listing of plants began in 1977 with passage of the Native Plant Protection Act (NPPA). The CESA expanded upon the NPPA and enhanced legal

protection for plants. To align with federal regulations, the CESA created the categories of threatened and endangered species. It grandfathered all rare animals into the CESA as threatened species, but did not do so for rare plants.

The California Native Plant Society (CNPS) is a non-profit conservation organization dedicated to the preservation of native flora in California. The CNPS has been involved in assembling, evaluating, and distributing information on special-status plant species in the state, as listed in the *Inventory of Rare and Endangered Plants of California* (2001 and electronic inventory update). A Rank 1A plant is a species, subspecies, or variety that is considered to be extinct. A Rank 1B plant is considered rare, threatened, or endangered in California and elsewhere. A Rank 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A Rank 3 plant is a species for which the CNPS lacks necessary information to determine whether or not it should be assigned to a list. A Rank 4 plant has a limited distribution in California and is considered a “watch list” by the CNPS.

All of the plant species on Rank 1 and Rank 2 meet the requirements of the NPPA (Section 1901, Chapter 10) or Section 2062 and 2067 of the CESA, and are eligible for state listing. Species maintained by CNPS listed as Rank 1 and 2 should be considered special-status species under the California Environmental Quality Act (CEQA). Some Rank 3 plant species also meet the requirements for state listing. Very few Rank 4 plants are eligible for listing but may be locally important and their listing status could be elevated if conditions change.

CDFW recognizes that Rank 1A, 1B, and 2 of the CNPS *Inventory* consist of plants that, in a majority of cases, would qualify for listing and these species should be addressed under CEQA review. In addition, CDFW recommends, and local governments may require, protection of species that are regionally significant, such as locally rare species, disjunct populations⁵, essential nesting and roosting habitat for more common wildlife species, or plants on the CNPS Rank 3 and 4.

Sensitive Natural Communities Regulations

In addition to species-oriented management, protecting habitat on an ecosystem level is increasingly recognized as vital to the protection of natural diversity in the state. This is considered the most effective means of providing long-term protection of ecologically viable habitat, and can include whole watersheds, ecosystems, and sensitive natural communities. Providing functional habitat connectivity between natural areas is essential to sustaining healthy wildlife populations and allowing for the continued dispersal of native plant and animal species.

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, state, or federal agencies. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife. Some plant communities support a unique or

⁵ Disjunct population: a population of a species that has two or more groups that are related but widely separated from each other geographically; also referred to as fragmented populations.

diverse assemblage of plant species and therefore are considered sensitive from a botanical standpoint. The most current version of the CDFW's *List of California Terrestrial Natural Communities*, now titled *List of Vegetation Alliances and Associations* (CDFW, 2010) indicates which natural communities are of special status given the current state of the California classification. The CDFW formerly tracked sensitive natural communities in the CNDDDB. Due to funding cuts, no new occurrences of sensitive natural communities have been added to the CNDDDB since the mid-1990s, although the database continues to include those occurrences recorded prior to the program getting defunded. However, the CDFW's *List of Vegetation Alliances and Associations* (CDFW, 2010) ranks vegetation alliances in California according to their degree of imperilment (as measured by rarity, trends, and threats). All alliances are listed with a G (global) and S (State) rank. Alliances with state ranks of S1-S3 are considered of special concern by the CDFW, and all associations within them are also considered to be highly imperiled. CDFW guidance recommends all alliances with state ranks of S1-S3 be considered and analyzed under CEQA.

Federal

No regulations have been enacted specifically related to the protection of sensitive natural communities on a federal level. Regulations related to the protection of wetlands and essential habitat for listed species protected under the ESA provide indirect protection of some sensitive natural community types where they overlap with these other resources. An example is development of a Habitat Conservation Plan (HCP) for protection of listed species as called for under Section 10 of the ESA where essential habitat may be adversely affected by proposed private development where no federal agencies are involved.

State

The Natural Community Conservation Act of 1991 was adopted as a method of providing a comprehensive approach to planning for the protection of natural diversity. The Natural Community Conservation Planning (NCCP) program of CDFW is intended to provide a more broad-based approach to ecosystem protection and is typically used in conjunction with the federal HCP program.

Oak Woodland Conservation

Until recently, no comprehensive statewide regulations existed to protect oak woodland resources. Consequently, land use practices affecting oak woodlands have traditionally been administered through programs initiated by local jurisdictions that vary widely across the state. The incremental loss of oak woodland through habitat conversion to agricultural, commercial, and residential uses, combined with other concerns such as the lack of natural regeneration, has led to an increased concern about the future of oak woodlands and its associated wildlife throughout California. In 2001, the California Oak Woodland Conservation Act was passed by the California Legislature, establishing a fund through the Wildlife Conservation Board (WCB) (DFW's acquisition branch) to financially support counties' oak woodland conservation efforts. The act authorizes the WCB to purchase oak woodland conservation easements and provide grants for land improvements and restoration efforts. Grants resulting in the purchase of oak

woodland conservation easements are given priority; however, funds may also be used for grants designed to provide technical assistance and to develop and implement oak conservation elements in local general plans. The WCB also funds the development of outreach efforts and education related to preservation of oak woodlands.

In 2005, Senate Bill (SB) 1334 was passed by the California Legislature, mandating that counties require feasible and proportional habitat mitigation for impacts on oak woodlands as part of the CEQA process. Under Public Resources Code (PRC) Section 21083.4, a county is required to determine whether projects “may result in a conversion of oak woodlands that will have a significant effect on the environment.” The law applies to all oak woodlands except those dominated by black oak. When it is determined that a project may have a significant effect on oak woodlands, mitigation is required. PRC Section 21083.4 institutes a cap on planting oaks for habitat mitigation (it cannot fulfill more than 50% of the required mitigation) and prescribes four mitigation options:

- conserving oak woodland through the use of conservation easements, contributing funds to the Oak Woodlands Conservation Fund to purchase oak woodlands conservation easements,
- replanting trees, or
- implementing other mitigation actions, as outlined or developed by the county.

Jurisdictional Waters (Including Wetlands) Regulations

Although definitions vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water and support vegetation adapted to life in saturated soil. As already noted, wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the Corps and the USFWS, which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation.

In recognition of the importance of wetlands, in 1977 the USFWS began a systematic effort to classify and map remaining wetlands in the country, now known as the National Wetlands Inventory Program (NWI). Using the USGS topographic maps as a base, the wetlands mapping effort provides a generalized inventory of wetlands according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979) used by the USFWS. Mapping has been prepared through interpretation of aerial photographs, with only limited ground confirmation, which means that a more thorough ground and historical analysis may result in a revision to wetland boundaries in a specific location. The inventory is not an attempt to define the limits of proprietary jurisdiction of any governmental agency. This mapping effort also identified features according to the broader definition of wetlands used by the USFWS, in which only one criterion (wetland hydrology, hydric soils, or hydrophytic vegetation) is typically necessary for the location to meet the wetland definition, rather than all three criteria as required by the Corps.

Federal

The Clean Water Act was enacted to address water pollution, establishing regulations and permit requirements regarding construction activities that affect storm water, dredge and fill material operations, and water quality standards. Under Section 404 of the Clean Water Act, the Corps is responsible for regulating the discharge of fill material into waters of the United States. The term “waters” includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations. All three of the identified technical criteria must be met for an area to be identified as a wetland under Corps jurisdiction, unless the area has been modified by human activity. In general, a permit must be obtained before fill can be placed in wetlands or other waters of the United States. The type of permit depends on the amount of acreage and the purpose of the proposed fill, subject to discretion of the Corps.

Certain activities in wetlands or “other waters” are automatically authorized, or granted a nationwide permit that allows filling where impacts are considered minor. Eligibility for a nationwide permit simplifies the permit review process. Nationwide permits cover construction and fill of waters of the United States for a variety of routine activities such as minor road crossings, utility line crossings, streambank protection, recreational facilities and outfall structures. To qualify for a nationwide permit, a project must demonstrate that it has no more than a minimal adverse effect on the aquatic ecosystem, including species listed under the ESA. This typically means that there would be no net loss of either habitat acreage or habitat value, resulting in appropriate mitigation where fill activities are proposed.

The Corps retains discretionary approval over proposed projects where impacts are considered significant, requiring adequate mitigation and permit approval. To provide compliance with the Environmental Protection Agency's Section 404(b)(1) Guidelines, an applicant must demonstrate that the proposed discharge is unavoidable and is the least environmentally damaging practicable alternative that would achieve the overall project purpose.

State

Section 1600 of the Fish and Game Code pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. The Fish and Game Code stipulates that it is unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake without notifying CDFW, incorporating necessary mitigation, and obtaining a Streambed Alteration Agreement.

In addition, the Regional Water Quality Control Board (RWQCB) is responsible for upholding state water quality standards. Pursuant to Section 401 of the Clean Water Act, projects that apply for a Corps permit for discharge of dredge or fill material, and projects that qualify for a nationwide permit, must obtain water quality certification. The RWQCB is also responsible for regulating wetlands under the Porter-Cologne Act, which may include hydrologically isolated wetlands no longer regulated by the Corps under Section 404 of the Clean Water Act.

Local

Local governments, including San Joaquin County and the incorporated municipalities, direct land use decisions through the adoption and implementation of land use policies and permitting requirements. These include the general plans and area plans and zoning codes.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) Plan

The SJMSCP was developed by SJCOG, and adopted by the county and the county's cities in 2000 to offset biological impacts created by projects within San Joaquin County. The SJMSCP covers all of San Joaquin County except for Federally-owned land such as Lawrence Livermore National Laboratory's 'Site 300' south of Tracy. The stated purpose of the SJMSCP is to provide a strategy for balancing a need to conserve open space with a need to convert open space to other uses, while protecting the area's agricultural economy, preserving landowner rights, accommodating a growing population, and providing for long-term management of special status species. The SJMSCP Covered Species includes 27 plants (6 listed), 4 fish (2 listed), 4 amphibians (1 listed), 4 reptiles (1 listed), 33 birds (7 listed), 15 mammals (3 listed) and 10 invertebrates (5 listed). Permitted activities covered under the SJMSCP include: urban development, mining, expansion of existing urban boundaries, non-agricultural activities occurring outside of urban boundaries, levee maintenance undertaken by the San Joaquin Area Flood Control Agency, transportation projects, school expansions, non-federal flood control projects, new parks and trails, maintenance of existing facilities for non-federal irrigation district projects, utility installation, maintenance activities, managing preserves, and similar public agency projects. These activities will be undertaken by both public and private individuals and agencies throughout San Joaquin County and within the county's incorporated cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy. Public agencies including Caltrans (for transportation projects), and the San Joaquin Council of Governments (for transportation projects) also will undertake activities which will be covered by the SJMSCP.

One of the primary goals of the SJMSCP is to obtain permits from state and federal agencies that would cover projects over a period of 50 years. To this end, the USFWS and CDFW have issued incidental take permits in conformance with FESA and CESA. Activities impacting anadromous fish and waters of the United States are subject to NMFS and Alameda County Office of Education (ACOE) regulations, respectively, and are not covered under the SJMSCP. These activities must be permitted directly through NMFS and ACOE.

Generally, the direct take of species is not covered under the SJMSCP; only take of suitable habitat is allowed based on appropriate compensation and implementation of avoidance and minimization measures. Additionally, some special status species are not covered under the SJMSCP and impacts to these species require direct permitting through the appropriate agency. In recent years, the SJMSCP has developed into a tool for establishing habitat preserves. As of the end of 2007, 7,487 acres had been acquired for preserves (SJCOG 2008).

The overall conservation strategy for the SJMSCP is built upon the division of the county into five distinct zones: The *Central Zone*, the *Southwest Zone*, the *Vernal Pool Zone*, the *Primary Zone of the Delta* and one transitional zone; the *Southwest/Central Transition Zone* (SJCOG

2007). Maps of these zones can be found in the SJMSCP. *SJMSCP Index Zones* were established, in part, to determine where compensation lands (i.e. Preserves) should be located. Specifically, impacts within a given *SJMSCP Index Zone* will normally require the acquisition of Preserves within the same *SJMSCP Index Zone*. For example, the Conversion of 600 acres of Open Space lands consisting of 200 acres of Natural Lands and 400 acres of Agricultural Habitat Lands in the *Central Zone* would be mitigated by the acquisition of 1,000 acres of Preserve land consisting of 600 acres of Natural Lands (3:1 compensation ratio) and 400 acres of Agricultural Habitat Lands (1:1 compensation ratio) in the *Central Zone*. Each of the *SJMSCP Index Zones* is distinguished by a discrete association of soil types, water regimes, elevation, topography, and vegetation types.

The *Southwest Zone* is bounded to the northeast by I-580, to the south and west by the Alameda County line and to the southeast by the Stanislaus County line. Elevations within the *Southwest Zone* range from a low of 300 feet above sea level in the vicinity of I-580 to elevations exceeding 3,000 feet above sea level in the extreme southwest tip of the *Southwest Zone*. The *Southwest Zone* is composed almost exclusively of Natural Lands, including valley grasslands, diablan sage scrub, blue oak-conifer savanna, and blue oak conifer woodland. The primary drainage in the *Southwest Zone* is Corral Hollow Creek, which is the largest creek in the *Southwest Zone* and is well-vegetated in many locations. In addition, scattered vernal pools with the potential to support the Conservancy and longhorn fairy shrimp as well as California linderiella and tiger salamander were identified within lands located southwest of I-580 by representatives of the U.S. Fish and Wildlife Service. The proposed Tracy Hills community is located primarily in the *Southwest Zone*; because of previous agreements with the USFWS and CDFW, the Tracy Hills project is not covered by the SJMSCP. The Lawrence Livermore National Lab's Site 300 is located within the *Southwest Zone*, but is owned by the federal government and, therefore, also is not included in the SJMSCP.

The *Central Zone* encompasses the lands surrounding each of the county's seven incorporated cities: Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy and most of the county's unincorporated defined communities including Acampo, Banta, Clements, Cooper's Corner, Collierville, Farmington, French Camp, Glenwood, Linden, Lockeford, Morada, Noble Acres, Peters, Stoneridge, Victor, Woodbridge, and portions of Thornton, Vernalis and New Jerusalem. Any lands not contained in the other four *SJMSCP Index Zones* also are included in the *Central Zone*. The *Central Zone* is composed primarily of Agricultural Habitat Lands on the floor of the Central Valley including, primarily, row and field crops both ditched and unditched. Riparian corridors including the Mokelumne River, the Calaveras River, the Stanislaus River, Old River and the San Joaquin River bisect these croplands. Where vegetated, these rivers contain, primarily, Great Valley riparian forest and Great Valley valley oak riparian forest with patches of Great Valley riparian scrub. Oak woodlands also are found in the *Central Zone* including some valley oak woodlands, mixed oak savanna, blue oak savanna and blue oak forest.

The bulk of the county's Multi-Purpose Open Space Lands, in the form of orchards and vineyards, are located within the *Central Zone*, especially surrounding the cities of Lodi, Escalon, Manteca and Ripon and the unincorporated communities of Acampo, Lockeford, Victor, Woodbridge, and portions of Clements, Linden (north of Highway 26), Vernalis and New Jerusalem. The majority

of existing urban development and proposed new development in the county exists or will exist within the *Central Zone*.

The boundaries of the *SJMSCP's Primary Zone of the Delta* coincide with those of the Primary Zone of the Delta established by the Delta Protection Act of 1992 for that portion of the statutory Primary Zone of the Delta located in San Joaquin County. The *SJMSCP Primary Zone of the Delta* includes: Union Island, Victoria Island, Middle Roberts Island, Upper and Lower Jones Tracts, Woodward Island Bacon Island, Mildred Island, McDonald Island, Rindge Tract, Mandeville Island, Medford Island, Venice Island, Empire Tract, King Island, Little Venice Island, Bouldin Island, Terminous Tract, Staten Island, Canal Ranch Tract, Bract Tract, Fabian Tract, Upper Roberts Island, the portion of New Hope Tract located west of Interstate 5, and the numerous small named and unnamed channel islands and tule islands adjacent to these islands. The *Primary Zone of the Delta* contains a mixture of Natural Lands⁶, including many of the channels, tule islands, vernal wetlands, and great valley riparian scrub mapped for the SJMSCP, with occasional patches of valley grasslands. The unincorporated community of Thornton is partially located within the *Primary Zone of the Delta* with a portion of that community also found in the *Central Zone*.

The *Vernal Pool Zone* includes the mapped vernal pool grasslands within the county. These vernal pool grasslands are concentrated in the northernmost portion of the county near the Sacramento/San Joaquin County line and in San Joaquin County's eastern foothills. All lands within the *Vernal Pool Zone* are Natural Lands, the vernal pool grasslands.

The *Central/Southwest Transition Zone* is bounded by I-580 and the *Southwest Zone* to the southwest. Old River and the *Primary Zone of the Delta* from the Alameda County Line to the intersection of J2 (Tracy Blvd.) with Old River forms the northern boundary of the *Central/Southwest Transition Zone*. The habitat types within the *Central/Southwest Transition Zone* are generally the same as those found within the *Central Zone*. However, occurrence records for the San Joaquin kit fox indicate that this SJMSCP Covered Species occasionally wanders outside of the *Southwest Zone* and into the area along the common boundary between the *Southwest Zone* and the *Central Zone*. To recognize this transition, the *Central/Southwest Transition Zone* was created. When Conversions of Open Space occur within the *Central/Southwest Transition Zone*, they are regarded as impacting both the suite of species associated with habitats in the *Southwest Zone* Grassland Preserve Type and those habitat types associated with the Row and Field Crop/Riparian Preserves in the *Central Zone*. To offset impacts occurring with the *Central/Southwest Transition Zone*, Preserves may be established in either the *Central Zone's* Row and Field Crop/Riparian Preserve system (which includes habitat within the *Central/Southwest Transition Zone*) or within the *Southwest Zone's* Grassland Preserve system. The Mountain House community and a portion of the proposed Tracy Hills community are located in this *SJMSCP Index Zone*. Portions of the communities of Vernalis and New Jerusalem also are located in the *Central/Southwest Transition Zone* along the boundary dividing this *SJMSCP Index Zone* from the *Central Zone*. The Chrisman and Lammersville communities are located entirely within the *Central/Southwest Transition Zone*.

⁶ Natural lands: land that is still in its natural condition, i.e. no development

San Joaquin County Tree Ordinance

San Joaquin County's natural resources regulations contain provisions to preserve county tree resources (San Joaquin County 2008). The removal of a native oak, heritage oak tree, or historical tree requires an approved improvement plan application (Chapter 9-1505.3), which requires replacement of the tree subject to requirements described in Chapter 9-1505.4. These provisions do not cover horticultural or orchard trees proposed for removal. Native oaks are defined as valley oaks with stem diameters of 15.2–81.3 centimeters (6–32 inches) for single-trunk trees and a minimum combined trunk diameter of 20.3 centimeters (8 inches) for multi-trunk trees and interior live oaks or blue oaks with stem diameters of 10.2–81.3 centimeters (4–32 inches) for single-trunk trees and a minimum combined diameter of 15.2 centimeters (6 inches) for multi-trunk trees. Heritage oaks are defined as native oaks with a single-trunk diameter of 81.3 centimeters (32 inches) or more (all stem diameters are measured 1.4 meters [4.5 feet] above the average ground elevation of the tree). Historical trees are defined as any trees or groups of trees given special recognition by the San Joaquin County Planning Commission because of size, age, location, or history.

San Joaquin County Riparian Habitat Ordinance

San Joaquin County's natural resources regulations also contain provisions to preserve county riparian habitat resources (San Joaquin County 2008). Measures to avoid, protect, and mitigate for riparian habitat are presented in Section 9-1510.1 through 9-1510.5 of Chapter 9 in the San Joaquin County Development Title. Included in these sections is a description for a Riparian Habitat Mitigation Plan. The creation of this plan would be part of the conditions for approval which would be required when an action is proposed that had the potential to destroy, eliminate, or degrade riparian habitat in the county. Components of this plan would include; description of on-site riparian habitat (as well as protection measures), mitigation sites, contribution to existing off-site habitat site, replacement vegetation, maintenance, and conservation easements. This plan would address the potential impacts to or loss of existing riparian habitat in addition to a planning approach for habitat restoration or replacement, as necessary.

The establishment of natural bank buffers is also part of this provision (Section 9-1510.5.) This would require that a natural open space for riparian habitat and waterway protection be established parallel to any natural bank of a waterway approximately 100-feet from the mean high water level. This requirement would provide protection for potential wildlife habitat and water quality.

E.4 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis, this EIR uses the criteria presented in Appendix G of the *CEQA Guidelines* to determine impact significance. Significant impacts would occur if the 2035 General Plan 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 the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, other waters of the US, or Waters of the State through direct removal, filling, hydrological interruption, or other means;
- Interfere 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 any adopted local, regional, or State Habitat Conservation Plan.

CEQA Section 15380 further provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

Relevant Policies

The following relevant policies and implementing actions of the 2035 General Plan address biological resources in the county’s open space resources.

NCR-1.1: Preserve Natural Areas. The County shall protect, preserve, and enhance important natural resource habitat, biological diversity, and the ecological integrity of natural systems in the County. (RDR/PSP) (Source: New Policy).

NCR-1.2: Open Space in Urban Communities. The County shall ensure that open space within urban communities is provided through the development and maintenance of open and recreation areas. (PSP) (Source: Existing GP, Open Space, Policy 7, modified).

NCR-1.3: Open Space Opportunities. The County shall support efforts to create opportunities for the public to experience and appreciate open space resources. (PSP) (Source: Existing GP, Open Space, Policy 9, modified).

The following relevant policies and implementing actions of the 2035 General Plan address the preservation and protection of wildlife habitat areas for the maintenance and enhancement of biological diversity and ecological integrity.

NCR-2.1: Protect Significant Biological and Ecological Resources. The County shall protect significant biological and ecological resources including: wetlands; riparian areas; vernal pools; significant oak woodlands and heritage trees; and rare, threatened, and endangered species and their habitats. (RDR/PSP) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 1, modified)

NCR-2.2: Collaboration for Species Protection. The County shall collaborate with the California Department of Fish and Wildlife during the review of new development proposals to identify methods to protect listed species. (RDR/IGC) (Source: Existing GP,

Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Implementation 3 (c), modified)

NCR-2.3: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. The County shall continue to implement the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan to mitigate biological impacts resulting from open space land conversion. (RDR/PSP/IGC) (Source: New Policy)

NCR-2.4: Preservation of Significant Oak Groves. The County shall require new development in the vicinity of significant oak groves to be designed and sited to maximize the long-term preservation of the trees and the integrity of their natural setting. (RDR) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 4, modified)

NCR-2.5: No Net Loss of Wetlands. The County shall not allow development to result in a net loss of riparian or wetland habitat. (RDR) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 5)

NCR-2.6: Criteria for Development Impacts to Wetlands. The County shall not approve new development projects that have the potential to fill wetlands, unless:

- no suitable alternative site exists for the land use, and the use is considered necessary to the public;
- there is no degradation of the habitat or numbers of any rare, threatened, or endangered plant or animal species as a result of the project; and
- habitat of greater quantity and superior or comparable quality will be created or restored to compensate for the loss.

(RDR) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 6, modified)

NCR-2.7: Protect Waterfowl Habitat. The County shall strive to preserve, protect, and enhance feeding areas and winter habitat for migratory waterfowl. (PSP) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 7, modified)

NCR-2.8: Natural Open Space Buffer. The County shall require a natural open space buffer to be maintained along any natural waterway to provide nesting and foraging habitat and to protect waterway quality. (RDR) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 8, modified)

NCR-2.9: Protect Fisheries. The County shall encourage and support efforts to protect fisheries, including:

- reducing the level of pesticides and fertilizers and other harmful substances in agricultural and urban runoff;
- designing and timing waterway projects to protect fish populations; and
- operating water projects to provide adequate flows for spawning of anadromous fish.

(PSP) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 11, modified)

NCR-2.10: Support Fishery Restoration Plans. The County shall work with the California Department of Fish and Wildlife and other agencies or organizations to support development and implementation of feasible restoration plans for anadromous fisheries. (PSP/IGC) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 12, modified)

NCR-2.11: Ecological Information Programs. The County shall support programs that encourage and teach respect for the environment. (PSP/PI) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Implementation 11)

NCR-2.12: Encourage Native Landscaping. The County shall encourage the use of native plants for landscaping to provide suitable habitat for native wildlife. (RDR) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 15, modified)

NCR-2.13: Project Referral to Environmental Organizations. The County shall encourage private resource and conservation organizations to review and comment on projects that could affect the County's biological resources. (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Implementation 10)

The following relevant policies and implementing actions of the 2035 General Plan address water quality as it pertains to fish and other wildlife.

NCR-3.4: Eliminate Pollution. The County shall support efforts to eliminate sources of pollution and clean up the County's waterways and groundwater. (PSP) (Source: Existing GP, Water Resources and Quality, Implementation 1(c), modified)

NCR-3.5: Low Impact Development. The County shall require new development to mitigate stormwater quality and hydro-modification impacts through site design, source controls, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID). (RDR) (Source: New Policy)

NCR-3.6: Prohibit Discharge of Sewage Sludge. The County shall prohibit the discharge of sewage sludge or septage to surface waters or surface water drainage sources, including wetlands and waterways. (RDR) (Source: New Policy, based on the Sewage Sludge Ordinance)

NCR-3.8: Support Sufficient River Flows. The County support properly timed flows of sufficient quality in local waterways necessary to sustain healthy fisheries. (PSP) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 10, modified)

NCR-3.9: Require Water Projects to Mitigate Impacts. The County shall require water projects to incorporate safeguards for fish and wildlife and mitigate erosion and seepage to adjacent lands. (RDR) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 11)

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan addresses biological resources.

NCR-A: Acquisition of Open Space. The County shall conduct a study to identify planned open space areas that are in jeopardy of conversion to other uses. Based on the findings of the study the County shall work for public acquisition of the areas. (PSR) (Source: Existing GP, Open Space, Implementation 6).

Impact Analysis

2035 General Plan Impacts

Impact 4.F-1: Development facilitated by implementation of the proposed 2035 General Plan could have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service. (Less than Significant)

For the most part, development facilitated by the implementation of the proposed 2035 General Plan would not have substantial adverse effects on biological resources. New development would generally be located in areas that have already been extensively developed with past agricultural and urban uses. Commercial development is generally proposed at appropriate locations along freeways and areas that already have adequate infrastructure and services. Most growth is directed to areas within city limits and existing, adopted City Spheres of Influence (SOI). Cities are encouraged to grow inward rather than outward and to develop in a more compact manner.⁷ Productive farmland and open space areas in the unincorporated rural communities are proposed to be preserved with limited or no growth and development.

The implementation of the 2035 General Plan would however involve some land use designation changes with impacts to biological resources, including the conversion of approximately 635 acres of previously designated open space/resource conservation lands into industrial use.⁸ These areas are located outside of the cities of Tracy, Stockton and Lodi, and are primarily situated at the edges of current urban development. Although the majority of these areas are located in field crops, orchard, or barren habitat types, which provide very little biological value, other habitats with potential to support wildlife, would also be impacted. A total of approximately 44 acres of grain/pasture and 49 acres of grassland/ruderal habitat would be lost as a result of this land conversion. Open grassland and farmed grain provide habitat for a variety of grassland species including important foraging habitat for Swainson's hawk and other raptor species, including northern harrier and burrowing owl. San Joaquin kit fox and American badger prefer open annual grassland habitat for foraging and denning.

⁷ It should be noted that while the County encourages compact development, the County has no control over growth within incorporated areas of the county.

⁸ All acreage conversions were derived from data provided to the GIS analyst. Land use conversions were overlaid onto a county habitat map and impacts were calculated.

Other significant changes would include the loss of approximately 29 acres of open water/other waters of the U.S. and approximately two acres of emergent wetland, which could provide habitat for various aquatic wildlife species. Open water provides habitat for aquatic species such as various fish species, including salmonids. Mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), common moorhen (*Gallinula chloropus*), and snowy egret (*Egretta thula*) are a few species common to this habitat. Common wildlife species that may use emergent wetland habitat include tricolored blackbird (*Agelaius tricolor*), common garter snake, Pacific treefrog (*Pseudacris regilla*), and black phoebe (*Sayornis nigricans*), along with a wide variety of waterfowl species. An additional 2,217 acres of agricultural land would be lost as a result of this land conversion. Agricultural land can provide foraging and nesting opportunities for common and special-status species.

The preservation of open space areas and biological resources is a key goal of the 2035 General Plan, with the inclusion of several policies in the Resources Element: Natural and Cultural Resources of the San Joaquin County 2035 General Plan which require the County to protect key sensitive habitats (i.e., riparian, wetlands, oak woodlands, etc.) by encouraging future county growth outside these sensitive habitat areas (NCR-1.1, NCR-2.1, NCR-2.3, NCR-2.4 and NCR-3.5). Policy NCR-2.3 directs the County to mitigate biological impacts resulting from open space land conversion. Policy NCR-2.8 requires the County to address development impacts to local waterways through the use of natural open space buffers designed to provide nesting and foraging habitat and to protect waterway quality. In addition to NCR-2.2, Policies NCR-2.7 and NCR-2.9 are designed to protect sensitive habitats and their associated species. Other policies, which are permissive rather than the mandatory policies described, include planting native vegetation in order to provide habitat conditions suitable for native vegetation and wildlife is encouraged in Policy NCR-2.12 while policies NCR-2.2 and NCR-2.13 encourage the County to work with other government land management agencies, as well as private resource and conservation organizations to preserve and protect sensitive habitat areas. Additionally, Implementation Program NCR-A, requires the County to conduct a study to identify planned open space that are in jeopardy of conversion to other uses and work to acquire such areas.

In addition, for lands to be developed within SOIs, cities have General Plan policies described in the regulatory setting that would reduce impacts on sensitive species. They would also be required to comply with the SJMSCP, which would further minimize impacts to special status species.

The SJMSCP was formally adopted in November of 2000 and provides the framework that establishes specific measures for conservation, restoration, enhancement, and recovery of listed species and their habitats in the county. The key purpose of the SJMSCP is to provide a strategy for balancing the need to conserve open space and the need to convert open space to non-open space uses while protecting the region's agricultural economy; preserving landowner property rights; providing for the long-term management of plant, fish and wildlife species, especially those that are currently listed, or may be listed in the future, under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA); providing and maintaining multiple-use open spaces which contribute to the quality of life of the residents of San Joaquin County; and accommodating a growing population while minimizing costs to project proponents and society at large.

The combination of the above policies and existing regulatory mechanisms, including the existing SJMSCP, would ensure that the proposed 2035 General Plan would not have a substantial adverse effect on sensitive species, and therefore this impact is less than significant.

Mitigation: None required.

Impact 4.F-2: Development facilitated by implementation of the proposed 2035 General Plan could have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant)

Sensitive natural communities within San Joaquin County include Coastal and Valley Freshwater Marsh, Elderberry Savanna, Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest, Northern Claypan Vernal Pool, and Northern Hardpan Vernal Pool. In general, riparian habitats are considered a sensitive habitat that supports a variety of plant and wildlife species along watercourses or water bodies adaptable to seasonal flooding. Other sensitive habitats in the county include: the San Joaquin Delta; the San Joaquin River; the Mokelumne, Calaveras, and Stanislaus Rivers, forests, oak woodlands; wetlands; and vernal pool habitats. Within these sensitive habitat areas and critical habitat areas, a number of special-status plant and wildlife species are known to occur or have the potential to occur in the county. In addition, these sensitive vegetation communities provide important foraging, dispersal, and migratory corridors for many wildlife species. Future growth resulting from implementation of the 2035 General Plan, including the conversion of approximately 635 acres of previously designated open space/resource conservation lands into industrial use, could result in both direct and indirect impacts to sensitive natural communities should they occur within areas proposed for this land use conversion.

As mentioned above, in Impact 4.F-1, any new development would generally be located in areas that have already been developed or in areas that do not consist of riparian habitat or other sensitive natural communities. Therefore, development under the proposed 2035 General Plan would not have substantial adverse effects on riparian habitat or other sensitive natural communities.

The preservation of sensitive habitats is a key goal of the 2035 General Plan, with the inclusion of several policies in the Resources Element: Natural and Cultural Resources (see Policies NCR-1.1 and NCR-2.1). Policy NCR-2.3 directs the County to mitigate biological impacts resulting from open space land conversion. Policy NCR-2.8 requires the County to address development impacts to local waterways through the use of natural open space buffers designed to provide nesting and foraging habitat and to protect waterway quality. In addition to NCR-2.2, Policies NCR-2.7 and NCR-2.9 are designed to protect sensitive habitats and their associated species. Additionally, Policies NCR-2.4 and NCR-2.5 require the County to protect other key sensitive habitats (i.e., riparian, wetlands, and oak woodlands, etc.) by encouraging future county growth outside these sensitive habitat areas. In addition, for lands to be developed within SOIs, cities have General Plan policies described in the regulatory setting that would reduce impacts on sensitive natural communities.

The combination of the above policies and existing regulatory mechanisms, such as the Streambed Alteration Agreement issued by CDFW, would ensure that the proposed 2035 General Plan would not have a substantial adverse effect impact on sensitive natural communities, and therefore this impact is less than significant.

Mitigation: None required.

Impact 4.F-3: Development facilitated by implementation of the proposed 2035 General Plan could have a substantial adverse effect on federally protected wetlands, other waters of the U.S. waters of the State through direct removal, filling, hydrological interruption, or other means. (Less than Significant)

Development resulting from implementation of the 2035 General Plan may result in both direct and indirect impacts to wetlands and other sensitive natural communities occurring in San Joaquin County. Wetlands and vernal pools are scattered throughout the valley areas of the county. Many vernal pool habitats are unmapped due to their small size and could be located within areas identified as open space or farmland. Wetland habitats are sensitive to changes in water availability and water quality. These habitats could be indirectly impacted by: surface water and groundwater related impacts resulting from increased erosion, sedimentation, temperature, and contamination associated with construction of new urban development or intensification of agricultural land uses.

The preservation of wetland (including vernal pool) habitats is a key goal of the 2035 General Plan, with the inclusion of several policies in the Resources Element: Natural and Cultural Resources (see Policies NCR-2.5 and NCR-2.6). Additionally, policies NCR-1.1, NCR-2.1, NCR-2.4 require the County to protect key sensitive habitats (i.e., riparian, wetlands, and oak woodlands, etc.) by encouraging future county growth outside these sensitive habitat areas, supporting compatible development, or implementing development controls near these areas. Policy NCR-2.8 requires the County to address development impacts to local waterways through the use of natural open space buffers designed to provide nesting and foraging habitat and to protect waterway quality. The General Plan also contains a number of policies that minimize impacts to water supply and water quality (see Policies NCR-3.4 through NCR-3.9). In addition, for lands to be developed within SOIs, cities have General Plan policies that would reduce impacts on wetlands and other waters.

The combination of the above policies and existing regulatory mechanisms, as described in the Regulatory Section, would ensure that the proposed 2035 General Plan would not have a substantial adverse effect impact on wetlands and other waters, and therefore this impact is less than significant.

Mitigation: None required.

Impact 4.F-4: Development facilitated by implementation of the proposed 2035 General Plan could interfere with the movement of 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. (Less than Significant)

Several areas within the county (predominately waterways and the riparian areas that border them) are utilized as migratory corridors for the movement of wildlife (including a variety of bird, mammal, and fish species). Development resulting from implementation of the 2035 General Plan could impact habitats through direct conversion to a developed use or a more intensive agricultural use resulting in indirect impacts such as habitat degradation, habitat fragmentation, and encroachment by exotic weeds. These direct and indirect impacts to habitats in the county, including the conversion of approximately 635 acres of previously designated open space/resource conservation lands into industrial use, may remove or interfere with existing linkages between habitat areas and could increase the distance that animals would need to traverse. Additionally, development within the county would also cause an increase in both vehicular traffic levels and nighttime light levels, which would also serve to deter wildlife movement in the area.

The preservation of open space areas and biological resources is a key goal of the 2035 General Plan, with the inclusion of several policies in the Resources Element: Natural and Cultural Resources (see Policies NCR-1.1, and NCR-2.1). Additionally, Policies NCR-2.4 through 2.6 require the County to protect other key sensitive habitats (i.e., riparian, wetlands, and oak woodlands, etc.) by encouraging future county growth outside these sensitive habitat areas and requiring buffer areas between development projects and these areas. Policy NCR-2.3 directs the County to mitigate biological impacts resulting from open space land conversion. Policy NCR-2.8 requires the County to address development impacts to local waterways through the use of natural open space buffers designed to provide nesting and foraging habitat and to protect waterway quality. The General Plan also contains a number of policies that minimize impacts to water supply and water quality (see Policies NCR-3.4 through NCR-3.9). In addition, for lands to be developed within SOIs, cities have General Plan policies that would reduce impacts on wildlife movement.

The combination of the above policies and existing regulatory mechanisms, as described in the Regulatory Section, would ensure that the proposed 2035 General Plan would not have a significant impact on wildlife movement.

Mitigation: None required.

Impact 4.F-5: Development facilitated by implementation of the proposed 2035 General Plan could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant)

Chapter 9 of the San Joaquin County Development Title includes regulations which protect the county's natural resources. Significant oak trees, heritage trees or legacy trees are protected under the San Joaquin County Tree Ordinance (9-1505.3 and 9-1505.4). The Riparian Habitat Ordinance (9-1510.4) presents provisions for protecting the riparian habitats in San Joaquin County. One of

these measures includes the creation of a Riparian Habitat Mitigation Plan (as previously discussed) which will be required for any action proposed that has the potential to destroy, eliminate, or degrade riparian habitat in the county. Components of this plan would include; description of on-site riparian habitat (as well as protection measures), mitigation sites, contribution to existing off-site habitat site, replacement vegetation, maintenance, and conservation easements. This plan would address the potential impacts to or loss of existing riparian habitat in addition to a planning approach for habitat restoration or replacement, as necessary.

The development of the 2035 General Plan has been a coordinated effort with the local entities within San Joaquin County to create a document that would provide the policy framework for protection and preservation of the various biological resources that inhabit the entire county while incorporating the elements of the various existing community plans. Various measures (see NCR-1.1, NCR-1.2, and NCR-1.3) contained in the Natural and Cultural Resources Element require the County to include provisions for the conservation and enhancement of open space areas within the County's Zoning Ordinance. The Natural and Cultural Resources Element also contains policies (see NCR-2.1 and NCR-2.4) that require the County to protect significant biological and ecological resources which would include significant oak woodlands and heritage trees.

The combination of the above policies and existing regulatory mechanisms, as described in the Regulatory Section, would ensure that the 2035 General Plan does not conflict with local policies or ordinances protecting biological resources. With implementation of the aforementioned policies, this impact is considered less than significant.

Mitigation: None required.

Impact 4.F-6: Development facilitated by implementation of the proposed 2035 General Plan could conflict with an adopted local, regional, or State Habitat Conservation Plan. (Less than Significant)

As previously mentioned, San Joaquin County currently has a habitat conservation plan called the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). The SJMSCP was formally adopted in November of 2000 and provides the framework that establishes specific measures for conservation, restoration, enhancement, and recovery of listed species and their habitats in the county. As stated in NCR-2.3, the County will continue to implement the SJMSCP to mitigate biological impacts resulting from open space land conversion.

Implementation of the 2035 General Plan would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other adopted biological resources recovery or conservation plan of any federal or state agency. Therefore, this impact is considered to be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 4.F-7: Implementation of the proposed 2035 General Plan, in conjunction with other past, present, or reasonably foreseeable probable future projects in San Joaquin County, could result in cumulative impacts on special-status species, habitats, wetlands and other waters of the U.S. (Less than Significant)

The Bay Delta Conservation Plan (BDCP) is a reasonably foreseeable probable future project that would impact San Joaquin County. A total of 317,360 acres of the western portion of San Joaquin County lies within the BDCP study area. This area of the county is dominated by agricultural lands but also includes areas of open space, particularly along riparian corridors, as well as minor uses by rural residential. This area includes or intersects with the cities of Lathrop, Lodi, Manteca, Stockton, and Tracy. According to Alternative 4 (Preferred Alternative) of the draft EIR/EIS (ICF, 2013) a total of 1,933 acres of permanent impacts and 2,428 acres of temporary impacts would result from project activities in agricultural lands within San Joaquin County. Projected impacts for open space/resource conservation lands in San Joaquin County include approximately 268 acres of permanent and 116 acres of temporary impacts. The BDCP would compensate for these impacts by securing lands to restore the impacted sensitive and natural habitats. As part of the BDCP Reserve System, approximately 69,000 total acres of land supporting multiple natural communities would be acquired and protected, including approximately 52,000 acres of cultivated lands.

In addition to the BDCP, implementation of the 2035 General Plan could directly affect federally-listed species through the loss of suitable habitat such as sensitive natural habitat, wetlands and waters of the U.S., and agricultural lands as well as potential indirect impacts including habitat degradation, habitat fragmentation, degradation of surface water quality, introduction of exotic species, and an increase in human presence and activities on the developed lands. However, the proposed 2035 General Plan encourages new development to be located in areas that have already been developed or in areas that do not support sensitive natural communities (i.e., closer to currently developed areas). Additionally, San Joaquin County (as previously mentioned) currently has a SJMSCP in place which is a county-wide plan for conserving species and their habitats, consistent with the California and federal ESAs.

Cumulative impacts to biological resources including special-status species, habitats, wetlands and other waters of the U.S. also could occur in San Joaquin County as a result of development allowed by the incorporated cities. However, cities have General Plan policies that would reduce impacts on biological resources. They would also be required to comply with the SJMSCP, which would minimize impacts to special status species.

In summary, cumulative biological impacts would be minimized through proposed 2035 General Plan policies, City General policies, the SJMSCP, and regulatory mechanisms described in the regulatory setting. Therefore, cumulative impacts on biological resources are considered to be less than significant.

Mitigation: None required.

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G. Air Quality

G.1 Introduction

This section addresses the impacts of the proposed 2035 General Plan on ambient air quality. The environmental setting provides a description of air quality conditions in San Joaquin County. The regulatory setting provides a description of applicable federal, state and local regulatory policies. The impact analysis describes the potential impacts of the 2035 General Plan and considers the effect of proposed 2035 General Plan policies to reduce air quality impacts. If such policies would not substantially reduce impacts, additional feasible mitigation measures are discussed.

The following environmental and regulatory settings were developed from information contained in the 2009 San Joaquin County General Plan Background Report (Mintier Harnish, 2009), incorporated by reference, updated where necessary, and summarized below. A Notice of Preparation (NOP) comment letter from the San Joaquin Valley Air Pollution Control District (SJVAPCD) was received and addressed in this section, where appropriate.

G.2 Environmental Setting

Physical Setting

Climate and Meteorology

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions also are important. Factors such as wind speed and direction, and air temperature gradients interact with physical landscape features to determine the movement and dispersal of criteria air pollutants.

San Joaquin County is located within the San Joaquin Valley Air Basin (SJVAB) which consists of eight counties and is spread across 25,000 square miles of Central California. The SJVAB is approximately 250 miles long and averages 35 miles in width. The SJVAB is defined by three mountain ranges: the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south. The SJVAB opens to the sea at the Carquinez Strait where the San Joaquin–Sacramento Delta empties into the San Francisco Bay. The region's topographic features restrict air movement through and out of the SJVAB. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Frequent transport of pollutants into the SJVAB from upwind sources also contributes to poor air quality (SJVAPCD, 2002).

Wind speed and direction play an important role in dispersion and transport of air pollutants. During summer periods, winds usually originate from the north end of the San Joaquin Valley and flow in a south-southeasterly direction through the valley, through the Tehachapi pass and into the neighboring Southeast Desert Air Basin. During winter months, winds occasionally originate from the south end of the valley and flow in a north-northwesterly direction. Also, during winter months, the valley experiences light, variable winds, less than 10 miles per hour (mph). Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high concentrations of certain air pollutants.

The SJVAB has an inland Mediterranean climate that is characterized by warm, dry summers and cooler winters. Summer high temperatures often exceed 100 degrees Fahrenheit (°F), averaging from the low 90s in the northern part of the valley to the high 90s in the south. The daily summer temperature variation can be as high as 30 degrees °F. Winters are for the most part mild and humid. Average high temperatures during the winter are in the 50s, while the average daily low temperature is approximately 45 degrees °F.

The vertical dispersion of air pollutants in the valley is limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Air above and below an inversion does not mix because of differences in air density, thereby restricting air pollutant dispersal.

Existing Air Quality

Criteria Air Pollutants

The California Air Resources Board (CARB) and the SJVAPCD collect ambient air quality data locally through a network of air monitoring stations. These data are summarized annually and are published in the CARB's California Air Quality Data Summaries. Active monitoring stations in San Joaquin County are located at Hazelton Street in Stockton, at the Wagner-Holt School in Stockton, at the Tracy Airport, and in Manteca. **Table 4.G-1** identifies the most recent available data for federal and state ambient air quality standards for the relevant air pollutants, along with the ambient pollutant concentrations of the three air pollutants that were measured at these stations and for which the SJVAB remains "nonattainment" - ozone, PM10, and PM2.5.¹

While the data gathered at these monitoring stations may not necessarily reflect the unique air quality environment of many areas of the county, nor the proximity of site-specific stationary and street sources, they do present the nearest available benchmark and provide the reader with a reference point as to the pollutants of greatest concern in the region and the degree to which the area is out of attainment with specific air quality standards. In summary, the SJVAB is non-attainment for the ozone (state and federal), PM10 (state), and PM2.5 (state and federal) standards.

Ozone

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen

¹ PM10 and PM2.5 consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter).

**TABLE 4.G-1
SAN JOAQUIN COUNTY - SUMMARY OF AIR QUALITY MONITORING DATA (2008–2012)**

Station	Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured ^a				
		2008	2009	2010	2011	2012
Stockton – Hazelton Street Station						
Ozone						
- Days 1-hour State Std. Exceeded	>0.09 ppm ^b	2	2	2	0	1
- Max. 1-hour Conc. (ppm)		0.105	0.116	0.120	0.089	0.097
- Days 8-hour National Std. Exceeded	>0.075 ppm ^c	4	2	2	0	2
- Days 8-hour State Std. Exceeded	>0.07 ppm ^b	7	4	3	0	6
- Max. 8-hour Conc. (ppm)		0.091	0.096	0.095	0.068	0.083
PM10						
- Estimated Days Over 24-hour National Std. ^d	>150 µg/m ³ ^c	0	0	0	0	0
- Estimated Days Over 24-hour State Std. ^d	>50 µg/m ³ ^b	48.6	18.2	6.1	24.4	17.9
- Max. 24-hour Conc. National/State (µg/m ³)		104.5/ 105.0	58.7/ 58.8	54.3/ 55.4	66.1/ 70.1	69.4/ 70.0
- State Annual Average (µg/m ³)	>20 µg/m ³ ^b	31.1	23.6	19.9	24.1	22.8
PM2.5						
- Estimated Days Over 24-hour National Std. ^d	>35 µg/m ³ ^c	27.7	15.9	5.3	11.0	6.0
- Max. 24-hour Conc. (µg/m ³)		81.2	48.4	41.0	60.0	60.4
- Annual Average (µg/m ³)	>12 µg/m ³ ^b	14.4	13.4	11.0	11.3	12.4
Stockton – Wagner-Holt School Station						
PM10						
- Estimated Days Over 24-hour National Std. ^d	>150 µg/m ³ ^c	0	0	0	0	0
- Estimated Days Over 24-hour State Std. ^d	>50 µg/m ³ ^b	38.5	6.1	0	NA	7.0
- Max. 24-hour Conc. National/State (µg/m ³)		71.5/ 76.0	61.6/ 64.6	46.7/46.5	64.5/ 65.5	59.5/ 60.2
- State Annual Average (µg/m ³)	>20 µg/m ³ ^b	29.4	24.0	16.8	NA	21.5
Tracy – Airport Station						
Ozone						
- Days 1-hour State Std. Exceeded	>0.09 ppm ^b	11	2	1	3	8
- Max. 1-hour Conc. (ppm)		0.123	0.104	0.113	0.107	0.109
- Days 8-hour National Std. Exceeded	>0.075 ppm ^c	16	8	3	8	16
- Days 8-hour State Std. Exceeded	>0.07 ppm ^b	26	20	8	21	36
- Max. 8-hour Conc. (ppm)		0.104	0.087	0.092	0.088	0.098
PM10						
- Estimated Days Over 24-hour National Std. ^d	>150 µg/m ³ ^c	0	0	NA	NA	NA
- Max. 24-hour Conc. National (µg/m ³)		126.8	55.3	28.5	110.8	73.4
PM2.5						
- Estimated Days Over 24-hour National Std. ^d	>35 µg/m ³ ^c	NA	NA	NA	NA	NA
Manteca – Fishback Road Station						
PM10						
- Estimated Days Over 24-hour National Std. ^d	>150 µg/m ³ ^c	NA	NA	NA	NA	0
- Max. 24-hour Conc. National (µg/m ³)		NA	NA	NA	73.7	138.6
PM2.5						
- Estimated Days Over 24-hour National Std. ^d	>35 µg/m ³ ^c	NA	NA	NA	15.1	4.4
- Max. 24-hour Conc. (µg/m ³)		NA	NA	44.0	57.3	48.3
- Annual Average (µg/m ³)	>12 µg/m ³ ^b	NA	NA	NA	10.8	8.3

NOTES:

Bold values are in excess of applicable standard. "NA" indicates that data is not available.

conc. = concentration; ppm = parts per million; ppb=parts per billion;

µg/m³ = micrograms per cubic meter

^a Number of days exceeded is for all days in a given year, except for particulate matter. PM10 and PM2.5 are monitored every six days.

^b State standard, not to be exceeded.

^c Federal standard, not to be exceeded.

^d Particulate matter sampling schedule of one out of every six days, for a total of approximately 60 samples per year. Estimated days exceeded mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

SOURCE: CARB, 2013a. *Air Quality Trends Summaries*, 2008-2012, <http://www.arb.ca.gov/adam/trends/trends1.php>, accessed November 15, 2013.

oxides (NO_x). The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through a chemical reaction with plants (reacts with chemicals on the leaves of plants); rainout (attaches to water droplets as they fall to earth); and, washout (absorbed by water molecules in clouds and later falls to earth with rain).

Carbon Monoxide

Ambient carbon monoxide concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources. When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses.

Carbon monoxide concentrations have declined dramatically in California due to existing controls and programs and most areas of the state, including San Joaquin County, have no problem meeting the carbon monoxide state and federal standards. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles, and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas* (CARB, 2004), shown below:

“The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (CARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the state designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective state 8-hour CO standard, with declining levels beginning to approach that standard.”

Suspended Particulate Matter (PM₁₀ and PM_{2.5})

PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain

substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. Large dust particles (diameter greater than 10 microns) settle out rapidly and are easily filtered by human breathing passages. This large dust is of more concern as a soiling nuisance rather than a health hazard. The remaining fraction, PM₁₀ and PM_{2.5}, are a health concern particularly at levels above the federal and state ambient air quality standards. PM_{2.5} (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Children are more susceptible to the health risks of PM₁₀ and PM_{2.5} because their immune and respiratory systems are still developing.

Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health (Dockery and Pope, 2006). The CARB has estimated that achieving the ambient air quality standards for PM₁₀ could reduce premature mortality rates by 6,500 cases per year (CARB, 2002).

Nitrogen Dioxide (NO₂)

NO₂ is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO₂ may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur dioxide (SO₂)

SO₂ is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO₂ is also a precursor to the formation of atmospheric sulfate, particulate matter and contributes to potential atmospheric sulfuric acid formation that can precipitate downwind as acid rain. The maximum SO₂ concentrations recorded in the county are well below federal and state standards. Accordingly, the county is in attainment status with both federal and state SO₂ standards.

Lead

Ambient lead concentrations meet both the federal and state standards in the county. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline products. The phase-out of leaded gasoline in California resulted in dramatically reduced levels of atmospheric lead.

Non-Criteria Air Pollutants

Toxic Air Contaminants (TACs)

Non-criteria air pollutants or TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects. TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated differently than criteria air pollutants at both federal and state levels. At the federal level, these airborne substances are referred to as Hazardous Air Pollutants (HAPs). The state list of TACs identifies 243 substances and the federal list of HAPs identifies 189 substances.

The CARB identified diesel particulate matter (DPM) as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations. The cancer risk from diesel particulate matter as determined by the CARB declined from 750 persons in one million in 1990 to 570 persons in one million in 1995; by 2000, the CARB estimated the average statewide cancer risk from DPM at 540 persons in one million (CARB, 2009a). This calculated cancer risk value from ambient air exposure can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the National Cancer Institute (National Cancer Institute, 2012).

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts. However, because offensive odors rarely cause any physical harm and no requirements for their control are included in state or national air quality regulations, the SJVAPCD has no rules or standards related to odor emissions, other than its nuisance rule. Any actions related to odors are based on citizen complaints to local government agencies including the SJVAPCD. The SJVAPCD uses screening distances to determine the potential for odor impacts from various land uses (SJVAPCD, 2002).

Sensitive Receptors

Some individuals are considered to be more sensitive than others to air pollution. Reasons for greater sensitivity can include existing health problems, duration of exposure to air pollutants, or certain peoples' increased susceptibility to pollution-related health problems due to factors such as age.

Land uses such as day care centers, primary and secondary schools, hospitals, and convalescent homes are considered to be sensitive receptors to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality related health problems than the general public. Residential uses are considered sensitive because people in residential areas are often at home for extended periods of time; thus, they can be exposed to pollutants for extended periods. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

G.3 Regulatory Setting

Regulation of air pollution is achieved through both national and state ambient air quality standards and through emissions limits on individual sources of air pollutants. Local Air Quality Management Districts (AQMD's) and Air Pollution Control Districts (APCD's) are responsible for demonstrating attainment with state air quality standards through the adoption and enforcement of Attainment Plans.

Federal

Criteria Pollutants

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to identify National Ambient Air Quality Standards (NAAQS), or (national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (PM10 and PM2.5), and lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the FCAA. California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard. **Table 4.G-2** presents current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the U.S. EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS had been achieved. **Table 4.G-3** shows the current attainment status of the county.

**TABLE 4.G-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO _x) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	100 ppb	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.030 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 ug/m ³	150 ug/m ³	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 ug/m ³	---		
Fine Particulate Matter (PM2.5)	24 hours	---	35 ug/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.
	Annual Avg.	12 ug/m ³	12.0 ug/m ³		
Lead	Monthly Ave.	1.5 ug/m ³	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m ³		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal Power Plants, Petroleum Production and refining
Sulfates	24 hour	25 ug/m ³	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO ₂ .
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

ppm = parts per million; ug/m³ = micrograms per cubic meter.

SOURCE: CARB, 2013b. *Ambient Air Quality Standards*, available at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf> Standards last updated June 4, 2013; California Air Resources Board, 2009b. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*, <http://www.arb.ca.gov/research/health/fs2/fs2.htm>, page last reviewed December 2009.

**TABLE 4.G-3
SAN JOAQUIN VALLEY ATTAINMENT STATUS**

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard ¹	Nonattainment/Severe
Ozone – eight hour	Nonattainment/Extreme ²	Nonattainment
PM10	Attainment ³	Nonattainment
PM2.5	Nonattainment ⁴	Nonattainment
CO	Unclassified/Attainment	Unclassified/Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Vinyl Chloride	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

¹ Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

² Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

³ On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.

⁴ The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

SOURCE: SJVAPCD, 2013a, *Ambient Air Quality Standards and Valley Attainment Status*, www.valleyair.org/aqinfo/attainment.htm, accessed November 15, 2013.

The FCAA required each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The U.S. EPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAA and will achieve air quality goals when implemented. If the U.S. EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Toxic Air Contaminants

TACs are regulated under both state and federal laws. Federal laws use the term “Hazardous Air Pollutants” (HAPs) to refer to the same types of compounds that are referred to as TACs under state law. Both terms encompass essentially the same compounds. The 1977 FCAA required the U.S. EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to

protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 FCAAA, 189 substances are regulated as HAPs.

State

Criteria Pollutants

The CARB manages air quality, regulates mobile emissions sources, and oversees the activities of county APCDs and regional AQMDs. CARB establishes state ambient air quality standards and vehicle emissions standards.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. These are shown in Table 4.G-2. Under the California Clean Air Act (CCAA) patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the state standards. Table 4.G-3 summarizes the attainment status with California standards in San Joaquin County.

Toxic Air Contaminants

The Health and Safety Code defines TACs as air pollutants which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings. The 2009 San Joaquin County General Plan Update Background Report lists and maps the 175 AB 2588 identified facilities in the county. These facilities are concentrated in Stockton (91 facilities), Lodi (26 facilities), Tracy (21 facilities), Manteca (16 facilities), and Lathrop (11 facilities).

In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel. Subsequent regulations of diesel emissions by the CARB include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Offroad Diesel Vehicle Regulation, and the New Offroad Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment.

Despite these reduction efforts, the CARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. In April 2005, the CARB published *Air Quality and Land Use Handbook: a Community Health Perspective*. This handbook is intended to give guidance to local governments in the siting of sensitive land uses near sources of air pollution. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities such as ports, rail yards and distribution centers. Specifically, the document focuses on risks from emissions of DPM, a known carcinogen, and establishes recommended siting distances of sensitive receptors. The CARB notes that these recommendations are advisory and should not be interpreted as defined “buffer zones,” and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, the CARB’s position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level (CARB, 2005).

Local

San Joaquin County Air Pollution Control District

The San Joaquin County Air Pollution Control District (SJVAPCD) is the primary local agency responsible for protecting human health and property from the harmful effects of air pollution in the SJVAB, and has jurisdiction over most stationary source air quality matters in the SJVAB, including the NSPS program. The SJVAPCD includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings and Tulare counties, and the Valley portion of Kern County.

The SJVAPCD is responsible for developing attainment plans for the SJVAB, for inclusion in California’s SIP, as well as establishing and enforcing air pollution control rules and regulations. The attainment plans must demonstrate compliance with federal and state ambient air quality standards, and must first be approved by CARB before inclusion into the SIP. The SJVAPCD regulates, permits, and inspects stationary sources of air pollution. Among these sources are industrial facilities, gasoline stations, auto body shops, MSW landfills and dry cleaners to name a few. While the State is responsible for emission standards and controlling actual tailpipe emissions from motor vehicles, the SJVAPCD is required to regulate emissions associated with stationary sources such as agricultural burning and industrial operations. The SJVAPCD also works with eight local transportation planning agencies to implement transportation control measures, and to recommend mitigation measures for new growth and development designed to reduce the number of cars on the road. The SJVAPCD promotes the use of cleaner fuels, and funds a number of public and private agency projects that provide innovative approaches to reducing air pollution from motor vehicles.

While all criteria pollutants are a concern of the SJVAPCD, ozone precursors, PM10 emissions and toxic air contaminants are emphasized in the review of applications for an Authority to Construct / Permit to Operate. Federal and state air quality regulations also require regions designated as nonattainment to prepare plans that either demonstrate how the region will attain

the standard or that demonstrate reasonable improvement in air quality conditions. As noted, the SJVAPCD is responsible for developing attainment plans for the SJVAB for inclusion in California's SIP. As listed in Table 4.G-3, the SJVAB is non-attainment for the ozone (state and federal), PM10 (state), and PM2.5 (state and federal) standards. The SJVAPCD adopted a 2013 Plan for the Revoked 1-hour Ozone Standard in September 2013 and the 2007 Ozone Plan in April 2007. In regards to particulates, the SJVAPCD adopted the 2007 PM10 Maintenance Plan in September 2007 and the 2012 PM2.5 Plan in December 2012.

The SJVAPCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the District's permit authority over such sources and through its review and planning activities. In 2001, the SJVAPCD revised its Regulation VIII-Fugitive PM Prohibitions, in response to commitments made in the 1997 PM10 Attainment Plan to incorporate best available control measures (BACM). The revision also includes new rules for open areas and agricultural operations. The provisions of the revised regulation took effect in May 2002. Regulation VIII consists of a series of dust control rules that emphasize reducing fugitive dust as a means of achieving attainment of the federal standards for PM10.

Regulation VIII specifically addresses the following activities:

- Rule 8011: General Requirements;
- Rule 8021: Construction, Demolition, Excavation, Extraction and other Earthmoving Activities;
- Rule 8031: Bulk Materials;
- Rule 8041: Carryout and Trackout;
- Rule 8051: Open Areas;
- Rule 8061: Paved and Unpaved Roads; and
- Rule 8071: Unpaved Vehicle/Equipment Traffic Areas.

The SJVAPCD has limited authority to regulate transportation sources and indirect sources that attract motor vehicle trips.

- SJVAPCD Rule 9510 (Indirect Source Review) requires developers to mitigate project emissions through 1) on-site design features that reduce trips and vehicle miles traveled, 2) controls on other emission sources, and 3) with reductions obtained through the payment of a mitigation fee used to fund off-site air quality mitigation projects. Rule 9510 requires construction related NOx emission reductions of 20 percent and PM10 reductions of 45 percent. Rule 9510 requires a 33 percent reduction in operational NOx emissions and a 50 percent reduction in PM10. The reductions are calculated by comparing the unmitigated baseline emissions and mitigated emissions from the first year of project operation. Rule 9510 was adopted to reduce the impacts of development on SJVAPCD's attainment plans. Individual development projects would be subject to District Rule 9510 if upon full buildout the project would include or exceed any one of the following:
 - 50 dwelling units;

- 2,000 square feet of commercial space;
- 25,000 square feet of light industrial space;
- 100,000 square feet of heavy industrial space;
- 20,000 square feet of medical office space;
- 39,000 square feet of general office space;
- 9,000 square feet of educational space;
- 10,000 square feet of government space;
- 20,000 square feet of recreational space; or
- 9,000 square feet of space not identified above.

Other SJVAPCD Rules and Regulations that affect development include:

- SJVAPCD Rule 2201 (New and Modified Stationary Source Review): This rule requires new and modified stationary emission sources to implement best available control technology and to offset emissions exceeding thresholds contained in the rule. The rule implements the federal Title V permitting program for the San Joaquin Valley Air Basin.
- SJVAPCD Rule 4002 – National Environmental Standards for Hazardous Air Pollutants (NESHAPs). The NESHAPs regulation applies primarily to projects involving the demolition of existing structures. If there are asbestos-containing materials (ACM) to be removed from the structures, the removal may be subject to Rule 4002. Project applicants are required to determine if the structures are considered ‘regulated facilities’ under NESHAP by contacting the SJVAPCD. If there are regulated facilities to be demolished, the facilities must be inspected to determine if any ACM is present. If ACM is present, the project must follow the SJVAPCD requirements, and potentially, Cal-OSHA and Cal-EPA regulations.
- SJVAPCD Rule 4102 (Nuisance): The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.
- SJVAPCD Rule 4601 (Architectural Coatings): The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.
- SJVAPCD Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations): The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.
- SJVAPCD Rule 4901 (Woodburning Fireplaces and Woodburning Heaters): The purpose of this rule is to reduce carbon monoxide (CO), and PM10 from the installation and use of wood burning fireplaces (open-hearth fireplace), and wood burning heaters. The rule limits the sale of certain woodburning devices and limits the installation of fireplaces and wood burning heaters per acre. The rule includes a woodburning curtailment program that goes into effect on days with unhealthful air quality. Areas not served by natural gas are exempt from the rule requirements.

- SJVAPCD Rule 9410 (Employer Based Trip Reduction): The purpose of this rule is to reduce vehicle miles traveled by employees that commute to their worksites. The rule applies to employers with 100 employees or more during specified time frames. Employers will be required to implement an Employer Trip Reduction Plan and to prepare commute verification reports on an annual basis.

The SJVAPCD has published a *Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI)* (SJVAPCD, 2002), an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. A major part of the GAMAQI includes a discussion of air quality control measures that are recommended for use in mitigating construction and operation-related impacts. The district has also published *Air Quality Guidelines for General Plans* (SJVAPCD, 2005), which provides guidance to local officials and staff on developing and implementing local policies and programs to be included in local jurisdictions' general plans.

G.4 Impacts and Mitigation Measures

Significance Criteria

In accordance with Appendix G of the State CEQA *Guidelines*, the impact of the 2035 General Plan on air quality would be considered significant if it would:

- 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 pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Criteria Pollutants

Pursuant to the recommendations included in the SJVAPCD comment letter received for the NOP (SJVAPCD, 2013b) for this analysis, the 2035 General Plan would be considered to have a significant effect on the environment if development would result in emissions that would exceed the following thresholds:

- Cause a net increase of ROG or NO_x exceeding 10 tons per year; or
- Cause a net increase of 15 tons per year of PM₁₀.

Permitted stationary sources that comply, or that would comply, with SJVAPCD Rules and Regulations are generally not considered to have a significant air quality impact (SJVAPCD, 2002).

Relevant Policies

The following relevant policies of the 2035 General Plan specifically address air quality:

PHS-5.1: Air Quality Monitoring. The County shall participate in programs to monitor harmful air contaminants to determine their impacts. (PSP/PSR) (Source: Existing GP, Air Quality, Implementation 1)

PHS-5.2: San Joaquin Valley Air Pollution Control District Coordination. The County shall coordinate with the San Joaquin Valley Air Pollution Control District (SJVAPCD) during the review of new development projects which have the potential for causing adverse air quality impacts. (RDR/IGC) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.3: Cross-Jurisdictional Air Quality Issues. The County shall coordinate with neighboring jurisdictions and affected agencies to address cross-jurisdictional and regional transportation and air quality issues. (IGC) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.4: Innovative Mitigation Measures. The County shall encourage innovative mitigation measures and project redesign to reduce air quality impacts by coordinating with the SJVAPCD, project applicants, and other interested parties. (RDR) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.5: Air District Best Performance Standards. The County shall consider the Best Performance Standards adopted by SJVAPCD during the review of new development proposals. (RDR) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.6: Toxic Air Contaminants. The County shall require effective buffers between residential areas and other sensitive receptors and non-residential land uses, such as highways, trucking centers, gasoline dispensing facilities, and dry cleaners, that generate toxic air contaminants. (RDR) (Source: New Policy)

PHS-5.7: Minimize Motor Vehicle Emissions. The County shall strive to minimize motor vehicle emissions through land use and transportation strategies, as well as by promotion of alternative fuels. (PSP) (Source: Existing GP, Air Quality, Policy 2)

PHS-5.8: Particulate Emissions from Construction. The County shall support SJVAPCD efforts to reduce PM10 and PM2.5 emissions from construction, grading, excavation, and demolition to the maximum extent feasible and consistent with State and Federal regulations. (RDR/IGC) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.9: Particulate Emissions from County Roads. The County shall require PM10 and PM2.5 emission reductions on County-maintained roads to the maximum extent feasible and consistent with State and Federal regulations. (RDR) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.10: Paving Materials. The County shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use. (RDR) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plan)

PHS-5.11: Agricultural Best Management Practices. The County shall encourage agricultural operations to incorporate Best Management Practices, such as: paving roads; screening cropland with windbreaks; limiting tilling, grading, and pesticide use on high-wind days; and changing harvesting equipment to minimize air quality hazards from pesticides and reduce PM10 and PM2.5 emissions consistent with State and Federal regulations. (RDR/PSP) (Source: New Policy, incorporated Existing GP, Air Quality, Policy 4)

PHS-5.12: Industrial Best Management Practices. The County shall require industrial facilities to incorporate economically feasible Best Management Practices and control technology to reduce PM10 and PM2.5 emissions consistent with State and Federal regulations. (RDR) (Source: New Policy)

PHS-5.13: Energy Consumption Reduction. The County shall encourage new development to incorporate green building practices and reduce air quality impacts from energy consumption. (RDR) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plans; Vision and Guiding Principles)

Relevant Implementation Programs

The following implementation programs of the proposed 2035 General Plan specifically addresses air quality:

PHS-M: Emission Banking. The County shall continue to support an emission banking program. (PSP) (Source: Existing GP, Air Quality, Implementation 6)

Approach to Analysis

This air quality analysis focuses on development expected to occur within the planning horizon of 2035. While the exact timing of buildout is unknown and would ultimately be market driven, this analysis is based on the assumption that all uses would be developed by the year 2035 for modeling purposes, and emissions were estimated for this planning horizon. This analysis is based on projected land uses included in the Project Description, as well as traffic trips and associated vehicle-miles traveled (VMT) information provided by Kittelson (Kittelson, 2014). Operational emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2013.2.2. CalEEMod is a computer program that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The San Joaquin County database was used for this analysis. The model calculates criteria pollutant emissions, including CO, PM10, PM2.5 and the O₃ precursors ROG and NO_x. Model default values for trip distances and trip rates were adjusted to match VMT information provided by Kittelson for the unincorporated county 2035 No Project baseline and 2035 General Plan land uses. Output operational emissions data are separated into energy use, area sources, and mobile sources. The area sources are fireplaces, landscape maintenance equipment, consumer products, and architectural coatings used for routine maintenance. Consumer products (e.g., household cleaners, air fresheners, automotive products, and personal care products) emit ROG. Mobile sources are the vehicles used by residents and by patrons, staff, and vendors for commercial businesses. For this analysis, the results are expressed in tons per year and are compared with the SJVAPCD mass thresholds to determine impact significance.

Appendix G of this Draft EIR provides detailed emission calculations used in this analysis.

Health Risks and Hazards

The operation of any project with the potential to expose sensitive receptors to substantial levels of TACs would be deemed to have a potentially significant impact. More specifically, proposed development projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact (SJVAPCD, 2002):

- Probability of contracting cancer for the Maximally Exposed Individual² exceeds 10 in one million.
- Ground-level concentrations of non-carcinogenic TACs would result in a Hazard Index greater than 1 for the Maximally Exposed Individual.

Application of these standards would occur during the preparation of more detailed project-specific health risk assessments (based on a detailed air dispersion modeling effort) that would occur as individual projects are considered under the 2035 General Plan. Health risk assessments must rely on project-specific data such as local meteorology, topography, and distance between development and sources of TACs. Thus, this analysis qualitatively evaluates the potential for health risk for planning purposes based on the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005) distance recommendations.

Impact Analysis

2035 General Plan Impacts

Impact 4.G-1: Development facilitated by implementation of the proposed 2035 General Plan could violate an air quality standard or contribute substantially to an existing or projected air quality violation due to construction activities. (Significant)

Construction activity that would occur over the next several years in accordance with the 2035 General Plan would cause temporary, short-term emissions of various air pollutants within the county. ROG and NO_x, which are ozone precursors, as well as particulate matter (PM₁₀ and PM_{2.5}) would be emitted by construction equipment during various activities, such as grading and excavation, infrastructure construction, building demolition, and a variety of other construction activities. Information regarding specific development projects (such as construction activities, equipment, and duration) would be needed in order to quantify the level of impact associated with construction activity. However, given the amount of development associated with implementation of the 2035 General Plan, it is possible that some large-scale construction activity could substantially increase criteria pollutants through the year 2035 and potentially increase criteria pollutant emissions and effects, such as lung irritation from ozone and mortality and morbidity from respirable particulate matter, during the temporary duration of

² Maximally Exposed Individual represents the worst-case risk estimate based on a theoretical person continuously exposed for 70 years at the point of highest compound concentration in air.

construction. Actual significance would be determined on a project-by-project basis as future development applications are submitted.

Additionally, the Public Health and Safety Element policies would serve to control construction emissions, including coordinating with the SJVAPCD during the review of new development projects (Policy PHS-5.2), incorporating innovative mitigation measures (Policy PHS-5.4), incorporating SJVAPCD best performance standards to reduce air pollutant emissions (Policy PHS-5.5), reducing particulate emissions from construction (Policy PHS-5.8), and reducing paving material emissions (Policy PHS-5.11). The implementation measure to continue an emission banking program could also apply (Measure PHS-M) to reducing overall construction emissions. Consistency with CARB and SJVAPCD regulations also would reduce this impact. The CARB has adopted regulations for New Off-Road Diesel Engines and Equipment that result in cleaner equipment being placed in service as older, higher emitting equipment is retired. CARB also adopted the In-Use Off-Road Diesel Vehicle Regulation requiring NOx and PM10 emission reductions from equipment and vehicles currently in operation. SJVAPCD Regulation VIII includes requirements to control fugitive dust emissions during construction activities and requires commercial projects over 5 acres and residential projects over 10 acres to file a Dust Control Plan.

Mitigation Measure 4.G-1: The following additional policy shall be included to address potential construction emissions from new development under the 2035 General Plan:

PHS-5.15: Construction Emissions. The County shall require that new development projects incorporate feasible measures to reduce emissions from construction, grading, excavation, and demolition activities to avoid, minimize, and/or offset their impacts consistent with San Joaquin Valley Air Pollution Control District requirements.

The addition of this policy would guide construction activities in order to reduce potential air pollutant impacts to the extent feasible. The existing and proposed policies and measures represent the best practicable strategies to reduce construction air pollutant emissions associated with 2035 General Plan development and would ensure that construction emissions would be less than significant.

Significance after Mitigation: Less than Significant.

Impact 4. G-2: Development under the proposed 2035 General Plan could generate operational emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation. (Significant and Unavoidable)

Operational impacts associated with the 2035 General Plan would result from mobile sources (vehicles used by residents and by patrons, staff, and vendors for commercial businesses), area sources (fireplaces, landscape maintenance equipment, consumer products, and architectural coatings), and energy source (natural gas combustion) emissions. The annual emissions of ROG, NOx, CO, PM10, and PM2.5 associated with the 2035 General Plan (analysis year 2035) and for the

baseline 2035 No Project (analysis year 2035) were modeled with the CalEEMod software and are depicted below in **Table 4.G-4**. On-road traffic emissions projections are based on cumulative growth incorporated in the San Joaquin Council of Governments (SJCOG) traffic model for the 2035 General Plan (see Section 4.D, *Transportation and Circulation*).

TABLE 4.G-4
2035 SAN JOAQUIN COUNTY GENERAL PLAN OPERATIONAL EMISSIONS (tons per year)

Emissions Source	Unmitigated Operational Emissions (Tons/Year) ^a				
	ROG	NOx	CO	PM10	PM2.5
Mobile Source Emissions					
2035 No Project	584.2	1,521.2	6,711.9	1,501.9	427.6
2035 General Plan	584.4	1,521.7	6,713.8	1,502.3	427.8
Incremental Increase	0.2	0.5	1.9	0.4	0.2
Area Source Emissions					
2035 No Project	1,621.9	91.7	5,822.2	845.3	845.3
2035 General Plan	1,652.9	91.8	5,825.2	845.4	845.3
Incremental Increase	31.0	0.1	3.0	0.1	0.0
Energy Source Emissions					
2035 No Project	20.9	181.3	95.9	14.4	14.4
2035 General Plan	21.6	187.4	100.8	14.9	14.9
Incremental Increase	0.7	6.1	4.9	0.5	0.5
Total Incremental Increase ^b	31.9	6.7	9.8	1.0	0.7
SJVAPCD Significance Criteria	10	10	NA	15	NA
Significant? (Yes or No)	Yes	No	NA	No	NA

^a CalEEMod analysis is based on development under the 2035 General Plan and 2035 No Project land uses, as well as traffic VMT information provided by Kittelson. Additional model assumptions and output data are provided in Appendix G.

^b **Bold** values are in excess of the applicable standard. The SJVAPCD established thresholds for ROG and NOx are 10 tons per year, PM10 is 15 tons per year, and CO and PM2.5 do not have an established emissions threshold of significance.

As shown in Table 4.G-4, future growth in accordance with the 2035 General Plan would exceed the SJVAPCD thresholds for ROG, primarily generated from consumer products, hearths, and architectural coating reapplication. These operational emissions would increase potential health risks associated with criteria pollutant exposure, such as lung irritation from ozone. Policies included as part of the 2035 General Plan that would reduce this impact are summarized below. The draft Public Health and Safety Element provides a number of policies that have been developed to reduce operational air pollutant emissions associated with the 2035 General Plan. These policies include coordinating with the SJVAPCD during the review of new development projects (Policy PHS-5.2), coordinating with neighboring jurisdictions regarding cross-jurisdictional air quality issues (Policy PHS-5.3), incorporating innovative mitigation measures (Policy PHS-5.4), incorporating SJVAPCD best performance standards to reduce air pollutant emissions (Policy PHS-5.5), minimizing motor vehicle emissions (Policy PHS-5.7), reducing particulate emissions associated with county roads (Policy PHS-5.9), implementing agricultural best management practices (Policy PHS-5.11), requiring industrial best management practices (Policy PHS-5.12), and reducing air quality emissions associated with energy consumption through

green building practices (Policy PHS-5.13). The implementation measure to continue an emission banking program could also apply (Measure PHS-M). In addition, the County would ensure that future CEQA documentation be prepared for individual projects (with project-specific data), as needed, that would (if technically possible) mitigate any potential air quality impacts to a less-than-significant level.

Mitigation Measure 4.G-2: The following additional policies shall be included to address potential operational emissions from new development under the 2035 General Plan:

PHS-5.16: Operational Emissions. The County shall require that new development projects incorporate feasible measures that reduce operational emissions through project and site design and use of best management practices to avoid, minimize, and/or offset their impacts consistent with San Joaquin Valley Air Pollution Control District requirements.

PHS-5.17: Wood Burning Devices. The County shall require the use of natural gas where service is available or the installation of low-emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes as required under the SJVAPCD Rule 4901– Woodburning Fireplaces and Woodburning Heaters. The County shall promote the use of natural gas over wood products in space heating devices and fireplaces in all existing and new homes.

Given the uncertainty as to whether future operational ROG criteria air pollutant emissions could be adequately reduced to be consistent with the SJVAPCD thresholds of significance, this impact would be significant and unavoidable. The above policies represent the best practicable measures to reduce emissions associated with 2035 General Plan development. No additional mitigation is currently available to reduce this impact to a less than significant level.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.G-3: The proposed 2035 General Plan could expose sensitive receptors to substantial concentrations of toxic air contaminants. (Significant)

Development resulting from the 2035 General Plan could place sensitive land uses near local intersections or roadways associated with air pollutant emissions that exceed state or federal ambient air quality standards. Similarly, existing sensitive land uses near local roadways that experience increased levels of traffic resulting from development under the 2035 General Plan could be exposed to air pollutant emissions that exceed state and/or federal ambient air quality standards. In addition to these air pollutant emissions, a variety of TAC emissions could also be released from various construction and operations (i.e., industrial processes, diesel equipment and vehicles) associated with land uses to be developed under the 2035 General Plan. The CARB has declared that DPM from diesel engine exhaust is a TAC (CARB, 2005). Additionally, the California Office of Environmental Health Hazard Assessment (OEHHA) has determined that chronic exposure to DPM can cause carcinogenic and non-carcinogenic health effects (OEHHA, 2014).

Development under the 2035 General Plan could place residential and other sensitive receptors in proximity to sources of TACs (such as high volume roadways, industrial uses, etc.). The CARB adopted the *Air Quality and Land Use Handbook* (CARB, 2005) to provide guidance to planning agencies and air districts for considering potential impacts to sensitive land uses proposed in proximity to TAC emission sources. The goal of the guidance document is to protect sensitive receptors, such as children, seniors, and acutely ill and chronically ill persons, from exposure to TACs emissions by encouraging adequate separation between new sensitive land uses (residential, educational, healthcare) proposed adjacent to TAC sources in order to minimize land use incompatibility. The recommendations provided are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

Stationary sources of TAC emissions are subject to SJVAPCD Regulation VII (Toxic Air Pollutants) which includes rules to address toxic emissions from several specific common sources. New sources of TACs must comply with SJVAPCD Rule 2520 (Federally Mandated Operating Permits) which provides administrative mechanisms for enforcing federal requirements for hazardous air pollutants. The State also adopts regulations that are implemented by the SJVAPCD to control toxic emissions through Air Toxic Control Measures and reporting programs that disclose toxic impacts to the public such as the Air Toxic Hot Spots Act. Often, controls designed to reduce ROG and PM10 also reduce TAC emissions.

The SJVAPCD *GAMAQI* identifies potential sources of TAC emissions that should be considered when siting new sources of TACs or when applicants propose to locate new sensitive receptors near an existing source of TACs. The *GAMAQI* provides criteria for determining the significance of impacts of TAC emissions. Projects that result in an increase in cancer risk of 10 in one million or a non-cancer risk Hazard Index³ greater than one are considered to have a significant impact. In addition, the SJVAPCD in its role as a CEQA commenting agency reviews projects to identify potential TAC impacts and reviews Health Risk Assessments prepared to quantify the potential risks for adequacy. The County would use the health risk criteria from the *GAMAQI* and require Health Risk Assessments where appropriate in accordance with SJVAPCD guidance.

Subsequent CEQA documentation prepared for individual projects would have project-specific data and would be required to address, and to the extent feasible, mitigate any significant air quality impacts to a less-than-significant level. Examples of mitigation that may be proposed include intersection/roadway capacity improvements or additional land use siting and required setbacks or moving truck loading docks farther from sensitive receptors. However, it should be noted, the ability to mitigate these potential impacts is contingent on a variety of factors including the severity of the air quality impact, existing land use conditions and the technical feasibility of being able to implement any proposed mitigation measures (e.g., relocations, road widening, etc.). For this reason, a new policy is recommended below as a mitigation measure.

Additional policies included as part of the 2035 General Plan that would minimize this impact are summarized below. The draft Public Health and Safety Element provides a number of policies that have been developed to reduce TAC exposure issues associated with the 2035 General

³ Hazard Index is the ratio of the modeled concentration to the acute reference exposure level.

Plan. These policies include coordinating with the SJVAPCD during the review of new development projects (Policy PHS-5.2), incorporating innovative mitigation measures (Policy PHS-5.4), incorporating SJVAPCD best performance standards to reduce air pollutant emissions (Policy PHS-5.5), reducing TAC exposure through appropriate land use compatibility buffer distances between sensitive receptors and sources of TACs (Policy PHS-5.6), minimizing motor vehicle emissions (Policy PHS-5.7), reducing particulate emissions from construction (Policy PHS-5.8), reducing particulate emissions associated with county roads (Policy PHS-5.9), reducing paving material emissions (Policy PHS-5.10), implementing agricultural best management practices (Policy PHS-5.11), and requiring industrial best management practices (Policy PHS-5.12). In addition, the County would ensure that future CEQA documentation be prepared for individual projects (with project-specific data) that would (if technically possible) mitigate any potential TAC impacts to a less-than-significant level.

Mitigation Measure 4.G-3: The following additional policy shall be included to address potential health risks from new development under the 2035 General Plan:

PHS-5.18: Health Risk Evaluation. Prior to project approval, the County shall evaluate health risks when proposed developments would result in new sensitive receptors near existing sources of substantial toxic air contaminants (TACs) or the development of sources of substantial toxic air contaminants near existing sensitive receptors. Evaluation would be based on consideration of the California Air Resource's Board *Air Quality and Land Use Handbook: A Community Health Perspective* distance recommendations between sources and receptors. If the project would not meet the distance recommendations between sources and receptors, the County shall require the applicant to ensure that TAC impacts would be below the carcinogenic threshold (i.e., probability of contracting cancer for the Maximally Exposed Individual would be less than 10 in one million) and below the non-carcinogenic threshold (i.e., result in a Hazard Index less than 1 for the Maximally Exposed Individual). In addition, several measures to reduce potential risk from commercial or industrial land uses that would be considered include:

- Proposed commercial or industrial land uses that have the potential to emit toxic air contaminants (such as loading docks for diesel delivery trucks) would be located as far away as possible from existing and proposed sensitive receptors.
- Signs would be posted at all loading docks and truck loading areas which indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises in order to reduce idling emissions.
- Proposed commercial and industrial land uses that have the potential to host diesel trucks would incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies such as, IdleAire, electrification of truck parking, and alternative energy sources for transport refrigeration units to allow diesel engines to be completely turned off.

The addition of this policy would guide health risk considerations and reduce potential toxic air contaminant exposure at existing and new sensitive receptors, thereby reducing this impact to less than significant levels because TAC significance thresholds would not be exceeded.

Significance after Mitigation: Less than Significant.

Impact 4.G-4: Development facilitated by implementation of the proposed 2035 General Plan could create objectionable odors affecting a substantial number of people. (Less than Significant)

Construction activity would require the operation of equipment which may generate exhaust from either gasoline or diesel fuel. Construction of new buildings would also require the application of architectural coatings and the paving of roads which would generate odors from materials such as paints and asphalt. However, these odors are of a temporary or short-term nature and quickly disperse into the surrounding atmosphere.

Future residential and commercial development would also involve minor, odor-generating activities, such as backyard barbeque smoke, garden equipment exhaust, and the application of exterior paint for home improvement activities. These types of odors are typical of most residential communities and are not considered significant generators of odor impacts.

The major change in land uses to be developed under the 2035 General Plan versus the existing baseline are depicted in Figure 3-3 and identified in Table 3-7 of the Project Description. In summary, about 2,200 acres of land now designated as “General Agriculture” and 635 acres of land now designated as “Open Space/Resource Conservation” may be converted to residential, commercial, or industrial use. The actual amount of development would largely depend on the availability of adequate infrastructure to support such development. No specific uses typically associated with substantial odors have been identified. However, the SJVAPCD’s *GAMAQI* includes distance thresholds for common odor sources as guidance for determining if projects should conduct more detailed odor assessments and implement mitigation measures, if required. In addition, CEQA documentation prepared for individual projects would have project-specific data and would be required to address, and if feasible, mitigate any significant air quality odor impacts to a less-than-significant level.

Policies included as part of the 2035 General Plan that would minimize this impact are summarized below. The draft Public Health and Safety Element provides several policies that would reduce potential odor issues associated with the 2035 General Plan. These policies include coordinating with the SJVAPCD during the review of new development projects (Policy PHS-5.2), incorporating innovative mitigation measures (Policy PHS-5.4), incorporating SJVAPCD best performance standards (Policy PHS-5.5), establishing appropriate land use compatibility buffer distances between sensitive receptors TAC sources (Policy PHS-5.6), reducing paving material emissions (Policy PHS-5.10), implementing agricultural best management practices (Policy PHS-5.11), and requiring industrial best management practices (Policy PHS-5.12). In addition, the County would ensure that future CEQA documentation be prepared for individual projects (with project-specific data), as applicable, that would (if feasible) mitigate any potential odor impacts to a less-than-significant level. This impact is considered less than significant because proposed 2035 General

Plan implementation would not create objectionable odors that would affect a substantial number of people. No mitigation is required.

Mitigation: None required.

Impact 4.G-5: Development facilitated by implementation of the proposed 2035 General Plan could conflict with or obstruct implementation of the applicable air quality plan. (Significant and Unavoidable)

The 2035 General Plan was designed specifically to achieve and promote consistency with the planning documents that apply to the county. The SJVAPCD adopted 2013 Plan for the Revoked 1-hour Ozone Standard in September 2013 and the 2007 Ozone Plan in April 2007. In regards to particulates, the SJVAPCD adopted the 2007 PM10 Maintenance Plan in September 2007 and the 2012 PM2.5 Plan in December 2012. Policies included as part of the 2035 General Plan that would reduce potential air quality impacts are listed below. In addition, the SJVAPCD has rules and regulations described earlier that help to reduce the air pollutant impacts of growth (such as pollutants from an increased volume of on-road vehicles). For example, Rule 9510-Indirect Source Review was adopted to provide emission reductions that allowed the SJVAPCD to demonstrate attainment of the federal PM10 standard and contributed reductions that assist in attaining federal ozone standards. Rule 9510 also contributes toward attainment of state standards for these pollutants. SJVAPCD Regulation VIII – Fugitive PM10 Prohibitions - requires controls for sources of particulate matter necessary for attaining the federal PM10 standards and achieving progress toward attaining the state PM10 standards. Rule 2201 – New and Modified Stationary Source Review is designed so that new and modified stationary/industrial sources provide emission controls and offsets that ensure that stationary sources decline over time and do not impact the applicable air quality plans.

As described in Chapter 3, Project Description, only about 11 percent of the overall county population currently resides in unincorporated areas of San Joaquin County outside of city spheres of influence. In 2035, this percentage is expected to increase to 13 percent. The amount of growth predicted, although minimal, could make it more difficult to attain the 8-hour ozone standard, especially since the 2035 General Plan would result in a substantial increase in ROG (an ozone precursor), as described in Impact 4.G-2. The SJVAPCD ozone attainment plan relies on yet to be identified future measures that require technological advancements for emission reductions required to achieve the ozone standards. This results in some uncertainty as to whether the growth accommodated by the 2035 General Plan would conflict with or obstruct the applicable attainment plans.

Policies included as part of the 2035 General Plan that would reduce this impact are summarized below. The draft Public Health and Safety Element provides a number of policies that have been developed to reduce construction and operational air pollutant emissions associated with the 2035 General Plan. These policies include coordinating with the SJVAPCD during the review of new development projects (Policy PHS-5.2), coordinating with neighboring jurisdictions regarding

cross-jurisdictional air quality issues (Policy PHS-5.3), incorporating innovative mitigation measures (Policy PHS-5.4), incorporating SJVAPCD best performance standards to reduce air pollutant emissions (Policy PHS-5.5), minimizing motor vehicle emissions (Policy PHS-5.7), reducing particulate emissions from construction (Policy PHS-5.8), reducing particulate emissions associated with county roads (Policy PHS-5.9), reducing paving material emissions (Policy PHS-5.10), implementing agricultural best management practices (Policy PHS-5.11), requiring industrial best management practices (Policy PHS-5.12), and reducing air quality emissions associated with energy consumption through green building practices (Policy PHS-5.13). The implementation measure to continue an emission banking program could also apply (Measure PHS-M). In addition, the County would ensure that future CEQA documentation be prepared for individual projects (with project-specific data), as applicable, that would (if technically possible) mitigate any potential air quality impacts to a less-than-significant level. However, based on the fact that the SJVAPCD is still developing future regulatory efforts to achieve aggressive reduction goals and the amount of growth that may occur under the 2035 General Plan, the 2035 General Plan possibly could conflict with or obstruct implementation of the SJVAPCD attainment plans.

Mitigation Measure 4.G-5: Implement Mitigation Measures 4.G-1 and 4.G-2.

The above policies and measures represent the best practicable strategies to reduce emissions associated with 2035 General Plan development. No additional mitigation is currently available to reduce this impact to a less than significant level.

Significance after Mitigation: Significant and Unavoidable.

Cumulative Impacts

Impact 4.G-6: Development facilitated by implementation of the proposed 2035 General Plan, when combined with past, present and other reasonably foreseeable development in the vicinity, could result in cumulative criteria air pollutant air quality impacts. (Significant and Unavoidable)

Table 4.G-4 presents cumulative air pollutant emissions associated with the SJCOG 2035 growth projections, which include both growth under the proposed 2035 General Plan and growth under City General Plans. As more fully described above in Impacts 4.G-2 and 4.G-5, due to the existing and projected air quality issues in the SJVAB, the 2035 General Plan could contribute to cumulatively considerable short-term construction and long-term operational emissions, resulting in significant and unavoidable cumulative air quality impacts. Even with implementation of the above mentioned policies and regulations, implementation of the 2035 General Plan would result in a significant and unavoidable impact. The policies and measures included in the impact analyses above represent the best practicable strategies to reduce emissions associated with 2035 General Plan development.

Additional effects would occur as a result of the Bay Delta Conservation Plan (BDCP), a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery

infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the Plan's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that air quality impacts could occur across the Sacramento, San Joaquin, and San Francisco air basins. Construction activities could result in emissions of criteria pollutants from vehicle and equipment exhaust as well as land clearing activities. Operations and maintenance impacts would result from employee commute emissions, maintenance truck emissions, and off road equipment. Restoration activities could result in emission impacts from off road equipment. These impacts would contribute to significant effects of the 2035 General Plan. No additional feasible mitigation is currently available.

Mitigation: Significant and Unavoidable.

G.5 References – Air Quality

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H. Noise

H.1 Introduction

This section presents the environmental and regulatory setting and evaluates impacts associated with noise from implementation of the proposed 2035 General Plan. The environmental setting presents background and terminology with respect to acoustics, and provides a summary of known noise sources in the county. The regulatory setting provides a description of applicable federal, state, and local regulatory policies. A description of the potential impacts of the proposed project is also provided and includes the identification of feasible mitigation (where applicable) to avoid or lessen the impacts.

The environmental and regulatory setting subsections are based on information contained in the San Joaquin County Technical Background Report, which is incorporated herein by reference, updated when necessary, and summarized below (Mintier Harnish, 2009).

H.2 Environmental Setting

Fundamentals of Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Frequency

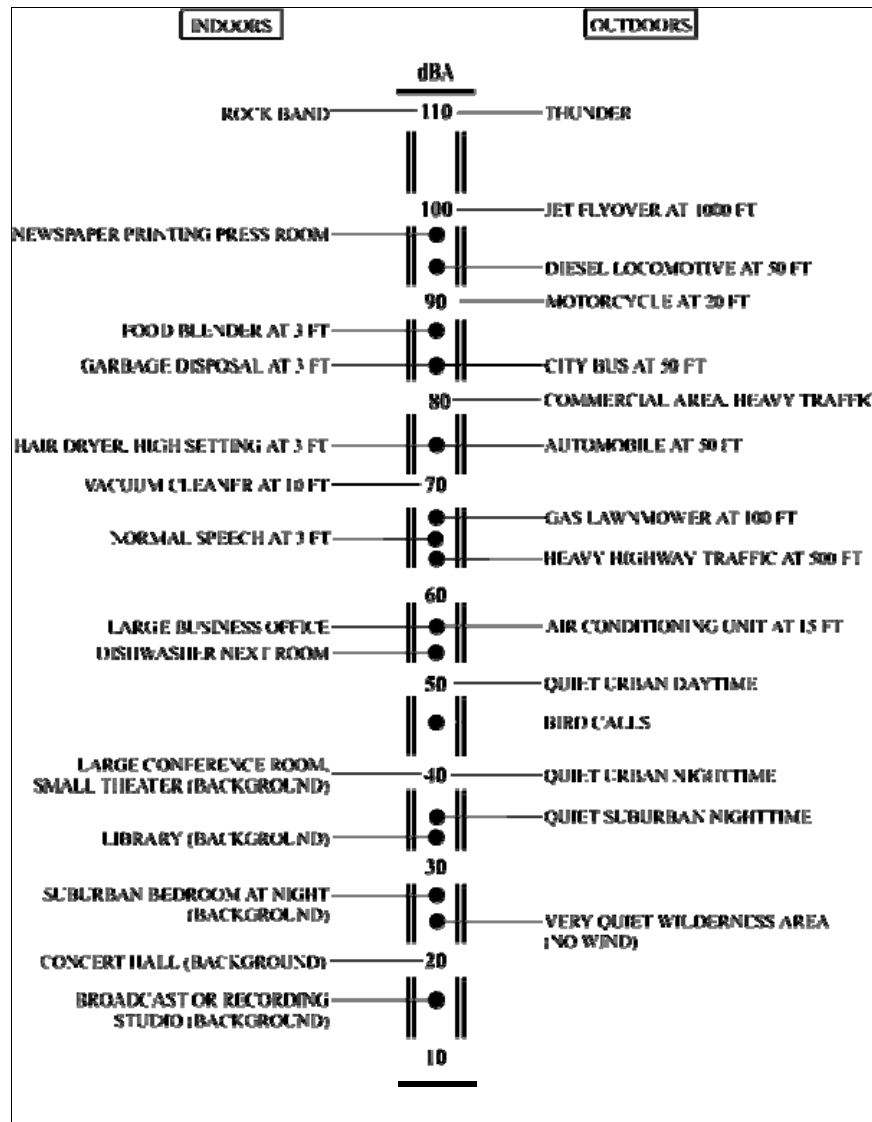
The number of sound pressure peaks traveling past a given point in a single second is referred to as the frequency, expressed in cycles per second or Hertz (Hz). A given sound may consist of energy at a single frequency (pure tone) or in many frequencies over a broad frequency range (or band). Human hearing is generally affected by sound frequencies between 20 Hz and 20,000 Hz (20 kHz).

Amplitude

The amplitude of pressure waves generated by a sound source determines the perceived loudness of that source. Sound pressure amplitude is measured in micro-Pascals (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 μPa to 100,000,000 μPa . Because of this huge range of values, sound is rarely expressed in terms of pressure. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of human hearing (near total silence) is approximately 0 dB which corresponds to 20 μPa .

A-Weighted Decibels

Figure 4.H-1 illustrates sound levels associated with common sound sources. The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental sound levels, perception of loudness is relatively predictable, and can be approximated by frequency filtering using the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard descriptor for environmental noise assessment. All noise levels reported in this section are in terms of A-weighting.



SOURCE: Caltrans, 2009

Figure 4.H-1
Decibel Scale and Common Noise Sources

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic means. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if one automobile produces an SPL of 70 dBA when it passes an observer, two cars passing simultaneously would not produce 140 dBA – rather they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3 dBA increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in a laboratory setting, the trained, healthy human ear is able to discern 1 dBA changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency range (1,000 Hz–8,000 Hz). In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dBA in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy that would result in a 3 dBA increase in sound pressure level would generally be perceived as barely detectable, as shown in **Table 4.H-1**.

**TABLE 4.H-1
APPROXIMATE RELATIONSHIP BETWEEN INCREASES IN
ENVIRONMENTAL NOISE LEVEL AND HUMAN PERCEPTION**

Noise level increase, dBA	Human perception (typical)
up to about 3	generally not perceptible
about 3	barely perceptible
about 6	distinctly noticeable
about 10	twice as loud
about 20	four times as loud

SOURCE: Egan, 1988

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, daycare facilities, transient lodging, libraries, and certain types of recreational uses. Noise-sensitive receivers are found throughout San Joaquin County.

Noise Descriptors

Noise in the daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in environmental noise analysis, and may be applicable to this study:

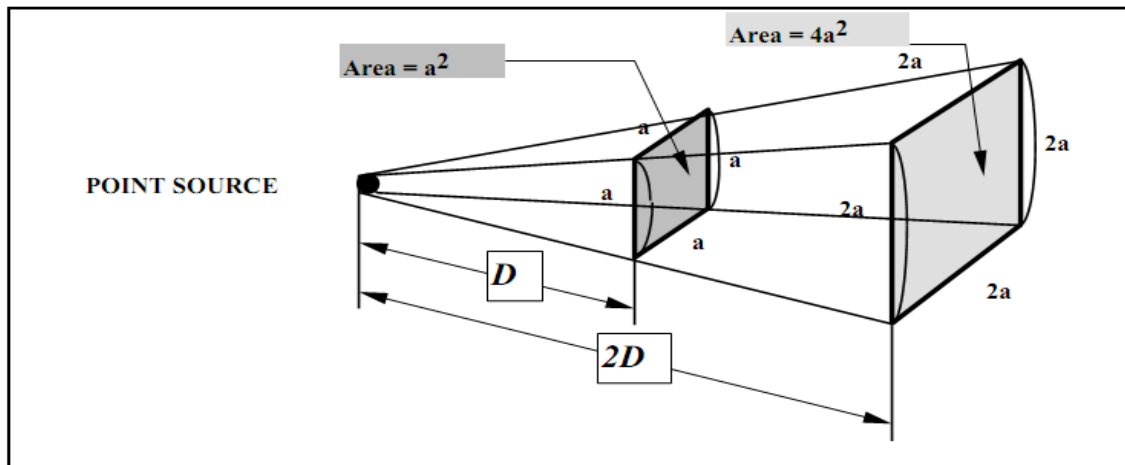
- **Equivalent Sound Level (L_{eq}):** The L_{eq} represents an average of the sound energy occurring over a specified time period. In effect, the L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour, A-weighted equivalent sound level ($L_{eq}[h]$) is the energy average of A-weighted sound levels occurring during a 1-hour period, and is the basis for noise abatement criteria (NAC) used by Caltrans and the Federal Highway Administration (FHWA).
- **Percentile-Exceeded Sound Level (L_n):** The L_n represents the sound level exceeded “n” percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time).
- **Maximum Sound Level (L_{max}):** The L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Average Level (L_{dn}):** The L_{dn} is the energy-average of A-weighted sound levels occurring over a 24-hour period, with a 10 dBA penalty applied to A-weighted sound levels occurring during nighttime hours (10 p.m.-7 a.m.). The L_{dn} is often noted as the DNL.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn} , CNEL is the energy-average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dBA penalty applied to A-weighted sound levels occurring during the nighttime hours (10 p.m.-7 a.m.), and a 5 dBA penalty applied to the A-weighted sound levels occurring during evening hours (7 p.m.-10 p.m.). The CNEL is usually within 1 dBA of the L_{dn} , and for all intents and purposes, the two are interchangeable. As it is easier to compute and of more common use, the L_{dn} is used as the long-term noise measure in this study.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors:

Geometric Spreading

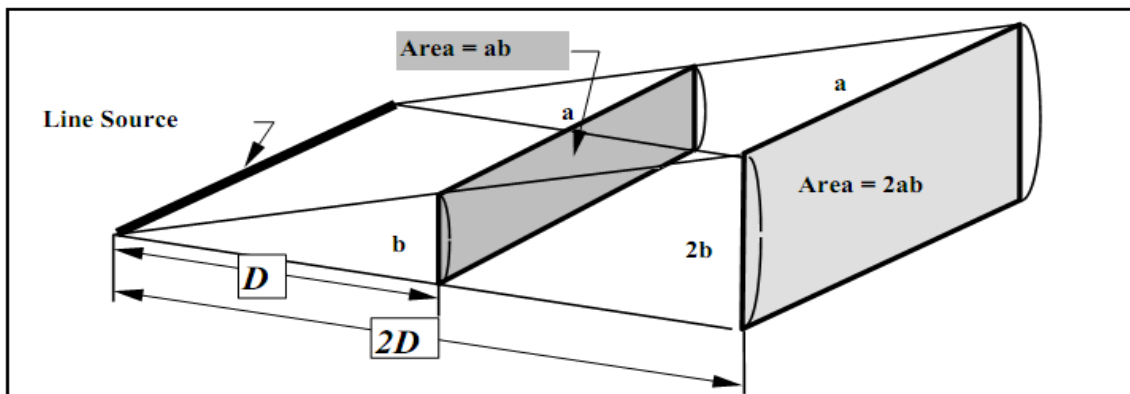
Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern; therefore, this type of propagation is called *spherical spreading*. The sound level attenuates (or decreases) at a rate of 6 dBA for each doubling of distance from a point/stationary source as its energy is continuously spread out over a spherical surface, as shown in **Figure 4.H-2**.



SOURCE: Caltrans, 2009

Figure 4.H-2
Point Source Spreading with Distance

Roadways and highways, and to some extent, moving trains, consist of several localized noise sources on a defined path, and hence are treated as “line” sources, which approximate the effect of several point sources, as shown in **Figure 4.H-3**. Noise from a line source propagates over a cylindrical surface, often referred to as *cylindrical spreading*. Sound levels attenuate at a rate of 3 dBA for each doubling of distance from a line source. Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.



SOURCE: Caltrans, 2009

Figure 4.H-3
Line Source Spreading with Distance

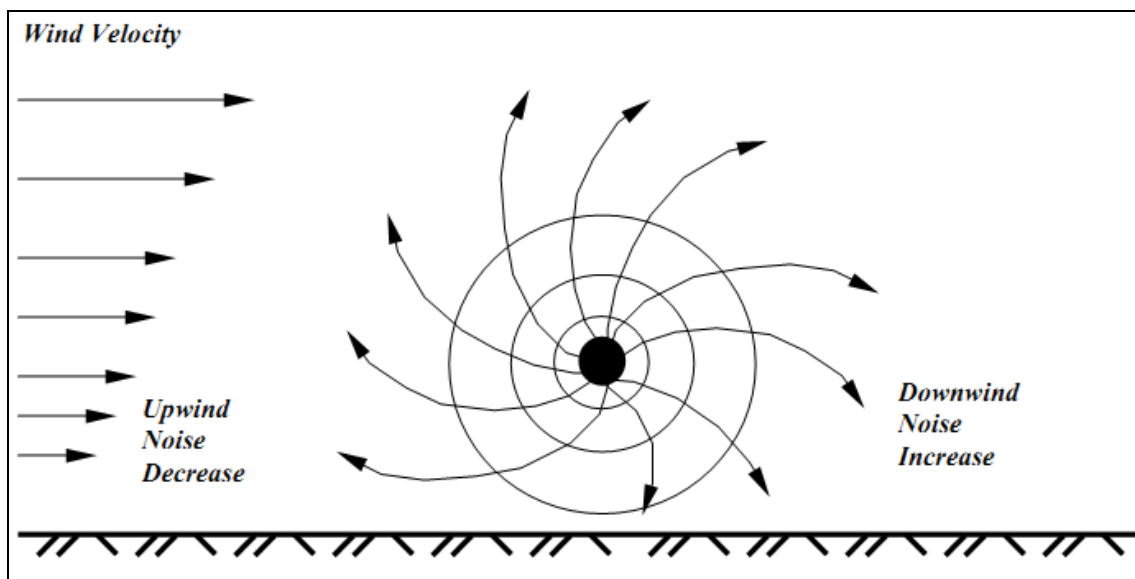
Ground Absorption

The propagation path of noise from many typical sources such as roadways to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a paved parking lot or body of water,), no excess ground attenuation is generally assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and

trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is typically assumed. When added to cylindrical spreading from traffic noise sources, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance. When added to spherical spreading (point sources), it results in overall drop-off rates of approximately 7.5 dBA. These approximations are generally only applicable for receivers within 300 feet of the noise source(s), and should not be applied to sound path lengths of more than 300 feet.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas receivers upwind from the source can have lowered noise levels. This is illustrated in **Figure 4.H-4** below. Given the flat topography of the California Central Valley and the consistent delta breeze in San Joaquin County, this is a common phenomenon for the area.



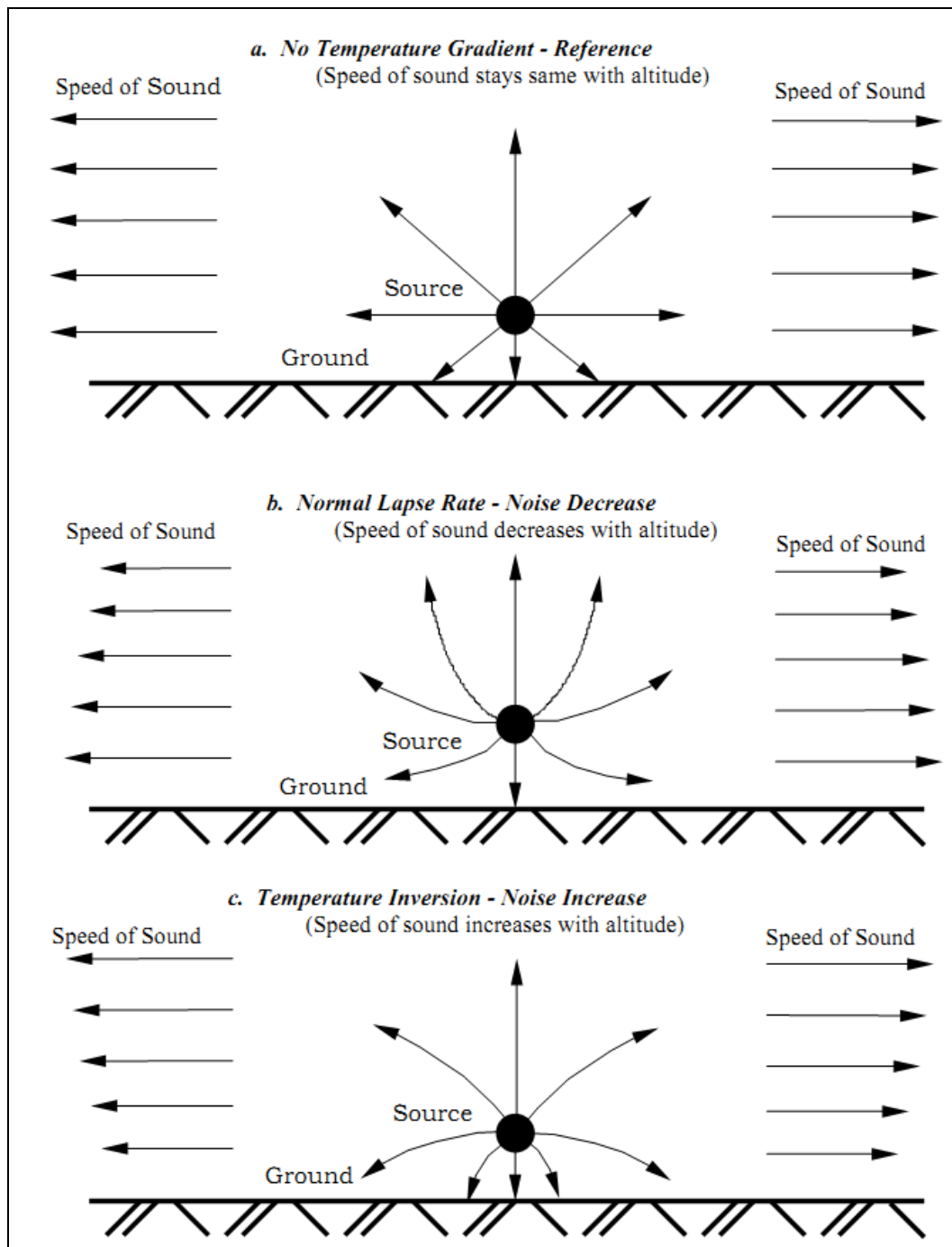
SOURCE: Caltrans, 2009

Figure 4.H-4
Wind Effects on Noise Levels

In addition to the enhancing effect produced by wind, sound levels can increase at large distances from the source (e.g., more than 500 feet) due to atmospheric temperature inversions (i.e., increasing temperature with elevation) or can decrease with distance from the source at a higher rate than the typical spreading loss with distance rate (see Figures 4.H-2 and 4.H-3) due to a temperature lapse condition (i.e., decreasing temperature with elevation).

Temperature inversions are a common part of the meteorological environment in California. During a temperature inversion, the air temperature at the ground is cooler than that several hundred feet above the ground. These temperature inversions are typically caused when a warm, sunny day is followed by a cold, clear night; generally this occurs more frequently and with higher intensity in the fall and the spring seasons. The sun warms the earth surface during the day and generally the air temperature near the ground is higher than the air temperature at higher elevations, but when the sun sets, the earth cools quickly by infrared radiation into space and so does the air mass at lower elevations, so that the temperature of air at high elevations soon becomes warmer than that of the air

near the ground. The speed of sound is higher in warmer air, and this inverted temperature profile causes the sound waves in the warmer air to overtake those traveling in cooler air; thus the sound “bends” back toward the ground, as shown in **Figure 4.H-5**.



SOURCE: Caltrans, 2009

Figure 4.H-5
Effects of Temperature Gradients on Noise

Other factors such as air temperature, humidity, and turbulence can also have significant effects on sound propagation. For instance, air temperature and humidity have a significant effect on the rate of molecular absorption as sound travels large distances. A sound consisting primarily of middle frequencies such as speech or animal vocalization attenuates approximately five additional decibels for every 1,000 feet of travel with an air temperature of 70 degrees Fahrenheit and a humidity of 30 to 40 percent, which is typical throughout most of the California Central Valley. This atmospheric effect is in addition to the other effects discussed above.

Fundamentals of Vibration

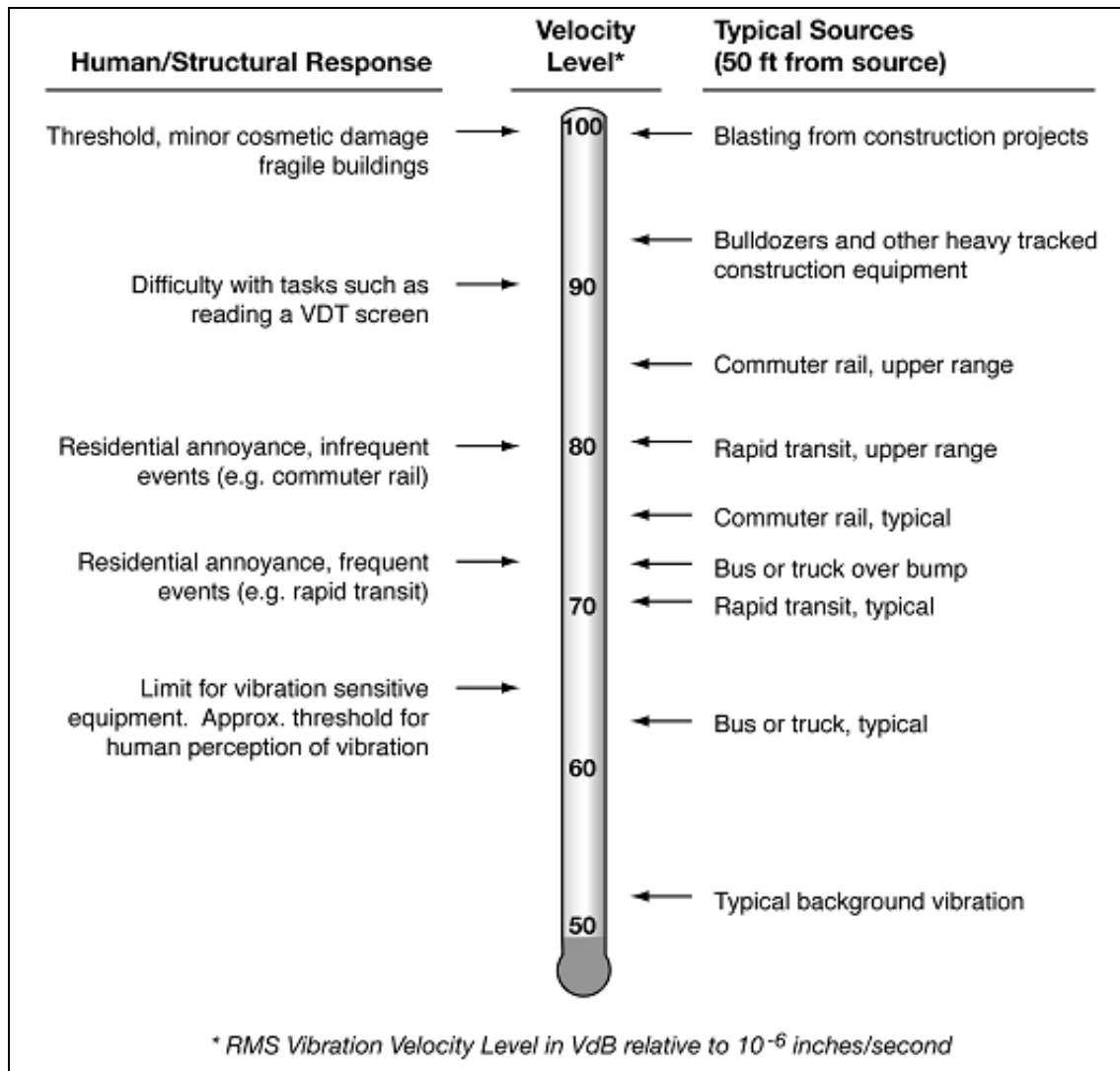
Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures. These energy waves generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source. This approach only takes into consideration the attenuation from geometric spreading; since there are additional factors that reduce vibration, such as damping from soil conditions, this approach tends to underestimate attenuation and therefore, provides a conservative estimate of vibration at the receptor.

Vibration is an oscillatory motion that can be described in terms of particle displacement, velocity, or acceleration. Vibration is typically described by its peak amplitude and its root-mean-square (RMS) amplitude. The RMS value can be considered an average value over a given time interval. The peak vibration velocity is the same as the peak particle velocity (PPV), where PPV refers to the peak vibration in units of inches per second (in/sec). Peak particle velocity is defined as the maximum instantaneous positive or negative peak of the vibration signal, and is commonly used to assess the potential for damage to buildings and structures. The RMS amplitude is generally used for assessing human annoyance to vibration.

Effects of Vibration on People

Responses of human receptors and structures to vibration are influenced by a combination of factors, including soil or rock type, distance, duration, and the number of perceived events. Energy transmitted through the ground as vibration can reach levels that can cause structural damage; however, humans can be quite sensitive to vibration, and the amplitudes that are often perceived by humans may be well below the amplitudes that could potentially cause architectural or structural damage.

Common background sources of vibration in San Joaquin County include construction and industrial equipment sources, truck traffic, trains, and occasional earthquakes. **Figure 4.H-6** illustrates typical amplitudes of vibration for transit sources in terms of RMS velocity and typical human response. Here, both the peak and RMS velocities are given in inches per second (in/sec). For example, a freight train passing 100 feet from an observer can cause vibration amplitudes in excess of 0.1 in/sec peak particle velocity (PPV), while a strong earthquake can produce vibration amplitudes in excess of 10 in/sec PPV. The threshold of human perception for continuous vibration is approximately 0.006 in/sec PPV measured at the surface on which the person is lying down, sitting, or standing.



SOURCE: FTA, 2006

Figure 4.H-6
Typical Vibration levels

Studies indicate that people are less aware of short-duration events than events of longer duration.

Table 4.H-2 presents typical levels of vibration due to construction equipment at a distance of 25 feet in terms of PPV.

Groundborne Noise

Noise caused by vibration propagated through soil and building structures is groundborne noise. It is normally radiated by the ground in open air and by walls, floors, and ceilings inside a building as a result of groundborne vibration.

Groundborne noise in buildings is generated when interior surfaces (walls and floors) are vibrated, or “excited,” into motion by ground vibration transmitted into the structure. For example, ground vibration could cause windows to rattle or items on shelves to move. The construction features of a

**TABLE 4.H-2
TYPICAL CONSTRUCTION VIBRATION LEVELS**

Equipment	Peak Particle Velocity (PPV) at 25 feet (inches per second)	Approximate L_v^1 at 25 feet (VdB)
Pile Driver (impact)	0.644	104
Pile Driver (sonic)	0.170	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)		
- in soil	0.008	66
- in rock	0.017	75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

¹ Root-mean-square (RMS) velocity in decibels (VdB) re: 1 micro-inch/second

SOURCE: FTA, 2006

building's foundation, structure, and walls determine the building's response to incident ground vibration. Groundborne noise can be calculated in the building based on the projected RMS vibration of the ground surface at the building.

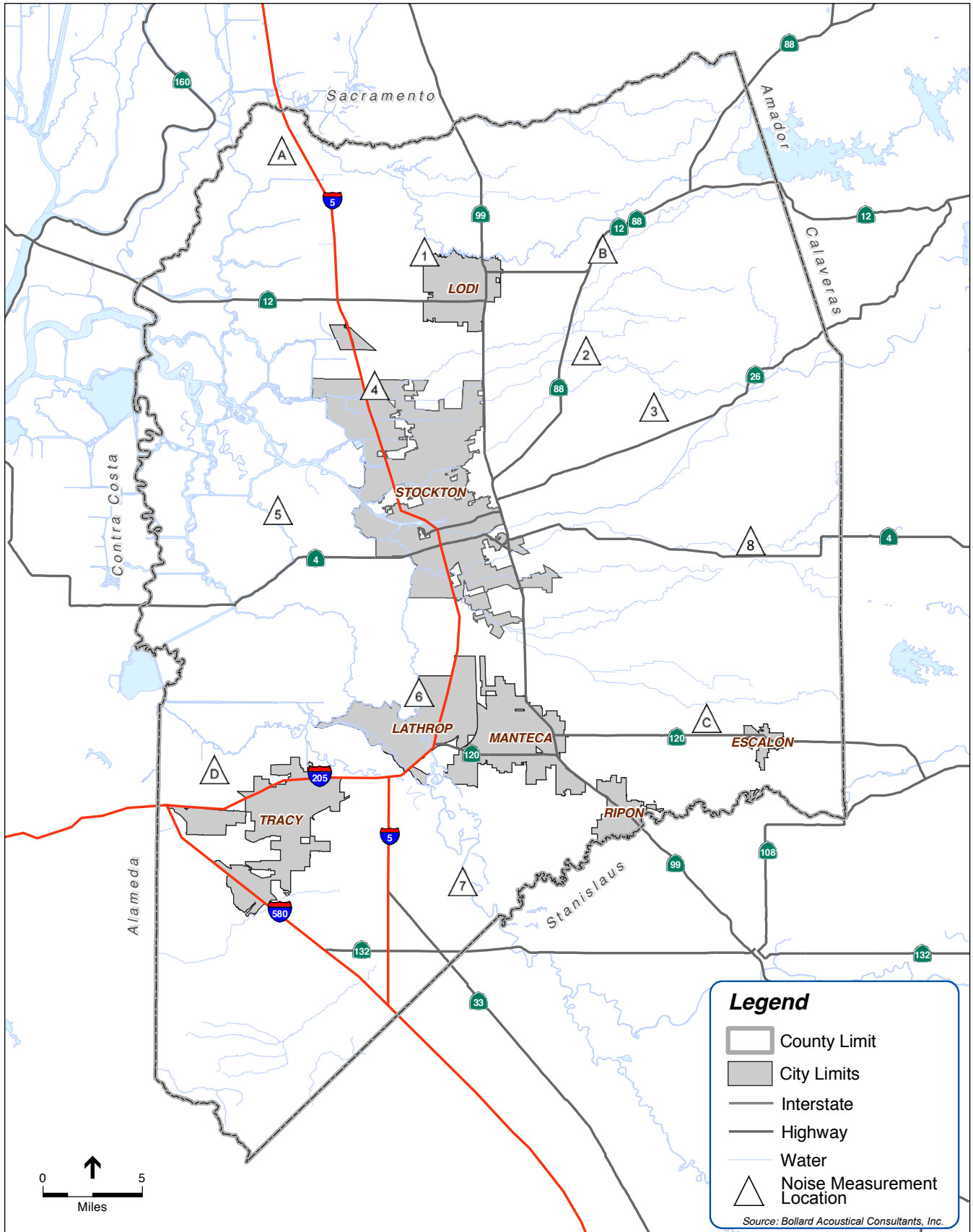
Groundborne noise is less of a concern in the presence of airborne noise because the airborne noise usually dominates an acoustic environment. Groundborne noise is typically of concern for highly sensitive and isolated buildings (e.g., recording studios) or for projects that involve underground construction at night where there is little or no project airborne noise component and when airborne noise levels are less (i.e., less traffic noise).

Existing Conditions

Community Noise Level Measurement Surveys

To quantify some of the existing¹ ambient noise environments within San Joaquin County, community noise level surveys were performed at 12 locations as described in **Figure 4.H-7** and **Table 4.H-3**. Eight of these locations (Sites 1-8) were monitored for short-term periods during morning (7 a.m.-12 p.m.), afternoon (12 p.m.-7 a.m.), and nighttime (10 p.m.-7 a.m.) hours; and four locations (Sites A-D) were monitored continuously for a 24-hour period.

¹ Although noise levels are based on year 2008 conditions, noise sources, such as roadway traffic, have shown little change since that year and are representative for the year 2013 for purposes of the baseline.



SOURCE: Bollard Acoustical Consultants, Inc.

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Figure 4.H-7
Community Noise Level Measurement Sites

**TABLE 4.H-3
COMMUNITY NOISE MEASUREMENT SURVEY RESULTS**

Site	Location	Date	Time Period	L _{eq}	L _{max}	L _{dn}	Sources
1	Bozant Katzakian Park Turner Rd. & Bridgetowne Dr. Woodbridge	July 22, 2008	Morning	49	57	54	Local Traffic
		July 22, 2008	Afternoon	49	60		
		July 22, 2008	Night	47	53		
2	Open Field E. Live Oak Rd. & Cherry Ave. East of Lodi	July 22, 2008	Morning	38	51	44	Local Traffic Rural Natural
		July 22, 2008	Afternoon	36	48		
		July 22, 2008	Night	38	40		
3	South of 6676 N. Duncan Rd. Linden	July 22, 2008	Morning	45	60	47	Local Traffic Rural Natural
		July 22, 2008	Afternoon	45	57		
		July 22, 2008	Night	39	45		
4	Community Park AG Spanos Blvd. & Whistler Wy. West of Lodi/North of Stockton	July 23, 2008	Morning	48	58	65	Local Traffic Community
		July 22, 2008	Afternoon	50	57		
		July 22, 2008	Night	59	62		
5	Davini Rd. & W. McDonald Rd. (End of Davini Rd.) Holt	July 30, 2008	Morning	42	54	49	Distant Traffic Natural
		July 29, 2008	Afternoon	46	64		
		July 29, 2008	Night	42	45		
6	Dos Reis Regional Park Dos Reis Rd. Lathrop	July 30, 2008	Morning	40	55	54	Distant Traffic Natural
		July 29, 2008	Afternoon	46	54		
		July 29, 2008	Night	48	54		
7	San Joaquin River Club Keystone Dr. & Malibou Rd. San Joaquin City (SE of Tracy)	July 30, 2008	Morning	34	47	47	Natural Local Traffic
		July 29, 2008	Afternoon	54	64		
		July 29, 2008	Night	40	45		
8	Open Field Escalon Bellota Rd. & San Julian Rd. Farmington	July 30, 2008	Morning	34	46	58	Distant Traffic Natural Rural
		July 29, 2008	Afternoon	44	54		
		July 29, 2008	Night	52	57		
A	26240 Blossom Road Thornton	July 22-23, 2008	Morning	57-61	73-78	62	Community Local Traffic
			Afternoon	55-58	70-83		
			Night	45-60	66-77		
B	19077 Lambert Way Lockeford	July 22-23, 2008	Morning	49-52	61-75	57	Community Local Traffic
			Afternoon	50-55	60-72		
			Night	46-55	58-79		
C	16715 S. Van Allen Road Escalon	July 22-23, 2008	Morning	49-51	64-68	56	Local Traffic
			Afternoon	48-63	64-84		
			Night	36-58	54-72		
D	772 Prosperity Street Mountain House	July 22-23, 2008	Morning	39-45	51-66	50	Community Natural
			Afternoon	44-50	58-78		
			Night	40-47	47-68		

L_{dn} was estimated based on L_{eq} data for short-term noise level measurement sites (Sites 1-8).

SOURCE: Mintier Harnish, 2009

Roadway Noise

The Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108) was used with existing traffic volume information provided in Section 4.D, *Transportation and Circulation*² and Caltrans, and other modeling assumptions (i.e., traffic speeds, day/night distribution, and heavy/medium truck distribution) determined from past projects, to approximate existing traffic noise exposure from roadways within San Joaquin County (Mintier Harnish, 2009). Results of the traffic noise assessment are summarized in **Tables 4.H-4** and **4.H-5** for County roadways and highways, respectively. Modeling input data for this assessment is included in the San Joaquin County Background Report (Appendix 15A) (Mintier Harnish, 2009).

Topography within San Joaquin County varies, sometimes alternating from flat to moderately hilly along relatively short roadway segments. Due to this topographic complexity, it is not feasible to evaluate the effects of topography on traffic noise within the framework of the General Plan Noise Element. The contour distances presented in Tables 4.H-4 and 4.H-5 should be considered conservative estimates of traffic noise exposure, to be supplemented by detailed, project-specific study as needed.

Railroad Noise

San Joaquin County serves as the confluence point for the Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe Railroad (BNSF). Both railroad main lines parallel the SR 99/I-5 corridor in the north county. In the south county, the UPRR main line parallels SR 99 while the BNSF main line parallels Mariposa Road/Santa Fe Road to the east and SR 4 to the west. Both railroads offer services to smaller communities away from the main lines via spur lines. Spur lines within San Joaquin County include those near the City of Tracy (UPRR); along French Camp Road near the communities of Five Corners, Simms, and Escalon (BNSF); and east of the cities of Stockton and Lodi (UPRR). Many smaller freight rail companies, such as Central California Traction (CCT), use these lines for their operations. Please see **Figure 4.H-8** for the locations of the railways within San Joaquin County and the noise measurement locations.

In addition to the freight train service, main line tracks also support Amtrak and Altamont Commuter Express (ACE) passenger rail services in the county. Amtrak currently operates 12 daily trains south of Sacramento and 8 daily trains west of Stockton (Bay Area). These trains are classified by Amtrak as the “San Joaquins.” ACE currently operates 8 daily trains between Stockton and San Jose.

² Although traffic noise levels are based on year 2009 volumes, traffic volumes have shown little change since that year and are representative for the year 2013 for purposes of the baseline.

**TABLE 4.H-4
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS**

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
1	Acampo Rd.	e/o Clements Rd.	45	2	5	10
2	Airport Wy.	s/o Roth Rd.	64	39	84	182
3	Airport Wy.	n/o Roth Rd.	64	40	86	185
4	Airport Wy.	Arch Rd. to French Camp Rd.	56	12	27	57
5	Airport Wy.	Charter Wy. to Arch Rd.	57	14	30	65
6	Airport Wy.	n/o Kasson Rd.	58	16	35	75
7	Airport Wy	Miner Ave. to Charter Wy.	57	13	28	60
8	Alfalfa St.	s/o Grace St.	45	2	5	10
9	Alpine Rd.	n/o Kettleman Ln.	52	6	13	28
10	Arch Rd.	e/o Austin Rd.	58	16	34	73
11	Arch Rd.	w/o Austin Rd.	60	21	46	99
12	Archerdale Rd.	s/o Baker Ln.	51	5	11	23
13	Archerdale Rd.	n/o SR 26	47	3	7	15
14	Armstrong Rd.	e/o Devries Rd.	54	9	18	39
15	Armstrong Rd.	w/o Lower Sacramento Rd.	58	17	36	77
16	Armstrong Rd.	e/o Lower Sacramento Rd.	59	20	42	91
17	Ash St.	7th to French Camp Rd.	55	10	22	48
18	Ash St.	El Dorado to McKinley	56	12	26	56
19	Augusta St.	e/o Chestnut St.	47	3	7	15
20	Augusta St.	e/o Lilac St.	48	4	8	17
21	Austin Rd.	s/o Arch Rd.	56	12	25	55
22	Austin Rd.	n/o Arch Rd.	58	16	34	73
23	Austin Rd.	City Limit to Graves Rd.	57	14	31	66
24	Austin Rd.	E. Louise Ave. to SR 120	56	12	26	56
25	Austin Rd.	Graves to Moffat	55	11	23	50
26	Baker Rd.	e/o Tully Rd.	57	15	31	68
27	Banta Rd.	s/o Eleventh St.	51	6	12	26
28	Banta Rd.	n/o Linne Rd.	51	5	12	25
29	Barcelona Ave.	e/o Balboa Ave.	44	2	4	8
30	Belle Ave.	n/o Robindale Ave.	47	3	6	13
31	Benjamin Holt Dr.	Leesburg Pl. to Pacific Ave.	60	23	49	106
32	Benjamin Holt Dr.	Plymouth Rd. to Alexandria Pl.	62	28	60	130
33	Beyer Ln.	.5 mi N of Harding Wy. to Fremont St.	56	12	26	55
34	Beyer Ln.	s/o SR 88 (Waterloo Rd.)	56	12	25	54
35	Bird Rd.	n/o Ahern Rd.	56	12	26	55
36	Brandt Rd.	w/o SR 88	57	13	28	60
37	Brandt Rd.	w/o Jack Tone Rd.	56	12	25	55
38	Brennan Ave.	Ulrey Ave. to Parallel to Miller Ave.	43	2	3	7
39	Bristol Ave.	w/o Delaware Ave.	40	1	2	5
40	Byron Rd.	Hansen Rd. to Reeve Rd.	65	47	101	218
41	Byron Rd.	Von Sosten Rd. to Tracy City Limits	60	22	48	104

TABLE 4.H-4 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
42	Calriva Dr.	w/o Delano Ave.	43	2	3	7
43	Campbell Ave.	n/o Lone Tree Rd.	48	3	7	16
44	Campbell Ave.	SR 120 to Parallel to Miller Ave.	45	2	5	10
45	Capistrano Ave.	n/o Valencia Ave.	42	1	3	7
46	Carpenter Rd.	e/o Mariposa Rd.	52	7	14	31
47	Carrolton Rd.	s/o Lone Tree Rd.	48	3	7	16
48	Carrolton Rd.	n/o Lone Tree Rd.	50	4	10	21
49	Cherokee Rd.	w/o Newton Rd.	64	40	87	188
50	Cherokee Rd.	SR 99 to Suburban Rd.	63	35	76	164
51	Cherryland Rd.	n/o SR 88 (Waterloo Rd.)	53	7	16	34
52	Chrisman Rd.	n/o Linne Rd.	60	21	44	96
53	Chrisman Rd.	s/o Schulte Rd.	62	31	66	143
54	Chrisman Rd.	n/o Schulte Rd.	63	35	76	164
55	Church St.	w/o Bush St.	40	1	2	5
56	Clark Dr.	e/o SR 99 E. Frontage Rd.	51	5	12	26
57	Cole Dr.	n/o Morada Ln.	45	2	5	10
58	Comstock Rd.	e/o Duncan Rd.	53	7	16	33
59	Comstock Rd.	w/o Duncan Rd.	54	8	17	37
60	Corral Hollow Rd.	s/o Clover Rd.	61	26	56	120
61	Corral Hollow Rd.	I-205 to 11th St.	53	7	16	33
62	Corral Hollow Rd.	s/o I-580	59	18	38	82
63	Corral Hollow Rd.	s/o Lammers Rd.	50	5	10	22
64	Corral Hollow Rd.	s/o Valpico Rd.	61	25	54	116
65	Cortez Ave.	e/o Balboa Ave.	51	5	11	23
66	Cottage Ave.	s/o Lathrop Rd.	55	9	20	44
67	Cypress Point Dr.	n/o Spring Creek Dr.	37	1	1	3
68	D St.	s/o 11th St.	49	4	9	19
69	D St.	n/o 11th St.	51	5	11	24
70	Davis Rd.	s/o Armstrong Rd.	56	12	25	53
71	Davis Rd.	n/o Eight Mile Rd.	59	18	39	84
72	Davis Rd.	n/o Peltier Rd.	37	1	1	3
73	Davis Rd.	s/o Peltier Rd.	47	3	6	14
74	De Anza Ave.	n/o Barcelona Ave.	42	1	3	7
75	De Broggi Rd.	w/o Republic Wy.	45	2	5	10
76	Devries Rd.	n/o Armstrong Rd.	54	9	20	43
77	Devries Rd.	s/o Armstrong Rd.	55	10	22	47
78	Douglas Pl.	w/o Leesburg Pl.	53	8	17	36
79	Downing Ave.	w/o O'Dell Ave.	56	11	24	53
80	Duncan Rd.	n/o Comstock Rd.	47	3	7	15
81	Duncan Rd.	s/o Comstock Rd.	52	6	13	28
82	Duncan Rd.	n/o Milton Rd.	52	6	13	29

TABLE 4.H-4 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
83	E 4th St.	Olive Ave. to S. Sinclair Ave.	52	6	13	29
84	E Larch Rd.	Corral Hollow Rd. to City Limit	59	18	38	82
85	Eight Mile Rd.	I-5 to Thornton Rd.	52	6	14	30
86	Eight Mile Rd.	Lower Sacramento Rd. to SR 99	52	6	13	29
87	Eight Mile Rd.	Thornton Rd. to Lower Sacramento Rd.	51	5	12	25
88	Eleventh St.	n/o Grant Line Rd.	70	98	211	455
89	Eleventh St.	Tracy City Limit to I-5	69	92	199	429
90	Elliott Rd.	Peltier Rd. to SR 12/88	59	18	38	82
91	Elliott Rd.	s/o San Joaquin Co. Line	49	4	9	20
92	Elm St.	e/o First St.	37	1	1	3
93	Elmwood Ave.	w/o Franklin Ave.	42	1	3	7
94	Empire St.	n/o Bishop St.	37	1	1	3
95	Empire St.	s/o Bishop St.	40	1	2	5
96	Escalon-Bellota	Lone Tree Rd. to Mariposa Rd.	59	18	39	84
97	Fairchild Ln.	w/o Beecher Rd.	49	4	9	19
98	Finck Rd.	w/o Tracy Blvd.	44	2	4	8
99	Flag City Blvd.	e/o Republic Wy.	45	2	5	10
100	Forest Lake Rd.	e/o Lower Sacramento Rd.	42	1	3	7
101	French Camp Rd.	e/o Airport Wy.	65	47	102	220
102	French Camp Rd.	SR 99 to SR 120	62	29	63	136
103	French Camp Rd.	n/o Yettner Rd.	64	37	81	174
104	Fresno Street	Church St. to Scotts Ave.	66	57	122	263
105	Fulton St.	e/o West Ln.	45	2	5	10
106	Gawne Rd.	e/o Nelson Rd.	47	3	6	13
107	Golfview Rd.	n/o Eight Mile Rd.	42	1	3	7
108	Grace St.	e/o Harrison St.	40	1	2	5
109	Grant Line Rd.	Byron to Lammers Rd.	68	78	168	362
110	Grant Line Rd.	e/o Mountain House Pkwy.	60	22	47	101
111	Hammer Ln.	East of SR 99	67	64	138	297
112	Hammer Ln.	I-5 to Thornton Rd.	58	16	35	75
113	Hammer Ln.	Thornton Rd. to Tam O Shanter Dr.	59	17	38	81
114	Hansen Rd.	n/o Von Sosten Rd.	48	3	7	15
115	Harding Wy.	w/o Golden State Ave.	53	7	15	32
116	Harney Ln.	SR 99 to Jack Tone Rd.	55	10	22	48
117	Harrisburg Pl.	s/o Sheridan Wy.	54	9	19	40
118	Harrison St.	s/o Grace St.	44	2	4	9
119	Harrold Ave.	Jones Ave. to SR 120	37	1	1	3
120	Hawes Ln.	n/o Spring Creek Dr.	37	1	1	3
121	Hewitt Rd.	n/o SR 4	42	1	3	7
122	Howard Rd.	w/o Roberts Rd (South)	54	9	18	40
123	Indiana St.	e/o Lilac St.	49	4	9	19

TABLE 4.H-4 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
124	Ione St.	s/o Grace St.	45	2	5	10
125	Jack Tone Rd.	n/o S. Lambert Wy.	48	3	7	16
126	Jones Rd.	Dahlin Rd. to Harrold Ave.	37	1	1	3
127	Kaiser Rd.	SR 4 to Mariposa Rd.	42	1	3	7
128	Kasson Rd.	Deodara Dr. to Durham Ferry Rd.	52	7	15	32
129	Kasson Rd.	I-5 to UPRR	60	20	43	93
130	Kasson Rd.	W. 11 th St. to I-5	58	17	36	78
131	Kasson Rd.	W. Linne Rd. to Deodara Dr.	52	6	14	30
132	Kasson Rd.	Wright to Linne Rd.	52	6	13	28
133	Kettleman Ln.	e/o Alpine Rd.	63	33	70	151
134	Kettleman Ln.	w/o Alpine Rd.	63	33	71	153
135	Lammers Rd.	n/o Bethany Rd.	54	9	19	42
136	Lammers Rd.	Eleventh St. to Tracy City Limit	63	36	79	169
137	Lammers Rd.	w/o Nancy Emilia Ct.	56	11	23	51
138	Lammers Rd.	n/o Redbridge Rd.	61	25	53	114
139	Larch Rd.	Naglee Rd. to S. Corral Hollow Rd.	52	7	15	32
140	Lathrop Rd.	w/o Airport Wy.	66	58	124	267
141	Leesburg Pl.	s/o Rutledge Wy.	46	2	5	12
142	Liberty Rd.	w/o Dry Creek Rd.	53	8	16	35
143	Liberty Rd.	Lower Sacramento Rd. to SR 99	59	20	42	91
144	Liberty Rd.	w/o SR 88	55	10	23	49
145	Liberty Rd.	SR 99 to SR 88	55	10	23	49
146	Lilac St.	n/o Indiana St.	44	2	4	9
147	Linne Rd.	w/o Banta Rd.	59	19	41	89
148	Linne Rd.	e/o Chrisman Rd.	59	20	43	92
149	Linne Rd.	w/o Lehman Rd.	56	11	24	53
150	Lone Tree Rd.	e/o Carrollton Rd.	47	3	6	13
151	Lone Tree Rd.	w/o Carrollton Rd.	49	4	9	20
152	Lone Tree Rd.	e/o Henry Rd.	52	7	15	32
153	Lower Sacramento Rd.	n/o Eight Mile Rd.	65	49	106	228
154	Lower Sacramento Rd.	s/o Indiana St.	65	43	93	200
155	Lower Sacramento Rd.	n/o Mokelumne St.	65	45	98	211
156	Lower Sacramento Rd.	n/o W. Jahant Rd.	62	31	67	144
157	Lower Sacramento Rd.	Eilers to Academy	65	49	106	228
158	Lower Sacramento Rd.	Harney Rd. to Eight Mile Rd.	49	4	9	20
159	Lower Sacramento Rd.	Peltier to Collier	63	34	73	158
160	Mac Arthur Dr.	Delta Ave. to Arbor Rd.	49	4	9	20
161	Mackville Rd.	n/o B St.	50	5	10	22
162	Main St.	SR 99 to Gillis Rd.	62	31	66	143
163	Mariposa Rd.	Jack Tone Rd. to Escalon-Bellota Rd.	46	2	5	12
164	Mariposa Rd.	SR 99 to Jack Tone Rd.	50	5	10	21

TABLE 4.H-4 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
165	Market St.	s/o Grace St.	50	5	10	21
166	Matthews Rd.	I-5 to El Dorado St.	64	37	81	174
167	McHenry Ave.	s/o SSJID Canal	66	55	118	253
168	McAllen Rd.	e/o Holman Rd. (Wine Grape Rd.)	65	43	93	201
169	McDonald Rd.	w/o Holt Rd.	52	6	13	27
170	McHenry Ave.	Jones to Stanislaus Co. Line	66	55	118	254
171	McKinley Ave.	Roth Rd. to Watters Rd.	52	6	13	28
172	Mendocino Ave.	w/o Kirk Ave.	37	1	1	3
173	Messick Rd.	e/o Duncan Rd.	37	1	1	3
174	Mill St.	s/o Grace St.	37	1	1	3
175	Miller Ave.	Escalon Ave. to End of Miller Ave.	37	1	1	3
176	Mokelumne St.	e/o Lilac St.	59	20	42	91
177	Monterey Ave.	w/o Kirk Ave.	37	1	1	3
178	Mountain House Pkwy.	Schulte Rd. to I-205	67	60	129	277
179	Mountain House Pkwy.	Schulte Rd. to I-580 w/I/C	66	55	118	253
180	Mourfield Ave.	s/o Downing Ave.	47	3	7	15
181	Munford Ave.	w/o Mariposa Rd.	42	1	3	7
182	Myran Ave.	s/o Waterloo Rd.	40	1	2	5
183	Nathelle Ln.	e/o SR 88	37	1	1	3
184	Newton Rd.	n/o Cherokee Rd.	66	54	116	249
185	Ninth St.	w/o Pock Ln.	49	4	9	19
186	Oak St.	e/o Thornton Rd.	40	1	2	5
187	Oakwilde Ave.	n/o Morada Ln.	37	1	1	3
188	O'Dell Ave.	s/o Downing Ave.	52	6	13	29
189	O'Dell Ave.	n/o Downing Ave.	54	9	20	43
190	O'Dell Ave.	s/o Ivy Ave.	54	8	18	38
191	Olive Ave.	E. 4th St. to SR 4/Farmington Rd.	51	6	12	27
192	Olive Ave.	Section Ave. to E. 4th St.	51	6	12	27
193	Olive Ave.	W. Ripon Rd. to SR 99	34	0	1	2
194	Oro Ave.	Main St. to Section Ave.	62	31	66	143
195	Oro Ave.	s/o SR 26	63	33	71	153
196	Oro Ave.	n/o Washington St.	63	35	76	163
197	Overhiser Rd.	s/o Cherokee Rd.	47	3	6	13
198	Oxford Wy.	w/o Delaware Ave.	44	2	4	8
199	Paloma Ave.	e/o Balboa Ave.	50	5	10	21
200	Paloma Ave.	w/o Lower Sacramento Rd.	40	1	2	5
201	Paradise Rd.	City of Lathrop City Limits to I-205	46	2	5	12
202	Patterson Pass Rd.	I-580 to Alameda Co. Line	59	18	39	84
203	Peltier Rd.	w/o Davis Rd.	58	15	33	71
204	Peltier Rd.	e/o Davis Rd.	58	17	36	78
205	Peltier Rd.	e/o Devries Rd.	58	17	36	77

TABLE 4.H-4 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
206	Peltier Rd.	SR 99 to Elliott Rd.	42	1	3	7
207	Pershing Ave.	Thornton Rd. to Meadow	67	66	142	305
208	Pezzi Rd.	n/o Comstock Rd.	42	1	3	7
209	Portola Ave.	w/o Solano Ave.	47	3	6	14
210	Priest Rd.	s/o French Camp Rd.	46	2	5	12
211	River Rd.	Ripon City Limits to Santa Fe Rd.	62	30	64	137
212	Roberts Rd.	Muller Rd. to Howard Rd.	53	8	17	36
213	Roberts Rd.	Rollerson Rd. to Muller Rd.	55	10	21	45
214	Roberts Rd.	SR 4 to Rollerson Rd.	55	10	22	47
215	Robindale Ave.	s/o Belle Ave.	44	2	4	9
216	Robindale Ave.	e/o Belle Ave.	47	3	6	13
217	Roth Rd.	WPRR to Airport Wy.	67	62	133	286
218	Sacramento Blvd.	n/o Oak St.	50	5	10	22
219	San Rafael Ave.	n/o Stadium Dr.	42	1	3	7
220	San Rafael Ave.	s/o Stadium Dr.	47	3	6	13
221	Sante Fe Rd.	Main St. to Co. Line	62	31	68	146
222	Schulte Rd.	w/o Chrisman Rd.	59	18	40	85
223	Schulte Rd.	e/o Hansen Rd.	63	35	76	164
224	Schulte Rd.	MacArthur to Chrisman Rd.	62	31	67	144
225	Seville Ave.	w/o De Anza Ave.	37	1	1	3
226	Spiess Rd.	e/o Lower Sacramento Rd.	42	1	3	7
227	Spring Creek Dr.	e/o Cypress Point Rd.	49	4	9	20
228	Spring Creek Dr.	w/o Hawes Ln.	50	5	10	21
229	Spring Creek Dr.	e/o Indian Wells Ct.	47	3	6	13
230	Stadium Dr.	e/o West Ln.	45	2	5	10
231	Star St.	SR 12 to W. Banner St.	64	38	83	179
232	Thornton Rd.	SR 12 to Eight Mile Rd.	44	2	4	8
233	Thornton Rd.	s/o Walnut Grove Rd.	52	6	13	28
234	Tokay Colony Rd.	e/o SR 88	44	2	4	9
235	Tracy Blvd.	n/o Finck Rd.	63	36	79	169
236	Tracy Blvd.	s/o Finck Rd.	63	37	79	171
237	Tully Rd.	n/o Harney Ln.	44	2	4	8
238	Turner Rd.	e/o Thornton Rd.	60	20	43	93
239	Union Rd.	s/o French Camp Rd.	59	17	37	80
240	Valencia Ave.	w/o Pershing Ave.	45	2	5	10
241	Valpico Rd.	Corral Hollow to City Limit	65	49	106	229
242	Valpico Rd.	Lammers Rd. to Corral Hollow Rd.	63	36	79	169
243	Von Sosten Rd.	w/o Byron Rd.	59	19	40	87
244	Von Sosten Rd.	w/o Hansen Rd.	51	6	12	27
245	Walnut Grove Rd.	w/o Thornton Rd.	53	8	16	35
246	Washington St.	w/o Cardinal Ave.	52	6	13	28

TABLE 4.H-4 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—COUNTY ROADWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
247	Washington St.	e/o Oro Ave.	60	20	43	93
248	Washington St.	Ventura Ave. to Los Angeles	65	46	99	214
249	Waterloo Rd.	E St. to Filbert St.	67	66	143	308
250	Waterloo Rd.	Filbert St. to SR 99	68	68	147	317
251	Watters Rd.	e/o McKinley Ave.	46	2	5	12
252	West Ln.	s/o Alpine Ave.	69	87	187	403
253	West Ln.	Harney Ln. to Eight Mile Rd.	52	6	13	28
254	West Ripon Rd.	S. Austin Rd. to N. Stockton Ave.	45	2	5	10
255	Wildwood Rd.	e/o Jack Tone Rd.	40	1	2	5
256	Williamsburg Pl.	s/o Rutledge Wy.	47	3	7	15
257	Wilson Wy.	w/o Sanguinetti Ln.	66	58	126	271
258	Wisconsin Ave.	s/o Euclid Ave.	44	2	4	9
259	Woodbridge Rd.	w/o Chestnut St.	56	11	24	53
260	Woodbridge Rd.	Thornton Rd. to Ray	52	6	14	30
261	Woodward Ave.	Airport to Manteca Rd.	59	17	37	80

SOURCE: Mintier Harnish, 2009

TABLE 4.H-5
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE—HIGHWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
1	SR 4	Contra Costa/San Joaquin Co. Line	67	64	138	298
2	SR 4	Tracy Blvd.	67	61	131	282
3	SR 4	Inland Dr.	67	64	139	299
4	SR 4	Maybeck Rd.	68	70	150	324
5	SR 4	Roberts Island Rd.	69	83	179	385
6	SR 4	Fresno Ave.	70	102	220	475
7	SR 4	Navy Dr./Stockton St.	73	152	327	706
8	SR 4	Stockton, South Jct. I-5	70	99	214	462
9	SR 4	Stockton, North Jct. I-5	76	264	568	1225
10	SR 4	Stanislaus St.	77	291	627	1351
11	SR 4	Stockton, Wilson Wy.	77	289	623	1342
12	SR 4	Stockton, Filbert St.	77	278	598	1289
13	SR 4	North Jct. Rte. 99	77	278	598	1289
14	SR 4	South Jct. Rte. 99	65	50	107	230
15	SR 4	Walker Ln.	62	31	67	145
16	SR 4	Jack Tone Rd.	62	30	64	138
17	SR 4	Farmington	62	31	67	143
18	SR 4	Sonora Rd. (To Valley Home)	62	30	66	141

TABLE 4.H-5 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE-HIGHWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
19	SR 4	San Joaquin/Stanislaus Co. Line	62	30	66	141
20	I-5	Stanislaus/San Joaquin Co. Line	74	178	383	826
21	I-5	Jct. I-580 West	74	180	388	835
22	I-5	Jct. Rte. 132	75	200	431	928
23	I-5	Jct. Rte. 33 South	75	225	484	1042
24	I-5	Kasson Rd. I/C	75	225	485	1045
25	I-5	Old US 50; 11th St.	78	362	780	1680
26	I-5	Jct. I-205 West	83	740	1595	3436
27	I-5	Jct. Rte. 120 East	81	557	1201	2587
28	I-5	Lathrop Rd.	81	550	1186	2554
29	I-5	French Camp Overcrossing	81	568	1225	2639
30	I-5	Mathews Rd.	81	562	1210	2607
31	I-5	French Camp Turnpike I/C	81	579	1246	2685
32	I-5	Stockton, Eight St.	82	631	1360	2929
33	I-5	Stockton, Jct. Rte. 4	82	650	1400	3017
34	I-5	Stockton, Jct. Rte. 4	82	641	1380	2973
35	I-5	Pershing Ave. I/C	82	607	1307	2816
36	I-5	Stockton, Monte Diablo Ave. I/C	81	565	1218	2623
37	I-5	Country Club Blvd.	82	613	1320	2845
38	I-5	Plymouth Rd./Ryde Ave.	82	588	1266	2728
39	I-5	Stockton, March Ln.	81	566	1219	2627
40	I-5	Benjamin Holt Dr. I/C	81	540	1164	2507
41	I-5	Stockton, Hammer Ln.	81	524	1130	2434
42	I-5	Atherton/Eight Mile Roads I/C	80	456	982	2116
43	I-5	Jct. Rte. 12	78	345	743	1601
44	I-5	Peltier Rd.	78	319	688	1482
45	I-5	Walnut Grove Rd.	78	363	782	1686
46	I-5	San Joaquin/Sacramento Co. Line	78	317	682	1470
47	SR 12	Sacramento/San Joaquin Co. Line	71	111	240	517
48	SR 12	Glasscock Rd./Tower Pkwy.	71	116	251	540
49	SR 12	Guard Rd.	71	114	246	530
50	SR 12	Jct. I-5	71	110	237	511
51	SR 12	Thornton Rd.	70	102	220	475
52	SR 12	Lower Sacramento Rd.	71	125	270	582
53	SR 12	South Ham Ln.	72	128	276	595
54	SR 12	Lodi, South Hutchins St.	72	136	292	630
55	SR 12	Lodi, Central Ave.	71	113	244	525
56	SR 12	Lodi, Cherokee Ln.	71	109	234	505
57	SR 12	Lodi, Jct. Rte. 99	67	64	137	296
58	SR 12	Lodi, Cliff Ave.	66	58	124	268
59	SR 12	Victor Bruella Rd.	65	47	102	219
60	SR 12	Lockeford, Jct. Rte. 88	65	49	105	226

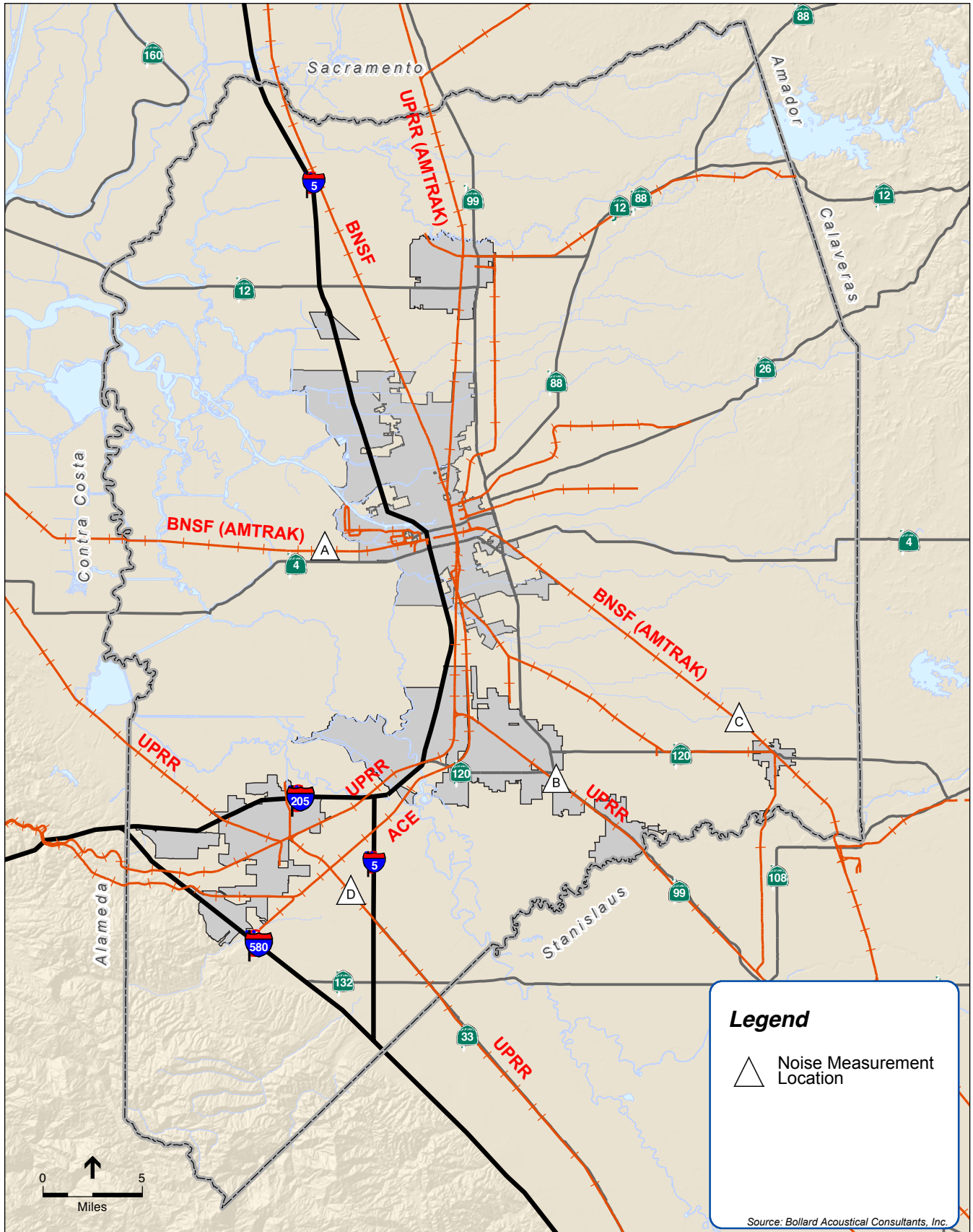
TABLE 4.H-5 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE-HIGHWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
61	SR 12	San Joaquin/Calaveras Co. Line	65	47	101	218
62	SR 26	Jct. Rte. 99	70	97	209	451
63	SR 26	Cardinal Ave.	68	70	150	323
64	SR 26	Alpine Rd.	66	57	122	264
65	SR 26	Jack Tone Rd.	65	45	97	210
66	SR 26	Duncan Rd.	66	51	110	237
67	SR 26	Mill St. (Linden)	66	51	110	237
68	SR 26	Linden, Flood Rd./Front St.	64	39	85	183
69	SR 26	Escalon/Bellota Rd.	64	41	88	190
70	SR 26	San Joaquin/Calaveras Co. Line	63	36	78	167
71	SR 33	Stanislaus County San Joaquin Co. Line	59	18	40	85
72	SR 33	Vernalis, Jct. Rte. 132	63	34	74	160
73	SR 33	New Jerusalem, Durham Ferry Rd.	63	34	74	160
74	SR 33	Jct. I-5	63	34	73	157
75	SR 88	Jct. Rte. 99; Stockton West	71	123	265	570
76	SR 88	Wilcox Rd.	70	101	218	469
77	SR 88	White Ln.	69	81	174	375
78	SR 88	Fairchild Ln.	68	74	159	343
79	SR 88	Waterloo, Ferguson/ Comstock Roads	66	53	114	246
80	SR 88	Eight Mile Rd.	67	65	139	300
81	SR 88	Harney Ln.	78	319	687	1480
82	SR 88	Lockeford, Jct. Rte. 12 West	70	96	208	447
83	SR 88	Jack Tone Rd.	70	99	213	460
84	SR 88	Elliot/Tully Roads	69	89	191	411
85	SR 88	Disch Rd.	68	79	170	366
86	SR 88	Mackville Rd.	68	79	171	368
87	SR 88	Clements, Jct. Rte. 12 East	69	91	195	421
88	SR 88	Liberty Rd.	67	65	141	303
89	SR 88	San Joaquin/Amador Co. Line	67	65	141	303
90	SR 99	Stanislaus/San Joaquin Co. Line	80	438	943	2031
91	SR 99	Ripon, Main St.	80	448	965	2078
92	SR 99	Milgeo Ave.	80	450	970	2090
93	SR 99	Jack Tone Rd.	80	460	992	2136
94	SR 99	South Jct. Rte. 120	78	368	793	1709
95	SR 99	Manteca, North Jct. Rte. 120	78	326	702	1512
96	SR 99	North Manteca I/C	78	332	715	1541
97	SR 99	Turner Station/French Camp Rd.	78	332	716	1543
98	SR 99	Stockton, Mariposa Rd.	79	371	799	1721
99	SR 99	Jct. Rte. 4 East	79	390	839	1808
100	SR 99	Jct. Rte. 26 West	79	395	851	1833
101	SR 99	Jct. Rte. 4 West	79	410	884	1905
102	SR 99	Jct. Rte. 26 East	79	397	856	1845

TABLE 4.H-5 (Continued)
PREDICTED EXISTING TRAFFIC NOISE EXPOSURE-HIGHWAYS

Segment Number	Roadway	Segment Location	L _{dn} at 100 Feet	Distance to L _{dn} Contour (feet)		
				70 dBA	65 dBA	60 dBA
103	SR 99	Jct. Rte. 88 Northeast	79	382	824	1775
104	SR 99	Cherokee Rd. I/C	78	358	771	1661
105	SR 99	Wilson Wy.	79	385	830	1788
106	SR 99	Hammer Ln.	78	338	729	1570
107	SR 99	Morada Ln.	78	327	704	1516
108	SR 99	South Lodi I/C	77	303	653	1406
109	SR 99	Lodi, Jct. Rte. 12 West	77	294	634	1366
110	SR 99	Lodi, Jct. Rte. 12 East	77	291	627	1352
111	SR 99	Lodi, Turner Rd.	77	291	627	1352
112	SR 99	Woodbridge Rd.	77	279	601	1295
113	SR 99	Acampo Rd. I/C	77	276	594	1281
114	SR 99	Jahant Rd.	77	276	594	1281
115	SR 99	San Joaquin/Sacramento Co. Line	77	276	594	1281
116	SR 120	Mossdale, Jct. I-5	78	324	699	1506
117	SR 120	Yosemite Ave. Undercrossing	77	284	611	1317
118	SR 120	Airport Wy.	77	278	598	1289
119	SR 120	Manteca Rd./Main St.	77	304	656	1413
120	SR 120	South Jct. Rte. 99	77	304	656	1413
121	SR 120	Manteca, North Jct. Rte. 99	70	105	226	487
122	SR 120	Austin Rd.	70	100	216	465
123	SR 120	Jack Tone Rd.	68	72	156	336
124	SR 120	French Camp Rd.	69	87	187	404
125	SR 120	Escalon, Main/Kern Streets	69	84	180	389
126	SR 120	Escalon, David Ave.	69	86	184	397
127	SR 120	San Joaquin/Stanslaus Co. Line	69	86	184	397
128	SR 132	Jct. I-580	72	132	285	614
129	SR 132	Chrisman Rd. I/C	71	123	266	573
130	SR 132	Jct. I-5	71	125	269	580
131	SR 132	Vernalis, Jct. Rte. 33	71	119	256	553
132	SR 132	San Joaquin/Stanslaus Co. Line	71	125	270	581
133	I-205	Alameda/San Joaquin Co. Line	78	328	707	1523
134	I-205	Patterson Pass Rd. I/C	78	330	711	1532
135	I-205	Old US 50	77	294	633	1365
136	I-205	Tracy, Mac Arthur Dr.	79	418	900	1938
137	I-205	Jct. I-5	80	469	1011	2178
138	I-580	Jct. I-5	73	167	360	776
139	I-580	Jct. Rte. 132 East	76	240	517	1115
140	I-580	Corral Hollow Rd. I/C	76	257	554	1194
141	I-580	San Joaquin/Alameda Co. Line	76	257	554	1194

SOURCE: Mintier Harnish, 2009



SOURCE: Bollard Acoustical Consultants, Inc.

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Figure 4.H-8
Railroad Map

Train noise level measurements have been gathered at locations adjacent to the primary UPRR and BNSF lines (Mintier Harnish, 2009). These train noise surveys also yielded daily train operations numbers (freight + passenger) for the given lines. Based on these data, estimates of train noise exposure (with limited warning horn noise) was estimated, including the locations of relevant train noise exposure contours. These data are summarized in **Table 4.H-6**. The data in Table 4.H-6 are examples of train noise exposure at specific locations in San Joaquin County and do not represent all train noise exposure within the county. These examples illustrate the vast differences in the number of train operations and associated noise exposure in different areas of the county. The examples represent train noise exposure away from grade crossings; that is, they do not include significant contributions from train warning horns and crossing guard warning systems. Measured train noise exposure away from grade crossings was averaged to be approximately 100 dBA Sound Exposure Level (SEL) at 100 feet from the tracks for the 114 train events summarized in Table 4.H-6. At grade crossings, warning horns dominate train noise exposure, producing an average SEL as high as 110 dBA at 100 feet from the tracks (Mintier Harnish, 2009).

**TABLE 4.H-6
SUMMARY OF TRAIN OPERATIONS AND NOISE LEVELS
SAN JOAQUIN COUNTY, 2001-2008**

Location ¹	Description	Number of Trains	L _{dn} at 100 Feet	Noise Contour Distance (feet)	
				65 dBA L _{dn}	60 dBA L _{dn}
A	Inland Rd. at SR 4 East of Holt	33	65	171	368
B	Woodward Rd. at Moffatt Blvd. South of Manteca	23	75	466	1,003
C	Lawrence Rd. & Arthur Rd. North of Escalon	47	72	305	657
D	South Lathrop	11	66	115	55

¹ See Figure 4.H-8 for mapped locations.

SOURCE: Mintier Harnish, 2009

The data presented above illustrate the variability regarding train noise exposure within the county. Variables such as train speed, track construction/condition, grade, number of train locomotives, number of train cars, and location relative to a grade crossing make quantitative assessment of train noise exposure difficult at best. This information illustrates the importance of site-specific train noise assessment for projects identified as noise sensitive.

Aircraft Noise

There are currently six public-use airports within San Joaquin County: Kingdon Executive Airport (O20), Lodi (Lind's) Airport (103), Lodi (Precissi) Airpark (L53), New Jerusalem Airport (1Q4), Stockton Metropolitan Airport (SCK), and Tracy Municipal Airport (TCY). Noise exposure associated with each of the identified airports is detailed in the San Joaquin County

Aviation System Airport Land Use Compatibility Plan (ALUCP) (Coffman and Associates, 2009), except for the Stockton Metropolitan Airport, which has a master plan update in progress. However, previously established contours for the Stockton Metropolitan Airport were included in the San Joaquin County General Plan Background Report (Mintier Harnish, 2009).

Airport noise exposure is presented in the form of CNEL contours, as mandated by Title 21 of the California Code of Regulations. The CNEL contours represent 24-hour average noise exposure due to annual-average airport operations. Additionally, aircraft noise exposure is presented in the form of the Sound Exposure Level (SEL). The 95 dBA SEL single-event noise exposure contour representing a typical aircraft departure on every runway is used to identify areas of potential sleep disturbance at neighboring residential uses. Locations of the identified airports within San Joaquin County are illustrated in **Figure 4.H-9**. Existing, future, and SEL noise contours for each of the identified airports are presented below, where available, in **Figures 4.H-10 to 4.H-18**. Detailed information for the airports is available in the San Joaquin County ALUCP.

Stationary Source Noises

A wide variety of stationary sources that are typical of an urban setting are present in the county. The county contains many different land uses (e.g., commercial, office/manufacturing, residential, institutions, public facilities, utilities), all of which can produce noise. Residential areas can generate noise through the use of heating and cooling equipment, and through landscape maintenance activities such as gasoline-powered lawnmowers, and leaf blowers, and through trash collection. Commercial uses can generate noise through the operation of rooftop heating and cooling equipment, and other operational activities, such as trash deposit and collection, garage operations (vehicles), and deliveries. In industrial uses, stationary noise sources include shipping and loading facilities, as well as other large-scale manufacturing and processing activities. Outdoor sports facilities that attract large numbers of spectators, such as high school football fields, can produce noise that affects nearby receptors.

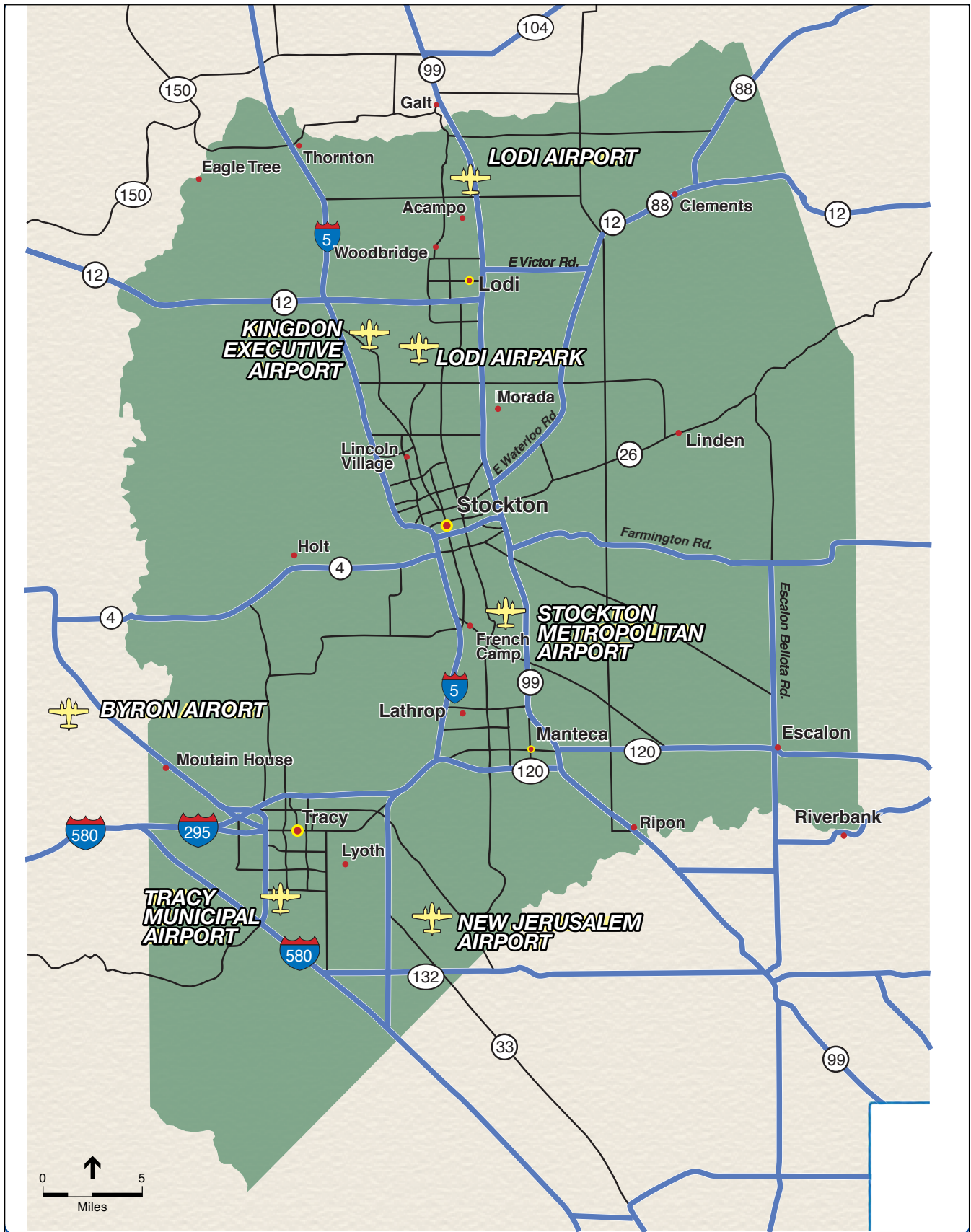
Construction Noise

Construction activities are a regular and ongoing source of noise throughout the county. Noise levels generated by construction activities are generally isolated to the immediate vicinity of the construction site and typically occur during daytime working hours. Construction activities also typically occur for relatively short-term periods of a few weeks to a few months.

H.3 Regulatory Setting

Federal

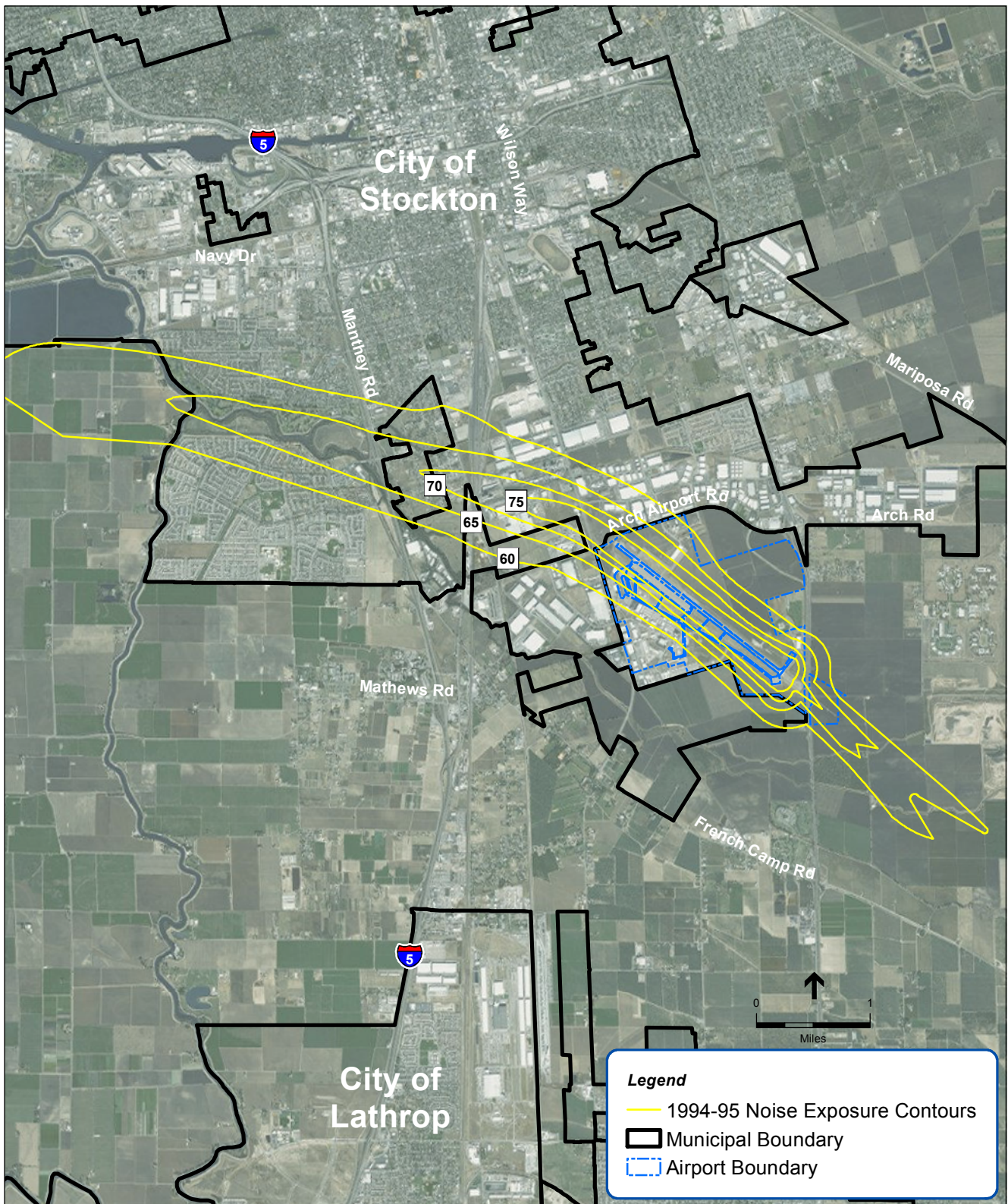
Federal regulations establish noise limits for medium and heavy trucks (more than 4.8 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. These controls are implemented through regulatory controls on truck manufacturers. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway center line. These controls are implemented through regulatory controls on truck manufacturers.



SOURCE: Bollard Acoustical Consultants, Inc.

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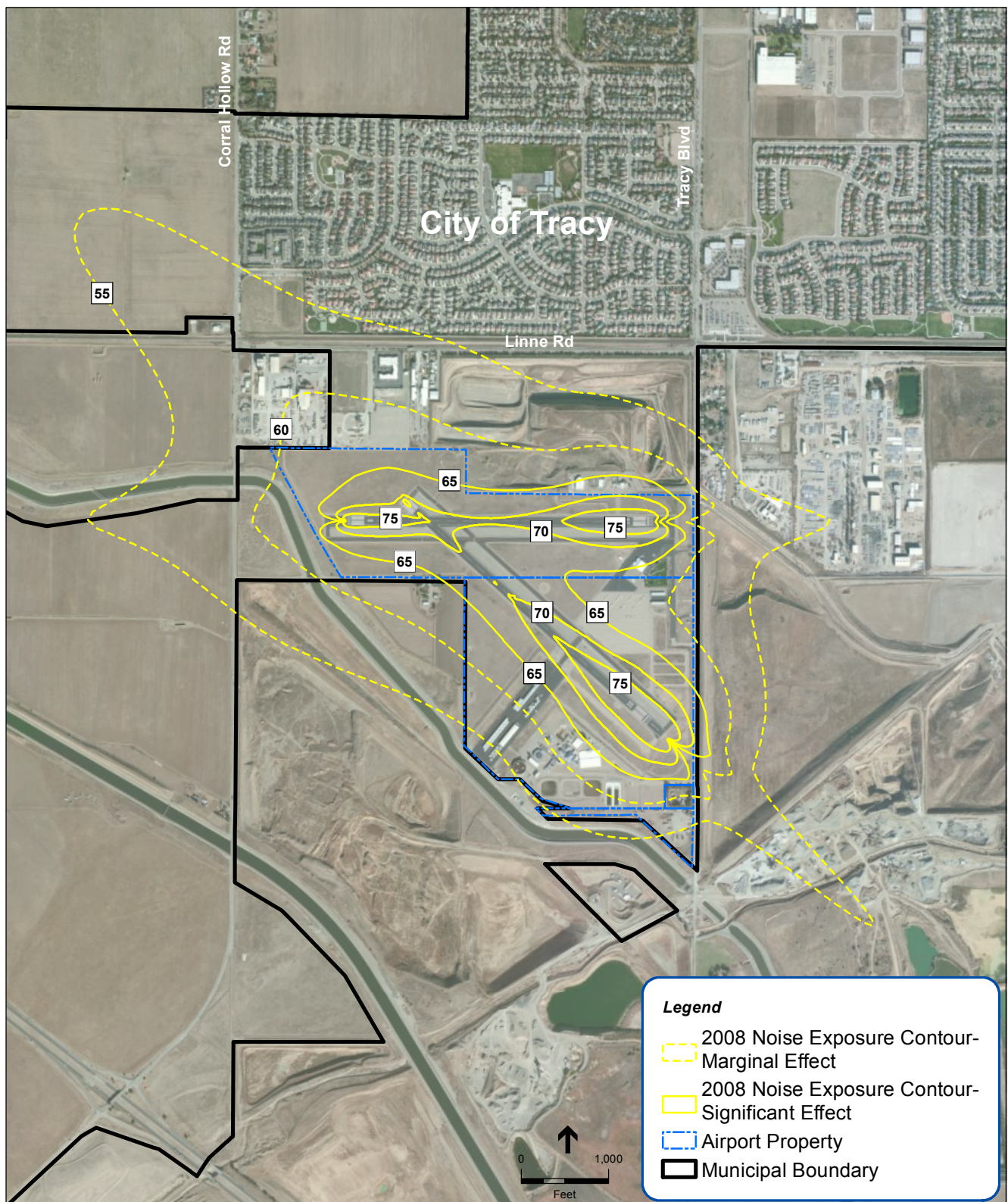
Figure 4.H-9
Airport Location Map



Source: Coffman & Associates Analysis

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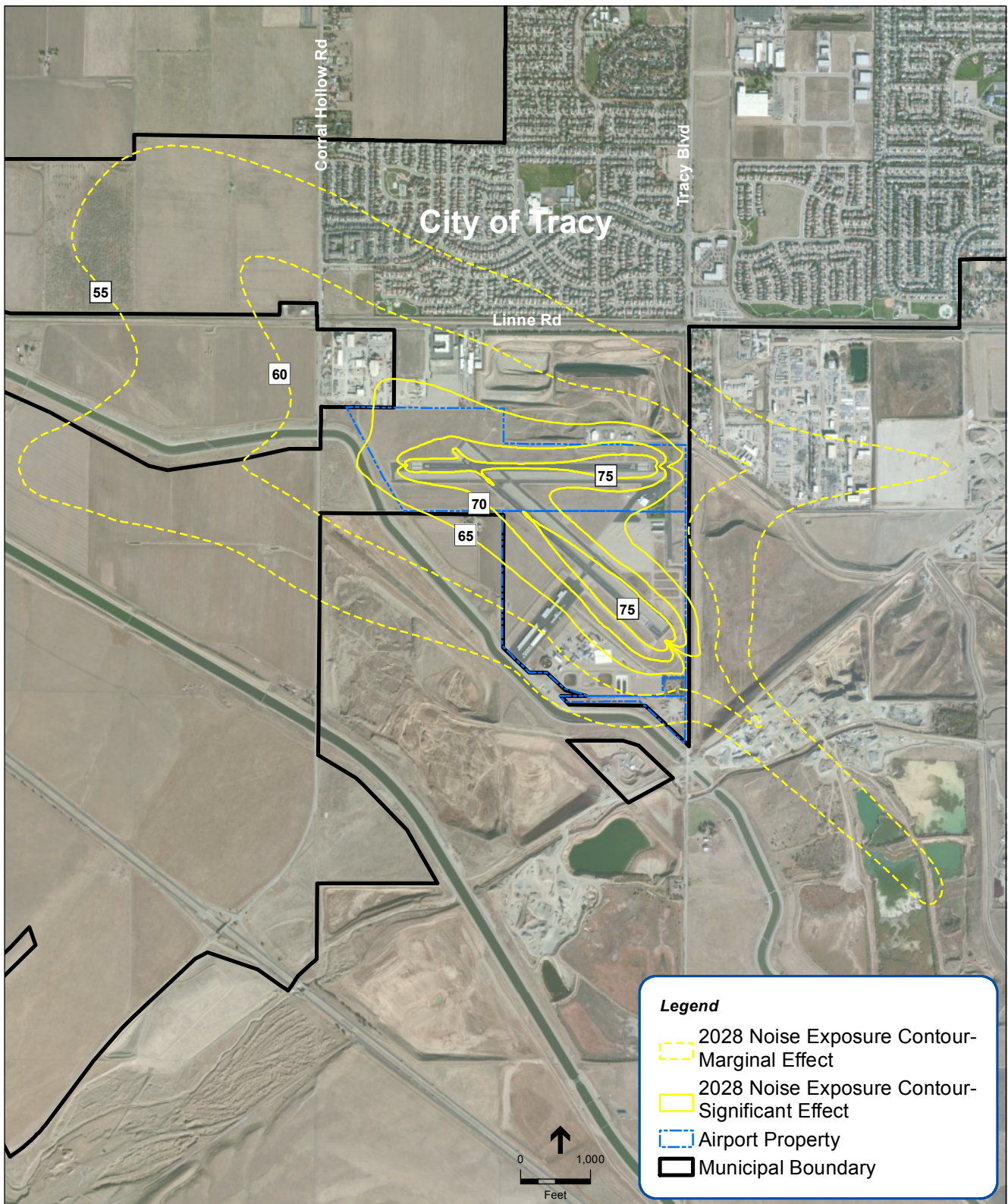
Figure 4.H-10
Stockton Metropolitan Airport CNEL Contours



Source: Coffman & Associates Analysis

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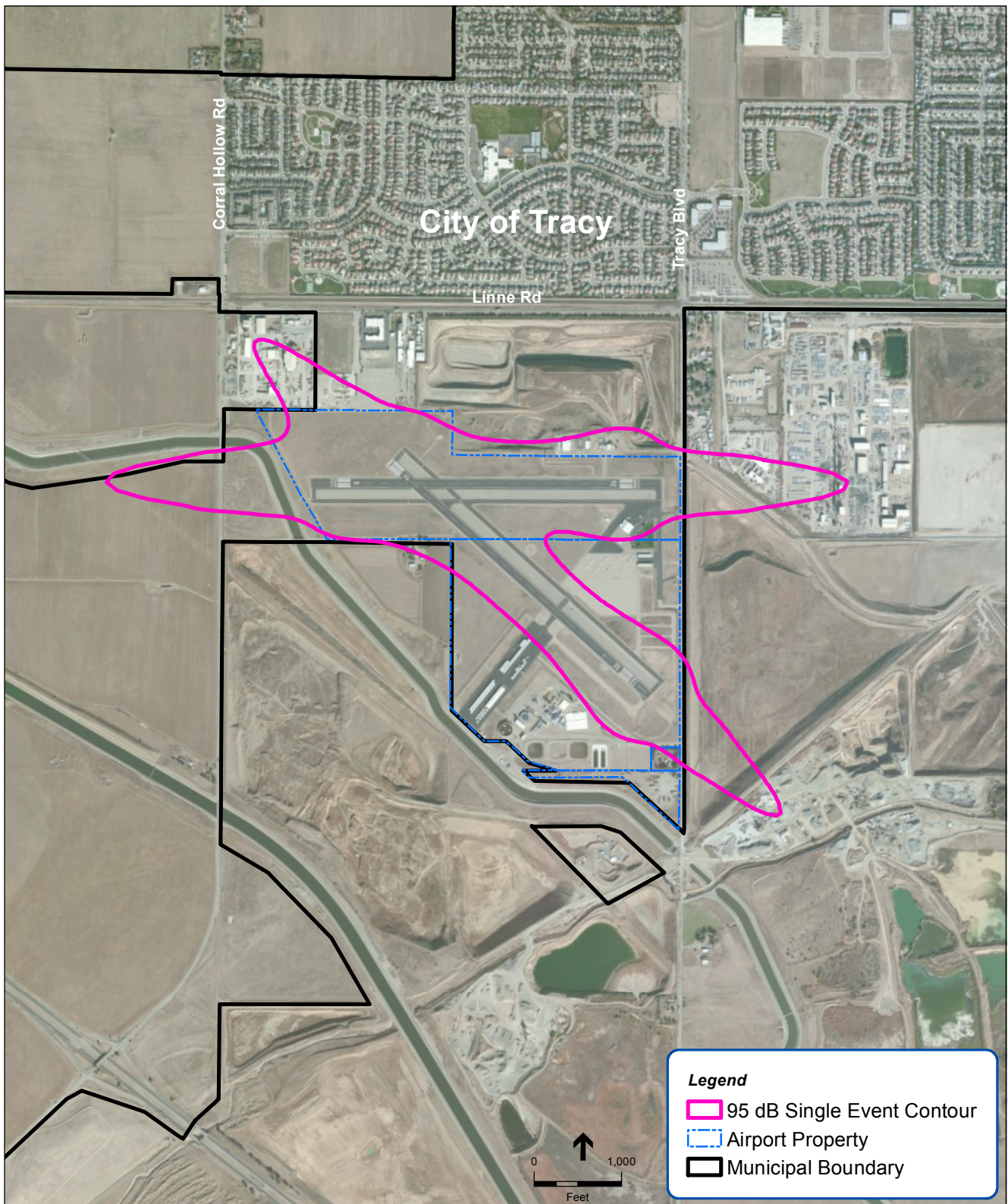
Figure 4.H-11
Tracy Municipal Airport 2008 CNEL Contours



Source: Coffman & Associates Analysis

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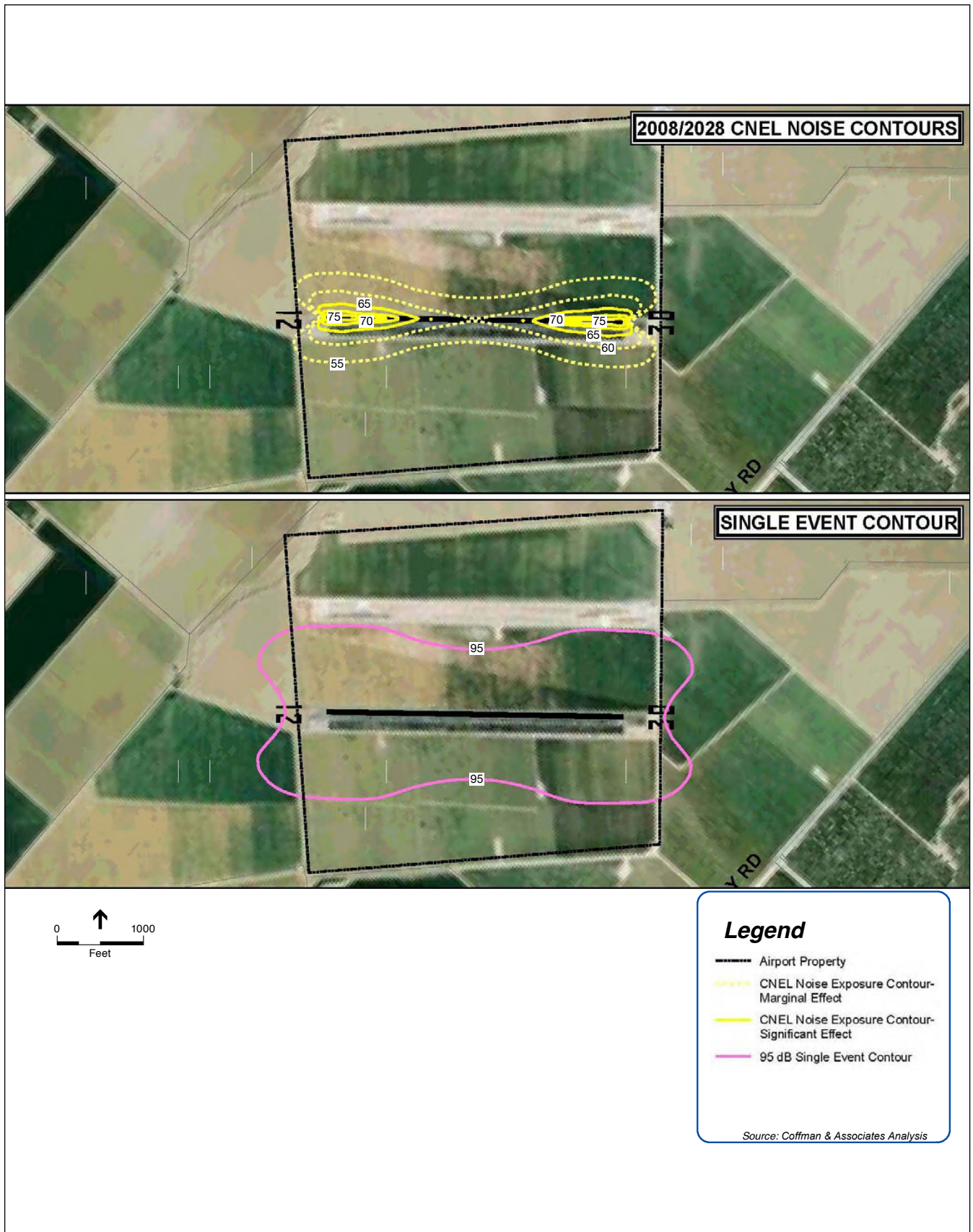
Figure 4.H-12
Tracy Municipal Airport 2028 CNEL Contours



Source: Coffman & Associates Analysis

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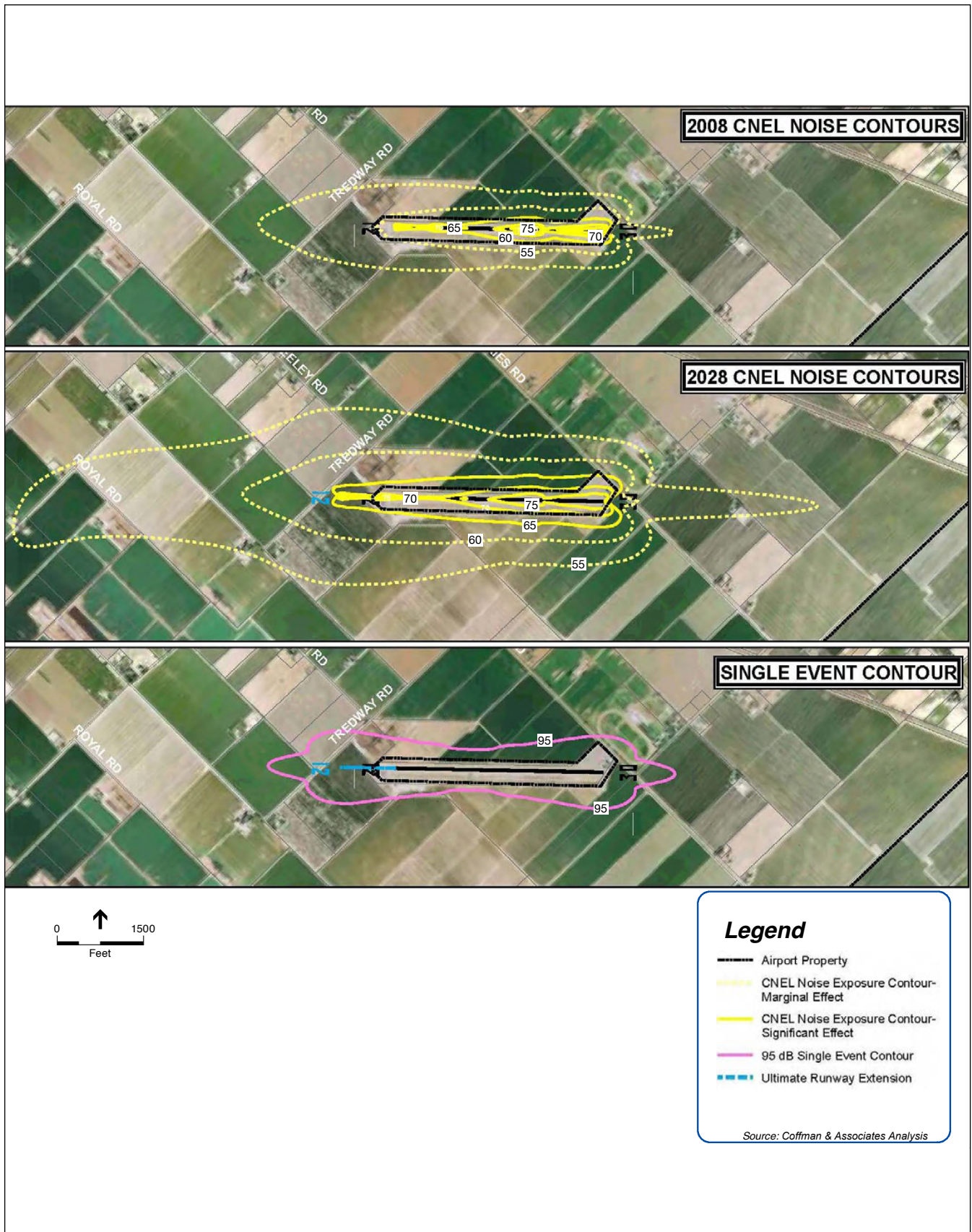
Figure 4.H-13
Tracy Municipal Airport 95 dB SEL Single-Event Contour



SOURCE: Coffman & Associates Analysis

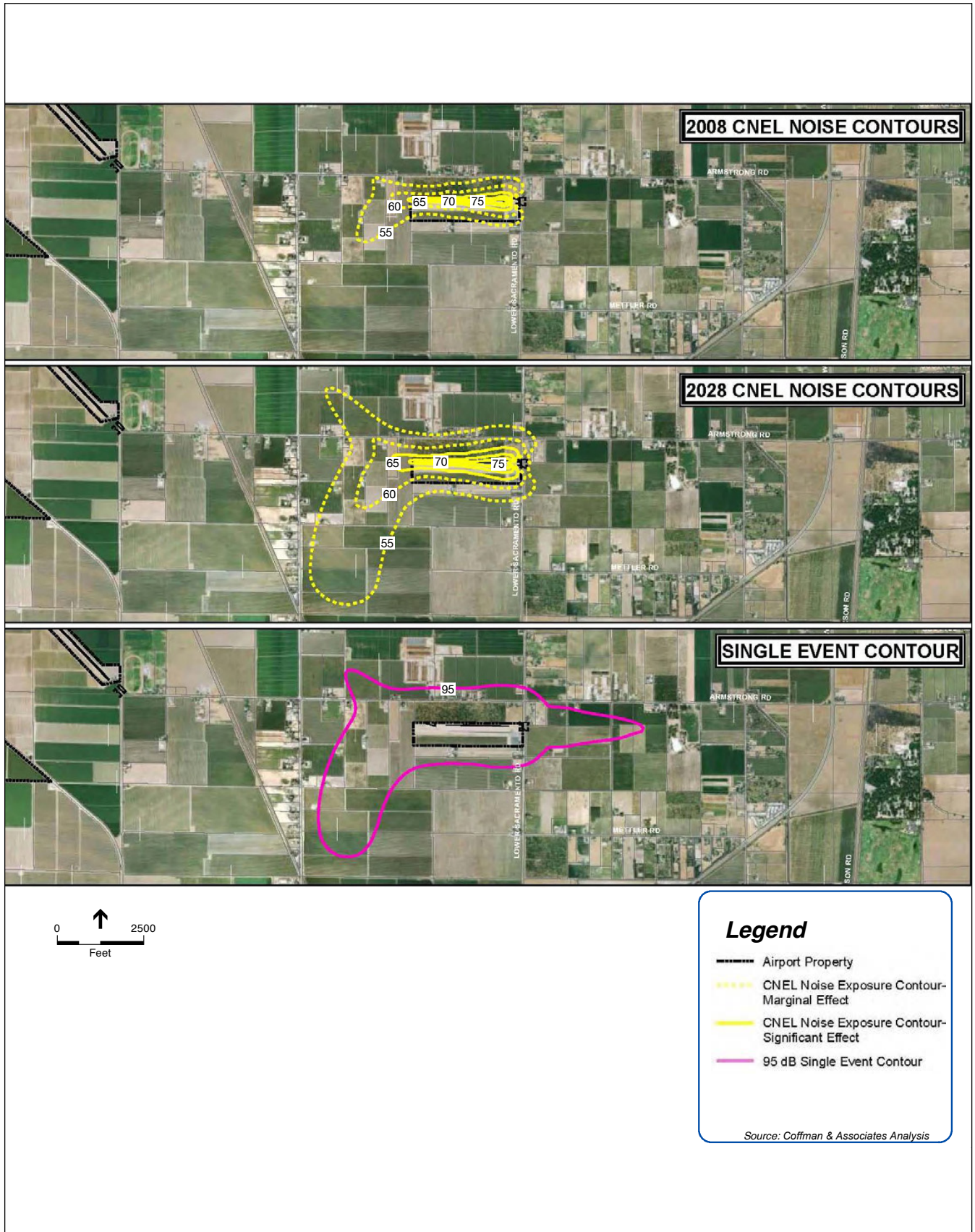
San Joaquin County 2035 General Plan . 209529

Figure 4.H-14
New Jerusalem Airport Noise Contours



SOURCE: Coffman & Associates Analysis

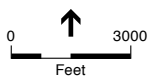
San Joaquin County 2035 General Plan . 209529
Figure 4.H-15
 Kingdon Executive Airport Noise Contours



SOURCE: Coffman & Associates Analysis

San Joaquin County 2035 General Plan . 209529

Figure 4.H-16
Lodi Airpark Noise Contours



- Airport Property
- - - - - 2008 Noise Exposure Contour-Marginal Effect
- 2008 Noise Exposure Contour-Significant Effect

Source: Coffman & Associates Analysis

The Federal Transit Administration (FTA) has developed criteria for estimating the significance of vibration levels at acoustically sensitive receptors. These criteria are summarized in **Table 4.H-7**.

TABLE 4.H-7
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Impact Levels (velocity in decibels [VdB] re: 1 micro-inch/second)		
	Frequent Events ¹	Occasional Events ²	Infrequent Events ³
Category 1: Buildings where vibration would interfere with interior operations	65 ⁴	65 ⁴	65 ⁴
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

¹ "Frequent Events" is defined as more than 70 vibration events of the same source per day.

² "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

³ "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

⁴ This criterion limit is based on levels that are acceptable for most moderately sensitive equipment. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels.

SOURCE: FTA, 2006.

State

The State of California's General Plan Guidelines have guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as shown in **Figure 4.H-19**. The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dBA. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the center line. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The California Noise Insulation Standards (California Code of Regulations, Title 24) codify Sound Transmission Control requirements, which establish uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings. Specifically, Title 24 states that interior noise levels attributable to exterior sources shall not exceed 45 dBA $L_{dn}/CNEL$ in any habitable room of new dwellings. Acoustical studies must be prepared for proposed multiple-unit residential and hotel/motel structures where exterior noise exposure is expected to be 60 dBA $L_{dn}/CNEL$ or higher. The studies must demonstrate that the design of the building would reduce interior noise to 45 dBA $L_{dn}/CNEL$ or lower. Dwellings are to be designed so that interior noise levels would meet this standard for at least 10 years from the time of building permit application. Generally speaking, the calculated noise exposure would represent a 20-to 30-year future scenario. Interior noise levels can be reduced through the use of noise-insulating windows and exterior doors, and by using sound isolation materials when constructing walls and ceilings. Additionally, specific acoustical mechanical system design may be required to satisfy the 45 dBA $L_{dn}/CNEL$ or less criterion.

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE - Ldn or CNEL (dBA)											
	50	55	60	65	70	75	80					
Residential – Low Density Single Family, Duplex, Mobile Home												
Residential – Multi-Family												
Transient Lodging – Motel/Hotel												
Schools, Libraries, Churches, Hospitals, Nursing Homes												
Auditorium, Concert Hall, Amphitheaters												
Sports Arena, Outdoor Spectator Sports												
Playgrounds, Neighborhood Parks												
Golf Courses, Riding Stables, Water Recreation, Cemeteries												
Office Buildings, Business, Commercial and Professional												
Industrial, Manufacturing, Utilities, Agriculture												
	Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.											
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.											
	Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.											
	Clearly Unacceptable: New construction or development generally should not be undertaken.											

SOURCE: State of California, Governor's Office of Planning and Research, 2003. *General Plan Guidelines*. October 2003.

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Figure 4.H-19
Land Use Compatibility for Community Noise Environment

Local

The San Joaquin County Code establishes noise standards for transportation and stationary noise sources. The code also specifies exemptions and prohibited activities. These provisions are discussed below.

Transportation Noise Sources

Proposed noise-sensitive land uses that would be affected by existing or planned transportation noise sources (e.g., vehicular traffic, trains) would be required to mitigate exterior noise exposure to a level not exceeding the County's standards shown in **Table 4.H-8**. These transportation noise criteria also apply to private development, including new transportation facilities.

**TABLE 4.H-8
MAXIMUM ALLOWABLE NOISE EXPOSURE FROM TRANSPORTATION NOISE SOURCES**

Noise-Sensitive Land Use Types	Outdoor Activity Areas (dBA Ldn)	Interior Spaces (dBA Ldn)
Residential	65	45
Administrative Office	-	45
Child Care Services-Child Care Centers	-	45
Community Assembly	65	45
Cultural and Library Services	-	45
Educational Services: General	-	45
Funeral and Interment Services – Undertaking	65	45
Lodging Services	65	45
Medical Services	65	45
Professional Services	-	45
Public Services (excluding Hospitals)	-	45
Public Services (hospitals only)	65	45
Recreation – Indoor Spectator	-	45
Religious Assembly	65	45

NOTES: These standards apply to new or existing residential areas affected by new or existing non-transportation sources. Where the location of outdoor activity areas is unknown or is not applicable, the noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.

SOURCE: San Joaquin County, 1999.

Stationary Noise Sources

Proposed noise-sensitive land uses that would be affected by existing or planned stationary noise sources would be required to mitigate the noise exposure according to the County's standards presented in **Table 4.H-9** (i.e., noise above levels listed in Table 4.H-9 would require mitigation).

**TABLE 4.H-9
MAXIMUM NOISE EXPOSURE CRITERIA FOR STATIONARY NOISE SOURCES**

Noise Descriptor	Daytime (7 a.m.-10 p.m.)	Nighttime (10 p.m.-7 a.m.)
Hourly L_{eq}	50	45
L_{max}	70	65

NOTES: Standards are applied at the outdoor activity area of the receiving land use. If no outdoor activity area is known, the standard shall be applied at the property line of the receiving land use. Each of the criteria shall be reduced by 5 dBA for impulsive noise, tonal noise, or noise consisting primarily of speech and/or music.

SOURCE: San Joaquin County, 1999.

Exemptions

The San Joaquin County Code indicates that the following activities (sources) are exempt from the noise exposure standards:

- Activities in public parks, public playgrounds, and public and private school grounds including athletic and school entertainment events.
- Emergency activities.
- Construction between the hours of 6 a.m. and 9 p.m. on any day.
- Maintenance of residential property between the hours of 8 a.m. and 9 p.m. on any day.
- Agricultural activities on agriculturally zoned land.
- Residential heating, ventilation, and air conditioning (HVAC) systems provided that they are in good repair.
- Work performed by private or public utilities in the maintenance or modification of their facilities.
- Waste/garbage collection.
- Activities whose regulation is preempted by state or federal criteria.

Prohibited Activities

The San Joaquin County Code currently prohibits the outdoor operation of any industrial, commercial, or residential property maintenance tool or equipment within 500 feet of a residence between the hours of 9 p.m. and 8 a.m. on any day.

H.4 Impacts and Mitigation Measures

Significance Criteria

Based on the *CEQA Guidelines*, a project would have a significant effect on the environment with respect to noise and/or groundborne vibration if it would result in:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of people residing or working in the area around the project site to excessive noise levels (for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport); or
- Exposure of people residing or working in the area around the project site to excessive noise levels (for a project within the vicinity of a private airstrip).

The numeric standards described in the “Regulatory Setting” section above, particularly those contained in Tables 4.H-7 (vibration), 4.H-8 (transportation noise) and 4.H-9 (stationary source noise), are used as the triggers for the finding of significant vibration and noise impacts.

Additionally, a significant noise impact is identified if the project would produce a substantial increase in noise exposure, as noted above (*CEQA Guidelines*, Appendix G). In this case, use of Table 4.H-1 would be appropriate, whereby an increase of three decibels (barely perceptible) is considered to be a significant increase in noise. For traffic-related noise, a doubling of traffic volumes (a 100 percent increase) is necessary for noise levels to increase by three decibels.

Relevant Policies

The following relevant policies of the 2035 General Plan address noise:

PHS-9.1: Noise Standards for New Land Uses. The County shall require new development to comply with the noise standards shown in Tables 4.H-8 and 4.H-9³ through proper site and building design, such as building orientation, setbacks, barriers, and building construction practices. (RDR) (Source: New Policy)

PHS-9.2: Airport Noise Compatibility Criteria. The County shall require new development within airport areas of influence be consistent with the Airport Noise Compatibility Criteria in the Airport Land Use Compatibility Plan. (RDR) (Source: New Policy)

PHS-9.3: Screening Distances. The County shall require new development proposed to be located adjacent to major freeways or railroad tracks to be consistent with the Federal Transit Administration (FTA) noise screening distance criteria. (RDR) (New Policy)

³ Corresponding tables in the General Plan are Tables PHS-1 and PHS-2.

PHS-9.4: Acceptable Vibration Levels. The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby vibration-sensitive uses based on FTA criteria. (RDR) (Source: New Policy)

PHS-9.5: Alleviate Existing Noise Problems. The County shall seek to alleviate existing community noise problems. (PSP) (Source: Existing GP, Noise, Policy 5)

PHS-9.6: Enforcement of State and Federal Noise Regulations. The County shall continue to enforce State and Federal noise laws regarding vehicle operation, equipment, and building insulation. (RDR) (Source: Existing GP, Noise, Implementation 3)

PHS-9.7: Require Acoustical Study. The County shall require a project applicant to prepare an acoustical study for any proposed new residential or other noise-sensitive development when the County determines the proposed development may expose people to noise levels exceeding acceptable General Plan noise levels. (RDR/PSR) (Source: Existing GP, Noise, Implementation 2)

PHS-9.8: Require Avigation Easements and Soundproofing Near Airports. The County shall require avigation easements and soundproofing for new residential structures in the 65 dBA Ldn contours around a public access airport. (RDR) (Source: Existing GP, Noise, Implementation 6, modified)

PHS-9.9: Noise Exemptions. The County shall support the exemption of the following noise sources from the standards in this section:

- Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during the hours of 7:00 am to 10:00 pm.
- Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours.
- Activities associated with County-permitted temporary events and festivals.

(RDR/PSR) (Source: New Policy)

Relevant Implementation Programs

The following implementation program of the 2035 General Plan specifically addresses noise:

PHS-Z: Revise Building Code to Incorporate Noise Standards. The County shall review and update the County Building Regulations, as necessary, to ensure consistency with the most recent noise standards contained in the California Building Code, and to include the standards contained in Tables 4.H-8 and 4.H-9⁴, to include standards regulating noise from construction activities, and to facilitate a procedure for exemptions for special events, such as concerts and festivals. (RDR) (Source: Existing GP, Noise, Implementation 4, modified)

⁴ Corresponding tables in the General Plan are Tables PHS-1 and PHS-2.

Approach to Analysis

Because this analysis considers the impacts associated with adoption of the 2035 General Plan, including new noise policies and the development of both noise-sensitive and noise-generating land uses, the following methodology is employed. Noise impacts are identified for new noise-sensitive developments located within areas affected by existing or future traffic, rail, aircraft, industrial, or other significant noise sources. Noise impacts are also identified for noise-producing developments proposed near existing or future noise-sensitive areas. Finally, noise impacts are evaluated by comparing project-related traffic noise generation to existing traffic noise levels. Each of these distinct impact categories is discussed below.

Impact Analysis

2035 General Plan Impacts

Impact 4.H-1: Construction facilitated by implementation of the proposed 2035 General Plan could expose persons to or generate noise levels in excess of the County noise standards. (Significant)

Construction-related noise is considered a short-term noise impact associated with demolition, site preparation, grading, and other construction-related activities. Two types of short-term noise impacts could occur during these construction-related activities. First, the transport of workers and the movement of materials to and from the construction sites could incrementally increase noise levels along local access roads. The second source of noise would result from the physical activities (e.g., grading, etc.) associated with any construction-related activities. Construction is performed in various distinct steps, each with its own mix of equipment, workers, and activities. Consequently, each step has its own noise characteristics. For example, the highest construction noise levels could be generated during grading and excavation, with lower noise levels occurring during actual building construction. Large pieces of earth-moving equipment, such as pile drivers, graders, scrapers, and bulldozers, generate maximum noise levels of 89 dBA at a distance of 50 feet (see **Table 4.H-10**).

Implementation of the 2035 General Plan would result in additional countywide residential and non-residential land use developments that have the potential to result in all of these types of construction-related noises at varying times and intensities throughout the planning period. Consequently, construction-related noise associated with the projects to be developed under the 2035 General Plan could result in substantial noise increases at noise-sensitive land uses in close proximity to construction activities and result in a significant impact. It is expected that subsequent CEQA documentation prepared for individual projects would have project-specific data and would be required to address, and if feasible, mitigate any potential construction-related noise impacts. Notably, construction noise is considered exempt from the County noise standards per the County Code if activities occur during the less noise-sensitive daytime hours.

**TABLE 4.H-10
TYPICAL NOISE LEVELS FROM DEMOLITION/
CONSTRUCTION EQUIPMENT OPERATIONS**

Construction Equipment	Noise Exposure Level, dBA at 50 Feet
Air Compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer (Truck)	85
Concrete Pump (Truck)	82
Concrete Vibrator	76
Crane-Derrick	88
Crane-Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile-Driver (Impact)	101
Pile-Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Heavy Diesel Truck	88

SOURCE: FTA, 2006.

Mitigation Measure 4.H-1: The following additional policy and implementation program shall be included to address potential construction noise from new development under the 2035 General Plan:

PHS-9.10: Construction Noise Time Limitations. The County shall seek to limit the potential noise impacts of construction activities on surrounding land uses by limiting construction activities to the hours of 7 am to 7pm, Monday through Saturday. Exceptions to these allowable hours could be allowed if approved beforehand by the County.

PHS-AA: Revise Construction Noise Hours of Exemption. The County Code shall be revised to incorporate the more conservative allowable hours of construction of

7am to 7pm for noise exemption in order to reduce the potential for nuisance and/or sleep disturbance from construction noise.

The addition of this policy would guide construction activities to occur during the daytime hours, per the San Joaquin County Code exemption, in order to reduce potential nuisance impacts to the extent feasible. The policy and implementation program recommended in Mitigation Measure 4.H-1 represent the best practicable strategies to reduce construction noise associated with 2035 General Plan development and would ensure that construction noise would be less than significant.

Significance after Mitigation: Less than Significant.

Impact 4.H-2: Construction facilitated by implementation of the proposed 2035 General Plan could result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Less than Significant)

Construction facilitated by implementation of the 2035 General Plan could expose more people to the impacts of excess groundborne vibration or noise levels. Increased exposure to sources of groundborne vibration could occur as a result of increased residential or employment densities on lands close to noise-generating activities (i.e., industrial, airport, etc.), or through construction activities close to vibration-sensitive land uses. Specifically, vibration created through construction and industrial activities or through the operation of motor vehicles and railways could result in potentially significant impacts on local residents. It is expected that subsequent CEQA documentation prepared for individual projects would have project-specific data and would be required to address, and if feasible, mitigate any potential construction/ operations-related vibration and noise impacts to a less-than-significant level. Policies included in the proposed 2035 General Plan that would minimize this impact include compliance with FTA screening distances to major roadways and railways (Policy PHS-9.3) and adherence to the FTA acceptable vibration levels at vibration-sensitive land uses (Policy PHS-9.4). Compliance with these policies would ensure vibration levels at new and existing vibration-sensitive land uses would prevent exposure of people to excessive groundborne vibration or groundborne noise levels; therefore, there would be a less-than-significant impact from the implementation of the 2035 General Plan.

Mitigation: None required.

Impact 4.H-3: Transportation-related operations (including rail activity) facilitated by implementation of the proposed 2035 General Plan could result in a substantial permanent increase in ambient noise levels or above levels existing without the project. (Less than Significant)

On-Road Traffic Noise. Potential impacts on existing land uses are the result of additional on-road mobile sources (vehicles) traveling along local roadways. Traffic noise modeling was performed for County roads and the highway system using the traffic volumes generated by San Joaquin Council

of Governments (SJCOG) traffic model for the 2035 General Plan (see Section 4.D, *Transportation and Circulation*). For traffic-related noise, a doubling of traffic volumes (a 100 percent increase) is necessary for noise levels to increase by three decibels, which would be considered a significant increase. Projected traffic volumes would not be doubled on the majority of County roadways.

Table 4.H-11 summarizes traffic volumes, noise levels, and distances to traffic noise exposure contours for the studied roadway segments with at least a doubling of traffic volumes within the county under the 2035 General Plan. Aside from the assumed traffic volumes, the calculated levels and distances were based on the same modeling inputs used for the existing condition presented in the “Environmental Setting” section above (see Tables 4.H-4 and 4.H-5). **Table 4.H-12** provides a comparison of Existing, Existing-plus-Project, Cumulative Baseline, and Cumulative General Plan noise exposure levels. As shown in Table 4.H-12, the greatest increase in noise between the Existing and Existing-plus-Project scenarios would be two dBA (Walnut Grove Road west of Thornton Road), which would be less than the three dBA threshold and would be imperceptible. The project itself (i.e., development under the 2035 General Plan) would result in less-than-significant traffic noise in comparison to existing conditions.

Notably, the 2035 Baseline includes traffic increased from background growth and city general plans. As shown in Table 4.H-12, although cumulative traffic growth in the county along with traffic associated with development under the 2035 General Plan are projected to result in a substantial increase (greater than three dBA) in traffic noise along area roadways, traffic associated with the 2035 General Plan itself would result in an imperceptible increase (less than three dBA) along the roadways compared to the Cumulative Baseline. Inasmuch as this contribution would not be perceptible, it would not be cumulatively considerable.

Policies included in the proposed 2035 General Plan would minimize this impact. The draft Public Health and Safety Element provides a number of policies that have been developed to address noise and land use compatibility issues associated with the 2035 General Plan. These policies include identifying appropriate site and building design to meet the County noise standards for new land uses (Policy PHS-9.1), requiring new development to be consistent with FTA noise screening distance criteria from major roadways (Policy PHS-9.3), alleviating existing noise problems (Policy PHS-9.5), enforcing state and federal noise regulations (Policy PHS-9.6), and requiring an acoustical study for new noise-sensitive land use development that could be exposed to noise levels that exceed the County noise standards (Policy PHS-9.7). The implementation program (PHS-Z) to revise the building code to incorporate noise standards could also reduce potential interior noise exposure. The contribution of traffic noise associated with development under the 2035 General Plan would be less than significant.

Railroad Noise. Railroad noise primarily occurs from existing operations along the UPRR and BNSF railways. Because of the uncertainties associated with future operational details, no comprehensive noise predictions are included in this analysis. However, buildout of the 2035 General Plan could locate residential land uses in the vicinity of the railroad corridors, which could result in the exposure of sensitive receptors to noise levels that exceed County standards. The actual level of impact would depend on the presence and location of any existing or proposed land uses in relation to the noise source. While an increase of three dBA is considered potentially significant, it is only significant if it affects sensitive land uses.

**TABLE 4.H-11
SUMMARY OF 2035 GENERAL PLAN TRAFFIC NOISE EXPOSURE LEVELS AND
CONTOUR DISTANCES**

Roadway	Segment	ADT	L _{dn} at 100 Feet	Contour Distance, Feet		
				70 dBA L _{dn}	65 dBA L _{dn}	60 dBA L _{dn}
Airport Wy.	Lathrop Rd to Louise Ave	17,200	70	100	315	997
Bird Rd.	n/o Ahern Rd.	4,700	62	16	52	165
Byron Rd.	County Line To Mt House Pkwy	17,500	70	101	321	1,015
Byron Rd.	Hansen Rd. to Reeve Rd.	28,900	72	168	530	1,676
Comstock Rd.	w/o Duncan Rd.	6,300	60	9	30	95
Duncan Rd.	n/o Milton Rd.	4,500	58	7	21	68
French Camp Rd.	SR 99 to SR 120	22,100	71	128	405	1,281
Hammer Ln.	I-5 to Thornton Rd.	10,500	66	37	116	368
Jack Tone Rd.	French Camp Rd to SR 120	9,300	60	10	31	98
Lammers Rd.	Eleventh St. to Tracy City Limit	19,400	71	112	356	1,125
Liberty Rd.	Sowels Rd to Elliott Rd	7,200	60	11	34	109
Liberty Rd.	Lower Sacramento Rd. to SR 99	16,500	68	58	183	578
Lower Sacramento Rd.	Peltier to Collier	13,900	69	81	255	806
Main St.	SR 99 to Gillis Rd.	14,000	69	81	257	812
Matthews Rd.	I-5 to El Dorado St.	17,600	70	102	323	1,020
Ninth St.	w/o Pock Ln.	3,300	55	3	11	35
River Rd.	Ripon City Limits to Santa Fe Rd.	16,500	70	96	303	957
Sante Fe Rd.	Main St. to Co. Line	11,600	68	67	213	673
Union Rd.	s/o French Camp Rd.	15,600	67	55	173	547
Walnut Grove Rd.	w/o Thornton Rd.	8,200	62	16	50	158
Woodward Ave.	Airport to Manteca Rd.	9,600	65	34	106	336
SR4	Sonora Road to San Joaquin County/Stanislaus County Line	9,600	69	77	245	774
I-5	San Joaquin County/Stanislaus County Line to Jct. Rte 580 West	85,700	83	1,901	6,012	19,012
I-5	Jct. Rte 33 South to Kasson Rd. Interchange	50,200	81	1,350	4,269	13,500
I-5	Kasson Rd Interchange to Old Route 50; 11th St	51,400	81	1,382	4,371	13,822
I-5	Stockton/Hammer Lane to Atherton/8 Mile Rds Interchange	195,900	87	4,675	14,784	46,751
I-5	Atherton-8 Mile Rds Interchange to Jct. Rte 12	175,500	86	4,188	13,244	41,882
I-5	Jct. Rte 12 to Peltier Rd	136,900	84	2,570	8,127	25,699
I-5	Peltier Rd to Walnut Grove Rd	135,400	85	3,067	9,698	30,666
I-5	Walnut Grove Rd to San Joaquin/Sacramento County Line	148,500	85	3,363	10,636	33,633
SR12	San Joaquin/Sacramento County Line to Glasscock Rd/Tower Pkwy	35,100	77	449	1,419	4,487
SR12	Glasscock Rd/Tower Pkwy to Guard Rd	35,500	77	454	1,435	4,538
SR12	Guard Rd to Jct Rte 5	35,500	77	454	1,435	4,538

TABLE 4.H-11 (Continued)
SUMMARY OF 2035 GENERAL PLAN TRAFFIC NOISE EXPOSURE LEVELS AND
CONTOUR DISTANCES

Roadway	Segment	ADT	L _{dn} at 100 Feet	Contour Distance, Feet		
				70 dBA L _{dn}	65 dBA L _{dn}	60 dBA L _{dn}
SR33	San Joaquin County/Stanslaus County Line to Vernalis-Jct Rte 132	5,300	68	58	184	581
SR 33	Vernalis-Jct Rte 132 to New Jerusalem, Durham Ferry Rd	10,400	71	114	360	1,139
SR 33	New Jerusalem, Durham Ferry Rd to Jct Rte 5	10,400	71	114	360	1,139
SR 99	South Jct Rte 120 to Manteca-North Jct Rte 120	177,700	84	2,809	8,883	28,091
SR 99	Manteca-North Jct Rte 120 to North Manteca Interchange	165,600	84	2,618	8,278	26,178
SR 99	North Manteca Interchange to Turner Station/French Camp Rd	168,400	84	2,744	8,677	27,440
SR 99	Turner Station/French Camp Rd to Stockton-Mariposa Rd	170,100	84	2,772	8,765	27,717
SR 99	Stockton-Mariposa Rd to Jct Rte 4 East	208,900	85	3,036	9,600	30,358
SR 99	Jct Rte 4 East to Jct Rte 26 West	213,900	85	3,109	9,830	31,085
SR 99	Jct Rte 26 West to Jct Rte 4 West	221,800	85	3,223	10,193	32,233
SR 120	French Camp Rd to Escalon-Main/Kern Streets	30,400	76	365	1,155	3,654
I-580	Jct Rte 5 to Jct Rte 132 East	46,300	79	869	2,748	8,691

SOURCES: ESA, 2014

Policies included in the proposed 2035 General Plan would minimize this impact. Policies from the Public Health and Safety Element include identifying appropriate site and building design to meet the County noise standards for new land uses (Policy PHS-9.1), ensuring consistency with FTA noise screening distance criteria from railroad tracks (Policy PHS-9.3), alleviating existing noise problems (Policy PHS-9.5), enforcing state and federal noise regulations (Policy PHS-9.6), and requiring an acoustical study for new noise-sensitive land use development that could be exposed to noise levels that exceed the County noise standards (Policy PHS-9.7). The implementation program (PHS-Z) to revise the building code to incorporate noise standards could also reduce potential interior noise exposure. Compliance with these policies and the implementation program would ensure that the impact of railroad noise would be less than significant.

Airport Noise. Implementation of the 2035 General Plan would result in additional residential and non-residential land use developments. These land use developments could result in new urban development, including new urban land uses in the vicinity of airports and private airstrips. The county has six public airports. Available existing and projected future noise contours for these public airports are depicted in Figures 4.H-10 through 4.H-18 above. New development near aviation facilities could be exposed to excessive airport-related noise levels.

**TABLE 4.H-12
EXISTING AND PROJECTED LDN TRAFFIC NOISE LEVELS ALONG STREETS IN SAN JOAQUIN COUNTY**

Roadway	Segment	Noise Level, dBA, Ldn ¹									
		Existing [A]	Existing Plus Project [B]	Incremental Increase [B-A]	Significant? (Yes or No) ²	Cumulative - Baseline [C]	Cumulative - 2035 General Plan [D]	Incremental Increase, Existing vs 2035 General Plan [D-A]	Cumulatively Significant? (Yes or No) ²	Incremental Increase, Cumulative Baseline vs 2035 General Plan [D-C]	Cumulatively Considerable? (Yes or No) ²
Airport Wy.	Lathrop Rd to Louise Ave	66	66	0	No	70	70	4	Yes	0	No
Bird Rd.	n/o Ahern Rd.	59	59	0	No	62	62	3	Yes	0	No
Byron Rd.	County Line to Mt House Pkwy	67	67	0	No	70	70	3	Yes	0	No
Byron Rd.	Hansen Rd. to Reeve Rd.	68	68	0	No	72	72	4	Yes	0	No
Comstock Rd.	w/o Duncan Rd.	56	56	0	No	60	60	4	Yes	0	No
Duncan Rd.	n/o Milton Rd.	55	55	0	No	58	58	3	Yes	0	No
French Camp Rd.	SR 99 to SR 120	65	65	0	No	71	71	6	Yes	0	No
Hammer Ln.	I-5 to Thornton Rd.	61	61	0	No	66	66	5	Yes	0	No
Jack Tone Rd.	French Camp Rd to SR 120	57	57	0	No	60	60	3	Yes	0	No
Lammers Rd.	Eleventh St. to Tracy City Limit	66	66	0	No	70	71	5	Yes	1	No
Liberty Rd.	Sowels Rd to Elliott Rd	57	57	0	No	61	60	3	Yes	(1)	No
Liberty Rd.	Lower Sacramento Rd. to SR 99	62	62	0	No	68	68	6	Yes	0	No
Lower Sacramento Rd.	Peltier to Collier	66	66	0	No	69	69	3	Yes	0	No
Main St.	SR 99 to Gillis Rd.	65	65	0	No	69	69	4	Yes	0	No
Matthews Rd.	I-5 to El Dorado St.	66	66	0	No	70	70	4	Yes	0	No
Ninth St.	w/o Pock Ln.	52	52	0	No	55	55	3	Yes	0	No
River Rd.	Ripon City Limits to Santa Fe Rd.	65	65	0	No	70	70	5	Yes	0	No
Sante Fe Rd.	Main St. to Co. Line	65	65	0	No	68	68	3	Yes	0	No
Union Rd.	s/o French Camp Rd.	61	61	0	No	67	67	6	Yes	0	No
Walnut Grove Rd.	w/o Thornton Rd.	56	58	2	No	61	62	6	Yes	1	No

TABLE 4.H-12 (Continued)
EXISTING AND PROJECTED LDN TRAFFIC NOISE LEVELS ALONG STREETS IN SAN JOAQUIN COUNTY

Roadway	Segment	Noise Level, dBA, Ldn ¹									
		Existing [A]	Existing Plus Project [B]	Incremental Increase [B-A]	Significant? (Yes or No) ²	Cumulative - Baseline [C]	Cumulative - 2035 General Plan [D]	Incremental Increase, Existing vs 2035 General Plan [D-A]	Cumulatively Significant? (Yes or No) ²	Incremental Increase, Cumulative Baseline vs 2035 General Plan [D-C]	Cumulatively Considerable? (Yes or No) ²
Woodward Ave.	Airport to Manteca Rd.	61	61	0	No	65	65	4	Yes	0	No
SR 4	Sonora Road to San Joaquin County/ Stanislaus County Line	66	66	0	No	69	69	3	Yes	0	No
I-5	San Joaquin County/ Stanislaus County Line to Jct. Rte 580 West	79	79	0	No	83	83	4	Yes	0	No
I-5	Jct. Rte 33 South to Kasson Rd. Interchange	78	78	0	No	81	81	3	Yes	0	No
I-5	Kasson Rd Interchange to Old Route 50; 11th St	78	78	0	No	81	81	3	Yes	0	No
I-5	Stockton/Hammer Lane to Atherton/8 Mile Rds Interchange	84	84	0	No	87	87	3	Yes	0	No
I-5	Atherton-8 Mile Rds Interchange to Jct. Rte 12	83	83	0	No	86	86	3	Yes	0	No
I-5	Jct. Rte 12 to Peltier Rd	80	80	0	No	84	84	4	Yes	0	No
I-5	Peltier Rd to Walnut Grove Rd	81	81	0	No	85	85	4	Yes	0	No
I-5	Walnut Grove Rd to San Joaquin/Sacramento County Line	81	81	0	No	85	85	4	Yes	0	No
SR 12	San Joaquin/Sacramento County Line to Glasscock Rd/Tower Pkwy	73	73	0	No	77	77	4	Yes	0	No
SR 12	Glasscock Rd/Tower Pkwy to Guard Rd	73	73	0	No	77	77	4	Yes	0	No
SR 12	Guard Rd to Jct Rte 5	73	73	0	No	77	77	4	Yes	0	No
SR 33	San Joaquin County/ Stanislaus County Line to Vernalis-Jct Rte 132	63	63	0	No	68	68	5	Yes	0	No

TABLE 4.H-12 (Continued)
EXISTING AND PROJECTED LDN TRAFFIC NOISE LEVELS ALONG STREETS IN SAN JOAQUIN COUNTY

Roadway	Segment	Noise Level, dBA, Ldn ¹									
		Existing [A]	Existing Plus Project [B]	Incremental Increase [B-A]	Significant? (Yes or No) ²	Cumulative - Baseline [C]	Cumulative - 2035 General Plan [D]	Incremental Increase, Existing vs 2035 General Plan [D-A]	Cumulatively Significant? (Yes or No) ²	Incremental Increase, Cumulative Baseline vs 2035 General Plan [D-C]	Cumulatively Considerable? (Yes or No) ²
SR 33	Vernalis-Jct Rte 132 to New Jerusalem, Durham Ferry Rd	66	66	0	No	71	71	5	Yes	0	No
SR 33	New Jerusalem, Durham Ferry Rd to Jct Rte 5	66	66	0	No	71	71	5	Yes	0	No
SR 99	South Jct Rte 120 to Manteca-North Jct Rte 120	81	81	0	No	84	84	3	Yes	0	No
SR 99	Manteca-North Jct Rte 120 to North Manteca Interchange	80	80	0	No	84	84	4	Yes	0	No
SR 99	North Manteca Interchange to Turner Station/French Camp Rd	80	80	0	No	84	84	4	Yes	0	No
SR 99	Turner Station/French Camp Rd to Stockton-Mariposa Rd	80	80	0	No	84	84	4	Yes	0	No
SR 99	Stockton-Mariposa Rd to Jct Rte 4 East	81	81	0	No	85	85	4	Yes	0	No
SR 99	Jct Rte 4 East to Jct Rte 26 West	81	81	0	No	85	85	4	Yes	0	No
SR 99	Jct Rte 26 West to Jct Rte 4 West	81	81	0	No	85	85	4	Yes	0	No
SR 120	French Camp Rd to Escalon-Main/Kern Streets	71	71	0	No	76	76	5	Yes	0	No
I-580	Jct Rte 5 to Jct Rte 132 East	76	76	0	No	79	79	3	Yes	0	No

¹ Noise levels were determined using Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA RD-77-108). These are the roadway segments that would have a perceivable increase in noise from traffic volume growth (i.e., 3 dbA or greater). Average Daily Traffic (ADT) information provided by Kittelson.

² Traffic noise is considered significant if the incremental increase in noise is 3 dBA or greater. Actual level of significance would depend on adjacent land uses and their sensitivity to noise.

SOURCES: ESA, 2014

The Airport Land Use Commission (ALUC) was established to ensure that there are no direct conflicts with land uses, noise, or other issues that would affect the functionality and safety of airport operations. One of the key functions of the ALUC is to require that cities' and counties' general plans and zoning ordinances are consistent with Airport Land Use Compatibility Plan (ALUCP), which contain noise contours, restrictions for types of construction and building heights in navigable air space, and requirements affecting the establishment or construction of sensitive uses within close proximity to airports.

Overall, the intent of the proposed 2035 General Plan is to ensure that existing and future land uses function without imposing a nuisance, hazard, or unhealthy condition upon adjacent uses. Policies included in the 2035 General Plan would minimize conflicts with local airports. Policies from the Public Health and Safety Element include identifying appropriate site and building design to meet the County noise standards for new land uses (Policy PHS-9.1), requiring new development within airport areas of influence to comply with the Airport Noise Compatibility Criteria (Policy PHS-9.2), alleviating existing noise problems (Policy PHS-9.5), enforcing state and federal noise regulations (Policy PHS-9.6), requiring an acoustical study for new noise-sensitive land use development that could be exposed to noise levels that exceed the County noise standards (Policy PHS-9.7), and requiring aviation easements and soundproofing for development near airports (Policy PHS-9.8). The implementation program (PHS-Z) to revise the building code to incorporate noise standards could also reduce potential interior noise exposure. Compliance with these policies and the implementation program would ensure that the impact of aircraft noise on new development would be less than significant.

Summary. It is expected that subsequent CEQA documentation prepared for individual projects would have project-specific data and would be required to address, and if feasible, mitigate any potential operations-related noise impacts to less-than-significant levels. Examples of mitigation that may be proposed include various types of shielding (e.g., vegetation, etc.), sound walls, or noise-reducing building treatments. The County may also consider the establishment of "Quiet Zones" or setback areas adjacent to railroad crossings in an effort to minimize noise impacts (e.g., train whistles, etc.) to a variety of sensitive land uses. Overall, compliance with County policies and implementation programs would ensure that the impact of noise from transportation-related operations would be less than significant.

Mitigation: None required.

Impact 4.H-4: Non-transportation-related operations facilitated by implementation of the proposed 2035 General Plan could result in a substantial permanent increase in ambient noise levels in the vicinity. (Less than Significant)

The siting of new industrial and commercial development and designated growth areas may increase noise levels in their proximity. This could occur due to the use of equipment actually used in the manufacturing process or on the site to transport goods (primarily forklifts) or from

stationary equipment such as compactors and HVAC units. Since industrial and commercial development, or roadways leading to these industrial and commercial uses, could be located in the vicinity of sensitive land uses (i.e., residential, schools, etc.), potential land use conflicts could occur in relation to noise. It is expected that subsequent CEQA documentation prepared for individual projects would have project-specific data and would be required to address, and if feasible, mitigate any potential operations-related noise impacts to less-than-significant levels. Examples of mitigation that may be proposed include various types of shielding (e.g., vegetation, buildings orientation etc.), sound walls, or noise-reducing building treatments. However, the ability to mitigate this potential impact is contingent upon a variety of factors including the severity of the noise impact, existing land use conditions, and the technical feasibility of implementing any proposed mitigation measures.

Policies included in the 2035 General Plan would minimize this impact. Policies from the Public Health and Safety Element include identifying appropriate site and building design to meet the County noise standards for new land uses (Policy PHS-9.1), alleviating existing noise problems (Policy PHS-9.5), enforcing state and federal noise regulations (Policy PHS-9.6), and requiring an acoustical study for new noise-sensitive land use development that could be exposed to noise levels that exceed the County noise standards (Policy PHS-9.7). The implementation program (PHS-Z) to revise the building code to incorporate noise standards could also reduce potential interior noise exposure. Compliance with these policies and the implementation program would ensure that the impact of noise from non-transportation source operations would be less than significant.

Mitigation: None required.

Impact 4.H-5: Development facilitated by implementation of the proposed 2035 General Plan could place noise-sensitive residential uses in a noise environment that would exceed the County's standards for exterior/interior noise exposure. (Significant)

The 2035 General Plan would facilitate development that may add noise-sensitive uses (e.g., residential uses) to multiple areas of the county. These uses could be affected by existing ambient noise exposure (i.e., from existing uses) or from future proposed uses in the vicinity. However, the exact locations of such developments are not known at this time, and noise exposure at proposed noise-sensitive uses would be reviewed on a project-by-project basis as part of the County's development review process. Noise-sensitive uses near noise-producing stationary sources may be allowed with noise mitigation through site-specific layouts and/or acoustical shielding from intervening structures. In addition, implementation of the 2035 General Plan policies would ensure that noise impacts on future development of noise-sensitive uses within project areas that are either currently affected by noise or may be affected by noise would be less than significant. Specifically, policies from the Public Health and Safety Element include identifying appropriate site and building design to meet the County exterior and interior noise standards for new land uses (Policy PHS-9.1), requiring new development within airport areas of influence to comply with the Airport Noise Compatibility Criteria (Policy PHS-9.2), ensuring

consistency with FTA noise screening distance criteria from major roadways and railroad tracks (Policy PHS-9.3), enforcing state and federal noise regulations (Policy PHS-9.6), requiring an acoustical study for new noise-sensitive land use development that could be exposed to noise levels that exceed the County noise standards (Policy PHS-9.7), and requiring avigation easements and soundproofing for development near airports (Policy PHS-9.8). The implementation program (PHS-Z) to revise the building code to incorporate noise standards could also reduce potential interior noise exposure. Since Policy PHS-9.7 only requires a study, however, Mitigation Measure 4.H-5 below recommends that it be amended to require mitigation where appropriate.

Mitigation Measure 4.H-5: Policy PHS-9.7 shall be revised as follows to address potential non-transportation-source noise impacts from new development under the 2035 General Plan:

PHS-9.7: Require Acoustical Study. The County shall require a project applicant to prepare an acoustical study for any proposed new residential or other noise-sensitive development when the County determines the proposed development may expose people to noise levels exceeding acceptable General Plan noise levels. Based on this acoustical study, the applicant shall incorporate mitigation measures into the project design in order to achieve the County noise standards.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.H-6: Increases in transportation and non-transportation noise sources associated with development facilitated by implementation of the proposed 2035 General Plan, in combination with other development, could result in cumulatively considerable noise increases. (Less than Significant)

It is important to note that the proposed 2035 General Plan represents the cumulative development scenario for the reasonably foreseeable future in the county. Land use change recommendations under the 2035 General Plan are within the county and would generally not affect adjoining counties. Therefore, the analysis presented above represents a cumulative analysis of the county as a whole over the next 20 years. The noise impact analyses described above evaluate the entire 2035 General Plan development and noise assessment applied to projected future growth in the region. Therefore, analysis of the 2035 General Plan represents both the project impacts and cumulative effects. As a result of adding the 2035 General Plan to the regional land use and transportation baseline, the associated noise impacts of the proposed project conditions are considered identical to the cumulative condition for CEQA purposes.

Cumulative traffic impacts are discussed in Impact 4.H-3 and depicted in Table 4.H-12. Notably, the 2035 Baseline includes traffic increased from background growth and city general plans. As shown in Table 4.H-12, although cumulative traffic growth in the county along with traffic associated with development under the 2035 General Plan are projected to result in a substantial

increase (greater than three dBA) in traffic noise along area roadways, traffic associated with the 2035 General Plan itself would result in an imperceptible increase (less than three dBA) along the roadways compared to the Cumulative Baseline. Inasmuch as this contribution would not be perceptible, it would not be cumulatively considerable.

As described in Impacts 4.H-3 and 4.H-4, railroad, airport, and non-transportation-related noise impacts would also be less than significant with compliance with County policies and implementation programs that would ensure appropriate land use compatibility and consistency with County noise standards. As such, cumulative noise impacts would not be cumulatively considerable for the 2035 General Plan.

The Bay Delta Conservation Plan (BDCP) is being considered for its potential impacts on land in the Delta Primary and Secondary Zones as well as other areas in San Joaquin County and nearby counties. The BDCP represents a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the BDCP's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that noise impacts from construction activities would be temporary and occur near new intake areas, tunnel and canal alignments, and forebay improvement areas. Vibration effects from construction would also be temporary, resulting primarily from pile-driving activities, and would be partially reduced by mitigation. In general, construction impacts would implement mitigation measures that would reduce noise to acceptable levels.

Mitigation: None required.

G.5 References – Noise

California Department of Transportation (Caltrans), 2009. *Technical Noise Supplement (TeNS)*, November 2009.

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Federal Transit Administration (FTA), 2006. *Transit Noise Impact and Vibration Assessment Guidance Manual*, May 2006.

Mintier Harnish, 2009. *San Joaquin County General Plan Background Report: Public Review Draft*, July 2, 2009.

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I. Geology, Soils, and Seismicity

I.1 Introduction

This section describes the geologic and seismic conditions in San Joaquin County and their associated hazards, and assesses the proposed project in terms of whether it would 1) place additional people or structures at risk from existing geologic or seismic hazards, 2) create a new or worsen an existing hazard, or 3) cause the loss of a geologic resource. Both short-term and long-term project effects are analyzed in the context of current applicable laws and regulations and technical resources available at the time of preparation of this document to determine the significance of impacts under CEQA. When project impacts are determined to be significant, mitigation measures to avoid or reduce those impacts are identified.

I.2 Environmental Setting

Regional Geology and Physiology

San Joaquin County lies within the geologic region of California referred to as the Great Valley geomorphic province.¹ The Great Valley geomorphic province is characterized by a long alluvial plain that extends approximately 400 miles through central California. The Great Valley can be further divided into the northern Sacramento Valley and the southern San Joaquin Valley. The valleys were created as a result of the uplift of the two mountain ranges that flank them, the Coast Ranges to the west and the Sierra Nevada mountain range to the east. Prior to the creation of these mountain ranges, the great valley was dominated by marine deposition that changed once the seas withdrew and new sediments were being deposited throughout the San Joaquin and Sacramento Valleys. The San Joaquin Valley is drained by the San Joaquin River, which has been depositing sediments in the valley for about 160 million years. The county is located within the San Joaquin Valley portion of the province.

Geology, Soils, and Geologic Hazards

San Joaquin County extends across the width of the Great Valley, which has been filled with sediments that attain thicknesses exceeding 30,000 feet in depth in some areas. The valley is generally characterized as an asymmetrical trough with shallow dipping sequences of deposits to the east and steeply dipping deposits to the west. The alluvium deposits located east of the San Joaquin River originate from eroded silica-based volcanic and granitic materials from the Sierra Nevada. Deposits west of the San Joaquin River are composed of a higher percentage of shale/clay and quartzite marine deposits, which originate from the Coast Ranges. The alluvial deposits comprise a majority of the surface deposits within the county, but there are also lacustrine² and marsh (otherwise known as intertidal) deposits present. Lacustrine deposits are typically composed of fine-grained materials such as clays and silts interbedded with sands and

¹ A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces (CGS, 2002a).

² Lacustrine deposits are produced by or formed in lakes.

conglomerates that formed during a time when lakes and marshes existed within the Central Valley. Marsh deposits are found within the low-lying areas of the Delta region.

Site Topography

The topography of the county ranges from approximately 25 feet below mean sea level in some locations of the Delta to 3,626 feet above mean seal level at Mt. Boardman within the Diablo Range, which is part of the Coast Ranges. Oxidation of peat and the resulting subsidence has lowered some Delta Islands up to 25 feet below mean sea level and more than 30 feet below the water-way elevation.³ The county's topography is generally flat at the valley floor. In the east, the Sierra Nevada foothills form gently rolling hills with gradual elevation changes. The maximum elevation attained in the eastern foothills is 497 feet above mean sea level at Bunker Hill. In the west, the valley transitions rapidly in the Diablo Range of the Coastal Ranges. Terrain within the Diablo Range is characterized by steep grades and large elevation changes from river valleys to surrounding peaks.

Local Geology

Geologic formations within the Central Valley consist of sediment deposited in marine, alluvial, and terrestrial environments. To the east of the San Joaquin River, the geologic formations found within San Joaquin County are composed of the Basement Complex, Ione Formation, Valley Springs Formation, Mehrten Formation, Tulare Formation, and recent alluvium. The basement complex is composed of crystalline igneous and metamorphic rocks which are found beneath the sedimentary units. The Ione Formation is composed of claystones and sandstones with some conglomerates from earlier delta depositions. The Valley Springs Formation is composed of alluvium derived sandstones, siltstones, and clay stones. The Mehrten Formation is alluvium composed of conglomerates, sandstones, siltstones, and clay stones. The lacustrine Tulare Formation is composed of clay stone and sandstone. Within the Tulare Formation is the Corcoran Clay Member, a prominent densely compacted clay unit that is known to prevent the vertical movement of groundwater. The Corcoran Clay member is found throughout the southern half of San Joaquin County, and is well developed to the west of State Route 99. Quaternary river and flood plain deposits, consisting of clays, silt, sands, and gravel overlay the underlying geologic formations as surface soil deposits.

Geology west of the San Joaquin River is composed of sources of deposition related to the sedimentary rocks of marine origin derived from the Coastal Ranges as opposed to the geologic formations found to the east derived from the Sierra Nevada. The eastern Diablo Range of the Coastal Ranges is composed primarily of thick ancient marine and nonmarine deposits known as the Great Valley Sequence which dip down toward the center of the San Joaquin Valley beneath the valley alluvial deposits. The Great Valley Sequence overlies the Coast Range Franciscan Assemblage along the valley's western flank which has been highly deformed through tilting, folding, and faulting.

³ Water-way elevation refers to the elevation of the waterways that surround the delta lands which can be higher than mean sea level.

Soils

Different soil types exist within San Joaquin County that are closely associated with alluvial action and deposition. Sand to gravel soils have been deposited along waterways and the ancient course of the San Joaquin River. Areas in between waterways are rich in fine grained clays and silts with extensive peat deposits present in the Delta. Silt and clay soils are fertile and support agriculture within San Joaquin County for a wide variety of crops. These fertile silts and clays pose some risk to structures, as they can be expansive and cause significant damage. Peat deposits are subject to compaction through extraction of groundwater, oil and gas, loading, or natural causes. Peat compaction can lead to subsidence and significant damage to structures.

The Natural Resources Conservation Service of the United States Department of Agriculture has mapped the soils throughout the county as part of its soil survey program. According to the most recent soil survey data, a total of 183 different soil units have been identified within the county (USDA, 2013). While no one unit is prominently found within the area, the Tokay fine sandy loam and the Rindge Muck units are more widely found (at 3.6 and 3.4 percent of the total area) than any of the other units.

Mineral Resources

Mineral resources within San Joaquin County consist primarily of sand and gravel aggregate, with limited mining of peat, gold, and silver. In the past, placer gold deposits have been found in many San Joaquin County rivers and creeks. These deposits were dredged for gold by independent operators in the years following the 1849 gold rush. Significant gold deposits are believed to be fully extracted, and today gold is found only as a secondary product of sand and gravel processing. The mining extent of silver and silver reserves within the county is unknown.

Peat soil removal occurred during the 1970s and 1980s. The Delta Humus Company removed extensive peat soil from a flooded portion of Venice Island in the past; however, since then only limited peat excavations have occurred. As identified by the State Office of Mining Reclamation and the County Public Works Department registration process, the only mining operations existing in 2008 within the county are related to sand and gravel aggregate operations.

Aggregate is a mixture of sand, gravel, and crushed stone that is used to give bulk and strength to Portland cement concrete (PCC), asphaltic concrete (AC), plaster, and stucco, and is also used on golf courses (Brown Sand). These materials are used extensively in road and building construction. Due to the expense of transporting aggregate, locating easily accessible, high grade aggregate deposits is vital to the continued growth of the county.

Aggregate deposits are typically encountered in channel, floodplain, and alluvial fan deposits. Extraction of aggregate is disruptive to other nearby land uses due to extensive overburden removal and heavy equipment use. Because aggregate mines produce dust, vibration, visual blight, and noise, they generally are located away from areas with sensitive uses (e.g., schools and residential areas).

See Section 4.O of this EIR for a more detailed review of mineral resources.

Geologic Hazards

Expansive Soils

Expansive soils are characterized by their potential “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the process of wetting and drying. Clay minerals such as smectite, bentonite, montmorillonite, beidellite, vermiculite and others are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near-surface soils, the higher the potential for significant expansion. The greatest effects occur when there are significant or repeated moisture content changes. Expansions of ten percent or more in volume are not uncommon. This change in volume can exert enough force on a building or other structure to cause cracked foundations, floors and basement walls. Damage to the upper floors of the building can also occur when movement in the foundation is significant. Structural damage typically occurs over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

According to the soil survey data for San Joaquin County, close to half of the upper five feet of soils throughout the county have a low shrink-swell potential, a lesser portion is considered to have a moderate potential, and about an eighth of the area (primarily in the southwestern end of the county) has been mapped with a high potential (USDA, 2013) (see **Figure 4.I-1**).

Soil Erosion

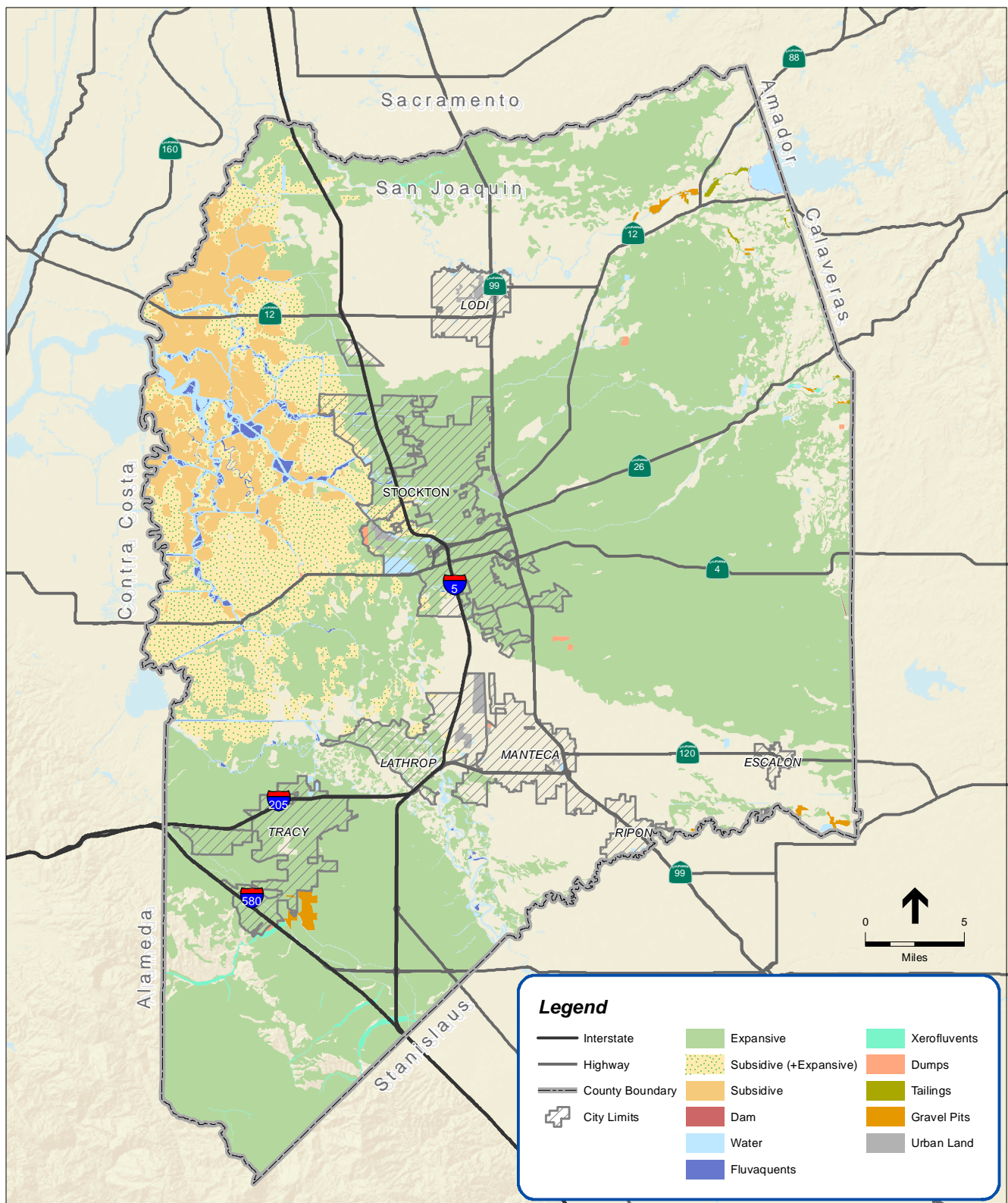
Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind, and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. Areas that are susceptible to erosion are often those that become exposed during the construction phase of development when existing cover is removed or earthwork activities disturb sub-grade areas. Typically, the soil erosion potential is reduced once disturbed areas are graded and covered with landscaping, structures, concrete, asphalt, or slope protection materials.

Settlement

Settlement can occur from immediate settlement, consolidation, shrinkage of expansive soil, and liquefaction (discussed below). Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load.

Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is followed by secondary compression, which is a continued change in void ratio under the continued application of the load. Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties over an area, which is referred to as differential settlement.

Subsidence can also occur by hydrocompaction or oxidation of peat. Subsidence can result in reduced storage capacity of groundwater aquifers. Subsidence within the county is usually the result of pumping groundwater or oxidation of peat in the Delta. Subsidence in the Delta results



SOURCE: San Joaquin County, 2014

San Joaquin County 2035 General Plan. 209529

Figure 4.I-1
Soils

in lower levees and islands with increased flooding risks. Subsidence rates vary across the Delta and no one rate is applicable to the entire Delta. Estimated elevation decreases range from 0 to 5 feet by 2050 and from 0 to over 9 feet by 2100, and from 0 to over 18 feet by 2200 (URS, 2007). Subsidence and rise in sea level cause increased hydrostatic pressure on levees and increase the risk of failure. The loss of peat soils, due to compaction and mining, has caused the land surface of many Delta islands to subside (decrease in elevation). This subsidence has resulted in most of the Delta being, on average, 15 feet below sea level, and the most deeply subsided areas as much as 25 feet below sea level.

Landslides and Slope Failure

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. A slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience shallow soil slides, rapid debris flows, and deep-seated rotational slides. Landslides may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges. Landslide-susceptible areas are characterized by steep slopes and downslope creep of surface materials. Debris flows consist of a loose mass of rocks and other granular material that, if saturated and present on a steep slope, can move downslope. The rate of rock and soil movement can vary from a slow creep over many years to a sudden mass movement. Landslides occur throughout the state of California, but the density of incidents increases in zones of active faulting.

Slope stability can depend on a number of complex variables. The geology, structure, and amount of groundwater in the slope affect slope failure potential, as do external processes (i.e., climate, topography, slope geometry, and human activity). The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope. Slope failure under static forces occurs when those forces initiating failure overcome the forces resisting slope movement. For example, a soil slope may be considered stable until it becomes saturated with water (e.g., during heavy rains or due to a broken pipe or sewer line). Under saturated conditions, the water pressure in the individual pores within the soil increases, reducing the strength of the soil. Cutting into the slope and removing the lower portion, or slope toe, can reduce or eliminate the slope support, thereby increasing stress on the slope.

Earthquake motions can induce significant horizontal and vertical dynamic stresses in slopes that can trigger failure. Earthquake-induced landslides can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake.

Steep slopes in the county are relatively limited and are primarily found in the southwestern portion of the county within the Coast Range. In addition, there are minor slopes, in terms of vertical height, that are susceptible to slope instability in various levees located throughout the Delta area.

Regional Faulting and Seismic Hazards

The county is located in a region that lies between two areas of seismic activity (see **Figure 4.I-2**). The active faults associated with the San Andreas Fault System of the greater San Francisco Bay Area lie west of the county line, with the Marsh Creek-Greenville active fault located immediately west of the southern tip of the county.⁴ To the east lies a regional shear zone associated with the Sierra Nevada foothills known as the Foothills Fault System. Other active faults associated with the San Andreas Fault System include the Concord, Calaveras, Hayward, and the San Andreas faults (see **Table 4.I-1**). All of these faults are capable of causing ground shaking that could potentially be felt within the county. The Foothills Fault System consists of a complex collection of fault segments that have not been classified as active. There are no active faults located within San Joaquin County.

**TABLE 4.I-1
ACTIVE FAULTS IN THE VICINITY OF SAN JOAQUIN COUNTY**

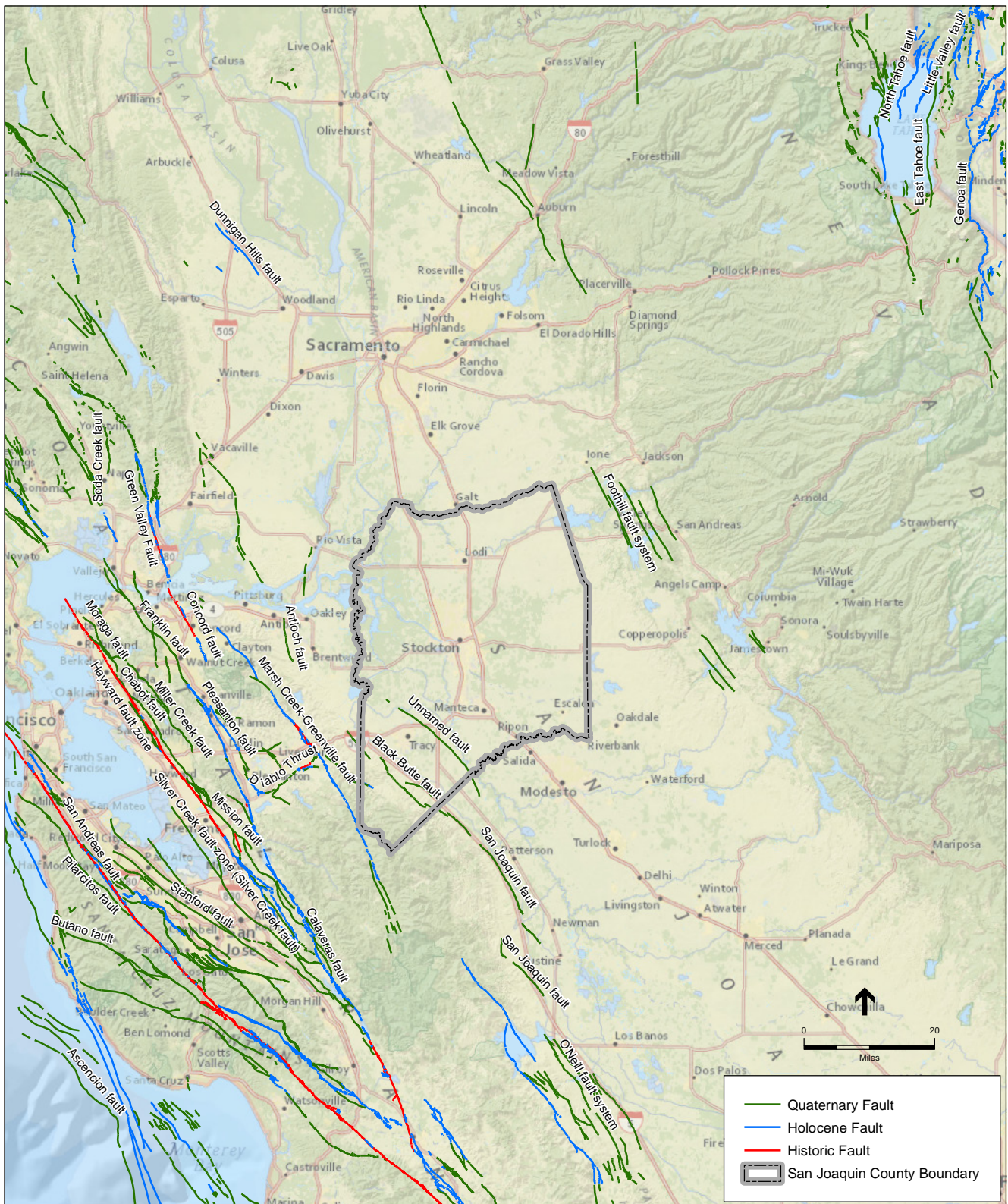
Fault	Distance and Direction from County Line	Recency of Movement^a	Future Earthquake Probability^b	Historical Seismicity	Maximum Moment Magnitude Earthquake (Mw)^c
Marsh Creek–Greenville	~1 mile southwest	Historic	3%	M 5.6 in 1980	6.9
Calaveras	15 miles southwest	Historic	7%	M 5.6–M 6.4 in 1861 M 6.2, 1911 in 1984	6.8
Hayward	18 miles southwest	Historic	31%	M 6.8 in 1868 Many <M 4.5	7.1
Mt. Diablo Thrust	20 miles west	Historic	3%	Historic active creep	6.6
Concord–Green Valley	25 miles northeast	Historic	3%	1955 - active creep	6.2
San Andreas (Peninsula Section)	35 miles southwest	Historic	21%	M 7.1 in 1989 M 7.8 in 1906 M 7.0 in 1838 Many <M 6	7.9
Foothills Fault System (Sierra Nevada)	~10 miles east	Potentially Active	n/a	n/a	6.5

NOTES:

- ^a From Jennings (2010), historic refers to the post-colonial era (after 1775), the Holocene is from 11,000 years ago to present.
- ^b Probability of one or more earthquakes of magnitude 6.7 or greater in the next 30 years from the Working Group on California Earthquake Probabilities (2008). The Working Group estimates the probability of a “background” earthquake not from one of the seven major faults studied to be 9 percent.
- ^c The Maximum Moment Magnitude Earthquake is derived from the joint CDMG/USGS Probabilistic Seismic Hazard Assessment for the State of California (Peterson et al., 1996)

SOURCES: Hart, 2007; Jennings, 2010; Working Group on California Earthquake Probabilities (2008); Peterson et al., 1996.

⁴ An active fault is defined by the State of California as a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). A potentially active fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive (Hart, 2007).



SOURCE: USGS, 2010

San Joaquin County 2035 General Plan. 209529

Figure 4.I-2
Regional Faults

Seismic hazards are generally classified under two categories: primary seismic hazards (surface fault rupture and ground shaking) and secondary seismic hazards (liquefaction⁵ and other types of seismically induced ground failure, along with seismically induced landslides). Periodic earthquakes and any associated secondary seismic hazards can be expected to occur to some degree in the project area through the lifetime of the proposed project.

The U.S. Geological Survey (USGS) along with the California Geological Survey and the Southern California Earthquake Center formed the 2007 Working Group on California Earthquake Probabilities, which has evaluated the probability of one or more earthquakes of magnitude 6.7 or higher occurring in the state of California over the next 30 years. The result of the evaluation indicated a 63 percent likelihood that such an earthquake event will occur in the San Francisco Bay Area (USGS, 2008).

Earthquake Terminology and Concepts

Richter magnitude is a measure of the size of an earthquake as recorded by a seismograph, a standard instrument that records ground shaking at the location of the instrument. The reported Richter magnitude for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically, with each whole number step representing a ten-fold increase in the amplitude of the recorded seismic waves. Earthquake magnitudes are also measured by their Moment Magnitude (M_w), which is related to the physical characteristics of a fault including the rigidity of the rock, the size of fault rupture, and movement or displacement across a fault (CGS, 2002b).

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. For this reason, earthquake intensities are also measured in terms of their observed effects at a given locality. The Modified Mercalli (MM) intensity scale (**Table 4.I-2**) is commonly used to measure earthquake damage due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage.⁶ The intensities of an earthquake will vary over the region of a fault and generally decrease with distance from the epicenter of the earthquake.

⁵ Liquefaction is the process by which saturated, loose, fine-grained, granular, soil, like sand, behaves like a dense fluid when subjected to prolonged shaking during an earthquake.

⁶ The damage level represents the estimated overall level of damage that will occur for various MM intensity levels. The damage, however, will not be uniform. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance.

**TABLE 4.I-2
MODIFIED MERCALLI INTENSITY SCALE**

Intensity Value	Intensity Description	Average Peak Ground Acceleration^a
I	Not felt except by a very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017-0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	0.0017-0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.014–0.039g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.035 – 0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	0.092 – 0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.18 – 0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34 – 0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65 – 1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

NOTE:

^a Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: ABAG, 2003, CGS, 2013

Seismic Context

As stated above, there are no active faults located within the county. Other faults known to exist within or near San Joaquin County are the Black Butte, Stockton, Vernalis, Patterson Pass, Tesla, and Midway faults. These faults have not been active in historic record times with the exception of the Stockton fault. On April 10, 1881, an earthquake occurred near Linden. The intensity of

this quake was estimated at VII using the Modified Mercalli scale; two other smaller quakes were recorded on September 19 and 20, 1940, and measured M 4 (San Joaquin County, 1992).

Seismic Hazards

The following discussion identifies the seismic hazards for the county and provides the initial context for further evaluation in the impact analysis.

Ground Shaking

Strong ground shaking from a major earthquake could affect the county during the next 30 years. Earthquakes on the active faults (listed in Table 4.I-1) are expected in the future and could produce a range of ground shaking intensities in the county depending on a variety of parameters. Ground shaking may affect areas hundreds of miles distant from the earthquake's epicenter.

The common way to describe ground motion during an earthquake is with the motion parameters of acceleration and velocity in addition to the duration of the shaking. A common measure of ground motion is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. In terms of automobile accelerations, one "g" of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds. For comparison purposes, the maximum peak acceleration value recorded during the Loma Prieta earthquake was in the vicinity of the epicenter, near Santa Cruz, at 0.64 g.

Liquefaction

Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. Lateral spreading is the horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer that occurs on slopes ranging between 0.3 and 3 percent and commonly displaces the surface by several meters to tens of meters. Flow failures occur on slopes greater than 3 percent and are primarily liquefied soil or blocks of intact material riding on a liquefied subsurface zone. Ground oscillation occurs on gentle slopes when liquefaction occurs at depth and no lateral displacement takes place. Soil units that are not liquefied may pull apart from each other and oscillate on the liquefied zone. The loss of bearing pressure can occur beneath a structure when the underlying soil loses strength and liquefies. When this occurs, the structure can settle, tip, or even become buoyant and "float" upwards. Liquefaction and associated failures could damage foundations, roads, underground cables, and pipelines and disrupt utility service.

In addition, liquefaction can occur in unconsolidated or artificial fill sediments and other reclaimed areas along the margin of San Francisco Bay. The depth to groundwater influences the potential for liquefaction, in that sediments need to be saturated to have a potential for liquefaction.

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, uncompacted, and variable sandy sediments above the water table) due to the rearrangement of soil particles during prolonged ground shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different amounts). Areas underlain by artificial fill are generally more susceptible to this type of settlement.

I.3 Regulatory Setting

Federal

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990, and refined the description of agency responsibilities, program goals, and objectives.

NEHRP’s mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the proposed project would be required to adhere.

State

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2013 CBC is based on the 2012 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference

standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 16, Section 1613 provides earthquake loading specifications for every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, which shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-05. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (Section 1805), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

CCR Title 24 also includes the California Residential Code and the California Green Building Code, which have been adopted as separate documents (CCR Title 24, Part 2.5 and 11, respectively). The California Residential Code includes structural design standards for residential one- and two-family dwellings and covers all structural requirements for conventional construction. This part incorporates by adoption the 2012 International Residential Code of the International Code Council with necessary California amendments for seismic design. All other structures including multi-family residential projects are found in the other parts of the CBC as discussed above.

Assembly Bill (AB) 1200

AB 1200 required the Department of Water Resources and Department of Fish and Game to report to the Legislature and Governor on the potential impacts of Delta levee failures from seismic and other sources. AB 1200 also required that options to reduce the risk and options to restore the Delta estuary and the ecosystem that it supports be addressed. The resultant Delta Risk Management Strategy (DRMS) produced a report based on the requirements of AB 1200 that was submitted to the legislature in January 2008. The Phase 1 report provides information on the risk to levee stability from various hazards including subsidence, earthquakes, floods, and climate change (DWR and DFG, 2008). Knowledge gained from the Phase 1 Risk Analysis Report was used in the June 2011 Phase 2 report to develop improvement strategies that would increase the reliability of the Delta levees that present the highest risks. The objectives of the DRMS Phase 2 report were to evaluate the risks and consequences to the state and the Delta associated with the failure of Delta levees considering their exposure to all hazards (seismic, flood, subsidence, seepage, sea level rise) under present and foreseeable future conditions.

Senate Bill (SB) 27

SB 27 makes a number of findings and declarations regarding the value of the Delta and the environmental risks to the Delta's many uses in light of the changing climatic, hydrologic, environmental, seismic, and land use conditions. It evaluates options for an improved conveyance system within the Delta and plans to implement a program for sustainable management of the Delta. Key features include investing in essential emergency preparedness, funding projects that will aid sustainability, identifying critical levees that must be strengthened to protect the uses of the Delta, and commencing restoration projects to improve habitat conditions.

Senate Bill (SB) 547

SB 547 was mandated by the State of California's Seismic Safety Commission in 1989. It required local building departments, by January 1, 1990, to identify potentially hazardous buildings in their jurisdictions and establish a mitigation program under which hazards of unreinforced masonry structures will be reduced, in the interest of public safety.

Regional

Delta Protection Act

The Delta Protection Act of 1992 (Act) established the Delta Protection Commission, a State entity to plan for and guide the conservation and enhancement of the natural resources of the Delta, while sustaining agriculture and meeting increased recreational demand. The Act defines a Primary Zone, which comprises the principal jurisdiction of the Delta Protection Commission (see Figure 4.L-4). The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta"; the Secondary Zone is not within the planning area of the Delta Protection Commission. The Act requires the Commission to prepare and adopt a Land Use and Resource Management Plan (LURMP) for the Primary Zone of the Delta, which must meet specific goals. The following policies from the LURMP pertain to the levees and maintenance of levees for continued protection:

P-2. Support programs for emergency levee repairs and encourage coordination between local, State, and federal governments. The programs may include but are not limited to: interagency agreements and coordination; definition of an emergency; designation of emergency funds; emergency contracting procedures; emergency permitting procedures; and other necessary elements.

P-3. Support efforts to address levee encroachments that are detrimental to levee maintenance.

P-4. Support funding assistance for existing unincorporated towns within the Delta to improve levees up to a 200-year flood protection level.

P-5. Support stockpiling rock in the Delta for levee emergency response.

P-9. Support a minimum Delta-specific levee design standard as established by state and federal regulations.

Local

San Joaquin County Environmental Health Department

Residential septic wastewater systems are permitted through the San Joaquin County Environmental Health Department in accordance with California Health and Safety Code Sections 117415-117420 and Ordinance Code of San Joaquin County Section 9-1110. These code requirements are designed to ensure proper handling and disposal of sewage effluent by governing construction, repair, destruction, permitting and inspection of on-site septic systems.

County Building Code Ordinance

San Joaquin County passed Ordinance No. 4445, adopting the 2013 California Building Code (CBC) with amendments into San Joaquin County Code. This is reflected in San Joaquin County Code Title 8, Division 1. City and County General Plans incorporate the provisions of the CBC by reference and add additional safety factors for critical structures and to meet local conditions.

I.4 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of an impact are based on Appendix G of the CEQA *Guidelines*. For this analysis, implementation of the proposed project may result in a significant impact if it would:

1. Expose people or structures to potential substantial adverse effects, including risk of loss, injury or death involving:
 - a) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
 - b) Strong seismic ground-shaking;

- c) Seismic-related ground failure, including liquefaction; and/or
 - d) Landslides or levee failures;
- 2. Result in substantial soil erosion or the loss of topsoil;
- 3. 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 landslide, lateral spreading, subsidence, liquefaction or collapse;
- 4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code creating substantial risks to life or property;⁷ or
- 5. 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.

Relevant Policies

The following relevant policies of the 2035 General Plan address geology, soils, and seismicity:

PHS-3.1: Consider Geologic Hazards for New Development. The County shall consider the risk to human safety and property from seismic and geologic hazards in designating the location and intensity for new development and the conditions under which that development may occur. (RDR/PSP) (Source: Existing GP, Seismic and Geologic Hazards, Policy 1)

PHS-3.2: Location of Sensitive Land Uses. The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction: facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers. (RDR) (Source: Existing GP, Seismic and Geologic Hazards, Policy 2; modified by Local Hazard Mitigation Plan)

PHS-3.3: Emergency Service Facilities. The County shall require emergency service facilities to be capable of withstanding earthquakes per the California Building Code, Chapter 16, Volume 2, and remain operational to provide emergency response. (RDR) (Source: Existing GP, Seismic and Geologic Hazards, Policy 3, modified)

PHS-3.4: Liquefaction Studies. The County shall require proposals for new development in areas determined by the County to have high liquefaction potential to include detailed site-specific liquefaction studies. (RDR/PSR) (Source: New Policy)

PHS-3.5: Subsidence or Liquefaction. The County shall require that all proposed structures, utilities, or public facilities within County-recognized areas of near-surface subsidence or liquefaction be located and constructed in a manner that minimizes or eliminates potential damage. (RDR) (Source: New Policy)

⁷ The Uniform Building Code is no longer the basis for the California Building Code which has incorporated the International Building Code in its place. The requirements for expansive soils, including the parameters that define what is considered to be expansive, are found in Chapter 18, Section 1803.5.3 of the California Building Code.

PHS-3.6: Subsidence in the Delta. The County shall promote regional and local efforts to reduce subsidence in the Delta. (PSP) (Source: Existing GP, Seismic and Geologic Hazards, Policy 4)

PHS-3.7: Erosion Control. The County shall encourage the planting of vegetation to decrease loss of soil by erosion. (RDR/PSR) (Source: Existing GP, Seismic and Geologic Hazards, Implementation 5(c))

PHS-3.8: Soil Conservation and Restoration. The County shall support soil conservation and restoration efforts of the U. S. Soil Conservation Service and the Resource Conservation Districts. (IGC) (Source: Existing GP, Seismic and Geologic Hazards, Implementation 5(b))

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan address geology, soils, and seismicity:

PHS-J: Identify and Abate Critical Infrastructure. The County shall identify and seismically retrofit or replace local bridges and other critical transportation infrastructure that are categorized as structurally deficient by Caltrans and are necessary for emergency response during an earthquake event. (PSP) (Source: New Program, Local Hazard Mitigation Plan)

PHS-K: Public Information on Geologic Hazards. The County shall provide public information on methods to reinforce structures against geologic and seismic impacts, and shall promote awareness and preparedness in the event of a geologic or seismic hazard. (PI) (Source: Existing GP, Seismic and Geologic Hazards, Implementation 4)

Impact Analysis

2035 General Plan Impacts

The following impact analysis focuses on impacts of the proposed project related to soils, seismicity, and other geologic hazards. When impacts on “development” are described, the term development includes both land use projects and infrastructure projects.

The following CEQA *Guidelines* Appendix G criteria are not considered relevant to the project based upon the proposed project plans and data research; therefore, they will not be evaluated further in this EIR:

Fault Rupture. There are no active faults that intersect the county. While fault rupture is not necessarily limited to the confines of active fault traces or their associated Alquist-Priolo fault zones, the potential for ground displacement to occur outside of them is considered very unlikely.

Septic Tanks. The majority of development that would occur under the proposed 2035 General Plan would likely connect to existing or proposed wastewater treatment plants and not require the use of septic tanks or other alternative wastewater disposal systems. However, regardless, the San Joaquin County Environmental Health Department has residential septic system permit requirements in accordance with California Health and Safety Code Sections 117415-117420 and Ordinance Code of San Joaquin County

Section 9-1110 that govern the appropriate design standards for septic systems. These code requirements include measures to ensure that on-site soils have adequate infiltration rates such that there would be no impact related to this criterion.

Impact 4.I-1: In the event of a major earthquake in the region, seismic ground shaking could injure people and cause collapse of or structural damage to structures and/or retaining walls associated with development under the proposed 2035 General Plan. (Significant)

The county is situated in proximity to several active faults that could experience a substantial earthquake. Isolated portions of the County may be subject to strong seismic ground shaking. In 2007, the USGS determined that there was a 63 percent chance that a M 6.7 or greater earthquake would occur for any one of the Bay Area active faults within the following 30 years (USGS, 2008). Depending on the distance to the epicenter among other factors, an earthquake of this magnitude could cause ground shaking within the county. However, detailed geotechnical engineering investigations for specific developments would be necessary to more accurately evaluate seismic hazards and provide seismic design standards to withstand a maximum credible earthquake. These geotechnical investigations are required by the California Building Code (CBC) requirements, which contain seismic design criteria that must be incorporated into project design to ensure that improvements can withstand anticipated ground shaking from maximum credible earthquakes on active faults within the region.

The proposed 2035 General Plan also includes several policies designed to address a variety of public health and safety issues resulting from seismic hazards. For example, the Public Health and Safety Element provides a number of policies and implementation measures that have been developed to ensure a safe environment for the county's residents, visitors, and businesses. These policies and implementation measures include consideration of seismic and geologic hazards for new development (PHS-3.1), location of sensitive land uses (PHS-3.2), and seismic retrofitting of critical infrastructure (PHS-J). However, these policies (PHS-3.1 and PHS-3.2) do not specify performance standards for consideration of seismic hazards.

Policy PHS-3.3 requires that emergency service facilities are in accordance with California Building Code, Chapter 16, Volume 2 in order to remain operational for the purpose of emergency response. Although proposed 2035 General Plan policies and regulations would reduce geologic and seismic hazards, these hazards would be significant because General Plan policies do not specify performance standards for their consideration.

Mitigation Measure 4.I-1: The proposed 2035 General Plan Policies PHS-3.1 and PHS-3.2 shall be modified as follows:

PHS-3.1: Consider Geologic Hazards for New Development. The County shall consider the risk to human safety and property from seismic and geologic hazards (e.g., slope/levee stability, unstable soils, expansive soils, etc.) as identified through a geotechnical investigation by a California licensed geotechnical engineer in designating the location and intensity for new development and the conditions under which that development may occur in accordance with the most current version of the County's building code. The County shall require feasible mitigation identified in the

geotechnical investigations to be implemented. (Source: Existing GP, Seismic and Geologic Hazards, Policy 1, modified by EIR analysis)

PHS-3.2: Location of Sensitive Land Uses. The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction as identified in a geotechnical investigation by a California licensed geotechnical engineer; facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers. (Source: Existing GP, Seismic and Geologic Hazards, Policy 2; modified by Local Hazard Mitigation Plan and EIR analysis)

Significance after Mitigation: Less than Significant.

Impact 4.I-2: In the event of a major earthquake in the region, people and property in the county could be exposed to seismically induced ground failure, including liquefaction, lateral spreading, and earthquake-induced settlement. (Significant)

Liquefaction typically occurs in areas underlain with loose saturated cohesion-less soils within the upper 50 feet of subsurface materials. These soils, when subjected to ground shaking, can lose their strength resulting from the buildup of excess pore water pressure causing them to behave closer to a liquefied state. Although no generalized liquefaction mapping has been completed for San Joaquin County, liquefaction studies for Solano and Contra Costa Counties, which have similar Delta conditions, indicate that at least the Delta portion of the county is likely to have areas with moderate to high susceptibility for liquefaction (ABAG, 2013). Otherwise, the potential for liquefaction throughout the county could vary and would depend on site-specific data including depth to groundwater and composition of underlying materials. Other factors such as topography and density of subsurface materials would also heavily influence any potential for lateral spreading or earthquake-induced settlement.

Damage from earthquake-induced ground failure associated with liquefaction, lateral spreading, or earthquake-induced settlement could be high in buildings constructed on improperly engineered fills or saturated alluvial sediments that have not received adequate compaction or treatment in accordance with current building code requirements. Ground failure, including liquefaction, as a result of an earthquake could occur in the county depending on the underlying conditions including moisture content, relative size of soil particles, and density of subsurface materials within 50 feet of the ground surface.

The impacts from ground failure, including liquefaction, from development of proposed land uses associated with the 2035 General Plan would be addressed through site-specific geotechnical studies prepared in accordance with CBC building code requirements as adopted by the County and standard industry practices as well as any local building code requirements, which would specifically address liquefaction, lateral spreading, and earthquake-induced settlement especially in areas that have been

mapped as having a high potential for liquefaction where groundwater is known to be shallow. Subsequent development would be required to conform to the current seismic design provisions of the CBC to mitigate losses from ground failure as a result of an earthquake. For example, the Public Health and Safety Element provides a number of policies and implementation measures that have been developed to ensure a safe environment for the county's residents, visitors, and businesses. These policies and implementation measures include consideration of liquefaction hazards for new development (PHS-3.4 and PHS-3.5). However, these policies do not specify performance standards and should be revised to ensure reduction of potential impacts.

Mitigation Measure 4.I-2: The proposed 2035 General Plan Policies PHS-3.4 and PHS-3.5 shall be modified as follows:

PHS-3.4: Liquefaction Studies. The County shall require proposals for new development in areas with high liquefaction potential to include detailed site-specific liquefaction studies by a California licensed geotechnical engineer or engineering geologist in accordance with the most current County building code. (Source: New Policy; modified by EIR analysis)

PHS-3.5: Subsidence or Liquefaction. The County shall require that all proposed structures, utilities, or public facilities within recognized near-surface subsidence or liquefaction areas be located and constructed in a manner that minimizes or eliminates potential damage in accordance with the most current County building code. (Source: New Policy; modified by EIR analysis)

Significance after Mitigation: Less than Significant.

Impact 4.I-3: In the event of a major earthquake in the region, development under the proposed 2035 General Plan could be subject to adverse effects resulting from seismically induced landslides or levee failures. (Significant)

In general, the county does not contain many areas of notable steep topography where seismically induced landslides would be of much concern with the exception of the upland areas of the very southwestern Diablo Range locations and the localized sloped levees found throughout the Delta.

Earthquake-induced landslides could occur in unstable upland areas where previous landslide stabilization measures have not been employed. Landslides may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges. Landslide-susceptible areas are characterized by steep slopes and downslope creep of surface materials.

The extensive canal and levee system in the Delta area has been constructed during various periods of history, and much of the system has not been engineered to withstand the forces that could be created by future earthquakes. Many levees were constructed by ranchers to protect crops or farm animals and were constructed from earthen materials and date back to the early 20th century. These levees pose a great risk of failure as their construction quality is unknown and maintenance and

inspection is inadequate, if conducted at all. Delta levees may fail directly due to an earthquake, or may be severely weakened and become unsafe. Protection against levee failures is critical to many areas of the county, especially where landside locations are actually sitting below sea level. While no Delta levee has ever failed due to an earthquake, including the 1906 San Francisco earthquake,⁸ several circumstances have changed since then, making the Delta much more vulnerable. First, subsidence that has occurred over the past 100 years has required many levees to be built higher. The increasing difference between the height of water in the surrounding channels and the height of the land surface has caused the levees to be continually subjected to higher levels of stress and likely more susceptible to earthquake-induced landslides. Second, levees improved to federal and state standards are intended to protect against the “normal” forces of flooding events and do not necessarily provide protection against earthquakes.

A major earthquake could cause extensive damage to large sections of levees on multiple islands at the same time. According to a Department of Water Resources study, a 40 percent probability of a major earthquake causing 27 or more islands within the Delta region to flood at the same time was calculated for the period of 2005 to 2030 (DWR, 2009). According to the 2007 Working Group on California Earthquake Probabilities (WGCEP) study, there is a 63 percent chance of a M 6.7 or greater earthquake occurring in the greater Bay Area over the next 30 years (USGS, 2008). An earthquake of this magnitude could potentially result in levee instability. Policies from the Delta Protection Commission’s Land Use and Resource Management Plan as identified above in the “Regulatory Setting” section would assist in improved levee maintenance and support a minimum Delta-specific levee design standard. In addition, the proposed 2035 General Plan includes several policies designed to address a variety of public health and safety issues resulting from seismic hazards. For example, the Public Health and Safety Element Policy PHS-3.1, as amended above by Mitigation Measure 4.I-1, would require that new development receive a geotechnical investigation in accordance with County building code requirements to identify seismic hazards including slope stability and levee stability. With adherence to these codes and regulations and implementation of the policies and implementation measures contained in the Public Health and Safety Element, seismic hazard impacts associated with seismically induced landslides would be minimized. Therefore, this impact is considered less than significant with implementation of the Mitigation Measure 4.I-1.

Mitigation Measure 4.I-3: Implement Mitigation Measure 4.I-1.

Significance after Mitigation: Less than Significant.

⁸ No recorded levee failures occurred in the Delta from the 1989 Loma Prieta earthquake either, however, the epicenter was fairly distant and there was a levee failure in Moss Landing (near Watsonville).

Impact 4.I-4: Development facilitated by implementation of the proposed 2035 General Plan could result in substantial soil erosion or loss of topsoil. (Less than Significant)

The county's topography varies, although there are relatively wide expanses of fairly flat areas with soil conditions that exhibit minimal potential for erosion impacts. Development activities resulting from buildout of the proposed 2035 General Plan could accelerate the erosion rate through both an increase in short-term construction-related activities and an overall increase in the amount of impervious surfaces. All development would be subject to local and state codes and requirements for erosion control and grading. In addition, construction sites encompassing an area of one or more acres would require compliance with a National Pollutant Discharge Elimination System (NPDES) permit and consequently the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). See discussion of Impacts 4.J-1 and 4.J-3 for further details.

Consequently, erosion-related effects would be minimized through implementation of NPDES permit requirements in addition to the policies provided as part of the Public Health and Safety Elements. Policies PHS-3.7 and PHS-3.8 relate to erosion control and soil conservation. With implementation of these permit requirements and policies, this impact is considered less than significant.

Mitigation: None required.

Impact 4.I-5: Development facilitated by implementation of the proposed 2035 General Plan could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. (Significant)

Some construction associated with implementation of the proposed 2035 General Plan could be located on geologic units or soils that are unstable, or that could become unstable and result in damage to structures, injury, or death. Areas with underlying materials that include undocumented fills, soft compressible mud deposits, or loose debris could be inadequate to support development, especially multi-story buildings without appropriate site preparation or design (e.g., replacement of fills with compacted engineered fill, treatment of existing soils, use of deep foundation systems, etc.). Construction of new structures in the vicinity of relatively steep slopes could provide additional loading causing landslides or slope failure from unstable soils or geologic units. Slope failure can occur naturally through rainfall or seismic activity (as discussed above), or through earthwork and grading related activities.

The hazards of unstable soil or geologic units would be addressed largely through the integration of geotechnical information in the planning and design process for projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided requirements, such as local and CBC requirements, used to minimize the risk associated with these hazards (See Policy PHS-3.1 as amended in Mitigation Measure 4.I-1). Incorporation of

geotechnical recommendations such as foundation design and site preparation prior to construction enforced through compliance with local building codes and ordinances would avoid or reduce hazards relating to unstable soils and slope failure. In addition, Policy PHS-3.6 specifically addresses the ongoing hazard of subsidence in the Delta and recognizes the need to reduce this hazard. With implementation of the existing regulatory requirements, such as local and CBC building code requirements and proposed policies, as amended in Mitigation Measure 4.I-1, this impact would be less than significant.

Mitigation Measure 4.I-5: Implement Mitigation Measure 4.I-1.

Significance after Mitigation: Less than Significant.

Impact 4.I-6: Development facilitated by implementation of the proposed 2035 General Plan could be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code creating substantial risks to life or property. (Significant)

As noted above, soil survey data for the county indicates that close to half of the upper five feet of soils have a low shrink-swell potential and areas with a high potential are primarily confined to the southwestern end of the county (USDA, 2013). In most developed areas, any native existing layers of clay have been blended into more granular soils as a part of general site excavation, which helps to reduce the overall soil's expansiveness. Regardless, the hazard of expansive soils can only definitively be determined based on site-specific data that would be included as part of a typical development process as required by Policy PHS-3.1 as amended in **Mitigation Measure 4.I-1**. With implementation of this policy and existing regulatory requirements such as local and CBC building code requirements, impacts associated with expansive soils would be less than significant.

Mitigation Measure 4.I-6: Implement Mitigation Measure 4.I-1.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.I-7: Development under the proposed 2035 General Plan, combined with past, present, and reasonably foreseeable probable projects, could result in substantial adverse cumulative impacts related to geology, soils, or seismic hazards. (Significant)

The geographic area considered for the cumulative geology, soils, and seismic hazards effects is the entire Central Valley region. Geologic and seismic hazards tend to be more localized and dependent on site-specific conditions that are not cumulatively considerable, and the county itself is not considered as seismically active as the more seismically active adjacent areas. However, future development could still expose additional people and structures to significant adverse effects associated with earthquakes, including seismic ground shaking and seismic-related ground

failure that could include failure of existing levees. Other hazards such as unstable or expansive soils could also subject new development to significant adverse effects if not designed appropriately.

Site-specific geotechnical reports, that present and future development projects would be required to prepare, would determine how each development could be designed to minimize exposure of people to these effects throughout the Central Valley region. Past projects, depending on their age of construction, can be built to less stringent seismic standards; however, new development associated with the 2035 General Plan would not cumulatively contribute to the site-specific hazards of older structures. Future development would be constructed to local and state standards as addressed in the policies described above and as amended above in Mitigation Measure 4.I-1 similar to how other projects throughout the Central Valley would be constructed. Future cumulative development occurring under the proposed 2035 General Plan would be constructed in accordance with the most current version of the California Building Code seismic safety requirements and recommendations contained in each site-specific geotechnical report as required by the policies and implementation measures stated above and as amended by Mitigation Measure 4.I-1. As a result, the cumulative impacts from the 2035 General Plan would be less than significant.

Mitigation Measure 4.I-7: Implement Mitigation Measure 4.I-1 and 4.I-2.

Significance after Mitigation: Less than Significant.

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J. Hydrology and Water Quality

This section describes existing hydrologic conditions in San Joaquin County and presents applicable regulations that pertain to hydrology, surface water, flooding, and water quality. Both short term and long term effects are analyzed in the context of current applicable laws and regulations and technical resources available at the time of preparation of this document to determine their significance under CEQA. This section also discusses the changes in hydrology and water quality that could result from construction and operation of development facilitated by the implementation of the 2035 General Plan and identifies impacts and appropriate mitigation measures when necessary.

J.1 Environmental Setting

Hydrology

Regional Surface Waters

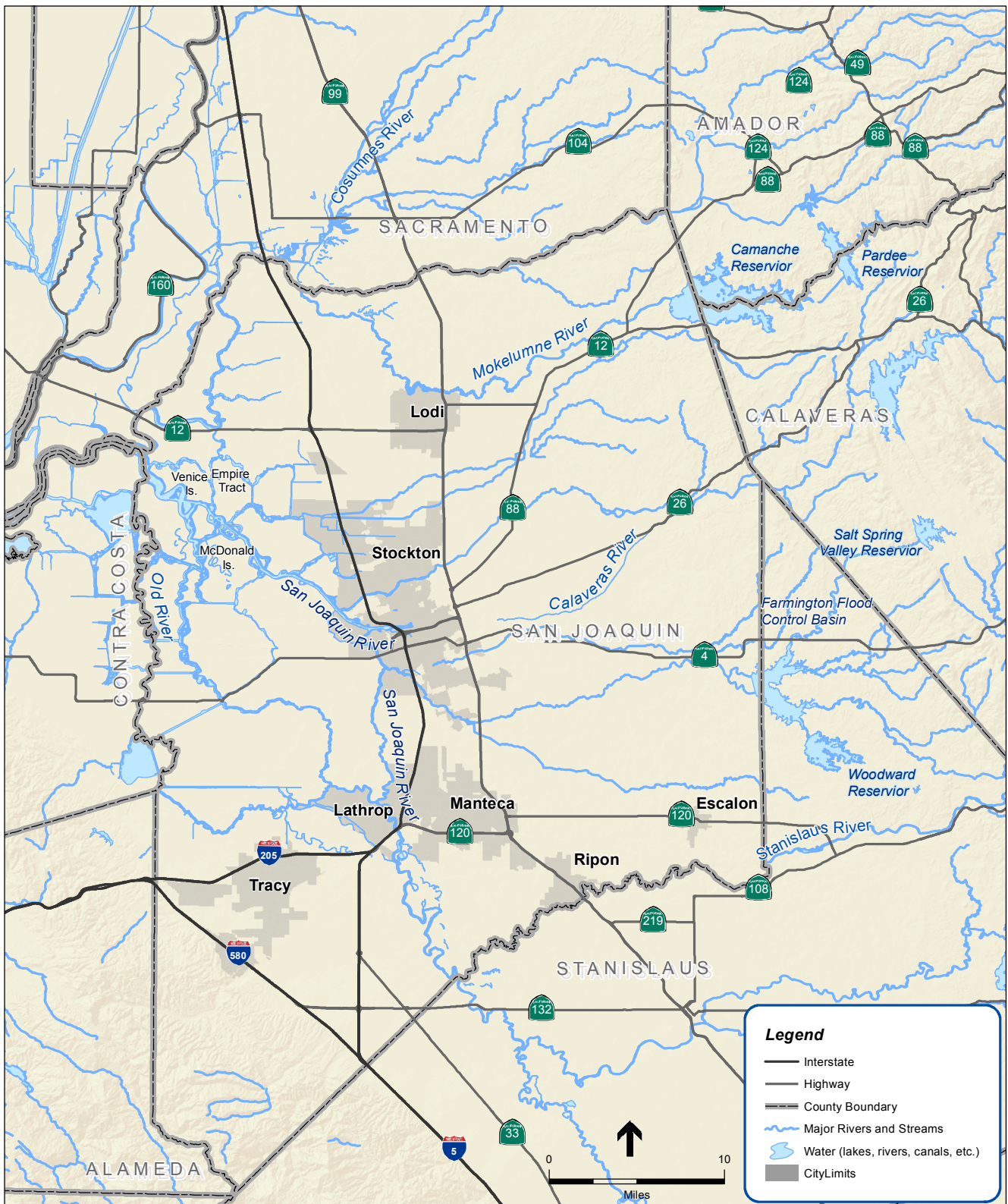
The Central Valley, also referred to as the Great Valley, is a very large, flat alluvial valley that dominates the central portion of California. Land use in this region includes a majority of the state's most productive agricultural operations. The valley stretches approximately 500 miles from north to south, from about 100 miles south of the Oregon border to the boundary between Kern and Los Angeles counties. The Central Valley is divided into three hydrologic regions or surface water basins including the Sacramento River Basin in the north, the San Joaquin River Basin in the center, and the Tulare Lake Basin to the very south. Together the Sacramento and San Joaquin River Basins cover about one fourth of the total areas of the state and over 30 percent of the irrigable land. The two main drainages for these valleys, the Sacramento River and the San Joaquin River, empty into the San Francisco Bay estuary system through a large expanse of interconnected canals, streambeds, sloughs, marshes and peat islands known as the Sacramento-San Joaquin Delta (Delta).

The county lies entirely within the San Joaquin River Basin which is bounded topographically and geologically by the bedrock of the Diablo Range on the west and the Sierra Nevada to the east. The San Joaquin River flows in a southeast to northwest direction from the Sierra Nevada through the county into the Delta, San Francisco Bay, and ultimately the Pacific Ocean. Both the headwaters and ultimate destination of the San Joaquin River and its tributaries are outside of the county.

Four major rivers and streams drain from the western slope of the Sierra Nevada traversing or bordering the county, including:

- Calaveras River
- Mokelumne River
- Stanislaus River
- San Joaquin River

All of these rivers contain major water storage reservoirs, however of these, only a portion of Camanche Reservoir on the Mokelumne River is located within the county (**Figure 4.J-1**).



SOURCE: FEMA, 2007; ESRI, 2006; and ESA, 2013

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Figure 4.J-1
Regional Surface Waters

Calaveras River Watershed

The Calaveras River watershed encompasses 363 square miles and stretches from the Sierra Nevada foothills to the San Joaquin River in west Stockton. Flow in the Calaveras is primarily derived by rainfall with almost no contribution by snowmelt. The multipurpose New Hogan Dam was constructed in 1963 for flood control, as well as municipal, industrial, irrigation and recreation purposes and has a capacity of 317,000 acre-feet. The Stockton East Water District (SEWD) and Calaveras County Water District (CCWD) operate New Hogan (except for flood control releases) and have been allocated 56.5 percent (179,105 acre-feet) and 43.5 percent (137,895 acre-feet) of the New Hogan yield, respectively. Currently, CCWD uses approximately 3,500 acre-feet per year of its New Hogan allocation. SEWD currently utilizes CCWD's unused share, which is subject to reductions based on CCWD's future demands. Growth projections for Calaveras County are very uncertain, and, thus, the continued use of CCWD's allocation by SEWD is uncertain (GBA 2007).

Mokelumne River Watershed

The Mokelumne River watershed encompasses approximately 660 square miles. The Mokelumne River flows westward from its headwaters in the high Sierra Nevada to the eastern edge of the Delta, where it combines with the Cosumnes River. Snowmelt comprises a large portion of the watershed's runoff. Pardee and Camanche reservoirs, owned and operated by East Bay Municipal Utility District (EBMUD), are on the river's main stem (see **Figure 4.J-1**). Pardee Reservoir, located in Amador and Calaveras counties, has a capacity of 197,950 acre-feet and is operated as a water supply reservoir. Water from Pardee is conveyed via the Mokelumne River Aqueducts through San Joaquin County to the EBMUD service area. Camanche Reservoir, just downstream of Pardee, is in San Joaquin, Amador, and Calaveras counties, and has a capacity of 417,120 acre-feet. Pardee Reservoir and Camanche Reservoir are operated in an integrated manner to provide water supply benefits and meet downstream needs, including stream flow regulation, flood control, fishery habitat, and the needs of downstream riparian and appropriative diverters. Those parties with water rights on the Mokelumne River include the Woodbridge Irrigation District, Amador Water Agency, Calaveras County Water District, EBMUD, the City of Lodi, and North San Joaquin Water Conservation District (GBA 2007).

Stanislaus River Watershed

The Stanislaus River watershed covers approximately 904 square miles and stretches from its headwaters in the Sierra Nevada to its confluence with the San Joaquin River, roughly 13 miles northwest of the City of Modesto. New Melones Reservoir, the major reservoir on the river, has a capacity of 2.4 million acre-feet and is operated by the U.S. Bureau of Reclamation as part of its water storage and delivery program known as the Central Valley Project (CVP). The average annual runoff at New Melones from 1904 to 1977 was 1.12 million acre-feet. The majority of the runoff occurs from November to July and peaks during the early summer months when snow melt is greatest. New Melones Dam was constructed in 1978, replacing the original Old Melones Dam, owned jointly by Oakdale Irrigation District (OID) and the South San Joaquin Irrigation District (SSJID), who hold pre-1914 water rights on the Stanislaus River. Both SEWD and Central San Joaquin Water Conservation District (CSJWCD) now have CVP contracts for New Melones water (GBA 2007).

There are nine additional reservoirs and two diversion canals upstream from New Melones on the Stanislaus River, including the Donnell and Beardsley reservoirs, which were constructed jointly by OID and SSJID and operated by the Tri-Dam Authority. Tulloch Reservoir, located several miles downstream from New Melones, is used to re-regulate releases from New Melones. SSJID, OID, SEWD, and CSJWCD divert from Goodwin Dam downstream from Tulloch Dam. Water can be diverted by gravity via the Goodwin Tunnel to CSJWCD and SEWD (GBA 2007).

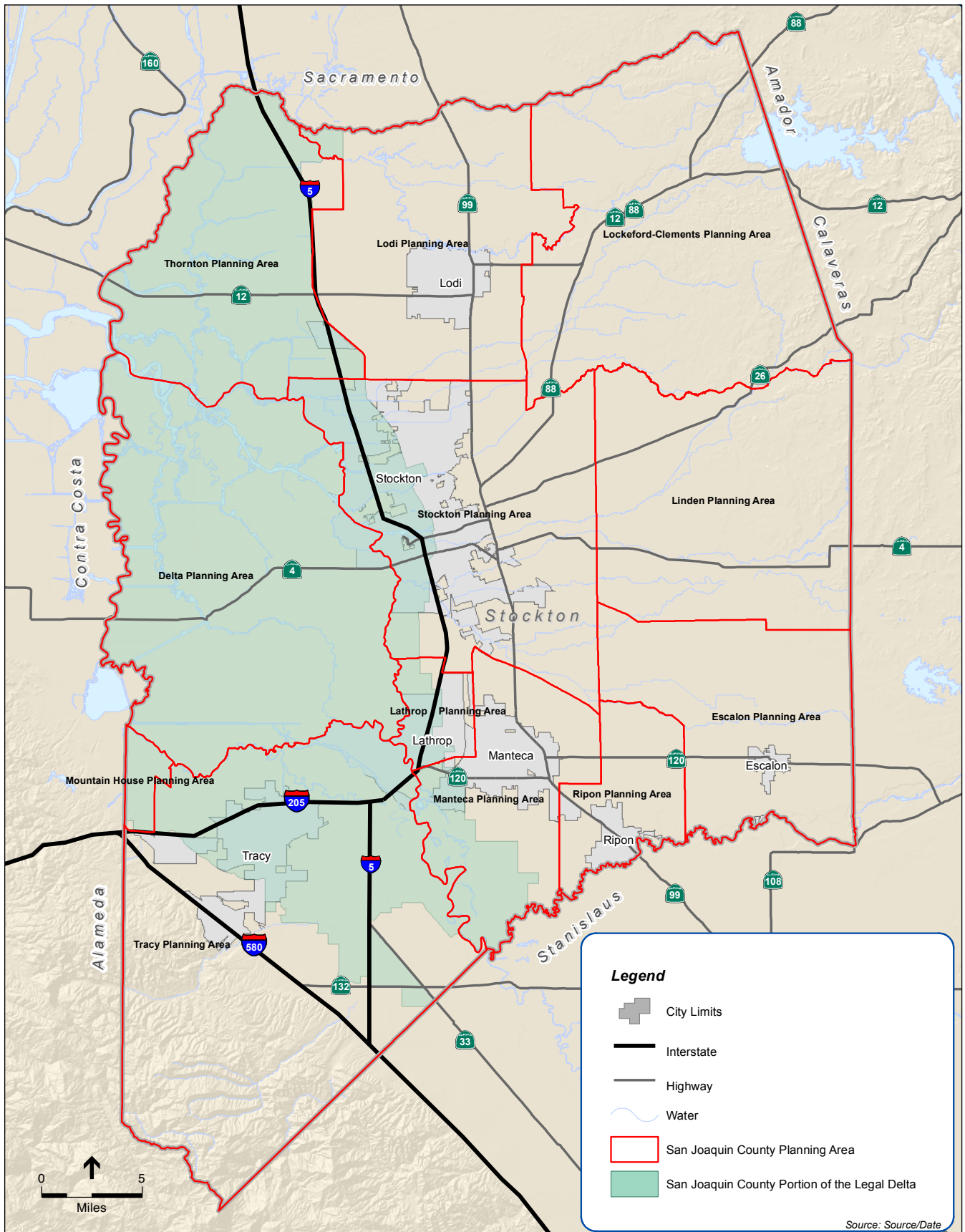
San Joaquin River Watershed

The San Joaquin River originates in the Sierra Nevada and enters the San Joaquin Valley at Friant Dam, operated by the U.S. Bureau of Reclamation as part of the CVP. The lower San Joaquin River is defined as that section of the river from its confluence with the Sacramento River in the western Delta, north to Vernalis, where it enters the Sacramento-San Joaquin River Delta, north to its confluence with the Sacramento River in the western Delta. The lower San Joaquin River encompasses a drainage area of approximately 13,400 square miles and has an average unimpaired runoff of 1.8 million acre-feet (DWR 2005). The majority of the flow in the lower San Joaquin River is presently derived from inflow from the Merced, Tuolumne, and Stanislaus rivers, as the upper San Joaquin River contributes virtually no inflow during the summer months (GBA 2007). The San Joaquin River also serves as a transportation route for ships to pass from the San Francisco Bay to the inland Port of Stockton. The Stockton Deep Water Ship Channel is maintained through dredging activities for this purpose.

Sacramento–San Joaquin Delta

The Sacramento-San Joaquin Delta occupies the western portion of San Joaquin County and represents the point of discharge for the Sacramento and San Joaquin River systems (**Figure 4.J-2**). Water flows out of the Delta, into San Francisco Bay, and through the Golden Gate to the Pacific Ocean, creating an extensive estuary where salty ocean water and fresh river water commingle. In sum, water from over 40 percent of the state's land area is discharged into the Delta (USGS, 1999).

The Delta supports several beneficial uses, including water supply to local municipalities and agricultural uses, ecological support for fisheries including wetlands and important habitat, in-Delta agriculture, flood management, water quality management, and a major conveyance for transporting fresh water from northern to southern portions of the state. Within the San Joaquin County portion of the Delta, three irrigation districts provide irrigation water from Delta channels to farms within the Delta. The Central Delta Water Agency and South Delta Water Agency provide irrigation water for islands within their jurisdictions. In addition, the City of Stockton has been granted a right from the California State Water Resources Control Board (SWRCB) to divert up to 33,600 acre-feet of water directly from the Delta for municipal uses. In addition, many other water projects also divert Delta waters, including export pumps for the State Water Project, diversions for Delta-area and San Francisco Bay Area municipalities, and regional agricultural users. An extensive network of drainage ditches prevents islands in the Delta from flooding internally and maintains groundwater levels deep enough for agricultural crops to grow. The accumulated agricultural drainage is then discharged through or over the levees into stream channels. Without this drainage, the islands would become flooded.



SOURCE: San Joaquin County GIS

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Figure 4.J-2
 County Planning Areas and the Legal Delta

Regional Groundwater

Similar to the surface water basins, the Central Valley is divided into different groundwater basins including the Sacramento Hydrologic Region (HR), the Tulare Lake HR, and the San Joaquin River HR. The San Joaquin HR covers approximately 9.7 million acres, representing the central portion of the Central Valley. This region is bound on the north by the Delta, the east by the Sierra Nevada, the west by the Diablo Range and the south by the Tehachapi Mountains. The HR includes two entire groundwater basins (Yosemite Valley and Los Banos Creek Valley) and part of the San Joaquin Valley basin which is made up of 9 subbasins. The Eastern San Joaquin Subbasin is the largest subbasin in the county. The subbasins are recharged in the upland areas of Eastern San Joaquin County and adjacent foothill areas to the east and west, and discharge to the low lying area of the Delta and the San Joaquin River. In general, this HR is heavily reliant on groundwater supplies and accounts for approximately 18 percent of statewide groundwater use for both agricultural and urban needs (DWR, 2003).

The aquifers or water bearing zones within the San Joaquin River HR are generally very thick, accommodating wells as deep as 800 feet below the ground surface (DWR, 2003). Aquifers include unconsolidated alluvium as well as consolidated rocks with unconfined and confined groundwater conditions. Since the beginning of agricultural development in the region, groundwater has been used in conjunction with surface water to meet water supply needs (DWR, 2003). Historical groundwater use and over pumping in areas has resulted in significant land subsidence, especially in the southwest portion of the region.

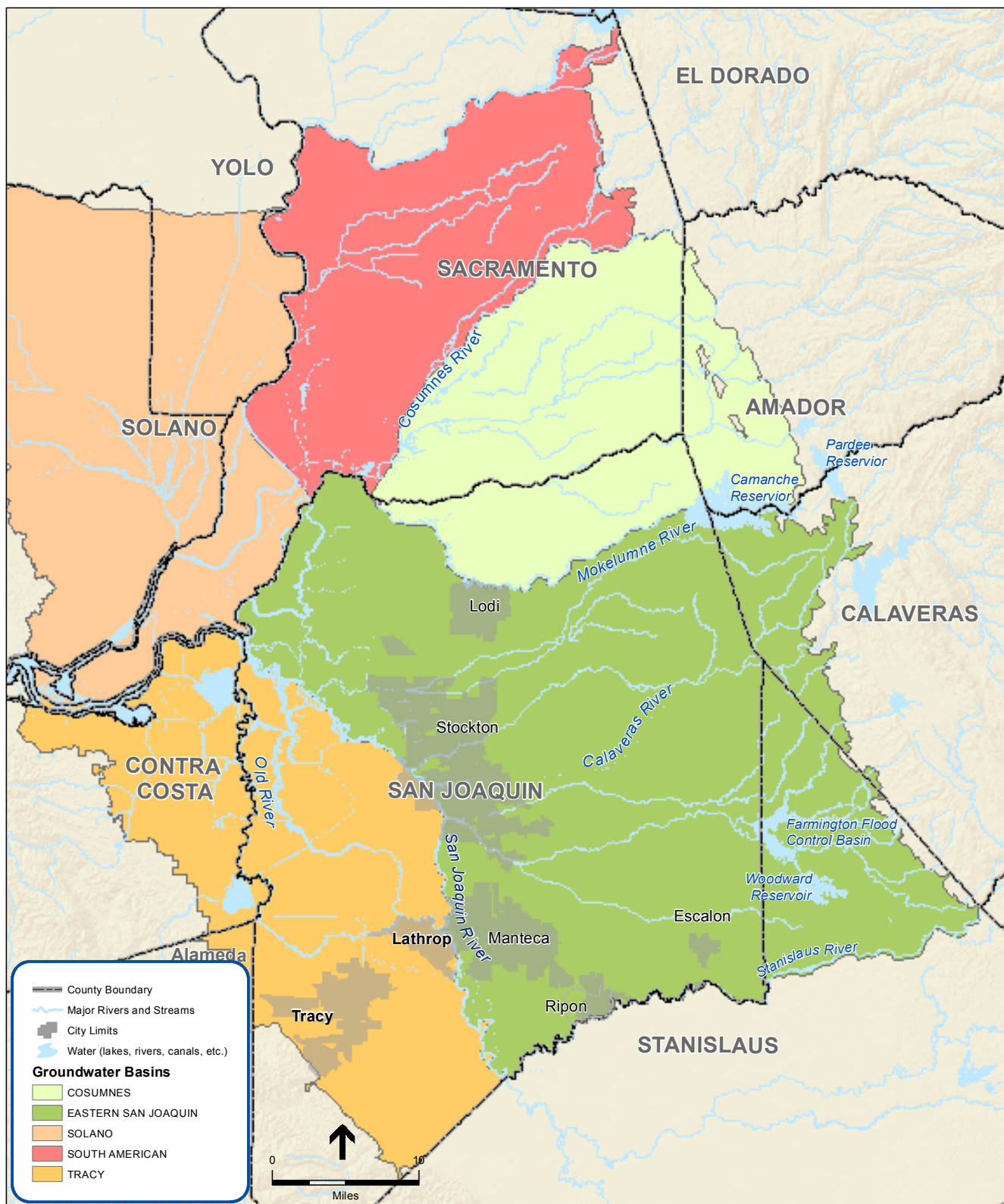
The county lies within the San Joaquin HR and overlies three of the subbasins within the San Joaquin Valley groundwater basin: Eastern San Joaquin, Tracy, and Cosumnes (**Figure 4.J-3**).

Groundwater Levels, Trends and Overdraft

Groundwater elevations and overdraft documentation for the county were obtained from the County Groundwater Data Center (GDC), DWR Bulletin 118 (DWR, 2006), the Eastern San Joaquin Ground Integrated Regional Water Management Plan (GBA 2007), and the Tracy Urban Water Management Plan (City of Tracy, 2011).

For the Cosumnes and Eastern San Joaquin subbasins, groundwater level measurements over the last 40 years have indicated continuous declines in groundwater levels. Decreases have averaged over 1.5 feet per year, and groundwater levels have dropped over 100 feet in specific areas during this period. The continual overdraft has reduced the storage of the basin by as much as two million acre-feet.

For the Tracy Subbasin, historical groundwater levels have only shown declines due to seasonal and local pumping influences. However, the map used for this assessment does not indicate variations in specific local areas, or the several feet of seasonal fluctuation due to precipitation, irrigation, and drainage.



SOURCE: CDOC, 2014

San Joaquin County 2035 General Plan. 209529

Figure 4.J-3
Regional Groundwater Basins

Groundwater is relatively shallow in the central portion of the county (less than 10 feet below ground surface [bgs] to less than 20 feet bgs). Depths to groundwater generally increase to over 100 feet towards the groundwater depressions, and towards the Sierra Nevada and Diablo mountain ranges.

A continuing depressed water table in the upper aquifer system has been observed and critical overdraft conditions have been identified in the eastern part of the county. Groundwater overdraft conditions, where extraction by pumping exceeds recharge, have been a long-term (recurring) problem in some areas. Historically, overdraft has been observed east of Stockton. Active attempts by the County irrigation districts to conserve and utilize the recharge basins to facilitate groundwater recharge have been recognized as effective management alternatives (GBA, 2007).

Groundwater Recharge Requirements

Recharge, or replenishment of groundwater aquifers, is necessary to correct problems caused by groundwater overdraft. A large amount of recharge occurs in upland valley areas within the county, especially adjacent to rivers and larger streams. A small amount occurs in alluvial fans at the base of the foothills.

Studies have shown that an additional 120,000 to 200,000 acre-feet per year of supplemental surface water is needed just to maintain groundwater levels above the historical low levels of 1992 (GBA, 2007). Groundwater models have been developed for the county since the early 1980s. These models first indicated that if no additional surface water were available for groundwater recharge, water levels would fall as much as 160 feet below sea level and the saline intrusion would move eastward an additional two miles by the year 2020 (GBA, 2007). However, as noted above, regardless of supplemental surface water contributions, continued overdraft conditions has resulted in subsidence, which diminishes the recharge capabilities of the basin and creates or exacerbates flood hazards. Projects such as the Farmington Recharge Project are designed to help alleviate overdraft conditions by providing additional annual recharge through directing surface waters in winter months into recharge basins (Farmington Project, 2013). The Farmington Recharge Project has a plan objective to recharge over 35,000 acre-feet of water annually through the use of field flooding and infiltration.

Climate

The climate in the county is characterized by long hot dry summers and cool rainy winters that include dense tule fog. Average rainfall ranges from approximately 10 inches per year in the southern portion of the county to 18 inches per year in the north (WRCC, 2014). The mean annual precipitation as measured in the City of Stockton is 13.79 inches (WRCC, 2014). Most of the precipitation occurs between October and April while the summer months are typically absent of any precipitation. The long dry summers can provide a long growing season for agricultural purposes, often 292 days a year (GBA, 2007). However, taking advantage of this growing season requires groundwater supplies that need to be recharged and monitored to maintain their continued availability. Surface water detention projects must retain stormwater and other sources of runoff to meet year-round water needs within the county. Management methods often involve

dam impoundments to create constructed reservoirs that can provide both flood control and a steady supply of water, for a multitude of agencies and users.

Water Quality

A variety of water quality problems exist within the surface waters and groundwaters of the Central Valley, and contribute to impairments of beneficial uses of these resources throughout the region (see **Table 4.J-1** for a list of beneficial uses in the county). Substantial portions of the major rivers and Delta region of the Central Valley are impaired, to some degree, by discharges from agriculture, mines, urban areas and industries (RWQCB, 2011). In general, surface water quality is dependent on a number of factors including seasonal hydrologic patterns, mineral composition of watershed soils, topography, land use, and sources of contamination. During low-flow conditions of the summer months, the surface water quality characteristics of most importance to aquatic life are temperature, dissolved oxygen, turbidity, nutrients such as nitrogen and phosphorous, algae growth, and other toxic constituents including ammonia, pesticides, and residual chlorine. Higher flow conditions in the winter are influenced more by stormwater runoff and associated pollutants such as sediment (turbidity), petroleum hydrocarbons, nutrients and bacteria from livestock areas and agricultural fields, heavy metals, pesticides, and various other pollutants.

**TABLE 4.J-1
WATER RESOURCES AND THEIR BENEFICIAL USES, SAN JOAQUIN COUNTY**

Water Resources	Beneficial Uses					Other	Operating Agency	Source of Supply	Users
	A	B	C	D	E				
San Joaquin River	X	X	X	X	X		--	--	Riparian farmers, Shipping industry, Irrigation Districts
Mokelumne River	X	X	X		X		--	--	Irrigation Districts
Camanche Reservoir (1963)	X		X			flood control	EBMUD ¹	Mokelumne River	Local residents
Calaveras River	X	X			X		--	--	Water Districts
Stanislaus River	X		X		X		--	--	Irrigation Districts
Delta	X		X	X	X	Scenic	--	Multiple Sources	Recreationists, Wildlife, USBR ² , DWR ³ , shipping industry
Delta-Mendota Canal	X	X	X		X		U.S. Bureau of Reclamation	Sacramento River	City of Tracy, Irrigation Districts, Commercial, Businesses
California Aqueduct	X	X	X		X		California Department of Water Resources	Sacramento River	Commercial, Businesses, Irrigation Districts
Lodi Lake			X				--	Mokelumne River	Local residents
Groundwater	X	X					--	San Joaquin Valley Ground Water Basin	Private individuals, cities, towns

KEY: A = Irrigation; B = Municipal/Industrial; C = Recreation; D = Transportation; E = Estuary/Wildlife Area

¹ East Bay Municipal Utility District

² U.S. Bureau of Reclamation

³ California Department of Water Resources

SOURCE: RWQCB, 2011.

Impaired surface waters within the county are those listed by the Central Valley Regional Water Quality Control Board (CVRWQCB) as impaired due to one or more pollutants. As described below in the Regulatory Setting under Federal Clean Water Act, Section 303(d) requires the regional water quality control boards to prepare a list of water bodies with pollutant levels in excess of the standards established to protect the beneficial uses of the water. The latest update of this list was published by CVRWQCB in 2010 and approved by the US Environmental Protection Agency in 2011. **Table 4.J-2** lists all of the rivers, lakes, and sloughs within the county on the 303(d) list, including the pollutants for which they are listed, the sources of these pollutants, and the proposed date for adoption of a Total Maximum Daily Load (TMDL) to reduce pollutant loads within the waterways to below the standards. The impaired waterways include Calaveras River, Camanche Reservoir, Cosumnes River, the Delta waterways, Five Mile Slough, Middle River, Mokelumne River, Mormon Slough, Mosher Slough, San Joaquin River, and Stanislaus River. Most of these rivers are contaminated due to urban and agriculture runoff, and resource extraction. RWQCB plans forecast that the TMDLs will be met for these water bodies at various times until 2020.

A variety of historic and ongoing point and non-point industrial, urban, and agricultural activities contribute to degrade the quality of groundwater.¹ Discharges to groundwater associated with these activities include industrial and agricultural chemical use and spills; underground and above ground tank and sump leaks; landfill leachate and gas releases; septic tank failures; improper animal waste management; and chemical seepage via shallow drainage wells and abandoned wells. The resulting impacts on groundwater quality from these discharges are often long-term and costly to treat or remediate. Consequently, as discharges are identified, containment and cleanup of source areas and plumes must be undertaken as quickly as possible. Furthermore, activities that may impact groundwater must be managed to ensure that groundwater quality is protected.

Nitrate is the most common chemical contaminant found in the world's groundwater and San Joaquin Valley has some of the highest concentrations in the country (Pacific Institute, 2011). While nitrate occurs naturally at low concentrations (generally less than 2 milligrams per liter nitrate as nitrogen (mg/l nitrate-N)), high levels of nitrate in groundwater that approach or exceed the drinking water standards (10mg/L nitrate-N) are primarily due to atmospheric deposition and human activities. Human sources of nitrates include wastewater treatment discharge, animal and human waste discharged from septic systems, dairies, feed lots and other confined animal feeding operations, and inorganic fertilizer use. The county has had a history of regional nitrate contamination (DWR, 2006). Out of 189 DWR sampled public water supply wells, seven exceeded standards for nitrate Maximum Contaminate Level (DWR, 2006). Nitrate is thought to primarily be a shallow aquifer contaminant and is not present or has been present at low levels in the semiconfined/confined aquifers exceeding 300 feet bgs. Groundwater quality issues in the San Joaquin Hydrologic Region may include arsenic contamination at depth related to the volcanic origin of sediments (GBA, 2007).

¹ Discharges are often described as either point source or nonpoint source. A point source discharge usually refers to waste emanating from a single, identifiable place. A nonpoint source discharge usually refers to waste emanating from diffuse locations.

TABLE 4.J-2
CWA SECTION 303(D) WATER QUALITY LIMITED SEGMENTS, SAN JOAQUIN COUNTY 2010

Water Body	Pollutants	Likely Sources of Pollution	Proposed TMDL Completion
Calaveras River, Lower (from Bellota Weir to Stockton Diverting Canal)	Chlorpyrifos (pesticide)	Agriculture	2021
Calaveras River, Lower (Stockton Diverting Canal to the San Joaquin River, includes portions of Delta)	Diazinon	Urban runoff/storm sewers	2021
	Mercury	Resource Extraction	2021
	Organic enrichment/Low dissolved oxygen	Urban runoff/storm sewers	2012
	Pathogens	Urban runoff/storm sewers, recreational and tourism activities (non-boating)	2008 ^a
Camanche Reservoir	Copper	Resource extraction	2020
	Mercury	Resource Extraction	2021
	Zinc	Resource extraction	2021
Cosumnes River (below Michigan Bar, partly in Delta)	Escherichia (E. coli)	Unknown	2021
	Invasive Species ^b	Unknown	2019
	Sediment Toxicity	Agriculture	2021
Delta waterways (eastern portion)	Chlorpyrifos	Agriculture, urban runoff/storm sewers	2007 ^a
	DDT	Agriculture	2011
	Diazinon	Agriculture, urban runoff/storm sewers	2007 ^a
	Invasive species ^b	Unknown	2019
	Group A Pesticides	Agriculture	2011
	Mercury	Resource extraction (abandoned mines)	2009
	Unknown toxicity	Unknown	2019
Delta waterways (export area)	Chlorpyrifos	Agriculture, urban runoff/storm sewers	2007 ^a
	DDT	Agriculture	2011
	Diazinon	Agriculture, urban runoff/storm sewers	2007 ^a
	Electrical conductivity	Agriculture	2019
	Exotic species	Unknown	2019
	Group A Pesticides	Agriculture	2011
	Mercury	Resource extraction (mining)	2009
	Unknown toxicity	Unknown	2019
Delta waterways (southern portion)	Chlorpyrifos	Agriculture, urban runoff/storm sewers	2007 ^a
	DDT	Agriculture	2011
	Diazinon	Agriculture, urban runoff/storm sewers	2007 ^a
	Electrical conductivity	Agriculture	2019
	Invasive species	Unknown	2019
	Group A Pesticides	Agriculture	2011
	Mercury	Resource extraction (mining)	2009
	Unknown toxicity	Unknown	2019
Delta waterways (Stockton Ship Channel)	Chlorpyrifos	Agriculture, urban runoff/storm sewers	2006
	DDT	Agriculture	2011
	Diazinon	Agriculture, urban runoff/storm sewers	2006
	Dioxin ^c	Point source	2019
	Exotic species	Unknown	2019
	Furan compounds	Contaminated sediments	2019
	Group A pesticides	Agriculture	2011
	Mercury	Resource extraction (mining)	2006

TABLE 4.J-2 (Continued)
CWA SECTION 303(D) WATER QUALITY LIMITED SEGMENTS, SAN JOAQUIN COUNTY 2010

Water Body	Pollutants	Likely Sources of Pollution	Proposed TMDL Completion
Delta waterways (Stockton Ship Channel) (cont.)	Organic Enrichment/ Low Dissolved Oxygen	Municipal Point Sources Urban Runoff/storm sewers	2007 ^a
	Pathogens	Urban runoff/storm sewers	2008
	Polychlorinated biphenyls ^c	Point source	2019
	Unknown toxicity	Unknown	2019
Five Mile Slough	Chlorpyrifos	Urban runoff/storm sewers	2006 ^a
	Diazinon	Agriculture, urban runoff/storm sewers	2006 ^a
	Organic enrichment/low dissolved oxygen	Urban runoff/storm sewers	2019
	Pathogens	Other Urban runoff/Recreational and Tourism (non-boating)	2008
Middle River	Low dissolved oxygen	Hydromodification/Source Unknown	2019
Mokelumne River, lower	Chlorpyrifos	Agriculture	2021
	Copper	Resource Extraction	2020
	Mercury	Resource Extraction	2021
	Oxygen, Dissolved	Unknown	2021
	Unknown Toxicity	Unknown	2021
	Zinc	Resource Extraction	2020
Mormon Slough (Commerce Street to Stockton Deep Water Channel)	Organic enrichment/low dissolved oxygen	Urban runoff/storm sewers	2008
	Pathogens	Urban runoff/storm sewers, recreational and tourism activities (non boating)	2008
Mormon Slough (Stockton Diverting Canal to Commerce Street)	Pathogens	Urban runoff/storm sewers, recreational and tourism activities (non boating)	2008
Mosher Slough	Chlorpyrifos	Urban runoff/storm sewers	2006 ^a
	Diazinon	Agriculture, Urban runoff/storm sewers	2006 ^a
	Mercury	Unknown	2021
	Organic enrichment/low dissolved oxygen	Urban runoff/storm sewers	2008
	Pathogens	Urban runoff/storm sewers	2008
San Joaquin River (Stanislaus River to Delta boundary)	Chlorpyrifos	Urban runoff/storm sewers	2007 ^a
	DDE (Pesticide)	Agriculture	2011
	DDT (Pesticide)	Agriculture	2011
	Diuron	Agriculture	2021
	Electrical conductivity	Agriculture	2007 ^a
	Group A pesticides	Agriculture	2011
	Mercury	Resource extraction	2012
	Temperature	Unknown	2021
	Toxaphene	Source Unknown	2019
	Unknown toxicity	Agriculture	2019

^a Date of USEPA approved TMDL completion.

^b Invasive Species - refers to an organism (considered a pollutant) that is not native to California but has arrived in California waters as a result of human activities.

SOURCE: CVRWQCB 2010.

Salinity is a problem that has been identified in both surface and groundwater within portions of the Central Valley. Salinity refers to the concentration of salts or ions present in water, including sodium, magnesium, calcium, phosphates, nitrates, potassium, chloride, bromide, and sulphate. Salinity is commonly measured by total dissolved solids (TDS) concentrations. Salinity is both an aesthetic (taste) and a health issue for drinking water quality. High salinity adversely affects drinking water taste, landscape irrigation, and industrial and manufacturing processes. Salinity is particularly problematic because it cannot be removed via conventional drinking water treatment processes.

TDS is a measure of the total amount of inorganic and organic substances dissolved in water and is, therefore, a very useful parameter in the overall evaluation of groundwater quality. TDS concentrations provide a qualitative measure of the amount of dissolved ions, but it does not explain the nature or ion relationships. High TDS concentration does not by itself identify a specific water quality issue, such as: elevated hardness², salinity, or corrosiveness. Instead, TDS is used as an indicator test to determine the general quality of the water. Common cations include sodium, calcium and magnesium and common anions include chloride, sulfate, and nitrate. Electrical conductivity (EC) is also used to measure the ions dissolved in water: the higher the EC, the more mineralized the water. The presence of salts in soil and root zone water may adversely affect the viability of crops.

An elevated TDS concentration is not necessarily a health hazard. The TDS concentration is a secondary drinking water standard and therefore is regulated because it is more of an aesthetic rather than a health hazard. However, it can also damage crops, affect plant growth and damage industrial equipment. An elevated TDS indicates that the concentration of the dissolved ions may cause the water to be corrosive, salty or have a brackish taste. It may also result in scale formation, and interfere and decrease efficiency of hot water heaters; and may contain elevated levels of ions that are above the Primary or Secondary Drinking Water Standards, such as an elevated level of nitrate, arsenic, aluminum, copper, or lead.

Regional Flood Management

The county receives runoff from over 40 percent of the land area in California (USGS, 1999). Over the years, many physical and management systems, both within and outside of the county, have been implemented to limit risks of flooding or damage. Before levees and other flood protection infrastructure were constructed over 130 years ago, water would seasonally cover large areas of the county especially within the Delta area which makes up approximately 34 percent of the county's total area (URS, 2009). Flood hazards can result from intense rain and snowmelt and/or failure of flood control facilities, such as dams, levees, or drainage channels. Catastrophic flood events in the Central Valley have been documented going back to the mid-1800s (DWR, 2011). The San Joaquin River basin topography and surrounding terrain creates flood intensities that can be challenging to manage.

² Hardness is the measure of the amount of calcium, magnesium, and iron dissolved in the water. Hardness of about 60 mg/l or less is considered soft water, and more than about 120 mg/l is generally considered hard water.

Flood events from rainstorms generally occur between November and April and are characterized by high peak flows of moderate duration (Mintier Harnish, 2009). Snowmelt floods, which normally occur between April and June, have larger water volumes and last longer than rain flooding. Intensive rainstorms or snowmelt generally cause flooding because of levee overtopping, levee failure, or localized drainage problems.

Levees and other flood control infrastructure function to protect areas by conveying floodwaters past locations without flooding. Regional dams also provide protection by incorporating flood storage capacity and managing the rate of releases downstream. Most of the area's existing flood control facilities along local and regional rivers were constructed in a range of periods and are now maintained to provide mandated levels of flood protection by the United States Army Corps of Engineers (USACE). However, changing regulations from the federal and state governments will necessitate additional improvements for some levees and will require property owners to purchase flood insurance as more lands are designated as high-risk areas. Within the Delta, few of the levees were constructed or maintained to meet present levels of protection that have been set by the USACE (DWR, 2011). A higher level of flood protection (e.g., 200-year flood) will be required for urban areas to ensure continued local and regional benefits that are provided by the Delta's islands, channel systems, and water resources (DWR, 2011).

Unlike upstream levees, such as those protecting the City of Sacramento, which mainly are under stress during high water events, levees in the Delta are under constant pressure (Mintier Harnish, 2009). Due to the fact that islands have experienced subsidence, many levees hold back water from land up to 20 feet below water levels in adjacent channels. The greatest stresses to the levees in the Delta occur when a large storm coincides with high tides (Mintier Harnish, 2009). Water levels in Delta channels are elevated by the high stormwater flows, high tides, and even by the low air pressures associated with storms. In addition, the levees must withstand erosion from wind-induced waves. Under these circumstances, levees can fail due to overtopping (water levels become higher than the top of the levees and flow over them onto the islands) and from collapse caused by increased pressure due to island subsidence, the burrowing activities of animals, long term erosion (from high flow events, wind-induced waves, and boat wakes), deferred maintenance, the seepage of water through sand layers beneath the levee, and other factors not yet well understood (Mintier Harnish, 2009).

Since 1900, levee failures have flooded Delta islands approximately 166 times (URS, 2009). Multi-island failures have occurred during 26 years since 1900. As many as 19 islands flooded in 1907 and 11 flooded in 1997. Most Delta islands have flooded at least once. The West Levee of the Jones Tract was breached in 2004 bringing 160,000 acre-feet of water onto the island with an average depth of 12 feet (URS, 2009). The California Department of Water Resources (DWR) is the state agency responsible for flood management throughout the Central Valley, including levees that are part of federally-authorized flood control projects (i.e., project levees). The U.S. Army Corps of Engineers (USACE) is the federal agency responsible for maintaining project levees. All other levees are referred to as non-project levees. Non-project levees typically were built by landowners or Reclamation Districts that are also responsible for maintaining these

levees. Roughly 400 miles of Delta levees are project levees; more than 700 miles of levees are classified as non-project (URS, 2009).

Regional flood management systems located outside San Joaquin County (i.e., operation of the upstream reservoirs in the Sacramento River and San Joaquin River Regions and their levee and bypasses) are critical for the control of flooding in the Delta, where the San Joaquin River passes the Vernalis gage and becomes tidally influenced. At Paradise Cut, the San Joaquin River divides into several tributaries that meander throughout the Delta. During regional flood events, high flows from the Sacramento, Cosumnes, and Mokelumne Rivers physically block and reduce the amount of flow that can drain out of the San Joaquin River, slowing ponding water in the south Delta.

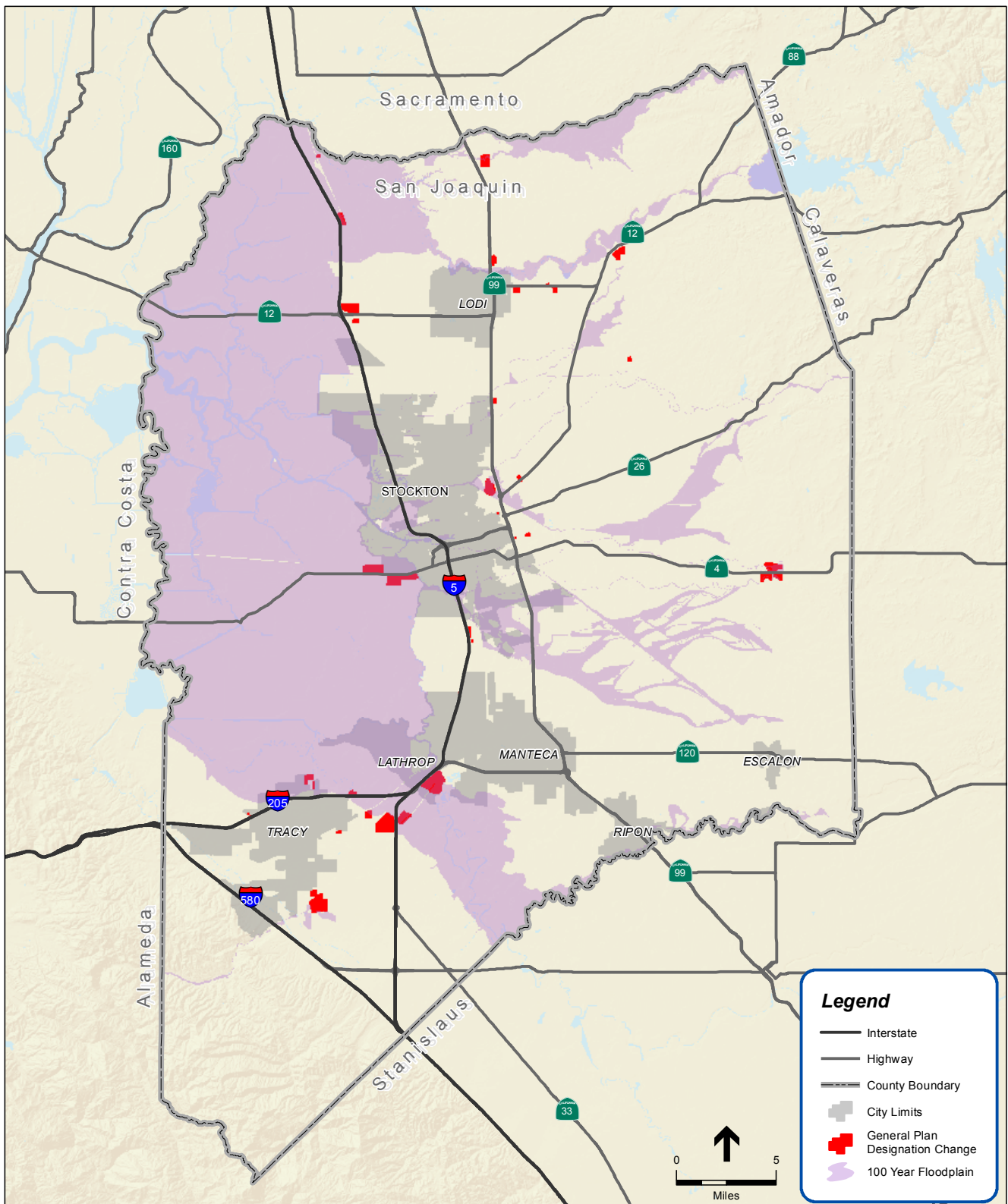
Flooding has serious implications for public safety (e.g., loss of life, displacement or complete destruction of buildings, siltation, temporary loss of utilities, road and bridge damage, loss of goods and services, mobilization of hazardous materials, and the threat of waterborne diseases), and flooding within the Delta can result in regional and state-wide impacts (e.g., economic activity and water supply).

100-Year Flood Hazard Areas

The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps (FIRMs). FEMA identifies designated zones to indicate flood hazard potential. The effective FEMA FIRMs indicate that a substantial portion of western San Joaquin County is within the 100-year floodplain (see **Figure 4.J-4**). Other rivers and creek corridors in the County are also within the 100-year floodplain.³ The area of Special Flood Hazard Areas (SFHA) is 452 square miles, about 32 percent of the entire county. Some of the cities are not within SFHAs, (e.g., Lodi, Tracy, Escalon and portions of Manteca, Ripon) indicating a greater percentage of unincorporated lands in SFHAs.

The floodplains covering unincorporated lands in the Thornton, Delta, Lathrop, and Manteca planning areas indicate flooding from the San Joaquin River and various sources of Delta flooding. These floodplains cover rural lands and the community of Thornton. Floodplains in the Stockton area reflect several sources, including Bear Creek, Mosher Creek, the Calaveras River, and tributaries to French Camp Slough. Outside of city boundaries, these flood zones affect the community of French Camp. Other communities with floodplains from local flood sources include: Collierville (Dry Creek and Jahant Slough), Woodbridge (Mokelumne River), and Farmington (Littlejohns Creek, Duck Creek). However, most of the county lands affected by FEMA floodplains are rural lands outside of communities.

³ FEMA typically provides hazard mapping for the 100-year flood zones all over the country even though regional planning efforts such as those found in the Central Valley Flood Protection Plan call for establishing a higher level of flood protection against the 200-year flood (DWR, 2011).



SOURCE: CDOC, 2014; FEMA, 2007

San Joaquin County 2035 General Plan. 209529

Figure 4.J-4
General Plan Land Use Changes Within Floodzones

Updated FEMA FIRMS for the county became effective on October 16, 2009 (San Joaquin County, 2009). The County prepared a map showing the changes from earlier versions that included some new Zone A flood prone areas (see **Figure 4.J-4**). Among the changes shown by the new preliminary flood zone map are increases in SFHA northwest of Lodi (including the community of Woodbridge), southwest Stockton, and south of Ripon along the Stanislaus River (San Joaquin County, 2009).

Dam Failure

Numerous dams in or adjacent to the county provide beneficial water supply storage, hydroelectric generation, and flood control storage space. Dams are evaluated regularly by the California Division of Safety of Dams to verify their structural integrity, including their resistance to stresses that could result from local or regional earthquakes. However, in the unlikely event of a dam failure, large volumes of water could inundate areas of the county. Dam failure could occur as a result of various natural or human causes, related to design and structural engineering problems, or lack of maintenance. The resulting effects could include loss of life, damage to property, and other related hazards, along with displacement of residents and/or damage to water resource and other infrastructure facilities (e.g., irrigation, electric power generation or transmission, transportation)

Table 4.J-3 lists 15 major dams identified as having the potential to inundate portions of the county in the event of a dam failure. Only three of these dams are located within the county: Camanche; Camanche South Dikes; and, Farmington. However, failure of any of the listed dams could affect areas in the county. The estimated areal extent of inundation as well as the communities potentially affected from potential failures of each dam are listed in Table 4.J-3.

The Camanche Dam on the Mokelumne River has the potential to flood a large area of the county and would affect the largest population, in both unincorporated communities and cities. A failure of Camanche Dam or the Camanche North and South Dike systems would result in rapid inundation of the northeast portion of the county, arriving at Clements and nearby communities in about one-half hour. The Farmington Dam, while inundating a small area and affecting a limited population, would require the most rapid response, since this dam is located within the county and can quickly flood nearby lands and evacuation routes. Large inundation areas and affected populations would result from failure of some of the major regional dams (e.g., New Melones, New Hogan, San Luis or New Exchequer), with greater effects on Delta island levees, but longer lead times prior to arrival of the flood. Depths of inundation would vary depending on location but for example, with failure of the Camanche Dam, water depths would range from a few inches up to 15 to 16 feet in the Stockton area (San Joaquin County, 2003).

Sea Level Rise caused by Climate Change

Global climate change will likely result in sea level rise and could expose shoreline areas including the Delta to flooding as well as affect the timing and amount of precipitation. Climate change is expected to result in more extreme weather events; both heavier precipitation events that can lead to flooding as well as more extended drought periods. The Pacific Institute found

**TABLE 4.J-3
DAM FAILURE INUNDATION DATA, SAN JOAQUIN COUNTY**

Dam	Location (county)	River	Storage (acre feet)	Owner	Inundation Area¹ (square miles)	Population Affected¹	Unincorporated Communities Affected (earliest arrival time)	Affected Areas
Camanche	San Joaquin	Mokelumne River	417,120	East Bay M.U.D.	243	512,000	Clements (24 min); Lockeford; Victor; Coopers Corner; Acampo; Collierville; Woodbridge; Morada; Glenwood	Lockeford; Lodi; Stockton
Camanche North Dikes	Calaveras	Mokelumne River	14,800	East Bay M.U.D.	n/a	112,300	Clements (47min); Lockeford; Victor; Woodbridge	Lockeford; Lodi; Stockton
Camanche South Dikes	San Joaquin	Mokelumne River	36,400	East Bay M.U.D.	n/a	126,000	Clements (27min); Lockeford; Victor; Woodbridge	Lockeford; Lodi; Stockton
Farmington	San Joaquin	Littlejohn Creek	52,000	US Army Corps of Engineers	21	850	Farmington (20 min); Peters	Linden
Folsom & Nimbus	Sacramento	American River	1,010,000 & 8,760	US Bureau of Reclamation	16	4,100	None (enters county 12hr)	Thornton
Jackson Creek	Amador	Jackson Creek	22,000	Jackson Valley I.D.	15	3,600	Collierville; Thornton (enters county 1hr 7min)	Lockeford; Lodi; Thornton
Jackson Creek Spillway	Amador	Jackson Creek	46,894	East Bay M.U.D.	34	3,260	Collierville (2hr 20min); Thornton (enters county 1hr 7min)	Lockeford; Lodi; Thornton
New Exchequer (Lake McClure)	Merced	Merced River	1,032,000	Merced I.D.	203	410,000	Stoneridge; Banta	Manteca; Tracy; Lathrop; Stockton; Delta
New Hogan	Calaveras	Calaveras River	317,000	US Army Corps of Engineers	402	410,000	Linden (1hr 10min); Noble Acres; Glenwood; Morada	Lockeford; Linden; Stockton; Lodi; Thornton; Delta
New Melones	Calaveras	Stanislaus River	2,400,000	US Bureau of Reclamation	507	327,000	French Camp (12hr); Mountain House	Escalon; Ripon; Manteca; Tracy; Lathrop; Mountain House; Delta; Stockton; Thornton
Pardee	Amador	Mokelumne River	189,950	East Bay M.U.D.	117	126,000	Clements (45min); Lockeford; Victor; Coopers Corner; Acampo; Woodbridge; Collierville	Lockeford; Lodi; Thornton; Stockton
Pine Flat Lake	Fresno	Kings River	1,000,000	US Army Corps of Engineers	186	3,660	None (enters county 73hr 20min)	Manteca; Tracy; Lathrop; Stockton; Delta

TABLE 4.J-3 (Continued)
DAM FAILURE INUNDATION DATA, SAN JOAQUIN COUNTY

Dam	Location (county)	River	Storage (AF)	Owner	Inundation Area¹ (square miles)	Population Affected¹	Unincorporated Communities Affected (earliest arrival time)	Affected Areas
Salt Spring Reservoir	Amador	Mokelumne River	139,400	P.G. & E.	131	54,000	Clements; Coopers Corner; Acampo; Woodbridge; Thornton	Lockeford; Lodi; Thornton; Stockton
San Luis	Merced	San Luis Creek; CVP	2,041,000	US Bureau of Reclamation	309	165,000	Stoneridge (30hr); Banta; French Camp; Mountain House	Manteca; Tracy; Lathrop; Mountain House; Stockton; Delta
Tulloch	Calaveras	Stanislaus	66,290	Tri Dam Project - US Bureau of Reclamation	67	47,000	None (enters county 4hr)	Escalon; Ripon; Manteca; Tracy

¹ Only those affected areas or populations within San Joaquin County boundaries are reported herein, but values include areas and populations of incorporated cities; additional locations and populations outside the county may be affected by a dam.

SOURCE: Dam descriptions, populations affected and first arrival times from the San Joaquin County Dam Failure Plan (San Joaquin County, 2003). Inundation areas, communities and areas affected from GIS analysis of San Joaquin County data layers.

that over the past century, sea level has risen nearly 8 inches along the California coast, and general circulation model scenarios suggest very substantial increases in sea level as a significant impact of climate change over the coming century (Pacific Institute, 2009). Based on a set of climate scenarios prepared for the California Energy Commission's Public Interest Energy Research (PIER) Climate Change Research Program, Cayan et al. (2009) project that, under medium to medium-high greenhouse gas emissions scenarios, mean sea level along the California coast will rise from 1.0 to 1.4 meters (m) (39 to 55 inches) by the year 2100.⁴ Projections for sea level rise in 2030, 2050, and 2100 were also developed by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT) and reported in the Sea-Level Rise Interim Guidance Document. In March 2013, the Guidance Document was updated to include the National Research Council (NRC) Sea Level Rise for the Coasts of California, Oregon, and Washington which was finalized in June 2012 (NRC, 2012). The 2013 update reported a projection of approximately 0.04 to 0.30 meters (1.5 to 12 inches) by the year 2030 and 0.42 to 1.67 meters (16 to 65 inches) by the year 2100 for areas south of Cape Mendocino (CO-CAT, 2013).

The 1.4-1.67 meter rise in sea level along the California Coast could put increasing hydrostatic pressures on the existing levees within the county which could increase the risk of flooding (Mount, 2005).⁵ Although slowing substantially likely due to a decreased proportion of readily decomposable organic carbon in the near surface, subsidence of Delta islands is likely to continue into the indefinite future, particularly in the central and west Delta. When coupled with rising sea levels over the next 50 years, continued subsidence will magnify the instability of the Delta levee network, leading to increased potential for and consequences of island flooding.

For California's water supply, the largest effect of sea level rise would likely be in the Delta (DWR 2009). Higher sea levels can be expected to have two major effects on San Joaquin County water supply and quality. First, higher sea levels will push saltier water eastward, decreasing the quality of water taken from surface water sources in the western portion of the county and decreasing the amount of usable surface water available to the county. Second, higher sea levels and higher levels of surface water salinity in the eastern Delta will increase the rate of salinity intrusion into the western portions of the groundwater basin, decreasing the amount of usable groundwater available to the county.

A different study by the California Energy Commission showed that the main effect of sea level rise in the Delta would be that extreme high water events that are now rare, would become more common, and that some of these events would occur at the same time as periods of high runoff, creating even higher potential for flooding (Mintier Harnish, 2009).

⁴ It is important to note that most climate models fail to include ice-melt contributions from the Greenland and Antarctic ice sheets, and as a result, the potential increase in mean sea level may be much higher (Pacific Institute, 2009).

⁵ The trends and potential increases in sea level rise are typically reported in ranges due to the variation of the estimates between different research studies.

J.2 Regulatory Setting

Federal

Clean Water Act

Under the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity in the nation's waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the EPA to implement water quality regulations. The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402(p) of the CWA controls water pollution by regulating stormwater discharges into the waters of the U.S.; California has an approved state NPDES program. The EPA has delegated authority for water permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The Central Valley Regional Water Quality Control Board (RWQCB) regulates water quality in the county.

The CWA contains several provisions protecting water quality, including Sections 303(c)(2)(B), 303(d), 305(b), 401, 402(p), and 404, and the Toxics Rule. Each is discussed below.

- **Section 303(c)(2)(B).** Section 303(c)(2)(B) of the CWA requires states to adopt numeric criteria for priority pollutants as part of the states' water quality standards. In 1991, the SWRCB adopted the Inland Surface Waters Plan (ISWP) and the Enclosed Bays and Estuaries Plan (EBEP), in part, to comply with the CWA. The California SWRCB amended the plans in 1993. In 1994, the SWRCB rescinded the ISWP and the EBEP in response to a court ruling invalidating the plans. In order to bring California into compliance with the CWA, the SWRCB and the EPA agreed to a two-phased approach. Phase I consisted of the EPA promulgating numeric water quality criteria for priority pollutants for California in accordance with the CWA, and the SWRCB adopting statewide measures to implement those criteria in a statewide policy. In Phase II, the SWRCB would consider the adoption of appropriate statewide water quality objectives for toxic pollutants. The EPA published the California Toxics Rule (CTR 2000) in the Federal Register, adding Section 131.38 to Title 40 of the C.F.R. On May 22, 2000, the Office of Administrative Law approved, with modifications, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the ISWP and EBEP). The policy establishes implementation procedures for three categories of priority pollutant criteria or water quality objectives. These are 1) criteria promulgated by the EPA in the National Toxics Rule that apply in California; 2) criteria proposed by EPA in the California Toxics Rule; and 3) water quality objectives contained in RWQCB water quality control plans (basin plans).
- **Section 303(d).** Section 303(d) of the CWA requires states to identify waters that are not expected to meet water quality standards after application of effluent limitations for point sources, develop a priority ranking and determine the total maximum daily load of specific pollutants that may be discharged into the water, and meet the water quality standards. States are required to establish Total Maximum Daily Loads (TMDLs) for these water bodies that will lead to achieving the applicable water quality standards and to allocate the TMDL among all contributing sources. Approved TMDLs are implemented through National Pollutant Discharge Elimination System (NPDES) permits, non-point source

control programs, and other local and State requirements. A listing of TMDLs for water bodies within San Joaquin County is provided below under Surface Water Quality.

- **Section 305(b).** Section 305(b) of the CWA requires States to perform a biennial assessment of the water quality of navigable waters within each state. The assessment is required to analyze the extent to which beneficial uses are supported. Therefore, the assessment provides an analysis of the extent to which elimination of pollution and protection of beneficial uses had been achieved. The assessment is also required to describe the nature and extent of non-point sources of pollution and provide recommendations for control programs including costs.
- **Section 401.** Section 401 requires that federally-authorized discharges into waters of the United States do not violate state water quality standards. Anyone applying for a federal permit or license for an activity that may result in any discharge into waters of the United States must request State certification that the proposed activity will not violate state water quality standards. Within California, Section 401 is implemented by SWRCB and the RWQCBs.
- **Section 402(p).** Section 402(p) of CWA requires a NPDES permit for stormwater discharges from municipal separate storm sewer systems, industrial activities, construction activities, and designated dischargers that are considered significant contributors of pollutants to waters of the United States. The Phase I permitting program, which was initiated in 1990, generally addressed stormwater runoff from: 1) municipal separate storm sewer systems serving populations of 100,000 or greater, 2) construction activity disturbing 5 acres of land or greater, and 3) 10 categories of industrial activity. The Phase II program regulates stormwater discharges associated with small construction activity (i.e., sites disturbing between 1 and 5 acres of land), and small municipal separate storm sewer systems (i.e., serving populations less than 100,000). The NPDES program is discussed in more detail below under the CVRWQCB summary.
- **Section 404.** Section 404 of the CWA establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Responsibility for administering and enforcing Section 404 is shared by the U.S. Army Corps of Engineers (USACE) and EPA. USACE administers the day-to-day program, including managing individual permit decisions and jurisdictional determinations; developing policy and guidance; and enforcing Section 404 provisions. On the other hand, the EPA develops and interprets environmental criteria used in evaluating permit applications, identifies activities that are exempt from permitting, reviews individual permit applications, enforces Section 404 provisions, and has authority to veto USACE permit decisions.

Total Maximum Daily Load

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e., not meeting one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the 303(d) list

is to identify water bodies that require future development of a TMDL to maintain water quality. In accordance with Section 303(d), the Central Valley RWQCB has identified impaired water bodies within its jurisdiction, and the pollutant or stressor responsible for impairing the water quality.

National Pollutant Discharge Elimination System

The Water Permits Division within the United States Environmental Protection Agency (USEPA) Office of Wastewater Management leads and manages the NPDES permit program in partnership with USEPA regional offices, along with states, tribes, and other stakeholders. The NPDES stormwater program is a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the U.S. RWQCBs are authorized to enforce this program within California.

Construction sites disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Construction Permit for Discharges of Stormwater Associated with Construction Activity (General Construction Permit), which was revised, effective July 2010. For qualifying projects, the project applicant must submit a Notice of Intent to the RWQCB to be covered by the General Construction Permit prior to the beginning of all construction activities. The General Construction Permit requires the preparation and implementation of a SWPPP, which also must be completed before construction begins, as well as other measures to protect water quality during and following the construction period. Implementation of the plan starts with the commencement of construction and continues through the completion of construction.

Industrial land uses are subject to the Industrial Storm Water General Permit Order 97-03-DWQ (General Industrial Permit) which is an NPDES permit that regulates discharges associated with 10 broad categories of industrial activities. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The General Industrial Permit also requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring plan. Through the SWPPP, sources of pollutants are identified and the means to manage the sources to reduce storm water pollution are described.

Federal Emergency Management Agency.

The Federal Emergency Management Agency (FEMA) is the Federal agency that oversees floodplains and manages the National Flood Insurance Program (NFIP), adopted under the National Flood Insurance Act of 1968, to make available federally-subsidized flood insurance to property owners within communities that participate in the program. Since 1973 San Joaquin County and incorporated cities within the county have participated in the NFIP. The continued availability of flood insurance to county residents requires that the county and incorporated cities within the county manage floodplains in ways that meet or exceed flood protection and management standards set by FEMA. Any failure to adhere to the FEMA regulations can result in suspension from the program.

FEMA prepares Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. The FIRMs indicate the regulatory floodplain to assist communities with land use and floodplain management decisions so that the requirements of the national flood insurance program are met in the event of damaging floods. However, FIRMs are not necessarily an accurate, up-to-date reflection of the physical flood risk or hazards and they may not reflect localized flooding. In the case of San Joaquin County, many areas were mapped more than 26 years ago and some formerly rural areas (which are now developed) were never mapped in detail. Over time, water flow, levee conditions, and drainage patterns have changed due to erosion, land use, and natural forces (Mintier Harnish, 2009). Therefore, the locations and likelihood of flooding will likely change over time, requiring new analyses and updates to the FIRMs.

Under the Map Modernization Program, FEMA also added new levee certification requirements including submittals of as-builts, protection documentation, stability and drainage analyses, and operation and maintenance manuals in order to qualify for NFIP. Only areas behind FEMA-certified levees qualify as protected from flooding; although recent changes to FEMA modeling approaches do recognize that non-accredited levees can nonetheless provide some level of flood protection.

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is the federal agency that studies, constructs, and operates regional-scale flood protection systems in partnership with state and local agencies. While the USACE also has regulatory authority over wetlands, water of the United States, and other related topics, its role in flooding and flood management has been generally as an engineer for regional systems, technical advisor for evaluations, and responder to damaging floods. Specific agreements between the USACE and its state and local partners on projects are used to define shared financial responsibilities and regulations that affect the local partners. In the San Joaquin County region, USACE is the federal agency responsible for the Lower San Joaquin River Flood Control Project, constructed in the 1960s. In the last couple of decades, the USACE has helped with emergency flood fighting and the recovery and maintenance of navigation channels.

The USACE continues to coordinate with the State and its Delta Risk Management Study (DRMS) in exploring long-term strategies to address levee stability and flood management. USACE also coordinates with DWR in development of comprehensive hydrologic modeling of the San Joaquin River Basin.

State

Porter-Cologne Water Quality Control Act

In addition to the authority to regulate under the Clean Water Act, delegated from EPA, the SWRCB and the nine RWQCBs also have state authority to regulate water quality under the Porter-Cologne Water Quality Control Act (Porter Cologne) and Sections 22560 through 22565 of Title 27 of the California Code of Regulations (CCR). There are ten SWRCB water quality

control policies and three SWRCB water quality control plans to which RWQCB actions must conform. Two of the plans (the Ocean Plan and the Tahoe Plan) do not affect the San Joaquin River Basin, but all other policies and plans are applicable. The Basin Plan for the Central Valley Region (CVWQCB, 2011) incorporates by reference the SWRCB water quality control plans and policies to protect beneficial uses of state water resources. The Basin Plan states the beneficial uses of specific water bodies and the levels of quality that must be met and maintained to protect those uses. Regional plan objectives and discharge requirements are implemented through the issuance of waste discharge requirements (WDRs) or NPDES permits.

California Statewide Groundwater Elevation Monitoring Program

On November 4, 2009 the State Legislature amended the Water Code with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. To achieve that goal, the amendment requires collaboration between local monitoring entities and Department of Water Resources (DWR) to collect groundwater elevation data.

In accordance with this amendment to the Water Code, DWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program. The intent of the CASGEM program is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's alluvial groundwater basins. The CASGEM program relies on the many, established local long-term groundwater monitoring and management programs. DWR's role is to coordinate the CASGEM program, to work cooperatively with local entities, and to maintain the collected elevation data in a readily and widely available public database.

The law anticipates that the monitoring of groundwater elevations required by the enacted legislation will be done by local entities. The law requires local entities to notify DWR in writing by January 1, 2011 if the local agency or party seeks to assume groundwater monitoring functions in accordance with the law. The legislation also requires DWR to prioritize groundwater basins to help identify, evaluate, and determine the need for additional groundwater level monitoring by considering available data. The Eastern San Joaquin basin has been identified as a high priority and the Tracy basin as a medium priority (DWR, 2013).

Senate Bills SB 5, SB 17, SB 156 and SB 162 - Flood Protection

After the Hurricane Katrina disaster in 2005, California lawmakers were urged to take action. SB 5 was passed as a way of increasing the level of flood protection required for urban areas and putting limits on new construction. A number of provisions were included with SB 5:

- The Department of Water Resources (DWR) and the Central Valley Flood Protection Board (State Reclamation Board) must provide cities and counties with preliminary flood plain maps and the state agencies must adopt a Central Valley flood protection plan by July 2012.
 - By July 2, 2015, every city and county in the Central Valley must incorporate the new flood protection plan's data, policies and implementation measures into general plans, and amend zoning ordinances as necessary within the following year.

- Generally, local government may not approve new development in areas that do not have 200-year flood protection unless adequate progress is being made to achieve that level of protection. All areas of new development protected by project levees must have 200-year protection by 2025.
- Cities and counties are authorized to prepare local flood protection plans that include strategies for increasing flood safety, funding strategies, flood control maintenance, and emergency response.

SB 5 is part of a package of other bills that work together. Assembly Bill 5 overhauls the Reclamation Board and requires DWR to undertake numerous efforts to improve and distribute data.⁶ SB 17 renames the Reclamation Board as the Flood Protection Board and expands the panel to nine members. AB 156 provides for better mapping of area protected by levees and improved coordination for maintenance of the levees. AB 162 requires cities and counties statewide to integrate flood safety into general plans.

Assembly Bill 3030. Groundwater Management Act (2002)

The Groundwater Management Act (California Water Code Sections 10750-10756 of the California Water Code (AB 3030)) provides a systematic procedure for an existing local agency to develop a groundwater management plan. This section of the code provides agencies with the powers of a water replenishment district to raise revenues to pay for facilities to manage the identified basin (extraction, recharge, conveyance, quality). Many agencies within San Joaquin County have adopted groundwater management plans in accordance with AB 3030 which have been integrated into the Groundwater Banking Authority and its Integrated Regional Water Management Plan (IRWMP) (see below).

SB 1245 (Water Code Section 10756) (1997)

This bill requires the Department of Water Resources to publish a report to the Legislature that lists all agencies that have adopted groundwater management plans pursuant to any provision of the Water Code or to case law decided in court. Thus, groundwater management plans developed under AB 3030, adjudicated basins, groundwater management districts, city/county ordinances, and the other 22 types of local agencies are included in this report.

Construction Permitting

Construction activities on one or more acres of land are regulated by the Central Valley RWQCB and are subject to the requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). Future development that disturbs one or more acres would be required to comply with the requirements in the 2009 Construction General Permit Order 2009-0009-DWQ and adopted as amended in July 2012. The SWRCB established the General Construction Permit for the purpose of reducing

⁶ In 2012, SB 5 was amended by SB 1278 and AB 1965 which allowed cities and counties in the Sacramento-San Joaquin Valley to have up to 24 months after July 2, 2013 to amend their general plans. As well, DWR was required to release informational 200-year floodplain maps for urban areas protected by the State Plan of Flood Control (SPFC) which it accomplished on July 2, 2013. These maps are specifically intended to assist cities and counties protected by the SPFC in their determinations relating to urban level of flood protection.

impacts to surface waters that may occur due to construction activities. A future project applicant would be required to apply for the General Construction Permit that requires the preparation and implementation of a stormwater pollution prevention plan (SWPPP) prepared by a Qualified SWPPP Developer. The SWPPP is prepared before project construction begins and, in certain cases, before demolition begins and includes specifications for best management practices (BMPs) that would be implemented during construction. BMPs are measures undertaken to control degradation of surface water by preventing soil erosion or the discharge of pollutants from the construction area. Additionally, the SWPPP describes measures to prevent or control runoff after construction is complete, and it identifies procedures for inspecting and maintaining facilities or other project elements. Some of the required elements of a SWPPP include:

1. A site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project.
2. A list of Best Management Practices (BMPs) the discharger will use to protect stormwater runoff and the placement of those BMPs during construction. Additionally, the SWPPP should include stabilization BMPs installed to reduce or eliminate pollutants after construction is completed.

Description of a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting activities to certain times of the year; installing sediment barriers, such as silt fence and fiber rolls; maintaining equipment and vehicles used for construction; tracking controls, such as stabilizing entrances to the construction site; and developing and implementing a spill prevention and cleanup plan. Non-stormwater management includes installing specific discharge controls during activities, such as paving operations, vehicle and equipment washing and fueling which have the potential to result in non-stormwater discharges (e.g., improper dumping, spills, or leakage from storage tanks or transfer areas).

Permit for Dewatering Discharges to Surface Waters

According to Central Valley RWQCB Order No. R5-2013-0074, “Waste Discharge Requirements General Order for Dewatering and Other Low Threat Discharges to Surface Waters,” dewatering discharges shall meet (1) effluent limitations criteria related to biological oxygen demand (BOD), total suspended solids, settleable solids, chlorine, pH, and flow; (2) solids disposal requirements related to screenings and other solids removed from liquid wastes; and (3) receiving water limitations related to dissolved oxygen concentration; oils, greases, waxes, and other materials that can form visible films on the water surface or streambed; constituents, including floating material and suspended material, that would create a nuisance or adversely affect beneficial uses; discoloration; fungi, slimes, and other objectionable growths; increases in turbidity; pH; deposition of materials; changes in temperature; taste and odor-producing substances; radionuclides; degradation of aquatic communities or biota; toxic pollutants in water, sediment, or biota; and other violations of water quality standards. Construction of new public facilities where dewatering of sediments is necessary would require compliance with Order No. R5-2013-0074.

California Department of Water Resources, Division of Safety of Dams

Division 3 of the California Water Code—the statute governing dam safety in California—places responsibility for the safety of non-federal dams and reservoirs under the jurisdiction of the California Department of Water Resources (DWR) Division of Safety of Dams (DSOD). DSOD sets performance standards and regulates the construction of all dams 25 feet and higher that impound over 0.015 thousand acre-feet (4.9 million gallons) of water, or over 6 feet high that impound over 0.05 thousand acre-feet (16.3 million gallons) of water. DSOD’s engineers and engineering geologists provide multiple critical reviews of new dams as well as the enlargement and alteration of existing dams in order to ensure adherence to DSOD’s stringent performance standards. Detailed DSOD standards address the following: site geology; seismic setting; site geotechnical investigations; laboratory testing; proposed construction materials; seismic analyses; and design of the dam. DSOD also oversees construction to verify compliance with the approved construction documents, and approves foundations before material is placed.

Before water can be impounded behind a new dam, DWR must issue a certificate of approval to operate. These certificates may contain restrictive conditions and may be amended or revoked. DSOD engineers inspect existing dams on a yearly schedule to ensure the dams are performing safely and are being adequately maintained. Operating dams are also periodically inspected to assure they are adequately maintained, and to direct the owner to correct any deficiencies that are found.

California Dam Safety Act

The State of California Dam Safety Act requires inundation maps to be submitted to the California Office of Emergency Services (OES), for any dams whose total failure would result in loss of life or personal injury. This law also requires local jurisdictions to adopt emergency procedures for the evacuation and control of populated areas below such dams. The San Joaquin County Office of Emergency Services’ Dam Failure Plan (San Joaquin County, 2003) includes descriptions of regional dams, as well as anticipated direction of catastrophic inundation flows, timing and depths of floodwaters, and responsibilities of the jurisdictions that would be affected.

FloodSAFE California

Floodsafe California was initiated in the wake of a 2003 state Supreme Court case that held the State of California liable for flood-related damages caused by a levee failure, as well as changes in floodplain management protocol following Hurricane Katrina. Governor Schwarzenegger called for improved maintenance, system rehabilitation, effective emergency response, and sustainable funding. Funding mechanisms were appropriated and in 2006, DWR launched the FloodSAFE California initiative which seeks to reduce the chance of flooding, minimize the consequences of flooding, sustain economic growth, protect and enhance ecosystems, and promote sustainability. Major facets of FloodSAFE California include the following: 1) providing a 200-year level of flood protection to all urban areas in the Sacramento-San Joaquin Valley by 2025; 2) completing extensive levee surveys and implementation of activities to ensure the soundness of levees within the Sacramento-San Joaquin Valley; and, 3) establishing an interagency mitigation banking program to help address flood related issues. An overview of

FloodSAFE's progress is documented annually in a report that highlights projects that best represent significant accomplishments made during the year most recently in the 2013 report.

Regional

Central Valley Flood Protection Program

The Central Valley Flood Protection Board (CVFPB), formerly known as the California State Reclamation Board, has a long history of regulatory authority to reduce the risk of flooding within California's Central Valley. More recently, in 2007 and later in 2009, the Board was restructured, re-named, and given the responsibility to review and adopt the historic 2012 Central Valley Flood Protection Plan (CVFPP). The CVFPP is a comprehensive framework for systemwide flood management and flood risk reduction in the Sacramento and San Joaquin River Basins.

The adoption of the CVFPP, as modified by CVFPB Resolution 2012-25, fulfills a legislative mandate outlined in the Central Valley Flood Protection Act of 2008 to provide conceptual guidance to reduce the risk of flooding for about one million people and \$70 billion in infrastructure, homes and businesses with a goal of providing 200-year (1 chance in 200 of flooding in any year) protection to urban areas, and reducing flood risks to small communities and rural agricultural lands. It is the intent of the state that all major flood management programs and projects in the Central Valley be planned and implemented consistent with the vision, overall goals, and provisions of the evolving CVFPP.

Delta Protection Act

The Delta Protection Act of 1992 (Act) established the Delta Protection Commission, a state entity to plan for and guide the conservation and enhancement of the natural resources of the Delta, while sustaining agriculture and meeting increased recreational demand. The Act defines a Primary Zone, which comprises the principal jurisdiction of the Delta Protection Commission. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta"; the Secondary Zone is not within the planning area of the Delta Protection Commission. The Act requires the Commission to prepare and adopt a Land Use and Resource Management Plan for the Primary Zone of the Delta, which must meet specific goals. The following policies from the LURMP pertain to the levees and maintenance of levees for continued protection:

P-1. Local governments shall carefully and prudently carry out their responsibilities to regulate new construction within flood hazard areas to protect public health, safety, and welfare. These responsibilities shall be carried out consistent with applicable regulations concerning the Delta, as well as the statutory language contained in the Delta Protection Act of 1992. Increased flood protection shall not result in residential designations or densities beyond those allowed under zoning and general plan designations in place on January 1, 1992, for lands in the Primary Zone.

P-2. Support programs for emergency levee repairs and encourage coordination between local, state, and federal governments. The programs may include but are not limited to: interagency agreements and coordination; definition of an emergency; designation of

emergency funds; emergency contracting procedures; emergency permitting procedures; and other necessary elements.

P-3. Support efforts to address levee encroachments that are detrimental to levee maintenance.

P-4. Support funding assistance for existing unincorporated towns within the Delta to improve levees up to a 200-year flood protection level.

P-5. Support stockpiling rock in the Delta for levee emergency response.

P-6. Support a multi-year funding commitment to maintain and restore both project and non-project levees in the Delta.

P-9. Support a minimum Delta-specific levee design standard as established by state and federal regulations.

Northeastern San Joaquin County Groundwater Banking Authority (GBA)

The GBA was formed in 2001 to develop locally supported conjunctive use projects that improve water supply reliability in San Joaquin County. The member agencies of the GBA include the City of Stockton, California Water Service Company, City of Lodi, Woodbridge Irrigation District, North San Joaquin Water Conservation District, Central San Joaquin Water Conservation District (CJSWCD), Stockton East Water District, Central Delta Water Agency, South Delta Water Agency, San Joaquin County Flood Control and Water Conservation District, and the San Joaquin Farm Bureau Federation. The GBA group is responsible for the Eastern San Joaquin Integrated Regional Water Management Plan (IRWMP).

Eastern San Joaquin Integrated Regional Water Management Plan (IRWMP)

The purpose of the IRWMP is to define and integrate key water management strategies to establish the protocols and courses of action for implementation of the Eastern San Joaquin Integrated Conjunctive Use Program (ICU). The IRWMP planning process began in late 2004 following the completion of the Eastern San Joaquin Groundwater Management Plan. The Plan was envisioned to take the concept of managing and restoring the underlying Basin from an idea to reality. The IRWMP was adopted by the GBA on July 15, 2007 (GBA, 2007).

State Groundwater Supply Permitting and Water Resource Verification – Title 22 Department of Public Health

Public Water System water sources have to be permitted by the California Department of Public Health (CDPH) or the San Joaquin County Environmental Health Department (EHD). The CDPH has authority over all Public Water Systems and has delegated authority for Small Public Water Systems (those with less than 200 connections) to the EHD. As part of the March 2008 update to CCR Title 22 California regulations related to drinking water, Chapter 16 Waterworks Standards § 64554 (e) (3) (13), a, “written description of the aquifer’s annual recharge,” shall be provided if requested. In order to determine the recharge to an aquifer, the following information is needed:

- the size of the groundwater basin, with a clear understanding of basin boundaries;

- the recharge area of the basin;
- the rate of recharge to groundwater; and
- the source of groundwater recharge.

Delta Plan

The Delta Plan is a comprehensive, long-term management plan for the Delta. Required by the 2009 Delta Reform Act, it creates new rules and recommendations to further the state's coequal goals for the Delta: improve statewide water supply reliability, and protect and restore a vibrant and healthy Delta ecosystem, all in a manner that preserves, protects and enhances the unique agricultural, cultural, and recreational characteristics of the Delta.

The Delta Plan was unanimously adopted by the Delta Stewardship Council on May 16, 2013. Subsequently, its 14 regulatory policies were approved by the Office of Administrative Law, a state agency that ensures the regulations are clear, necessary, legally valid, and available to the public. The Delta Plan became effective with legally-enforceable regulations on September 1, 2013. The following policies are contained within the Delta Plan:

RR P1: Prioritization of State Investments in Delta Levees and Risk Reduction

- (a) Prior to the completion and adoption of the updated priorities developed pursuant to Water Code section 85306, the interim priorities listed below shall, where applicable and to the extent permitted by law, guide discretionary state investments in Delta flood risk management. Key priorities for interim funding include emergency preparedness, response, and recovery as described in paragraph (1), as well as Delta levees funding as described in paragraph (2).
 - (1) Delta Emergency Preparedness, Response, and Recovery: Develop and implement appropriate emergency preparedness, response, and recovery strategies, including those developed by the Delta Multi-Hazard Task Force pursuant to Water Code section 12994.5.
 - (2) Delta Levees Funding: The priorities shown in the following table are meant to guide budget and funding allocation strategies for levee improvements. The goals for funding priorities are all important, and it is expected that over time, the California Department of Water Resources must balance achievement of those goals. Except on islands planned for ecosystem restoration, improvement of non-project Delta levees to the Hazard Mitigation Plan (HMP) standard may be funded without justification of the benefits. Improvements to a standard above HMP, such as that set by the U.S. Army Corps of Engineers under Public Law 84-99, may be funded as befits the benefits to be provided, consistent with the California Department of Water Resources' current practices and any future adopted investment strategy.

RR P2: Require Flood Protection for Residential Development in Rural Areas

- (a) New residential development of five or more parcels shall be protected through floodproofing to a level 12 inches above the 100-year base flood elevation, plus sufficient additional elevation to protect against a 55-inch rise in sea level at the Golden Gate, unless the development is located within:

- (1) Areas that city or county general plans, as of May 16, 2013, designate for development in cities or their spheres of influence;
 - (2) Areas within Contra Costa County's 2006 voter-approved urban limit line, except Bethel Island;
 - (3) Areas within the Mountain House General Plan Community Boundary in San Joaquin County; or
 - (4) The unincorporated Delta towns of Clarksburg, Courtland, Hood, Locke, Ryde, and Walnut Grove, as shown in Appendix 7.
- (b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that involves new residential development of five or more parcels that is not located within the areas described in subsection (a).

RR P3: Protect Floodways

- (a) No encroachment shall be allowed or constructed in a floodway, unless it can be demonstrated by appropriate analysis that the encroachment will not unduly impede the free flow of water in the floodway or jeopardize public safety.
- (b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that would encroach in a floodway that is not either a designated floodway or regulated stream.

RR P4: Floodplain Protection

- (a) No encroachment shall be allowed or constructed in any of the following floodplains unless it can be demonstrated by appropriate analysis that the encroachment will not have a significant adverse impact on floodplain values and functions:
- (1) The Yolo Bypass within the Delta;
 - (2) The Cosumnes River-Mokelumne River Confluence, as defined by the North Delta Flood Control and Ecosystem Restoration Project (McCormack-Williamson), or as modified in the future by the California Department of Water Resources or the U.S. Army Corps of Engineers (California Department of Water Resources 2010); and
 - (3) The Lower San Joaquin River Floodplain Bypass area, located on the Lower San Joaquin River upstream of Stockton immediately southwest of Paradise Cut on lands both upstream and downstream of the Interstate 5 crossing. This area is described in the Lower San Joaquin River Floodplain Bypass Proposal, submitted to the California Department of Water Resources by the partnership of the South Delta Water Agency, the River Islands Development Company, Reclamation District 2062, San Joaquin Resource Conservation District, American Rivers, the American Lands Conservancy, and the Natural Resources Defense Council, March 2011. This area may be modified in the future through the completion of this project.
- (b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that would encroach in any of the floodplain areas described in subsection (a).

- (c) This policy is not intended to exempt any activities in any of the areas described in subsection (a) from applicable regulations and requirements of the Central Valley Flood Protection Board.

San Joaquin County Ordinances for Well Use and Groundwater Management Plan Development

San Joaquin County has adopted an ordinance governing water well construction standards similar to the Department of Water Resource (DWR) requirements under Bulletin 74-81 and 74-90 (San Joaquin County Ordinance Code Section 9-1115.6). This ordinance documents the permit and oversight of new monitoring wells and water well construction. The ordinance governs the construction, deepening, and destruction of any well and soil boring within the unincorporated areas of the county as well as some wells in the incorporated areas. The ordinance is enforced by the San Joaquin County Environmental Health Department. Applicants must submit plan documents and obtain permits before they are allowed to complete any of the activities covered by the ordinance. Consistent with state requirements, the San Joaquin County Environmental Health Department (SJCEHD) is mandated to track water systems with fewer than 200 service connections served by wells. This program is reviewed on an annual basis by the Department of Public Health (DPH). DPH permits and tracks public water supplies with 200 or more service connections. Between the county and state programs, over 620 water sources and associated water agencies in San Joaquin County are regulated, with some sources containing several wells. Many of the County Water Management Plan efforts are coordinated by the San Joaquin County Department of Public Works, Water Resource Division.

Stockton and San Joaquin County NPDES Municipal Permit

The County of San Joaquin includes the City of Stockton, as well as surrounding incorporated and unincorporated urbanized areas (which contain densely settled territory containing 100,000 or more people). Due to the proximity of the county's urbanized areas to the City of Stockton, the urbanized area's physical interconnection to the City's storm drain system, and the locations of their discharges relative to the City's system, the County is designated as a part of the medium Small Municipal Separate Storm Sewer System (MS4). This MS4 designation must comply with the CWA under the NPDES Phase I program.

The City of Stockton, the urbanized areas of the county that are enclosed within the city, and the urbanized areas of the county which surround the City are subject to the NPDES Phase I municipal permit, Order No. RS-2009-0105 adopted on October 8, 2009.

San Joaquin Stormwater Management Program (SWMP)

The development and implementation of the SWMP for San Joaquin County was to fulfill requirements for stormwater discharges from the Small Municipal Separate Storm Sewer System (MS4) operators in accordance with Section 402(p) of the Federal Clean Water Act (CWA). The SWMP was also developed to comply with General Permit Number CAS000004, Water Quality Order No. 2003-0005-DWQ. The SWMP continues most of the previous program objectives and proposes a range of continuing and enhanced Best Management Practices (BMPs) and control

measures. The implementation of the stormwater management program requires a coordinated management effort by the City of Stockton (City) and the County. While named as co-permittees to one permit, the City and County currently have separate programs and submit documents and reports separately to the CVRWQCB. However, the programs are essentially identical and the co-permittees collaborate with each other to address common issues and to ensure consistency in program development and implementation. Although the co-permittees coordinate with each other, each agency is responsible for implementing actions within their respective jurisdictions as related to their storm drains and/or watercourses. The City and County are legal entities with the authority to administer, implement, and enforce the stormwater management program within their separate jurisdictions.

The County has prepared a Stormwater Management Program (SWMP) to limit, to the Maximum Extent Practicable (MEP), the discharge of pollutants from the San Joaquin County (SJC) storm sewer system in the Phase II permit areas. The SJC Phase II boundaries are contiguous with those determined by the 2000 Census as urbanized areas within the county, outside of the incorporated cities, with a population estimated at 24,697. The SWMP is reviewed on an annual basis and modifications are submitted to CVRWQCB. The SWMP consists of six minimum control measures (MCM) established by the U.S. Environmental Protection Agency (USEPA) and the SWRCB for Phase II stormwater discharges to result in significant reductions of pollutants discharged into receiving water bodies as follows:

- Public education and outreach to ensure greater public support and compliance for the SWMP.
- Public involvement and participation to provide opportunities for the public to play an active role in both the development and implementation of the SWMP and to educate them about stormwater quality issues.
- Illicit discharge detection and elimination to minimize illicit discharges into the storm sewer system.
- Construction site runoff control to minimize polluted stormwater runoff from construction activities.
- Post-construction controls for new development and redevelopment to minimize the impact to stormwater quality. Pollution prevention and good housekeeping for municipal operations to ensure a reduction in the amount and type of stormwater pollutants from routine activities in the operation and maintenance of municipal operations.

San Joaquin County Department of Public Works

The San Joaquin County Water Resources Division of the Department of Public Works has primary responsibility for the development and implementation of the SWMP (originally administered by the Stormwater Management Division).

In March 1998, the County enacted a Stormwater Management and Discharge Control Ordinance No. 3966 (codified in Title 5, Division 10). This ordinance reorganized the existing County stormwater-related rules into a single document and added new regulations to protect and

enhance the water quality of the waters of San Joaquin County consistent with the CWA. It sets forth general discharge prohibitions against wastewater, pollutants, substances or material of any kind into the County storm drainage system that interfere with the operation or performance of the County storm drainage system or that violate any condition of the County NPDES Permit or any other federal, state, or local regulation. (Ord. 3966 § 1 (part), 1998). It addresses construction activities, new development, redevelopment, and BMPs.

The control measures identified in the ordinance include several policies, principals, and standards to be integrated in the County plans and codes to improve compliance with stormwater requirements and further improve stormwater quality. These are as follows:

- Water quality and watershed protection principles and policies such as minimization of impervious areas, pollutant source controls, preservation of natural areas, and peak runoff controls to minimize the impacts of urban development will be integrated into County policies, specifically the General Plan.
- A Guidance Manual for New Development Stormwater Quality Control Measures will assist developers on meeting these requirements.
- Development standards are to be developed to adequately address the NPDES permit requirements.
- The process for sign-off privileges on selected categorical development projects shall ensure that post-construction control measures are properly integrated.
- Conditions of approval for development plans to ensure stormwater quality requirements shall be addressed. (County of San Joaquin Stormwater Management Plan 2003).

The County has developed the Stormwater Quality Control Criteria Plan (SWQCCP mentioned above) with development standards for post-construction runoff from new developments and redeveloped areas, including general site controls, source controls and treatment controls for the following:

- Residential suburbs with 10 or more housing units;
- Significant redevelopment which creates or adds at least 5,000 sq. ft. of impervious area;
- Commercial developments with impervious areas greater than 5,000 sq. ft.;
- Automotive repair shops with impervious areas greater than 5,000 sq. ft.;
- Restaurants;
- Parking lots greater than 5,000 sq. ft. or with 25 or more parking spaces;
- Streets and roads with one acre or more of impervious area; and
- Retail gas outlets with 5,000 or more sq. ft. of impervious area.

J.3 Impacts and Mitigation Measures

Significance Criteria

A hydrology or water quality impact would be considered significant if the impact would result in any of the following, which are adapted from CEQA *Guidelines*, Appendix G CEQA Thresholds/Criteria of Significance Guidelines:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or substantially contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Place housing or other improvements within a 100-year flood hazard zone as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard map or impede or redirect flood flows;
- 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; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Relevant Policies

The following relevant policies of the 2035 General Plan address hydrology and water quality.

NCR-3.1: Preserve Groundwater Recharge Areas. The County will strive to ensure that substantial groundwater recharge areas are maintained as open space. (PSP) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 5)

NCR-3.2: Groundwater Recharge Projects. The County shall encourage the development of groundwater recharge projects of all scales within the County and cities to increase groundwater supplies. (PSP) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 14)

NCR-3.3: Multi-Jurisdictional Groundwater Management Evaluation. The County shall support multi-jurisdictional groundwater management that involves adjacent groundwater basins. (IGC) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 7)

NCR-3.4: Eliminate Pollution. The County shall support efforts to eliminate sources of pollution and clean up the County's waterways and groundwater. (PSP) (Source: Existing GP, Water Resources and Quality, Implementation 1(c), modified)

NCR-3.5: Low Impact Development. The County shall require new development to mitigate stormwater quality and hydro-modification impacts through site design, source controls, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID). (RDR) (Source: New Policy)

NCR-3.6: Prohibit Discharge of Sewage Sludge. The County shall prohibit the discharge of sewage sludge or septage to surface waters or surface water drainage sources, including wetlands and waterways. (RDR) (Source: New Policy, based on the Sewage Sludge Ordinance)

NCR-3.7: Septic Tank Regulation. The County shall enforce its septic tank and onsite system regulations consistent with Central Valley Regional Water Quality Control Board policy that recognizes the County as the responsible agency to protect the water quality of surface water and groundwater. (RDR) (Source: New Policy)

NCR-3.8: Support Sufficient River Flows. The County support properly timed flows of sufficient quality in local waterways necessary to sustain healthy fisheries. (PSP) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 10, modified)

NCR-3.9: Require Water Projects to Mitigate Impacts. The County shall require water projects to incorporate safeguards for fish and wildlife and mitigate erosion and seepage to adjacent lands. (RDR) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 11)

NCR-3.10: Coordination for Waterway Protection. The County shall coordinate with city, State, and Federal agencies to implement policies regarding protection and enhancement of waterways and levees. (IGC) (Source: Existing GP, Public Facilities, Recreation, Implementation 10)

PHS-2.1: Restrict Uses in Designated Floodways. The County shall restrict uses in designated floodways except those that do not adversely affect flood elevations or velocities, and are tolerant of occasional flooding in accordance with the County's Floodplain Management ordinance. (RDR/PSP) (Source: Existing GP, Flood Hazards, Policy 3, modified)

PHS-2.2: Primary Purpose of Levees. The County shall ensure that the primary use and purpose of levees is flood protection. The County shall only allow other uses of levees if they are compatible with the primary purpose of the levee and do not reduce the flood protection integrity, provided such uses are in compliance with State and Federal regulations. (RDR) (Source: Existing GP, Flood Hazards, Policy 5, modified)

PHS-2.3: 100-Year Flood Protection. The County shall strive to ensure that all levees protecting urban or urbanizing areas provide a minimum of 100-year flood protection in accordance with the County's Floodplain Management Ordinance. (PSP) (Source: Existing GP, Flood Hazards, Implementation 3 and Policy 6, combined and modified)

PHS-2.4: Planned Land Use: The County shall update, as necessary, the Land Use Element to reflect current floodplain mapping data. (PSP) (New Policy)

PHS-2.5: New Development. The County shall require evaluation of potential flood hazards prior to approval of development projects to determine whether the proposed development is reasonably safe from flooding Consistent with the County's Flood Management Ordinance(RDR/PSR) (New Policy)

PHS-2.6: New Development Design. The County shall require new development located within a special (100-year) flood hazard area to be designed to minimize the risk of damage in the event of a flood in accordance with the Floodplain Management Ordinance. (RDR) (New Policy)

PHS-2.7: Levee and Floodway Encroachment Permit. The County shall require project applicants to secure an encroachment permit from the Central Valley Flood Protection Board for any project that falls within the jurisdiction regulated by the Board (e.g., levees, designated floodways). (RDR) (New Policy)

PHS-2.8: Levee Setbacks for New Development. The County shall require adequate setbacks from flood control levees consistent with local, regional, State, and Federal design and management standards. (RDR) (New Policy)

PHS-2.9: Levee Trees. The County shall recognize the value of trees on levees for habitat and as carbon sinks and support U.S. Army Corps of Engineers efforts to review and revise its levee vegetation policy as required by the federal Water Resources Reform and Development Act. (PSP/IGC) (New Policy)

PHS-2.10: Dedication of Levee Footprint. The County shall require new development adjacent to an existing or planned levee to dedicate the levee footprint and necessary setback areas in a manner acceptable to the appropriate levee maintaining agency. (RDR) (New Policy)

PHS-2.11: Critical Facility Location. The County shall require new facilities essential for emergency preparedness and assembly, or the substantial improvement of such facilities, be protected, at a minimum, to the 500-year flood level. Additionally, the County shall require that these facilities are designed to ensure access during the occurrence of the 500-year flood. (RDR/PSP) (Source: Existing GP, Flood Hazards, Policy 4, modified)

PHS-2.12: Relocation Assistance. The County shall support efforts by Federal, State and local flood management agencies to provide cost-effective measures for reducing flood risk to existing economically disadvantaged communities located in non-urbanized areas, including relocation assistance. (IGC) (Source: New Policy, addresses SB 5)

PHS-2.13: Delta Emergency Flood Response. The County shall continue to work with the Sacramento-San Joaquin Delta Flood Response Group to coordinate emergency flood response efforts in the Delta. (IGC) (Source: New Policy)

PHS-2.14: Watercourse Encroachment Permit. The County shall continue to require a watercourse encroachment permit for any project that would potentially alter a watercourse. (RDR) (Source: New Policy, Background Report, Safety)

PHS-2.15: Floodplain Management Priorities. The County shall develop, maintain, and implement a floodplain management program in flood hazard areas that considers the regulation of land uses as an alternative to structural controls as a method of reducing flood damage. (PSP) (Source: New Policy, Background Report, Safety; Issues and Opportunities Report)

PHS-2.16: Floodwater Diversion. The County shall require new flood control projects or developments within areas subject to any flood event to be constructed in a manner that would not cause floodwaters to be diverted onto adjacent property or increase flood hazards to property downstream and/or upstream. (RDR) (Source: New Policy, Background Report, Safety)

PHS-2.17: Flood Risk Mitigation. The County shall not approve any new development in existing undeveloped areas (i.e., area devoted to agriculture or open space that is not designated for development) protected by a State flood control project without fully considering significant known flooding risks and requiring all reasonable and feasible conditions to mitigate the potential property damage to the new development resulting from a flood. Development in Federal, State, and/or local defined floodways shall be restricted in accordance with the County's Flood Management Ordinance and applicable State and Federal regulations. (RDR) (Source: New Policy)

PHS-2.18: Multi-Purpose Flood Control Projects. The County shall encourage multi-purpose flood control projects that incorporate recreation, resource conservation, and preservation of natural riparian habitat and scenic values of the County's waterways, creeks, and lakes, including:

- using natural drainageways and non-structural flood protection methods,
- minimizing alteration of waterways and their adjacent areas,
- conserving resources, and
- incorporating and preserving scenic values and recreation opportunities.

(Source: Existing GP, Flood Hazards, Policies 7 and 8, modified, and implementation 5, combined)

PHS-2.19: Climate Change Impacts to Flood Control Facilities. The County shall coordinate with local, regional, State, and Federal agencies to define existing and potential flood problem areas associated with expected impacts from climate change and develop strategies to improve and maintain flood control facilities accordingly. (IGC/PSR)(Source: New Policy)

PHS-2.20: Seismic Impacts to Flood Control Facilities. The County shall develop strategies to improve and maintain flood control facilities to withstand seismic and geologic impacts. (PSP) (Source: New Policy)

PHS-2.21: Establish Cooperative Working Relationships. The County shall continue cooperative working relationships with public agencies with responsibility for flood protection, including but not limited to the cities within San Joaquin County, USACE, CalEMA, DWR, FEMA, and the Central Valley Flood Protection Board. (IGC) (Source: New Policy)

PHS-2.22: Countywide Dam Failure and Flood Plans. The County shall maintain and implement the following plans for dam failure and flood evacuation:

- San Joaquin County Flood Evacuation Plan, and
- Dam Failure Plan.

(RDR/PSP) (Source: New Policy)

PHS-2.23: Inspection and Maintenance of Dams. The County shall support inspection and maintenance programs for dams protecting the County from flooding, such as the California Department of Water Resources Dam Safety Program. (PSP) (Source: Existing GP, Flood Hazards, Policy 9, modified)

PHS-2.24: Public Information Programs. The County shall continue to provide public information to inform the general public and potentially affected property owners about flood hazards, potential dam failure inundation, and evacuation plans. (PI) (Source: New Policy)

PHS-2.25: National Flood Insurance Program. The County shall continue to participate in the National Flood Insurance Program and the Community Rating System, including:

- maintaining at least the minimum National Flood Insurance Program requirements, and adopt more stringent standards to further promote sound flood plain management when appropriate;
- promoting the purchase of flood insurance;
- undertaking outreach campaigns to inform the public of the risk of flooding; and
- coordinating with Federal, State, and local agencies on efforts to enhance the effectiveness of the implementation of the National Flood Insurance Program.

(RDR/PSP/PI/IGC) (Source: Existing GP, Flood Hazards, Implementation 1, modified)

PHS-2.26: Flood Mapping Information Program. The County shall continue to provide the public with information related to Federal Emergency Management Agency floodplain and Flood Insurance Rate Maps. (PI) (Source: New Policy)

Relevant Implementation Programs

The following relevant implementing programs of the 2035 General Plan address hydrology and water quality.

IS -C: Sustainability Master Plan. The County shall prepare and adopt a Sustainability Master Plan that guides County efforts to incorporate sustainability strategies (e.g., energy efficiency, water conservation, waste reduction/recycling, purchasing preferences) into its facilities, operations, and activities. (PSP/SO) (Source: New Program)

IS -D: Required Water Supply Facilities. The County shall update the Development Title to specify requirements for water supply facilities for new development. (RDR) (Source: Existing GP, Infrastructure, Water Supply, Implementation 1, modified)

IS-G: Best Management Practices. The County shall prepare and adopt updated low-impact development (LID) standards and best management practices (BMPs) for new development projects as part of its stormwater management and grading ordinance. These standards and BMPs will ensure compliance with National Pollutant Discharge Elimination System (NPDES) Phase 1 and Phase 2 Municipal Separate Storm Sewer System programs (MS4). It will also encourage alternative storm water management systems, natural drainage systems and LID approaches to managing stormwater that improve water quality. (RDR) (Source: New Program)

PHS-A: Emergency Operations Plans and Hazard Mitigation Plans. The County shall review and update the following emergency operations and hazard mitigation plans every five years:

- Emergency Operations Plan,
- Mountain House Community Emergency Operations Plan,
- Multi-Hazard Functional Plan, and
- Local Hazard Mitigation Plan. (PSP) (Source: Existing GP, Emergency Preparedness, Implementation 1)

PHS-E: Climate Change Monitoring and Adaptation. The County shall develop and implement a program to monitor the impacts of climate change and uses adaptive management to develop new strategies and modify existing strategies to respond to the impacts of climate change. (PSP/PSR) (Source: New Policy)

PHS-G: Countywide Flood Evacuation Plan. The County shall review and update, as necessary, San Joaquin County Flood Evacuation Plans every five year. (PSP) (Source: New Program, addresses SB 5)

PHS-H: Floodplain Management Ordinance. The County shall review and update, as necessary, Special Flood Hazard Area provisions contained in the Development Title to ensure adequate protection for structures located within identified flood zones. (RDR/PSP) (Source: New Programs)

PHS-I: Floodplain Review. The County shall review, as necessary, those portions of the unincorporated area that are subject to flooding, based on mapping prepared by the Federal Emergency Management Agency and/or the Department of Water Resources (DWR), and amend the General Plan as appropriate to reflect any changes. (RDR) (Source: New Program)

NCR-D: Management of Water Resources. The County shall develop and maintain a single database of water use separated by major land use (i.e., agricultural and municipal) for the three geographical areas of Eastern San Joaquin, Tracy Region, and Delta. The database should be updated on an as-needed basis. (PSR) (Source: Existing GP, Water Resources and Quality, Implementation 2)

NCR-E: Semi-Annual Groundwater Report. The County shall prepare a semi-annual Groundwater Report to monitor groundwater levels and groundwater quality, particularly around landfills and other facilities that could contaminate groundwater. (PSR) (Source: Existing GP, Water Resources and Quality, Implementation 1(e), modified)

NCR-H: Water Conservation Ordinance. The County shall review and update, as necessary, the Water Conservation Ordinance to incorporate best management practices for conserving water. (RDR) (Source: New Program)

NCR-I: Water Conservation Education. The County shall work with water districts and public agencies in the County to establish and implement a water conservation education program to increase public awareness of efficiently conserving, using, reusing, and managing water resources and incentives to install conservation measures. (IGC/PI) (Source: Existing GP, Water Resources and Quality, Implementation 4, modified)

Impact Analysis

The following impact analysis focuses on impacts of the 2035 General Plan related to hydrology and water quality. When impacts of or to “development” are described; the term development includes both land use projects and infrastructure projects. The Appendix G CEQA criteria discussed below are not considered relevant to the 2035 General Plan based upon the existing conditions and the proposed land use plans; therefore, they will not be evaluated further in this EIR:

Seiche, Tsunami, or Mudflow: The County is located far enough inland that the threat of tsunami waves reaching the County is not likely. Seiche waves are typically formed in enclosed or semi-enclosed water bodies such as a lake or reservoir and triggered by unusual tides, winds or currents, or earthquake ground motions. No seiche waves have ever been recorded in San Joaquin County.

2035 General Plan Impacts

Impact 4.J-1: Project construction under the proposed 2035 General Plan could violate water quality standards or waste discharge requirements, or otherwise degrade water quality. (Less than Significant)

Construction

Construction and grading activities associated with development associated with the proposed 2035 General Plan could require temporary disturbance of underlying soils through excavation, soil stockpiling, boring, and/or grading activities that strip existing vegetation or pavement prior to commencing with construction of proposed improvements. These activities could result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment and contaminants in the runoff. Soil stockpiles and excavated areas could be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation and pollutants in stormwater. The potential for chemical releases is present at most construction sites given the types of materials used, including fuels, oils, paints, and solvents. Once released, these substances could be transported to the receiving waters in stormwater runoff, potentially reducing water quality.

Projects under the proposed 2035 General Plan that would disturb one acre or more would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), in accordance with the NPDES General Construction Permit, which would greatly diminish impacts because only very small projects would be exempt from this requirement. The SWPPP would include BMP erosion control measures such as those listed below, which are illustrative of typical local and state required measures:

- Limiting excavation and grading activities during the dry season only (April 15 to October 15), to the extent possible. This would reduce the chance of severe erosion from intense rainfall and surface runoff, as well as the potential for soil saturation in swale areas.
- If excavation does occur during the rainy season, stormwater runoff from the construction area can be regulated through a stormwater management/erosion control plan that may

include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material are generally covered and runoff diverted away from exposed soil material. Sediment basin/traps would be located and operated to minimize the amount of offsite sediment transport. Any trapped sediment would be removed from the basin or trap and placed at a suitable location on-site, away from concentrated flows, or removed to an approved disposal site.

- Temporary erosion control measures would be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into receiving waterways.
- After completion of grading, erosion protection would be provided on all exposed soils either by revegetation or placement of impervious surfaces. Revegetation would be facilitated by mulching, hydroseeding, or other methods and initiated as soon as possible after completion of grading and prior to the onset of the rainy season (by October 15).
- Permanent revegetation/landscaping would emphasize drought-tolerant perennial ground coverings, shrubs, and trees.
- BMPs selected and implemented for a future project would be in place and operational prior to the onset of major earthwork on the site. The construction phase facilities would be maintained regularly and cleared of accumulated sediment as necessary.
- Hazardous materials such as fuels and solvents used on the construction sites would be stored in covered containers and protected from rainfall, runoff, and vandalism. A stockpile of spill cleanup materials would be readily available at all construction sites. Employees shall be trained in spill prevention and cleanup, and individuals should be designated as responsible for prevention and cleanup activities.

Policies included as part of the proposed 2035 General Plan that would further minimize this impact include Policies NCR-3.4, NCR-3.9, and NCR-3.10 which require efforts to eliminate sources of water quality pollution and reduce erosion to protect waterways in accordance with city, state, and federal policies. With implementation of these policies and existing regulatory requirements (e.g., NPDES General Construction Permit), this impact is considered less-than-significant related to construction activities.

Operation

Implementation of the proposed 2035 General Plan could increase development with a variety of land uses that would likely result in incremental increases in the amount of impervious surfaces, generating additional stormwater pollution in runoff during storm events. The introduction of new paved areas, building rooftops, parking lots etc., could present the potential for accumulation and release of petroleum hydrocarbons, lubricants, sediments, and metals (generated by the wear of automobile parts), which, if not managed appropriately, could violate water quality standards. The management of landscaped areas would also present the potential for runoff and/or infiltration of herbicides and pesticides. These types of common urban pollutants could be transported in runoff, adversely affecting the quality of waters of receiving surface waters or groundwater. Nonpoint source pollutants would be washed by rainwater from rooftops and landscaped areas into onsite and local drainage networks. Nonpoint source pollutants include products used in landscaping (e.g.,

pesticides, herbicides and fertilizers); oil, grease, and heavy metals from automobiles; and petroleum hydrocarbons from fuels.

Pollutant concentrations in runoff from a site depend on numerous factors, including:

- Land use conditions;
- Implementation of best management practices (BMPs);
- Site drainage conditions;
- Intensity and duration of rainfall; and
- Climatic conditions preceding a rainfall event.

The construction and use of new individual or community septic systems would occur throughout the county subsequent to the General Plan. Septic systems and their associated leach fields can be a source of groundwater contamination if not designed and constructed appropriately. Depending on site specific characteristics, such as proximity to surface water and groundwater resources, soil type, and slope, septic systems could be restricted in certain parts of the county. Determination of site suitability for septic systems would be analyzed on a case by case basis consistent with current Central Valley Regional Water Quality Control Board and County requirements. Newer septic system designs and implementation of current standards can be effective in limiting the potential for causing adverse water quality impacts to underlying groundwater resources. See also Impact 4.N-1 for further discussion of why septic systems for new development would not cause significant water quality impacts.

In general, existing local stormwater management plans and policies, and State Water Board requirements, which implement federal Clean Water Act requirements, would prevent stormwater impacts from rising to a level of significance. Clean Water Act Section 402 NPDES MS4 Phase II permit requires stormwater management plans, which in turn require both construction and post construction source and treatment control measures. In many cases, as part of NPDES permits (or any additional local requirements) to reduce the severity of impacts, stormwater drainage control/Low Impact Design (LID) design measures could be included in project designs in order to comply with General Permit Number CAS000004, Water Quality Order No. 2003-0005-DWQ and the County's Stormwater Management Program (SWMP).

The SWMP is designed to limit, to the maximum extent practicable, any discharge of pollutants to receiving waters, through measures which can include incorporation of LID strategies, such as stormwater reuse, onsite infiltration, pervious paving, and evapotranspiration. The treatment measures may vary from "local" improvements at individual building sites to "area wide" concepts such as stormwater treatment wetlands with large open space areas. Treatment control measures may include use of vegetated swales and buffers, grass median strips, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. Filtration systems may be either mechanical (e.g., oil/water separators) or natural (e.g., bioswales and settlement ponds). Redevelopment projects may even result in improved water quality compared to existing conditions where existing development was constructed under older less stringent stormwater

requirements. Selection and implementation of these measures would occur on a project-by-project basis depending on project size and stormwater treatment needs as required to meet NPDES or any other local permitting requirements.

Similarly, industrial land uses must adhere to the Industrial NPDES permit requirements which contain measures to protect water quality of stormwater runoff and operational discharges to a standard of best available technology. Land use changes from agricultural to industrial could potentially provide some benefits through providing a more controlled drainage and treatment system as opposed to the overland flow regime associated with agricultural overland flow (nonpoint source) that can carry various pollutants. Agricultural nonpoint source (NPS) pollution is the leading source of water quality impacts on surveyed rivers and lakes, the second largest source of impairments to wetlands, and a major contributor to contamination of surveyed estuaries and groundwater (EPA, 2014). Agricultural activities that cause NPS pollution include poorly located or managed animal feeding operations; overgrazing; plowing too often or at the wrong time; and improper, excessive, or poorly timed application of pesticides, irrigation water, and fertilizer (EPA, 2014). Pollutants that result from farming and ranching include sediment, nutrients, pathogens, pesticides, metals, and salts.

The General Industrial Permit requires the development of a SWPPP and a monitoring plan to ensure the effectiveness of BMPs. Through the SWPPP, sources of pollutants are identified and the means to manage the sources to reduce storm water pollution are described through BMPs.

Policies and implementation measures included as part of the proposed Plan that would minimize this impact include NCR-3.4, NCR-3.5, NCR-3.6, NCR-3.7, NCR-3.9, NCR-3.10, and Implementation program IS-H. These policies would require measures to eliminate sources of pollution (NCR-3.4), continued compliance with water quality standards (NCR-3.10) and implementation of LID design measures (NDR-3.5) which minimize offsite flows and promote onsite infiltration of stormwater runoff. Other policies reduce water quality impacts by prohibiting discharge of sewage sludge (NCR-3.6), regulating septic tank systems to protect water quality of groundwater resources (NCR-3.7), and incorporate safeguards for fish and wildlife (NCR-3.9) which would include protection of water quality. Implementation program IS-H requires the implementation of BMPs that would include LID measures that have proven effective in controlling stormwater quality. Therefore, implementing the 2035 General Plan policies and existing regulatory requirements would result in less than significant water quality impacts.

Mitigation: None required.

Impact 4.J-2: Development under the proposed 2035 General Plan could deplete groundwater supplies or interfere substantially with recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater level. (Less than Significant)

Water supply in San Joaquin County is provided through multiple agencies and water projects, including federal, regional, and local water districts, special districts, and private systems. While all

cities and most unincorporated areas in the county receive water through delivery systems operated and maintained by irrigation districts, water districts, and water conservation districts, some communities rely on groundwater from private wells. Implementation of the proposed 2035 General Plan could result in an increased demand on groundwater supplies for urban, rural, and agricultural uses within the county. Measurements over the past 40 years show a fairly continuous decline in groundwater levels in Eastern San Joaquin County whereas groundwater levels in the Tracy subbasin located to the west have been relatively stable (DWR, 2006). Due to the continued overdraft of groundwater within the Eastern San Joaquin subbasin, significant groundwater depressions are present below the City of Stockton, east of Stockton, and east of Lodi (DWR, 2006). Some land use changes proposed as part of the General Plan such as conversion of agricultural lands to other uses may result in reduced water supply demands. Regardless, future water supply demands would be conducted in accordance with the San Joaquin County Groundwater Banking Authority's Eastern San Joaquin Integrated Regional Water Management Plan (IRWMP).

In addition to the integrated efforts of the IRWMP to manage the County's groundwater resources, several policies of the 2035 General Plan would strive to improve groundwater management practices through preserving groundwater recharge areas (NCR-3.1), promotion of development of artificial recharge projects (NCR-3.2), coordinated monitoring efforts by multiple agencies (NCR-3.3) to reduce groundwater overdraft, LID development design measures (NCR-3.5), and a focus on maintaining sufficient river flows which can also provide groundwater recharge to underlying aquifers (NCR-3.8). Impacts associated with continued use and increased dependence upon groundwater are also discussed in Section 4.N, *Utilities and Service Systems*.

Many of the implementation programs address management of groundwater resources including IS-C which calls for water conservation measures towards a goal of sustainability, IS-D which requires new development to identify adequate water supply sources, PHS-N which requires coordination with DWR on groundwater management, NCR-D which places a commitment to water resource management, and NCR-E which would produce a comprehensive groundwater report to identify issue areas and means to address them.

Development associated with the 2035 General Plan could also result in an increase of impervious surfaces which reduces the amount of stormwater runoff available to infiltrate onsite and recharge groundwater supplies. The policies mentioned above would preserve groundwater recharge areas (NCR-3.1), encourage the construction of additional recharge areas (NCR-3.2) while also requiring new development to include LID design measures (NCR-3.5). LID measures are also required to meet MS4 NPDES permit requirements. Therefore, with implementation of these policies and implementation programs along with existing regulatory requirements and integrated groundwater management plans, the impact to underlying aquifers and groundwater levels would be less than significant.

Mitigation: None required.

Impact 4.J-3: Development under the proposed 2035 General Plan could substantially alter the existing drainage pattern of the area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding. (Less than Significant)

As discussed above, development associated with the proposed 2035 General Plan would include increased development which would alter existing drainage patterns largely through increases in the amount of impervious surfaces. The introduction of new paved areas, building rooftops, parking lots etc., could result in increased erosion of receiving waters and stormwater runoff volumes if not designed appropriately. Increased runoff volumes and speeds may increase urban runoff to local rivers and other water bodies, which can lead to erosion or siltation in downstream waterways and result in localized nuisance flooding in areas without adequate drainage facilities.

However, in general, existing local stormwater management plans and policies such as the County's Stormwater Management Program (SWMP) and State Water Board requirements including those in the NPDES MS4 permit, include measures to address changes to drainage patterns. The SWMP is designed to limit, to the maximum extent practicable, any discharge of pollutants to receiving waters, through measures which also limit the discharge of stormwater flows through strategies including stormwater reuse, onsite infiltration, pervious paving, and evapotranspiration. Redevelopment projects may even result in reduced stormwater volumes through a net decrease in impervious surfaces with implementation of these required design measures. LID strategies are also required through Policy NCR-3.5 which addresses reduction in stormwater quality impacts as well as reduction in runoff volumes. In addition, Policies PHS-2.3 and PHS-2.15 minimize flooding impacts through ensuring flood protection for new development and implementation of flood control measures. Policy PHS-2.14 would require an encroachment permit for any project that would alter a watercourse.

Adherence to these regulatory requirements for new development and redevelopment projects, in combination with the flood management policies, would reduce impacts from alterations in drainage patterns to less than significant.

Mitigation: None required.

Impact 4.J-4: Development under the proposed 2035 General Plan could create or contribute runoff water which would exceed the capacity of existing stormwater drainage systems. (Less than Significant)

Any development associated with the 2035 General Plan that substantively increases the amount of impervious surfaces could increase the amount of runoff volumes such that the capacity of existing stormwater infrastructure is exceeded. As discussed above, stormwater drainage requirements at the local, regional and state level are designed to address both water quality and water quantity so that new development does not create or exacerbate any potential flooding issues that may be present in

receiving waters. Stormwater detention is considered the most viable option for mitigating the increase in runoff from new development areas, with the specific types and locations of these drainage facilities to be determined at the time development applications are submitted. Stormwater collection systems are primarily located within developed urban areas, including cities and unincorporated communities. New development is often required to develop on-site stormwater retention facilities in order to minimize its impacts to the existing stormwater collection system capacity. For example, LID requirements under the MS4 NPDES permit would include measures to encourage onsite infiltration that would minimize offsite discharge volumes. In addition, local drainage requirements typically require that if proposed development is going to increase flow that developers may be required to fund improvements to existing drainage systems in order to receive the anticipated high flows during large storm events.

Policies and Implementation Programs such as NCR-3.1, NCR-3.2, and Program IS-G would help maintain existing groundwater recharge areas and encourage development of additional areas that would provide some limitations on creating additional sources of impervious surfaces. The requirements for new development under Policy NCR-3.5 would include LID measures that reduce the amount of runoff and provide source controls that can detain runoff during large storm events allowing for discharge following peak events. Also, Policy PHS-2.16 would require projects in flood hazard areas to be constructed in a manner that does not increase flood hazards to properties downstream. These measures reduce the amount of any additional flows such that the capacity of existing infrastructure is not exceeded. Therefore, with adherence to local, regional, and state regulatory requirements for drainage improvements along with the aforementioned policies and Implementation Program, the impact from creation of new impervious surfaces would be less than significant.

Mitigation: None required.

Impact 4.J-5: Development under the proposed 2035 General Plan could place housing and other structures in an area subject to 100-year flooding. (Less than Significant)

Areas throughout the county, especially in the low lying areas of the Delta, are located within or near 100-year floodplains (see **Figure 4.J-4**). Many areas are currently protected from the flood zone areas through the levee system which can be susceptible to failure (see also discussion in Section 4.I, *Geology, Soils, and Seismicity*). Development of the designated growth areas under the proposed 2035 General Plan could expose more people and habitable structures to potential flooding if development occurs within or adjacent to these floodplain areas. The proposed land use changes under the 2035 General Plan would include 1,503 acres of the total 3,076 acres within the 100-year flood zone as identified by FEMA (see **Figure 4.J-4**). Under future climate change conditions, it is also possible that flooding could increase in frequency or in geographic areas exposed to flood hazards that were not previously within a floodplain area. Increased amounts of the snowpack may melt under future climate change conditions further contributing to increased flood flows. Analysis of flood hazards would occur on a case by case basis for future individual projects to determine site specific flooding impacts.

As described above under *Regulatory Setting*, newer state requirements under FloodSAFE in accordance with 2007 flood legislation (e.g., SB 5 and SB 162) require protection against the 200-year flood event. The 200-year flood is defined as the flood event that has a 0.5 percent chance of occurring in any given year. Like the 100-year floodplain which has a 1 percent chance of occurring in any given year, it is important to note that the delineation of areas within the 200-year floodplain zone represents a statistical probability for the long-term average occurrence of flooding. Actually, flooding can occur in a 200-year floodplain more or less frequently than once every two hundred years. Smaller floods (i.e., a 100-year event) have an even greater chance of occurring in any year and pose hazards as well.

Policies included as part of the proposed Plan are consistent with FloodSAFE, the 2007 flood legislation and the 2012 Central Valley Flood Protection Plan (CVPP) which require protection from a 200-year flood. Specific policies include: PHS-2.1 which restricts uses in designated floodways; PHS-2.2 which ensures the primary function of levees is to provide flood protection; PHS-2.3 which requires that levees provide urban areas with 100-year level flood protection; PHS-2.4 which requires that the County update the Land Use Element to reflect current floodplain mapping data; PHS-2.5 which requires the County to evaluate flood hazards prior to approval of development; PHS-2.6 requires new development located with a special (100-year) flood hazard area to be designed to minimize potential flood damage; and, PHS-2.11 which goes further to require that critical facilities are protected at a minimum from the 500-year flood. Other policies would help to improve flood protection and response for existing improvements including PHS-2.13 (Delta Emergency Flood Response), PHS-2.14 (Floodway Encroachment Permit), PHS-2.15 (Floodplain Management Priorities), PHS-2.16 (Floodwater Diversion), PHS-2.17 (Flood Risk Mitigation), PHS-2.18 (Multi-Purpose Flood Control Projects), and PHS-2.25 (National Flood Insurance Program).

Changes to flood zone areas from future climate change would be addressed through Policy PHS-2.19 (Climate Change Impacts to Flood Control Facilities). Increased flood protection through protection of levees would be accomplished through PHS-2.7 (Levee and Floodway Encroachment Permit), PHS-2.8 (Levee Setbacks for New Development), PHS-2.9 (Levee Trees), and PHS-2.10 (Dedication of Levee Footprint) (see also discussion below). With implementation of these policies, this impact is considered less than significant.

Mitigation: None required.

Impact 4.J-6: Development under the proposed 2035 General Plan would potentially be subjected to flooding as a result of failure of a dam or levee. (Less than Significant)

As identified in Table 4.J-3, there are a total of 15 dams with inundation areas that could affect the county in the event of catastrophic failure. The Delta area also includes a vast system of levees that provide flood protection for a substantial area that could be flooded in the event of failure.

As noted above, the Camanche Dam on the Mokelumne River has the potential to flood a large area of the county affecting a large population in a relatively short amount of time (approximately one-half hour). The Farmington Dam, while only having the potential to inundate a small area, would require the most rapid response, due to its location. Large inundation areas would also result from failure of some of the major regional dams (e.g., New Melones, New Hogan, San Luis or New Exchequer), with greater effects on Delta island levees, but longer lead times prior to arrival of the flood. Responsibility for the safety of non-federal dams and reservoirs falls under the jurisdiction of the California Department of Water Resources (DWR) Division of Safety of Dams (DSOD). DSOD sets performance standards and regulates existing dams through annual inspections. DSOD's engineers and engineering geologists provide multiple critical reviews of dams as well as the enlargement and alteration of existing dams in order to ensure adherence to DSOD's stringent performance standards. Detailed DSOD standards address site geology, seismic setting, site geotechnical investigations, laboratory testing, proposed construction materials, seismic analyses, and design of the dam. Adherence to DSOD requirements, which can include seismic upgrades in cases where seismic vulnerability is identified, minimizes the potential for catastrophic failure. In addition, Policies PHS-2.20, PHS-2.22 and PHS-2.23 of the 2035 General Plan require the County to maintain dams to withstand seismic and geologic impacts; maintain and implement dam failure plans (i.e., San Joaquin County Flood Evacuation Plan and Dam Failure Plan), as well as support inspection and maintenance programs for dams. With adherence to DSOD requirements and the aforementioned policies, the flooding impact from failure of a dam would be reduced to a less than significant level.

Levees typically fail in one of two ways: (1) overtopping of the levee during peak flows or (2) structural failure. Structural failure can occur as a result of a variety of factors including seismic activity (see also discussion under Impact 4I.3 in Geology section), erosion, damage from vegetation and rodents. As noted above in the Regulatory Setting section, FEMA has added new levee certification requirements including submittals of as-builts, protection documentation, stability and drainage analyses, and operation and maintenance manuals in order to qualify for the National Flood Insurance Program (NFIP). Only areas behind FEMA-certified levees qualify as protected from flooding; otherwise the levee is considered non-existent and the entire area prone to flooding. Policy PHS-2.25 would continue participation in the NFIP which would encourage levee certification throughout the county. Policies PHS-2.2 would encourage that levees provide flood protection and that levees currently protecting urban areas provide a minimum of 200-year flood protection. Policy PHS-2.7 provides increased flood protection through requiring an encroachment permit from the Central Valley Flood Protection Board for any project within their jurisdiction. Policy PHS-2.8 requires an adequate setback from levees and Policy PHS-2.9 provides a vegetation policy that values the importance of trees on levees. Policy PHS-2.10 requires new development adjacent to a levee to dedicate the levee footprint in fee to the appropriate public agency. Policy PHS-2.11 provides even higher protection (500-year) for critical facility locations, and Policy PHS-2.12 requires that mitigation of known flood risks including those that might arise from a levee occurs prior to approval of any new development. These policies and implementation measure, combined with the aforementioned policies and regulatory requirements, would reduce the flooding impact from failure of a dam or levee to be less than significant.

Mitigation: None required.

Cumulative Impacts

Hydrology and Water Quality

Impact 4.J-7: Increased construction activity and new development under the proposed 2035 General Plan, in conjunction with past, present, and reasonably foreseeable probable future projects, could cause significant cumulative impacts on hydrology and water quality. (Less than Significant)

Implementation of the proposed 2035 General Plan, together with past present and other reasonably foreseeable future projects within watersheds of the region could cumulatively increase stormwater runoff and pollutant loading to receiving waters. Projects associated with the 2035 General Plan and other future projects in the region would be required to comply with drainage and grading requirements intended to control runoff and regulate water quality at each development site. Additionally, other past, present and future projects along with implementation of the proposed 2035 General Plan are required to adhere to regional and state programs including the NPDES requirements, flood regulations SB 5 and SB 162, the Integrated Regional Water Management Plan, FloodSafe, Central Valley Flood Protection Program, Delta LURMP, San Joaquin SWMP, which by the nature of their purposes and objectives are to protect water resources and residents through a cumulative regional approach. New development projects would also be required to comply with MS4 NPDES permitting requirements or other local drainage control requirements that address both water quality and quantity issues. Other programs such as the Bay Delta Conservation Plan would include conjunctive water use and diversions of high quality surface waters which are intended to improve water quality of interior Delta regions by helping to reduce saltwater intrusion.

Implementation of the proposed 2035 General Plan, together with past present and other reasonably foreseeable future projects in the vicinity, could expose people and/or property to flooding from a 100-year event and sea level rise. These effects could occur through increases in stormwater runoff and during high tides in a 100-year storm event along with sea level rise. The proposed project and other future projects in the vicinity would be required to comply with flood control requirements intended to provide flood protection. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. New development projects would be required to comply with local flood control requirements and adaptive management strategies for rising future sea levels. Therefore, the 2035 General Plan, in combination with other cumulative projects, would not result in significant cumulative impacts to people and/or property from a 100-year event in combination with sea level rise.

Mitigation: None required.

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K. Hazards and Hazardous Materials

K.1 Introduction

This section analyzes issues related to the existence of hazardous materials as related to new development associated with the approval of the 2035 General Plan. An overview of existing conditions, as determined by data gathered in 2013, as well as the regulatory setting that is applicable to human health and safety or to the environment regarding hazardous materials in the county is provided. Probable impacts from implementation of the 2035 General Plan and appropriate mitigation measures are identified.

K.2 Environmental Setting

Definitions

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

The California Code of Regulations (CCR) defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either: (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10).

Hazardous wastes are defined in the same manner. Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. Hazardous materials and hazardous wastes are classified according to four properties: toxicity, ignitability, corrosivity, and reactivity (CCR, Title 22, Chapter 11, Article 3), which are defined in the CCR, Title 22, Sections 66261.20-66261.24.

Potential Receptors/Exposure

The sensitivity of potential receptors in the areas of known or potential hazardous materials contamination is dependent on several factors, the primary factor being an individual's potential pathway for exposure. Exposure pathways include external exposure, inhalation, and ingestion of tainted air, water, or food. The magnitude, frequency, and duration of human exposure can cause a variety of health affects ranging from short term acute symptoms or long term chronic affects. Potential health effects from exposure can be evaluated in a health risk assessment. The principle elements of exposure assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site;
- Identification of potential exposure pathways;
- Identification of potential exposure scenarios;
- Calculation of representative chemical concentrations; and
- Estimation of potential chemical uptake.

Hazardous Building Materials Associated with Demolition

Many buildings and structures within the county are of an age where the potential exists for the presence of hazardous building materials. Older buildings can contain building materials that consist of hazardous components such as lead-based paint, asbestos, mercury and polychlorinated biphenyls (PCBs). When these buildings or structures are demolished for the purpose of renovation or new development, these hazardous building materials can become exposed.

Prior to the United States Environmental Protection Agency (EPA) ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings. Old peeling paint has been found to contaminate near surface soil and exposure to residual lead has resulted in illness in children.

Asbestos is a naturally occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction before such uses were banned by the EPA in the 1970s. Asbestos can lead to lung disease by inhaling its tiny fibers.

Spent fluorescent light tubes commonly contain mercury vapors. In February 2004, regulations took effect in California that classified all fluorescent lamps and tubes as a hazardous waste. When these lamps or tubes are broken, mercury is released to the environment. Mercury can also be absorbed through the lungs into the bloodstream and can be washed by rain water into waterways.

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970's, the EPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit. Additional information about these materials is provided in the Regulatory Setting Section below.

Naturally-Occurring Asbestos

Asbestos is a naturally-occurring mineral that can be hazardous to human health if the asbestos fibers become airborne once disturbed. Due to their small size, airborne asbestos particles are easily inhaled. Naturally-Occurring Asbestos (NOA) exposure can occur from disturbances of dust on unpaved roads, new construction, grading, and surface mining activities where NOA minerals are found. Inhaled fibers can become lodged in the lung or go to other parts of the body. Asbestos can cause disease in the lung from the fibers causing local inflammation and disrupting cell division. Some of the diseases associated with asbestos exposure include lung cancer, mesothelioma, and asbestosis.

In California, NOA minerals are most commonly associated with ultramafic rocks and along associated faults.¹ Based on mapping compiled by the California Department of Mines and Geology (CDMG), Guide for Ultramafic Rocks in California-Areas More Likely to Contain Naturally Occurring Asbestos (NOA) Map, ultramafic rocks have not been identified in San Joaquin County (CGS, 2000). Areas likely to contain asbestos have been identified within the Sierra Foothills and Coastal Ranges including: Alameda, Stanislaus, Calaveras, Tuolumne, and Amador Counties. As a result, the likelihood for NOA to be present within alluvial deposits in the county is low.

Current and Historical Hazardous Materials Uses

Hazardous materials are used throughout the county for industrial, commercial, and residential purposes, which are regulated by a multiple of agencies at the federal, state, and local government levels. These regulations are intended to protect both the environment and public health and safety from improper use, handling, storage, and transport of hazardous materials and hazardous waste. For example, the U.S. Department of Transportation (DOT) regulates transportation of hazardous materials which is overseen at the state level by the California Department of Transportation (Caltrans). The Central Valley Regional Water Quality Control Board has jurisdiction over water quality issues, including groundwater contamination from historical releases of hazardous materials, while the San Joaquin County Environmental Health Department (SJCEHD) oversees and enforces state laws and regulations governing hazardous materials storage under the Hazardous Materials Business Plan program, extremely and acutely hazardous materials under the California Accidental Release Prevention (CalARP) program, hazardous waste generators, hazardous waste treatment, and hazardous substance storage in underground storage tanks (USTs). The SJCEHD also inspects aboveground petroleum storage tanks (ASTs) for compliance with the Spill Prevention Countermeasures and Control Program (SPCC).

Contaminated Sites

During earlier periods of history, environmental regulations were not as stringent as they are today. In the past, there often were releases of hazardous materials into the environment, and in some cases, these hazardous materials can still be present in surface waters, sediments, subsurface soils and groundwater. Construction methods of underground storage tanks have also evolved over time where older single-walled steel underground fuel storage tanks have resulted in releases of petroleum hydrocarbons to the subsurface.

Underground storage tanks (UST) are commonly used for fuel storage and have been for many years. UST design changed over the years after it was discovered that single walled steel tanks can be relatively easily compromised causing a release of petroleum hydrocarbons to the subsurface which can contaminate soil and groundwater. Current UST design typically contains engineering controls such as fiberglass construction which resists corrosion or cathodically-protected steel, double walled construction, and active monitoring controls which reduce the potential for inadvertent releases to the environment.

¹ Ultramafic rocks are defined as igneous rocks which are primarily composed of dark-colored minerals.

A regulatory database search of existing sites within the county was conducted for the purpose of this analysis (State Water Resources Control Board [SWRCB], 2013, Department of Toxic Substances Control [DTSC], 2013, and EPA, 2013, see **Appendix H**). The database search involved a search of the SWRCB (GeoTracker), DTSC (EnviroStor), and EPA (Superfund Site Information) environmental databases for sites with documented use, storage, or release of hazardous materials or petroleum products. The databases identified sites that have had reported releases of hazardous materials or waste including active contaminated sites that are currently under assessment and/or remediation. Some of the sites found on these databases include facilities or sites that are closed cases because the contamination levels were found to be below regulatory thresholds requiring remediation, or remediation has satisfied the regulatory agency overseeing the effort.

Geotracker Database Sites

The GeoTracker database includes sites found on the Spills, Leaks, Investigations, and Cleanups (SLIC) program as well as the Leaking Underground Storage Tank (LUST) program, both of which are overseen by the Regional Water Quality Control Board (RWQCB). The database search results indicated a total of 1,427 records for the entire county; however of these, 831 site cases have been closed or require no further action based on investigation results (SWRCB, 2013). In addition, 189 of the 1,427 records are sites with permitted USTs that do not necessarily have any releases associated with them. The remaining sites are in varying stages of investigation and/or cleanup.

Envirostor Database Sites

The Envirostor database includes sites that are overseen by the DTSC and typically involve non-petroleum related releases of hazardous materials or waste. The database search showed a total of 317 records for the county of which 105 had a status listed as closed or no further action required (DTSC, 2013). The remaining sites are in varying stages of investigation and cleanup and include sites under the voluntary cleanup, school investigation, military evaluation, tiered permit, and state response programs.

Federal Superfund Sites

The Federal Superfund program is an environmental program established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to clean up abandoned hazardous waste sites. The fund was created to pay for the clean-up of abandoned toxic waste sites. Within the county, there are a total of 22 Federal Superfund sites listed in the EPA's database; however, only four of them are considered active (EPA, 2013). These active sites include the Department of Defense Sharpe Army Depot (located south of French Camp and northwest of Manteca), McCormick and Baxter Creosoting Co. in Stockton, Lawrence Livermore Labs in Tracy, and the Tracy Defense Depot.

Airports

Public-Use Airports

There are six public-use airports located in San Joaquin County including: Stockton Metropolitan, Tracy Municipal, Kingdon, Lodi (Precissi), Lodi (Lind's), and New Jerusalem. Federal, state and

local regulations and guidance addressing safety compatibility concerns are provided for public-use airports as well as military facilities. Although the San Joaquin County Airport Land Use Commission provides recommended safety compatibility criteria and maps for these six airports in its compatibility plan, implementation of these compatibility measures is the responsibility of the County. In addition, the Byron Airport located in Contra Costa County has a land use plan that extends partially into San Joaquin County.

The Airport Land Use Commission (ALUC) was established to ensure that there are no direct conflicts with land uses, noise, or other issues that would impact the functionality and safety of airport operations. One of the key functions of the ALUC is to review cities' and counties' general plans and zoning ordinances for consistency with the Comprehensive Airport Land Use Plans (CALUPs), which contain noise contours, restrictions for types of construction and building heights in navigable air space, as well as requirements impacting the establishment or construction of sensitive uses within close proximity to airports.

Private-Use Airports

There are seven known private-use airports and heliports located throughout unincorporated San Joaquin County. These facilities range from hospital heliports to small agricultural airstrips on private farms. Unlike public-use airports, certain types of private-use facilities (e.g., agricultural and personal-use airports in unincorporated areas) do not need operating permits from the California Department of Transportation. Few safety compatibility guidelines and standards exist for these types of facilities and safety compatibility concerns are addressed primarily through the County's permit process.

Wildland Fire Hazards

Wildland fires are an annual hazard in the county where natural vegetation on undeveloped lands including rangeland, brush, and grass is considered at risk. Long, hot, and dry summers with temperatures often exceeding 100°F add to the area's fire hazard. Human activities such as smoking, debris burning, campfires and equipment operation are the major causes of wildland fires. Lightning causes the remaining wildland fires.

In developed areas, wildland fires are also difficult to control. Although adequate firefighting equipment and personnel may be available, residential areas require the use of firefighting techniques unlike those used in rural areas. Structural fires are extinguished with large amounts of water, whereas wildland fires are controlled by containing the blaze and allowing the flames to die out. To protect vulnerable buildings from wildland fires, firefighting resources are often spent protecting the structures rather than controlling the fire. This frequently results in larger, more costly wildland fires with greater destructive potential.

Fire potential for wildlands is based on three major factors: fuels, terrain, and weather. Public Resources Code sections 4201-4204 direct the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazards within State Responsibility Areas (SRA). These statutes were passed after significant wildland-urban interface fires occurred. Areas of fire hazard

in SRAs are described according to their potential for causing ignitions to buildings. The hazard zones referred to as Fire Hazard Severity Zones (FHSZ), provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildland fires. The threat classes are divided into three categories: Moderate, High, and Very High (CAL FIRE, 2007).

Moderate to high hazard areas for wildland fires are located in the northeast and southwest corners of the county (**Figure 4.K-1**) where wide open, dry, grass-covered areas are found in the foothills. In addition, there is a very small area of very high hazard located at the very southwestern tip of the county. When temperature, moisture and wind conditions indicate an increasing risk, the County increases its operational readiness level to Multiple Agency Coordinating System (MACS Mode). The degree of hazard in these areas depends on temperature, moisture, wind, amount of vegetation, slope steepness, accessibility to human activities, and accessibility of firefighting equipment.

As a general rule, wildland fire hazards do not preclude development, but they do require development to meet special standards corresponding with each degree of risk. San Joaquin County and the California Division of Forestry have prepared fire safety standards for subdivisions in wildland hazard areas. This includes standards as listed in the California Building Code Chapter 7A–Wildland-Urban Interface (WUI) Fire Conformance Checklist. The WUI Fire Area Building Standards establish minimum standards for materials and material assemblies and provide a reasonable level of exterior wildfire exposure protection for buildings in WUI Fire Areas. These development standards address access, road widths, bridges, building construction, vegetation clearing, and hydrant and water systems.

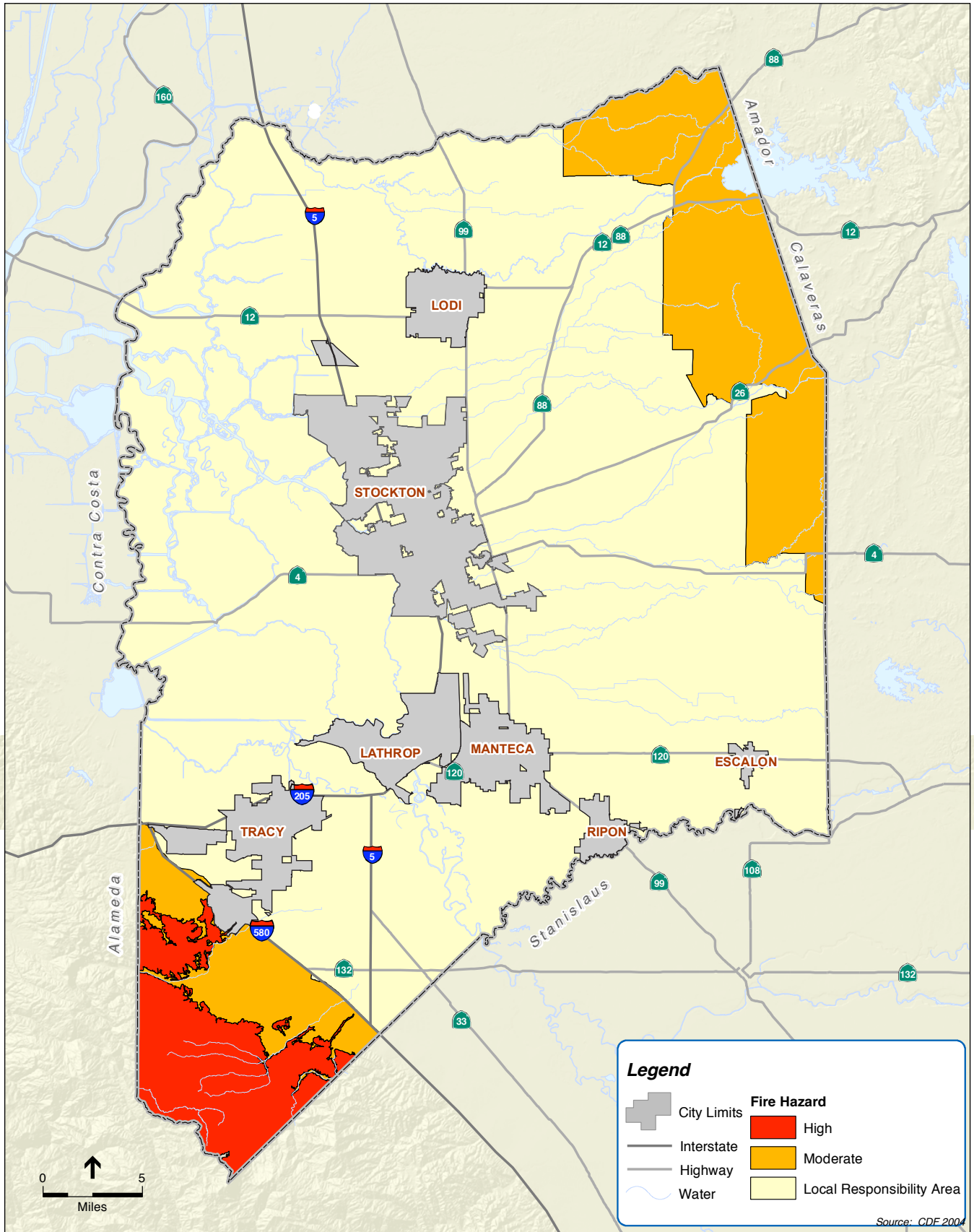
K.3 Regulatory Setting

Federal

The Environmental Protection agency (EPA) is the primary federal agency 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 the Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. EPA also provides oversight and supervision of Federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards. Management of hazardous materials is governed by the following laws:

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA (commonly known as Superfund) established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. Under CERCLA, EPA has the authority to hold



SOURCE: CDF 2004

San Joaquin County 2035 General Plan . 209529

Figure 4.K-1
Fire Hazard Areas

parties responsible for releases of hazardous substances and require their cooperation in site remediation. Superfund Amendments and Reauthorization Act (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 Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database, which contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities across the nation.

CERCLA was amended in 1986 under the Superfund Amendments and Reauthorization Act (SARA) which emphasized the importance of permanent remedies and innovative treatment technologies to clean up hazardous waste sites. SARA also required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations; provided new enforcement authorities and settlement tools; increased involvement of the states in every phase of the Superfund program; increased the focus on human health problems posed by hazardous waste sites; encouraged greater citizen participation in making decisions on how sites should be cleaned up; and increased the size of the trust fund.

Resource Conservation and Recovery Act (RCRA)

Hazardous wastes, although included in the definition of hazardous materials and hazardous substances, are regulated separately under the Resource Conservation and Recovery Act (RCRA) that was initially adopted in 1976. A waste can legally be considered hazardous if it is classified as ignitable, corrosive, reactive, toxic, or if it is a "listed" waste by the EPA. 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. 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").

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

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 to study the consequences of pesticide usage and require users (e.g., farmers, utility companies) 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, will not cause unreasonable harm to the environment.

Toxic Substances Control Act of 1976

The Toxic Substances Control Act of 1976 (15 USC 2605) banned the manufacturing, processing, distribution, and use of Polychlorinated Biphenyl (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 (OSHA)

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).

Hazardous Waste Operations and Emergency Response (HAZWOPER)

HAZWOPER requirements include federal regulations that involve procedures for clean-up operations required by a governmental body, whether Federal, state local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites. This includes the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and other initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained. A person who is engaged in work with any potential for exposure to hazardous substances would need to comply with HAZWOPER regulations.

Hazardous Materials Transportation Act

The transportation of hazardous materials is regulated by the Hazardous Materials Transportation Act (HMTA), which is administered by the Research and Special Programs Administration (RSPA) of United States Department of Transportation (USDOT). HMTA provides USDOT with a broad mandate to regulate the transport of hazardous materials, with the purpose of adequately protecting the nation against risk to life and property, which is inherent in the commercial transportation of hazardous materials. The HMTA governs the safe transportation of hazardous materials by all modes, excluding bulk transportation by water. RSPA carries out these responsibilities by prescribing regulations and managing a user-funded grant program for planning and training grants for states and Indian tribes. USDOT regulations that govern the transportation of hazardous materials are applicable to any person who transports, ships, causes to be transported or shipped, or who is involved in any way with the manufacture or testing of hazardous materials packaging or containers. USDOT regulations pertaining to the actual

movement govern every aspect of the movement, including packaging, handling, labeling, marking, placarding, operational standards, and highway routing. Additionally, USDOT is responsible for developing curriculum to train for emergency response, and administers grants to states and Indian tribes for ensuring the proper training of emergency responders. HMTA was enacted in 1975 and was amended and reauthorized in 1990, 1994, and 2005.

Federal Aviation Administration

The Federal Aviation Administration's (FAA's) primary role is to promote aviation safety and control the use of airspace. Public use airports that are subject to the FAA's grant assurances must comply with specific FAA design criteria, standards, and regulations. Land use safety compatibility guidance from the FAA is limited to the immediate vicinity of the runway, the runway protection zones at each end of the runway, and the protection of navigable airspace. The FAA enforces safety standards and investigates and corrects violations as appropriate.

Federal regulations and FAA Advisory Circulars applicable to compatible land use and/or safety include, but are not limited to, 14 Code of Federal Regulations Part 77 (14 CFR Part 77), Safe, Efficient Use, and Preservation of the Navigable Airspace; FAA Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants on or near Airports; and FAA Order 5200.5A, Waste Disposal Sites on or near Airports.

14 Code of Federal Regulations Part 77

Code of Federal Regulations, Title 14, Part 77, Safe Efficient Use and Preservation of the Navigable Airspace (14 CFR Part 77) establishes the federal review process for determining whether proposed development activities in the vicinity of an airport have the potential to result in a hazard to air navigation. 14 CFR Part 77 identifies criteria that govern which projects require notice to be filed with the FAA as well as identifying standards for determining whether a proposed project would represent an obstruction "that may affect safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities". Objects that are identified as obstructions based on these standards are presumed to be hazards until an aeronautical study conducted by the FAA determines otherwise.

FAA Notification

14 CFR Part 77.9 "Construction or Alteration Requiring Notice" indicates that notice must be filed with the FAA for any construction or alteration of objects within 20,000 feet of a public use airport runway when the height of the objects exceeds (i.e., is taller than) an imaginary surface with a 100:1 (1 foot upward per 100 feet horizontally) slope from the nearest point of the nearest runway. This requirement applies when the airport has at least one runway that exceeds 3,200 feet in length; for shorter runways, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. For heliports, the notification surface has a 25:1 slope and extends 5,000 feet from the helicopter takeoff and landing area, commonly referred to as final approach and takeoff area. The notification requirements apply to all public-use airports, military airports, and heliports. When FAA notification is required it must be provided using FAA Form 7460-1, Notice of Proposed Construction or Alteration.

International Fire Code

The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC has been adopted by most states throughout the country including California. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code (IBC) use a hazard classification system to determine what protective measures are required for fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every three years, and is the basis for the California Fire Code (also updated triennially).

National Fire Plan

The Department of the Interior's National Fire Plan is intended to ensure an appropriate federal response to severe wildland fires, reduce fire impacts to rural communities, and ensure sufficient firefighting capacity in the future. The Rural Fire Assistance program is funded to enhance the fire protection capabilities of rural fire districts and safe and effective fire suppression in the wildland/urban interface. The program promotes close coordination among local, state, tribal, and federal firefighting resources by conducting training, equipment purchase, and prevention activities on a cost-shared basis.

State

California Environmental Protection Agency and Unified Program

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 California Environmental Protection Agency (Cal/EPA) oversees the implementation of the Unified Program. The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspection and enforcement activities of six environmental and emergency response programs. The state agencies responsible for these programs set the standards for their program while local governments implement the standards.

The Unified Program is implemented at the local level by 86 government agencies certified by the Secretary of Cal/EPA. These Certified Unified Program Agencies (CUPAs) have typically been established as a function of a local environment health or fire agency. Some CUPAs also have contractual agreements with one or more other local agencies called "participating agencies (PAs)," which implement one or more program elements, under the oversight of the CUPA.

The state agency partners involved in the Unified Program have the responsibility of setting program element standards, working with Cal/EPA on ensuring program consistency and providing technical assistance to the CUPAs and PAs. The following state agencies are involved with the Unified Program:

- **California Environmental Protection Agency (Cal/EPA).** The Secretary of the California Environmental Protection Agency is directly responsible for coordinating the administration of the Unified Program. The Secretary certified Unified Program Agencies. The Secretary has certified 86 CUPAs to date. These 86 CUPAs carry out the responsibilities previously handled by approximately 1,300 state and local agencies.
- **Department of Toxic Substances Control (DTSC).** The Department of Toxic Substances Control provides technical assistance and evaluation for the hazardous waste generator program including onsite treatment (tiered permitting).
- **Governor's Office of Emergency Services (OES).** The Governor's Office of Emergency Services is responsible for providing technical assistance and evaluation of the Hazardous Material Release Response Plan (Business Plan) Program, the California Accidental Release Response Plan (CalARP) Programs, and carrying out FEMA requirements to prepare the State Multi-Hazard Mitigation Plan also known as the State Hazard Mitigation Program.
- **Office of the State Fire Marshal (OSFM).** The Office of the State Fire Marshal is responsible for ensuring the implementation of the Aboveground Petroleum Storage Act (APSA). They are also responsible for oversight of the Hazardous Material Management Plans and the Hazardous Material Inventory Statement Programs. These programs tie in closely with the Business Plan Program.
- **State Water Resources Control Board (SWRCB).** The State Water Resources Control Board provides technical assistance and evaluation for the underground storage tank program.

Hazardous Waste Control Act

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 22. The state program thus created is similar to, but more stringent than, the federal program under RCRA.

Unified Program Senate Bill 1082

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 Materials Release Response Plans (Business Plan) Program
- California Accidental Release Prevention (CalARP) Program;
- Underground Storage Tank Program;
- Aboveground Petroleum Storage Act (APSA) Program requirements for spill prevention, control, and countermeasure plans;
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs

- **California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements.** Under this code, main petroleum and natural gas pipeline locations are considered a source of potential contamination and construction worker hazards. The pipelines are described in the Section 10.3 Energy/Mineral Resources of this document.

The six environmental programs within the Unified Program are implemented at the local level by local agencies, known as 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 San Joaquin County Environmental Health Department (SJCEHD) is the designated CUPA in San Joaquin County.

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.

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) has primary responsibility to protect water quality and supply through their respective Regional Water Quality Control Boards (RWQCB). As described in Section 10.2, Water Resources, 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 require a permit from the RWQCB if the water were discharged to storm drains, surface water, or land.

California Code of Regulations Title 23, Chapter 15, requires that non-hazardous liquid (greater than 42 gallons) or solid (greater than 10 cubic yards) waste must be reported to the RWQCB. Domestic wastewater and refuse releases are required to be reported under different non-Chapter 15 regulations.

California State Aeronautics Act

Public Utilities Code (Sec. 21001 et seq.) is also known as the State Aeronautics Act which is designed to further protect the public interest in aeronautics and aeronautical progress. Measures in the Act include:

- (a) Fostering and promoting safety in aeronautics.
- (b) Effecting uniformity of the laws and regulations relating to aeronautics consistent with federal aeronautics laws and regulations.
- (c) Developing, in cooperation with the private sector, airport management, local jurisdictions, federal authorities, and the general public, informational programs to increase the understanding of current air transportation issues including, but not limited to, aviation safety, planning, airport noise, airport development and management, and the role of aviation in the economic development of the state, as an integral part of the state's transportation system.

Article 2.7 of the Act addresses regulation of obstructions of the airspace and stipulates various restrictions on construction including height restrictions on buildings, utility poles and other potential hazards proposed within two miles of an airport runway.

California Fire Code

The 2010 California Fire Code is published by the California Building Standards Commission and incorporates by adoption the 2009 International Fire Code of the International Code Council. San Joaquin County has adopted the California Fire Code with amendments.

Local

County Office of Emergency Services (OES)

The responsibility of the San Joaquin County Office of Emergency Services (OES) includes effective planning for emergencies OES provides training for governmental agencies, including California Department of Public Health (CDPH), the County Public Works Department and SJCEHD.

The OES is also responsible for preparing a Local Hazardous Mitigation Plan (LHMP) that meets the state and federal requirement of the Disaster Mitigation Act of 2000, to develop an on-going process for mitigating disaster damages both prior to and following a disaster.

County Hazardous Materials Release Response Plans and Inventories (Business Plans)

The County Board of Supervisors transferred the implementation of the County Hazardous Material Management Plan (HMMP) and California Accidental Release Prevention (CalARP) programs to the San Joaquin County Environmental Health Department CUPA program from the Office of Emergency Services (OES) under ordinance 0-13-4432.

The SJCEHD aids businesses in preparing Hazardous Materials Release Response Plans and Inventories (Business Plans). Duties under County Ordinances and County Code Chapter 6.95, Section 25500 et seq. include:

- Establishing an inventory and information system of storage and location of hazardous materials within the County;

- Reviewing business plan release response and inventory information stored in the statewide electronic database called the California Environmental Reporting System (CERS) from all facilities storing hazardous materials and wastes in specific quantities on-site;
- Verifying that business plans are submitted electronically for all companies using hazardous materials or generating hazardous wastes. New uses involving hazardous materials or wastes are not permitted without an approved business plan. These plans must map and inventory all hazardous materials, and contain a contingency plan for accidents;
- Providing information to the public, to the extent permitted by California Public Records Act and other applicable laws;
- Preparing area response plans that incorporate inventory data, training for emergency responses, and evacuation plans. The Hazardous Materials Area Plan (San Joaquin County Office of Emergency Services 2004) was published by the OES 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; and,
- Requiring all facilities generating hazardous waste to obtain an EPA number and register with the Cal/EPA, and the SJCEHD.

The CUPA may assign responsibility for regulating businesses which are classified as farm operations under Chapter 6.95 of the Health and Safety Code to the Agricultural Commissioner's Office. (Ordinance No., Ord., 3706; Ord. 4005 § 11, 1998). The SJC Agricultural Commissioner's Office transferred this program back to the CUPA due to the electronic reporting requirements in CERS.

San Joaquin County Environmental Health Department (SJCEHD)

The SJCEHD, under the CUPA Program, enforces state regulations governing hazardous materials storage, hazardous waste generators, hazardous waste treatment and hazardous substance underground storage tanks (USTs). The SJCEHD also inspects aboveground petroleum storage tanks (ASTs) for compliance with the Spill Prevention Countermeasures and Control Program (SPCC). The SJCEHD has a responsibility to assess the compliance of regulated facilities through monitoring and enforcement and respond to issued complaints. The SJCEHD uploads Compliance, Monitoring, and Enforcement (CME) data at least quarterly to CERS.

The Local Oversight Program (LOP) within the SJCEHD ensures adequate and appropriate cleanup of petroleum contamination associated with leaks from USTs. The SJEHD performs oversight of investigation and cleanup activities at soil and groundwater contaminated sites under a contract with the State Water Resources Control Board (SWRCB).

The SJCEHD also oversees the investigation and mitigation of contamination from UST releases that are relatively minor, so the responsible parties prefer to expedite the corrective action activities with the local program pursuant to authority found in the California Underground Storage Regulations. Other sites have responsible parties that request to enter into remedial action agreement with the SJEHD as authorized by the Health and Safety Code Section 101480 for the

cleanup of simple contamination. The SJCEHD also issues permits and conducts inspections of well installations and destructions at local, state and federal Cleanup sites and Environmental Assessment sites.

County Agricultural Commissioner

The County Agricultural Commissioner is directed by the OES (Ord. 3706 and 4005) to track agricultural uses and issue Use Permits for pesticide application on agricultural land. The Commissioner's staff conducts routine inspections to ensure that farm operations are in compliance with the requirements set forth in FIFRA (see the discussion of Federal regulations above). Most farmland was permitted for pesticide use in 2008, and the extent of pesticide-permitted farmland is roughly equivalent to the lands delineated as agricultural on the map of agricultural land presented in Section 6, Agriculture, of this Background Report. The Agricultural Commissioner is also the animal control officer for the County (Ord. 3027).

San Joaquin County Toxic Enforcement Task Force

The San Joaquin County District Attorney's Office and SJCEHD jointly conduct monthly meetings as an open forum for any regulatory agency to discuss issues concerning hazardous materials or wastes enforcement and strategies for obtaining compliance with current regulations. Agencies that participate in these meetings include SJCEHD (CUPA) California Department of Fish and Wildlife, the Regional Water Quality Control Board, the Department of Toxic Substances Control, USEPA, the San Joaquin Valley Air Pollution Control District, the San Joaquin County Sheriff's Office, the San Joaquin County Agricultural Commissioner's Office, and municipal utility districts.

San Joaquin County Airport Land Use Plan (1997)

The 1997 San Joaquin County Airport Land Use Plan (ALUP) establishes Airport Land Use Zones for each airport in the plan. The zones are based on Federal Part 77 airspace standards. Within each zone, the airport land use guidelines control both the heights of structures and the type of land uses. The plan also includes intensity restrictions which limit the number of people that may congregate within a specific area. These restrictions are meant to both reduce risk to people on the ground in the event of an aircraft accident and to minimize hazards to aircraft flight. The safety zones are depicted in Figures 14-26 through 14-31.

San Joaquin County Airport Land Use Commission.

The San Joaquin Council of Governments serves as the Airport Land Use Commission (ALUC) for San Joaquin County. The Commission is updating its ALUP. As part of the update, the safety compatibility criteria and policies will be modified to reflect current legislation; anticipated growth in aircraft operations at the airports in the County; and mitigate future safety impacts.

Contra Costa County Airport Land Use Plan

Operations at Byron Airport located in eastern Contra Costa County affect unincorporated areas in southwest San Joaquin County. The Contra Costa Airport Land Use Commission (ALUC)

establishes compatibility zones for the airport which address noise, safety, overflight, and airspace impacts. Compatibility Zone D encompasses parts of San Joaquin County. Zone D establishes height limitations for the areas underlying the airspace protection surfaces for Byron Airport in accordance with Federal standards. The compatibility criteria require review of proposed objects taller than 50 feet by the Contra Costa County ALUC for the areas within its jurisdiction. These compatibility standards do not apply to the areas within San Joaquin County unless the County or the San Joaquin County ALUC includes the compatibility policies into their respective planning documents.

Community Wildfire Protection Plans (CWPPs)

The Healthy Forests Restoration Act of 2003 placed a renewed emphasis on community planning and extending benefits to communities that prepare a Community Wildfire Protection Plan (CWPP). CWPPs identify hazardous fuel reduction treatment priorities, recommend measures to reduce structural ignitability and address issues such as wildfire response, hazard mitigation, and community preparedness and structure protection. CWPPs must be approved the California Department of Forestry and Fire Protection (CAL FIRE), a local government and local fire authorities.

K.4 Impacts and Mitigation Measures

Significance Criteria

A project would generally be considered to have a significant adverse impact on the environment if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.
- Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
- Result in a safety hazard for people residing or working in the project site vicinity for a project within the vicinity of a private airstrip.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Relevant Policies

The following relevant policies of the 2035 General Plan address Hazards and Hazardous Materials.

PHS-1.1: Effective Emergency Response. The County shall maintain adequate facilities equipment and staffing to respond effectively to emergencies. (PSP/SO) (Source: Existing GP, Emergency Preparedness, Policy 1)

PHS-1.2: Initiate Recovery Operations. Following a major disaster, the County shall strive to ensure that the population is protected and that recovery operations are initiated. (PSP/SO) (Source: Existing GP, Emergency Preparedness, Policy 3)

PHS-1.3: Emergency Operations Plans. The County shall maintain and implement the following emergency and hazard mitigation plans to provide emergency planning, mitigation, response, and recovery activities to the community:

- Emergency Operations Plan,
- Mountain House Community Emergency Operations Plan,
- Multi-Hazard Functional Plan,
- Local Hazard Mitigation Plan, and
- Flood Safety Plan and Contingency Mapping. (PSP/SO) (Source: Existing GP, Emergency Preparedness, Implementation 1, modified)

PHS-1.4: Emergency Preparedness Exercises. The County shall coordinate with local and regional agencies to conduct emergency and disaster preparedness exercises to test operational and emergency plans. (IGC) (Source: New Policy)

PHS-1.5: Promote Individual Readiness. The County shall support educational programs that promote disaster preparedness protocols and procedures; disaster risk reduction; and individual readiness and self-sufficiency in emergencies. (IGC/PI) (Source: Existing GP, Emergency Preparedness, Policy 4)

PHS-1.6: Delta Primary Zone. The County shall ensure the compatibility of permitted land use activities within the Delta Primary Zone with applicable emergency preparedness policies of the Land Use and Resource Management Plan of the Delta Protection Commission. (RDR/IGC) (Source: New Policy)

PHS-1.7: Emergency Response Facilities Location. The County shall ensure that emergency response facilities and other critical facilities (e.g., hospitals, health care facilities, emergency shelters, Sheriff substations, fire stations) are located to avoid hazardous areas (see Seismic and Geologic and Flood Hazards), and designed to remain functional following a major disaster. (RDR/PSP) (Source: Existing GP, Emergency Preparedness, Policy 2, modified)

PHS-1.8: Emergency Operations Center. The County shall continue to maintain the Emergency Operations Center (EOC) as the single point for centralized management and

coordination of emergency response and recovery operations during a disaster or emergency. (SO) (Source: New Policy)

PHS-1.9: Inter-jurisdictional Coordination. The County shall continue to participate in the Multi-Agency Coordination System (MACS) to ensure enhanced inter-jurisdictional coordination during disasters. (IGC) (Source: New Policy, Issues and Opportunities Report)

PHS-1.10: Emergency Vehicles Access. The County shall require all new developments to provide, and existing developments to maintain, adequate primary and alternative access for emergency vehicles. (RDR) (Source: Existing GP, Emergency Preparedness, Policy 5)

PHS-1.11: Climate Change Monitoring and Adaptation. The County shall develop and implement a program to monitor the impacts of climate change and use adaptive management to develop new strategies and modify existing strategies to respond to the impacts of climate change. (PSP) (Source: New Policy)

PHS-1.12: Interagency Coordination. The County shall coordinate with cities, regional, State, and Federal agencies and organizations to develop a comprehensive approach to planning for climate change. (PSP/IGC) (Source: New Policy, AB 32 requirement)

PHS-1.13: Public Awareness of Climate Change. The County shall support public awareness of water conservation measures, agricultural changes, storm and flood preparedness, wildfire fire protection, air quality effects, extreme weather events, heat and human health, and disease prevention to help prepare for the potential impacts of climate change. (PI)(Source: New Policy)

PHS-4.1: Community Wildfire Protection Plan. The County shall maintain and implement the Community Wildfire Protection Plan as a mechanism for community input and identification of areas with high fire hazard risk. (PSP) (Source: New Policy)

PHS-4.2: Residential Densities in High Hazard Areas. The County shall restrict development to rural residential densities or lower and require on-site fire suppression measures in areas with high or extreme wildfire hazards. (RDR/PSP) (Source: Existing GP, Fire Safety and Law Enforcement, Policy 3, modified)

PHS-4.3: Fire Prevention Measures. The County shall implement State recommendations for fire prevention in Fire Hazard Severity Zones and require new and/or existing development to provide clearance around structures, use fire-resistant ground cover, build with fire-resistant roofing materials, participate in fuel load reduction, and take other appropriate measures. (RDR/PSP) (Source: New Program)

PHS-4.4: Clear Zones. The County shall require clear zones and regular weed abatement around residential structures in high fire hazard areas and assist property owners in identifying how clear zones should be maintained. (RDR) (Source: New Policy)

PHS-4.5: Vegetation and Fuel Management. The County shall require new development in high fire-hazard areas to have fire-resistant vegetation, cleared fire breaks separating communities or clusters of structures from native vegetation, or a long-term comprehensive vegetation and fuel management program consistent with State codes 4290 and 4291 for wildland fire interface and vegetation management. (RDR/PSP) (New Policy, Local Hazard Mitigation Plan)

PHS-4.6: Fire Protection Coordination. The County shall encourage well-organized and efficient coordination between fire agencies, CalFire, and the County. (IGC) (New Policy)

PHS-7.1: Minimize Hazardous Materials and Wastes. The County shall discourage the use of hazardous materials and the creation of hazardous wastes. (PSP) (Source: Existing GP, Hazardous Materials, Policy 4)

PHS-7.2: Avoid Contamination of Resources. The County shall strive to ensure that hazardous materials and wastes do not contaminate air, water, or soil resources. (RDR/PSP) (Source: Existing GP, Hazardous Materials, Policy 1)

PHS-7.3: Control Hazardous Materials. The County shall require the use, storage, and disposal of hazardous materials and wastes to comply with local, State, and Federal safety standards. (RDR) (Source: Existing GP, Hazardous Materials, Policy 2; modified)

PHS-7.4: County Hazardous Waste Management Plan. The County shall maintain and implement the County Hazardous Waste Management Plan. (PSP) (Source: New Policy)

PHS-7.5: Locate Hazardous Materials Away from Populated Areas. To the extent feasible, the County shall require proposed activities and land uses that use, store, or dispose of hazardous materials or wastes to be located away from existing and planned populated areas. (RDR/PSP) (Source: Existing GP, Hazardous Materials, Policy 3)

PHS-7.6: Require Hazardous Materials Management Plans. The County shall require businesses that use or store materials and wastes on-site to prepare Hazardous Materials Management Plans (Business Plans) that map and inventory all hazardous materials and contain contingency plans for accidents, designate an individual or individuals as emergency coordinator(s), and ensure that all employees understand the potential for accidents and the appropriate response. Plans must follow the requirements for Federal, State, and/or local defined special flood hazard areas. (RDR/PSP) (Source: Existing GP, Emergency Preparedness, Implementation 3, modified)

PHS-7.7: County Hazardous Materials Area Plan. The County shall maintain and implement the County Hazardous Materials Area Plan for emergency response to a release or threatened release of hazardous material within the unincorporated County. (PSP) (Source: New Policy, based on language from CA H&S Code Section 25503(c))

PHS-7.8: Consistency with Hazardous Waste Management Plan. The County shall require all new development to be consistent with the County Hazardous Waste Management Plan (CHWMP). Any proposed hazardous waste facility, or expansion of an existing hazardous waste facility, shall be consistent with the CHWMP. (RDR) (Source: Existing GP, Hazardous Materials, Policy 5 and Implementation 2, modified)

PHS-7.9: Require Disclosure of Hazardous Materials and Waste. The County shall require public disclosure of hazardous materials and wastes for existing and proposed businesses. (RDR) (Source: Existing GP, Hazardous Materials, Implementation 3)

PHS-7.10: Household Hazardous Waste. The County shall provide educational programs to inform the public about household hazardous waste and the proper disposal methods. (IGC) (Source: New Policy)

PHS-7.11: Hazardous Materials Transportation Routes. The County shall continue to maintain route designations for hazardous materials transport within San Joaquin County. (PSP) (Source: New Policy)

PHS-7.12: Hazardous Liquids Storage Tanks. The County shall maintain and implement hazardous material regulations for the storage of hazardous liquids in underground or aboveground storage tanks. (RDR/PSP) (Source: Existing GP, Hazardous Materials, Implementation 5)

PHS-7.13: Hazardous Waste Disposal Facilities. The County shall provide areas for hazardous waste disposal facilities sufficient to meet the needs of county residents and businesses. (PSP) (Source: Existing GP, Hazardous Materials, Implementation 6)

PHS-7.14: Legislative Support. The County shall support legislation that would further reduce public risks associated with hazardous materials, reduce hazardous waste generation, aid in cleanup, or provide assistance for hazardous materials management. (PSP) (Source: Existing GP, Hazardous Materials, Implementation 9)

PHS-7.15: Site Cleanup Support. The County shall support programs and funding for determination of sites contaminated with hazardous materials and for site cleanup. (PSP) (Source: Existing GP, Hazardous Materials, Implementation 8(a))

PHS-7.16: Hazardous Waste Property Designations. When known, the County shall refer contaminated sites to the appropriate lead agency with established authority/jurisdiction for the required assessment and cleanup activities. (PSP/IGC) (Source: Existing GP, Hazardous Materials, Implementation 8(d))

PHS-8.1: Land Use Compatibility. The County shall prohibit land uses within unincorporated areas that interfere with the safe operation of aircraft or that would expose people to hazards from the operation of aircraft. (RDR) (Source: New Policy)

PHS-8.2: Coordination with San Joaquin County ALUC. The County shall coordinate with the San Joaquin County Airport Land Use Commission (ALUC) on land use planning around airports and submit development proposals for land within the airport area of influence for review by the ALUC for consistency with the Airport Land Use Compatibility Plan. (RDR/PSP/IGC) (Source: New Policy)

PHS-8.3: Coordination with Contra Costa County ALUC. The County shall coordinate with the Contra Costa County ALUC on land use planning in the Byron Airport Compatibility Zone, portions of which extend into the unincorporated areas of San Joaquin County. (RDR/PSP/IGC) (Source: New Policy, General Plan Background Report, Safety)

PHS-8.4: Compliance with Federal Aviation Administration (FAA) Regulations. The County shall require development within airport approach and departure zones to be in compliance with Part 77 of the FAA Regulations that address objects affecting navigable airspace. (RDR) (Source: New Policy)

PHS-8.5: New Air Strip Locations. The County shall require sites for proposed air strips to be outside of air traffic control zones and a safe distance, typically three miles, from existing airports, and to be a reasonable distance from residential areas and compatible with the surrounding uses. (RDR/PSP) (Source: New Policy)

PHS-8.6: Transmission Tower and Lines. The County shall not approve any radio, television, power, or related transmission towers and lines that may conflict with aircraft operations. (RDR) (Source: New Policy)

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan address Hazards and Hazardous Materials.

PHS-L: Community Wildfire Protection Plan. The County shall review and update the Community Wildfire Protection Plan every five years. (PSP) (Source: New Program)

PHS-P: Hazardous Waste Management Plan. The County shall review and update the County Hazardous Waste Management Plan (CHWMP) every five years. (PSP) (Source: Existing GP, Hazardous Materials, Implementation 2)

PHS-Q: Hazardous Materials Area Plan. The County shall review and update the County Hazardous Materials Area Plan every five years. (PSP) (Source: New Program)

PHS-R: Hazardous Waste Inventory. The County shall continue to maintain and periodically update a parcel inventory of past and present hazardous materials use, disposal, and cleanup activities, and hazardous waste facilities. This inventory shall be consulted in all land use decisions. (PSR) (Source: Existing GP, Hazardous Materials, Implementation 4)

Approach to Analysis

This program-level analysis of impacts associated with hazardous materials considers how implementation of the 2035 General Plan may result in encounters of hazardous materials through ground disturbances or demolition, and how changes in land use could result in changes in the transport, storage, and disposal of hazardous materials. The analysis also includes an evaluation of proposed changes in land use patterns that would place development in proximity to major airports and wildfire areas. The evaluation of hazards and hazardous materials impacts assumes that the construction and development under the proposed 2035 General Plan would adhere to the latest federal, state, and local regulations, and conform to the latest required standards in the industry, as appropriate for individual projects.

Impact Analysis

This following impact analysis focuses on impacts of the 2035 General Plan related to hazards and hazardous materials.

2035 General Plan Impacts

Impact 4.K-1: Development facilitated by implementation of the proposed 2035 General Plan could involve the transportation, use, and storage of hazardous materials, which could present public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)

Hazardous materials are currently regularly used, transported, stored, and disposed of in the county. The proposed 2035 General Plan would allow for new development with a range of land uses that utilize a variety of hazardous materials. Land use designations that allow the use or storage of hazardous materials and wastes primarily include Light Industrial, Heavy Industrial,

Public/Quasi-Public, Service Commercial, and Planned Community Area. New development could increase the amount of hazardous materials transported into the county, which has a limited number of designated transportation routes. As discussed under “Regulatory Setting”, the County implements various federal, state, and local regulations that govern the use, transportation, storage and disposal of these materials. The San Joaquin County Environmental Health Department (SJEHD) performs regular inspections and permits facilities in order to minimize the risks associated with the use of hazardous materials in accordance with the County Hazardous Materials Release Response Plans (Business Plan) Program in addition to rest of the CUPA programs.

While the activities and facilities that transport, use, and store hazardous materials in the county are generally well monitored, releases due to misuse or negligence could occur. In addition to public health impacts, the release of hazardous materials or waste could result in impacts to the environment such as contamination of surface and groundwater, biological resources, and air quality. For example, surface or groundwater contamination could result from leaking underground storage tanks. An example of an impact to air quality could be an accidental release of hazardous air emissions. Impacts to biological resources could result from releases of hazardous materials to sensitive habitats, such as vernal pools, that contain special status species.

In addition, demolition of any existing structures as part of implementation of the 2035 General Plan may expose construction workers, the public, or the environment to hazardous materials such as lead based paint (LBP), asbestos containing materials (ACMs), and polychlorinated biphenyls (PCBs). The level of impact is dependent upon the age, construction, and building materials of each building. Based on the age of the existing structures, any of these hazardous building materials could be present at future development sites which, if disturbed, could expose workers and the public during demolition. Any remaining ACMs would need appropriate abatement of identified asbestos prior to demolition. Friable asbestos is regulated as a hazardous air pollutant under the Clean Air Act and, ACMs, as a potential worker safety hazard under the authority of Cal OSHA. Potential exposure to these hazardous building materials can be reduced through appropriate abatement measures.

Any ACMs would be abated in accordance with state and federal regulations prior to the start of demolition or renovation activities. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. Asbestos abatement contractors must follow state regulations contained in 8 CCR 1529 and 8 CCR 341.6 through 341.14 where there is asbestos-related work involving 100 square feet or more of ACMs. Asbestos removal contractors must be certified by the Contractors Licensing Board of the State of California. The owner of the property where abatement is to occur must have a hazardous waste generator number assigned by and registered with the DTSC in Sacramento. The applicant and the transporter of the waste are required to file a hazardous waste manifest that details the transportation of the material from the site and its disposal.

Both the federal OSHA and Cal OSHA regulate worker exposure during construction activities that disturb LBP. The Interim Final Rule found in 29 CFR 1926.62 covers construction work in which employees may be exposed to lead during such activities as demolition, removal, surface preparation for repainting, renovation, cleanup, and routine maintenance. The OSHA-specified compliance includes respiratory protection, protective clothing, housekeeping, special high-efficiency filtered vacuums, hygiene facilities, medical surveillance, and training.

The proposed 2035 General Plan includes a number of policies and implementation programs that help ensure the safety of its residents, visitors, and businesses. Policies included as part of the 2035 General Plan that would minimize this impact are summarized below. For example, the draft Health & Safety Element provides a number of policies and implementation measures that have been developed to address hazardous materials concerns including the safe storage, use, transportation, and disposal of hazardous materials through such measures as minimization (Policy PHS-7.1), avoidance (PHS-7.2), continued compliance with all applicable local, state, and federal safety standards (Policy PHS-7.3), continued adherence to the County Hazardous Waste Management Plan and Hazardous Materials Area Plan (Policies PHS-7.4, PHS-7.7, and PHS-7.8), strategic location of new development (Policy PHS-7.5), requirement of Hazardous Materials Management Plans for businesses (Policy PHS-7.6), and disclosure of businesses that handles hazardous materials and wastes (Policy PHS-7.9). Policies that pertain to the management of hazardous wastes, including household hazardous wastes (Policy PHS-7.10) and location of hazardous waste disposal facilities (Policy PHS-7.13), would provide safety in handling. Other policies include limitations on transportation routes for transport of hazardous materials (Policy PHS-7.11), regulation of underground and above ground storage tanks (Policy PHS-7.12), and legislative support to reduce public risks associated with hazardous materials (Policy PHS-7.14). Implementation programs include maintaining the County Hazardous Waste Management Plan (PHS-P), Hazardous Materials Area Plan (PHS-Q), as well as a Hazardous Waste Inventory (PHS-R). Therefore, with implementation of the aforementioned policies and implementation programs along with adherence to existing local, state, and federal regulatory requirements, the impacts related to the routine transportation, use, and storage of hazardous materials would be less than significant.

Mitigation: None required.

Impact 4.K-2: Hazardous materials associated with implementation of the proposed 2035 General Plan, could be spilled through upset or accidental conditions, increasing public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)

Construction activities for proposed development would require the use of certain hazardous materials such as fuels, oils, solvents, and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact workers, the public, soil, surface waters, or groundwater quality. The use of construction best management practices implemented as part of a Storm Water Pollution Prevention Plan (discussed further in Section 4.I, *Hydrology and Water Quality*) as required by the National Pollution Discharge Elimination System General

Construction Permit would minimize the potential adverse effects to workers, the public, groundwater and soils. These could include the following:

- Establish a dedicated area for fuel storage and refueling activities that includes secondary containment protection measures and spill control supplies;
- Follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction;
- Avoid overtopping construction equipment fuel gas tanks;
- During routine maintenance of construction equipment, properly contain and remove grease and oils.
- Properly dispose of discarded containers of fuels and other chemicals.

In general, aside from refueling needs for heavy equipment, the hazardous materials typically used on a construction site are brought onto the site packaged in consumer quantities and used in accordance with manufacturer recommendations. The overall quantities of these materials on the site at any one time would not result in large bulk amounts that, if spilled, could cause a significant soil or groundwater contamination issue. Spills of hazardous materials on construction sites are typically localized and would be cleaned up in a timely manner. As described above, refueling activities of heavy equipment would be conducted in a controlled dedicated area complete with secondary containment and protective barriers to minimize any potential hazards that might occur with an inadvertent release. Given the required protective measures (i.e., best management practices) and the quantities of hazardous materials typically needed for construction projects, the threat of exposure to the public or contamination to soil and/or groundwater from construction-related hazardous materials is considered a less than significant impact.

Once constructed, proposed land uses would include residential, commercial, industrial, and institutional land uses that would likely include the use of hazardous materials and waste common in other commercial/retail and support settings. These chemicals could include familiar materials such as toners, paints, lubricants, and kitchen and restroom cleaners as well as relatively small quantities of fuels, oils, and other petroleum-based products. Industrial uses could include storage, transport, handling, and disposal of larger quantities of hazardous materials. If not handled appropriately, upset and accident conditions could result in releases of hazardous materials or wastes that result in adverse effects to residents, workers, the public or the environment. As described above, any businesses that would store hazardous materials and/or waste at its business site would be required to submit a Hazardous Materials Management Plan (Policy PHS-7.6) in accordance with federal, state, and local requirements (Policy PHS-7.3). The County would require all new commercial and other users to follow applicable regulations and guidelines regarding storage and handling of hazardous waste consistent with the Hazardous Waste Management Plan (PHS-7.8) such that accidental spills or releases are minimized and spill response supplies are readily available to quickly contain any spill that may occur. Also, as stated above, legislative support (Policy PHS-7.15) and implementation of an incident response plan (Implementation Program PHS-Q) would aid in reducing public risks associated with accidental conditions and aid in cleanup. With adherence to these existing policies and implementation programs, the potential to adversely affect workers, residents, visitors, or the environment would be reduced to less than significant levels.

Mitigation: None required.

Impact 4.K-3: Hazardous materials use resulting from implementation of the proposed 2035 General Plan could result in hazardous emissions or the handling of hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school. (Less than Significant)

Schools are considered as one of several sensitive receptors that must be taken into consideration when the County is approving new land uses or transportation routes that may accommodate the production, storage, use, or transportation of hazardous materials and/or waste. Implementation of the 2035 General Plan would result in increased population levels in designated growth areas and would increase the number of school-age children as well. An increase in levels of residential development would generate an increase in the number of students (dependent upon future household sizes and make-ups), and would necessitate the need to construct additional school facilities.

As discussed above, all new development would be required to follow applicable regulations and guidelines regarding storage and handling of hazardous waste. All hazardous materials would be required to be stored and handled according to manufacturer's directions and local, state, and federal regulations. These requirements would include posting of signs, notification of the local fire department, filing of the Hazardous Materials Business Plan, and use of specialized containment facilities. In addition to mandatory adherence to city and county requirements, compliance with the requirements of California Code of Regulations CCR Title 5, Section 14010, Standards for School Site Construction, and California Department of Education School Facilities Planning Division as overseen by DTSC further ensures that hazardous materials impacts on proposed schools would be less than significant. CCR Title 5 Section 14010 includes measures to ensure that future school children are not exposed to adverse effects through exposure to hazardous materials or wastes. For new schools, DTSC requires that a Preliminary Endangerment Assessment (PEA) be prepared under the supervision of DTSC's School Property Evaluation and Cleanup Division that identifies any potential sources of hazardous emissions that could adversely affect future occupants. If the Preliminary Endangerment Assessment discloses the presence of a hazardous materials release, or threatened release, or the presence of naturally occurring hazardous materials at or near the school site at concentrations that could pose a significant risk to children attending the school or adults working at the school, or discloses that ongoing or planned remediation activities to address such a release near the school could pose a significant risk to children attending the school or adults working at the school, then the school could not open until all actions required by DTSC to reduce the increased cancer risk have been completed. It would be necessary to reduce the risk from exposure to such releases to less than one in a million (1×10^{-6}) and reduce the increased risk of noncancerous toxic effects such that the Hazard Index for chronic and acute hazards is less than one.

Policies mentioned above in Impact 4.K-1 would in general aid in minimizing potential exposure of existing schools to hazardous materials through the appropriate management of

hazardous materials and wastes. Specifically, policies such as PHS-7.5 would require that proposed activities that use, store, or dispose of hazardous materials or wastes be located away from existing and planned populated areas which would generally include schools as well. Also policies such as PHS-7.6 require businesses to have Hazardous Materials Management Plans and Policy PHS-7.8 requires new development or expansion of existing hazardous waste facilities to be consistent with the County Hazardous Waste Management Plan. Otherwise, adherence to the state requirements for new schools as mentioned above, would ensure that potential exposure at any future schools would be reduced to less than significant levels. With implementation of existing regulatory requirements and the policies mentioned in Impact 4.K-1, this impact is considered less than significant.

Mitigation: None required.

Impact 4.K-4: Development facilitated by implementation of the proposed 2035 General Plan could be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard to the public or environment through exposure to previous contamination of soil or groundwater including vapor intrusion into buildings. (Less than Significant)

As described above in the setting section, agencies such as the Regional Water Quality Control Board (RWQCB) and the Department of Toxic Substance Control (DTSC) maintain databases of contaminated sites or sites where an unauthorized release has occurred. These sites can be relatively minor with little to no threat to human health or the environment or they can be very extensive such as those on the National Priorities List (Superfund) that may require substantial remediation efforts in order to get conditions to acceptable levels. If not managed appropriately, future residents, visitors, and workers could be exposed to legacy contaminants through vapor intrusion into proposed structures, or contact with contaminated soils through excavation or other ground disturbing activities such as digging. According to information provided by these agencies, a majority of the contaminated sites are associated with leaking underground storage tanks, industrial manufacturing, old landfills, military bases, dry cleaning and maintenance yards (DTSC, 2013 and SWRCB, 2013). As a result of the programs implemented by the state and county, the likelihood of development subsequent to the 2035 General Plan to be subject to exposure hazards on an identified hazardous waste site is low. Typically, sites that are contained on these lists are in the process of either further investigation or are already in the process of remediation such that exposure hazards are reduced. Investigations and cleanups are overseen by regulatory agencies such as the DTSC or RWQCB that review sites on a case by case basis and evaluate potential health hazards based on land uses, characteristics of the contaminants of concern, and exposure pathways. It can be assumed that site cleanup would occur prior to development on an identified hazardous waste site. However, the possibility remains for future development to occur on unidentified contaminated sites.

The proposed 2035 General Plan includes policies that help ensure the safety of its residents, visitors, and businesses. For example, Policy PHS-7.15 ensures that the County continues support

and funding for investigations and cleanups of contaminated sites. Policy PHS-7.16 would, where appropriate, have the County seek support from the State Department of Health Services to designate contaminated sites as hazardous waste property which would preclude development until appropriate cleanup has occurred. However, in general, the discovery of legacy contaminants is revealed in the due diligence process for real estate transactions and the existing regulatory framework for the investigation and remediation of any identified contaminants is protective of human health and the environment. This process is reflected in the implementing actions of PHS-R (Hazardous Waste Inventory) which promotes the practice of seeing that historical releases are factored into land use decisions and remediation appropriate for new uses is accomplished. Therefore, with implementation of the aforementioned policies and the existing local, state and federal regulatory requirements, the potential impacts related to sites included on hazardous waste databases is less than significant.

Mitigation: None required.

Impact 4.K-5: Development facilitated by implementation of the proposed 2035 General Plan could be located within two miles of a public airport or adjacent to a private airstrip. (Less than Significant)

Implementation of the proposed 2035 General Plan would result in additional residential and non-residential land use developments. Locations of this new development would vary across the county but could result in new development in the vicinity of the six different public use airports and seven private airstrips.² These airports are located throughout the county, with some located adjacent to developed urban areas and others located in more rural areas. It can also be assumed that a number of small, private airstrips primarily used for agriculture-related uses are located in rural areas of the county. New development near aviation facilities, particularly multi-story structures or developments with aerial features such as antennas, could create hazards to aviation. Conversely, the placement of new development near aviation facilities, including private airstrips, could result in safety hazards to people living and working nearby from the potentially severe consequences of aircraft accidents.

Overall, the intent of the proposed 2035 General Plan is to ensure that existing and future land uses function without imposing a nuisance, hazard, or unhealthy condition upon adjacent uses. Policies included as part of the 2035 General Plan that would minimize conflicts with public use airports and airstrips include: Policy PHS-8.1 which ensures land use compatibility with operation of aircraft by prohibiting incompatible land uses; Policy PHS-8.2 which ensures coordination with the County ALUC and submittal of development proposals to ALUC for ALUCP consistency; similarly, PHS-8.3 requires coordination with the Contra Costa County ALUC with submittal of development proposals for consistency with the ALUCP for areas within the Byron land use plan; Policy PHS-8.4 requires compliance with FAA Part 77 regulations, while Policy PHS-8.5 addresses

² It should also be noted as mention in the Setting section, Byron Airport, located in Contra Costa County, has a land use plan that extends partially into San Joaquin County.

the location of new airstrip locations; and finally, Policy PHS-8.6 ensures that transmission towers and lines do not interfere with aircraft operations. With implementation of these regulatory programs and policies, hazards associated with locating development near airports would be less than significant.

Mitigation: None required.

Impact 4.K-6: Development under the 2035 General Plan could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

As more fully described in Section 4.D, *Transportation and Circulation* of this document, implementation of the proposed 2035 General Plan would increase the current number of vehicle trips and miles of vehicular travel within the county. Consequently, several local roadway facilities would change in their level of service. The proposed plan addresses these traffic impacts through a combination of policies and several physical roadway improvements. The 2035 General Plan contains policies that address the County's ability to prepare for and respond to potential emergency situations that ensure that there is no physical interference of an adopted emergency response plan or evacuation plan.

Policies included as part of the proposed 2035 General Plan that would minimize this potential impact including Policy PHS-1.1 which requires the County to ensure an ability for emergency response; Policy PHS-1.2 addresses the recovery operations that would occur following a major disaster; Policy PHS-1.3 requires the County to adhere to the Emergency Operations Plan; and Policy PHS-1.4 would require the County to enact emergency preparedness exercises. Similarly, Policy PHS-1.5 also contains a proactive measure of ensuring that individual readiness efforts are in place. Directly related to new development, Policy PHS-1.10 requires that emergency vehicle access is maintained. In addition, the Office of Emergency Services maintains the Local Hazard Mitigation Program which includes elements of emergency response and emergency evacuation as part of the multi-hazard functional planning. As such, even though there may be areas where levels of service deteriorate from existing conditions, with implementation of these policies and existing regulatory requirements, this impact is considered less than significant.

Mitigation: None required.

Impact 4.K-7: Development facilitated by the implementation of the 2035 General Plan could expose people or structures to a significant risk of loss, injury, or death involving wildland fires. (Less than Significant)

As future development occurs, wildland fires would continue to pose a significant threat to the people and structures of the county, in particular those residing in areas that are more susceptible to wildland fires due to fuel loads (grassland and other vegetation) (see Figure 4.K-1). One of

the primary factors contributing to the effective control of a vegetation fire is the rapid response by local fire units. This is especially true during fire season, when fire units may be committed to other fires and are unavailable to respond as quickly. Under future climate change conditions, more extreme weather conditions may occur that result in greater fire fuel loads, a longer fire season, and/or a greater area containing vegetation susceptible to wildland fires. Climate change conditions could expose more people and structures to wildland fire potential.

Policies and implementation measures included as part of the proposed 2035 General Plan that address the need for additional fire prevention are summarized below. For example, Policy PHS-4.1 and Implementation Program PHS-L require the County to maintain and implement a Community Wildfire Protection Plan consistent with community needs. Policy PHS-4.2 addresses development standards to include fire suppression measures in areas of high or extreme wildfire hazards. Policy PHS-4.3 requires the County to implement state fire prevention measures such as clearance around structures and fire-resistant roofing materials to reduce fire risk. Policies PHS-4.4 and PHS-4.5 also address fuel management through establishing clear zones, weed abatement, and fire-resistant vegetation requirements. Finally, Policy PHS-4.6 encourages coordination between different fire agencies to ensure adequate protection in the event of a wildfire. With implementation of these policies and implementation measures, this impact is considered less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 4.K-9: Hazards resulting from implementation of the proposed 2035 General Plan, in combination with past, present, and reasonable foreseeable probable future projects could contribute to cumulative hazards. (Less than Significant)

Cumulative hazardous materials effects could occur if past, present, and reasonably foreseeable probable future projects in the county, combined with the proposed 2035 General Plan, together could significantly increase risks from hazards and hazardous materials. However, most routine hazardous materials activities associated with the proposed 2035 General Plan would likely involve relatively small quantities of hazardous materials both in interior and exterior settings. Any health or safety effects of routine hazardous materials use would likely be limited to the specific individuals using the materials and anyone in the immediate vicinity of the use. Interaction would not be likely to occur between these routine activities and similar activities at different sites.

Cumulative health and safety impacts could occur if 2035 General Plan-related outdoor or offsite hazards were to interact or combine with those of other existing and proposed development. This could occur through the following mechanisms: air emissions; transport of hazardous materials and waste to or from the county; inadvertent release of hazardous materials to the sanitary sewer, storm drain, or non-hazardous waste landfill; and potential accidents that require hazardous materials emergency response capabilities. Air emissions are addressed in Section 4.G, *Air Quality and*

Greenhouse Gases. The 2035 General Plan as well as other past, present, and reasonable foreseeable probable future projects would be required to adhere to existing regulatory requirements for the appropriate handling, storage, and disposal of hazardous materials that are designed to minimize exposure and protect human health and the environment. Cumulative increases in the transportation of hazardous materials and wastes would cause a less than significant impact because the probability of accidents is relatively low, and the use of legally required packaging minimizes the consequences of potential accidents. In addition, all projects in the area would be required to comply with the same laws and regulations as the 2035 General Plan. This includes ALUCP consistency, and federal and state regulatory requirements for transporting (Cal EPA and Caltrans) hazardous materials or cargo (including fuel and other materials used in all motor vehicles) on public roads or disposing of hazardous materials (Cal EPA, DTSC, SJCEHD). Therefore, this cumulative impact would be less than significant.

Mitigation: None required.

K.5 References – Hazards and Hazardous Materials

- California Department of Mines and Geology (CDMG), 2000. A General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos, August 2000.
- California Department of Forestry and Fire Protection (Cal Fire), 2007. Fire Severity Hazard Zones in State Responsibility Area, also available http://www.fire.ca.gov/fire_prevention/fhsz_maps_sanjoaquin.php, November 7, 2007.
- Department of Toxic Substances Control (DTSC), 2013. Envirostor Database for San Joaquin County, http://www.envirostor.dtsc.ca.gov/public/search.asp?CMD=search&ocierp=False&HWMP=False&business_name=&main_street_name=&city=&zip=&county=san+joaquin&case_number=&apn=&Search=Get+Report, accessed October 14, 2013.
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- State Water Resources Control Board (SWRCB), 2013. Geotracker Database for San Joaquin County, <http://geotracker.waterboards.ca.gov/search.asp?cmd=search&hidept=True&status=&reporttitle=San+Joaquin+County&county=San%20Joaquin>, accessed October 14, 2013.

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L. Aesthetics

L.1 Introduction

This section of the EIR analyzes the impacts the proposed project would have on visual quality. The aesthetics evaluation focuses on the effects of the proposed physical changes that may occur from development associated with the 2035 General Plan. This section also discusses the aesthetic effects of light and glare associated with nighttime lighting and new building development. Applicable policies and implementation programs related to visual quality and contained in the 2035 General Plan are identified and evaluated.

L.2 Environmental Setting

Regional Setting

San Joaquin County is set within the greater San Joaquin Valley, with the Delta and large expanses of level, agricultural lands and urban development framed by the foothills of the Diablo Range to the west and the foothills of the Sierra Nevada to the east. The foothills of the Diablo Range separate San Joaquin County from Alameda County and Contra Costa County to the west, with the main access between these counties being Interstate 205 (I-205), which cuts through the Altamont Pass. The eastern portion of San Joaquin County, and adjoining Amador County and Calaveras County to the east, share the rolling terrain of the Sierra Nevada foothills. To the south, the Stanislaus River separates San Joaquin County from Stanislaus County. Other major rivers passing through San Joaquin County include the San Joaquin River, the Calaveras River, the Mokelumne River, and Dry Creek. Agricultural uses make up about 83 percent of the unincorporated lands within the county, with urban development concentrated in the seven incorporated cities of the county.

The county also includes major transportation systems that pass through it. State Route (SR) 99 and Interstate 5 (I-5) are two of the State's major north-south freeways. I-205 and Interstate 580 (I-580) provide direct connections to the San Francisco Bay Area to the west. State Route (SR) 4 provides east-west access to the San Francisco Bay Area, extending from the far northwestern boundary of Contra Costa County to the center of Stockton. State Route (SR) 88 picks up from Stockton and runs northeast through Amador County and beyond the California-Nevada state line. Three transcontinental railroads (including Amtrak service), the Stockton Metropolitan Airport, and the Port of Stockton connect the county to a much larger geographic area.

Long distance and open sky views are possible from many locations within San Joaquin County due to the predominantly level terrain and low density of development. The most intense development occurs within the urban centers of Stockton and Tracy; otherwise, much of the county is developed at low densities with buildings not exceeding two stories. Large expanses of agricultural land are often broken up by small areas of scattered development. The most intense corridors of development occur along I-205 in the southwestern portion of the county and along I-5 through the central portion of the county.

Project Setting

This section addresses scenic roadways, the Delta, river corridors, agricultural lands and rangelands, significant oak groves, hillsides and ridges, and parklands within the county. All of these create some of the more important visual resources of San Joaquin County. In addition, light and glare and scenic vistas are also addressed.

Scenic Roadways

San Joaquin County has a number of scenic routes. The State of California has officially designated only two scenic highways in San Joaquin County: I-580 and I-5, which cross the county diagonally in the southwestern quadrant. However, there are a number of other roads that the County has identified as local scenic routes, as shown in **Table 4.L-1** below.

A map of designated and eligible scenic routes is provided in **Figure 4.L-1**. **Figures 4.L-2** and **4.L-3** provides several typical motorist views from various points along State Route 4 in the Delta region, State Route 88 in Lockeford, and I-5 near Tracy.

The Delta

The watershed for 40 percent of California drains into the Bay Delta, a term applied to the greater Sacramento-San Joaquin River Delta. These two rivers, the Sacramento from the north and the San Joaquin from the south, converge at the eastern portion of the San Francisco tidal estuary. **Figure 4.L-4** illustrates the legal Delta area as it relates to the San Joaquin County borders.¹ The Delta is at the center of California's system for managing and delivering water, with the State Water Project and the federal Central Valley Project pumping fresh water from the Delta south to San Joaquin Valley farms and to Bay Area and Southern California cities. In addition, water from the Delta is used by farmers lying within the legal boundaries of the Delta (American Planning Association, 2012). A complex system of levees is interwoven throughout the Bay Delta region, and large portions of this area of the county are in agricultural production. The Delta waterways and marshlands are a significant visual feature, providing habitat for a large number of birds, fish, and mammals. These waterways also serve as a major recreational resource for boaters and anglers throughout the region. Its unique scenery is most visible by boat, as few roads traverse this portion of San Joaquin County. The Delta views can be found from State Route 4, State Route 12, Eight Mile Road, Empire Tract Road, Lower Roberts Island Road, and Bacon Island Road (Mintier Harnish, 2009).

River Corridors

Many of the county's river corridors are lined with thick riparian vegetation, forming a strong visual contrast to adjoining agricultural and grazing lands. As noted earlier, the main waterways through the county are the Stanislaus River, the San Joaquin River, the Mokelumne River, and

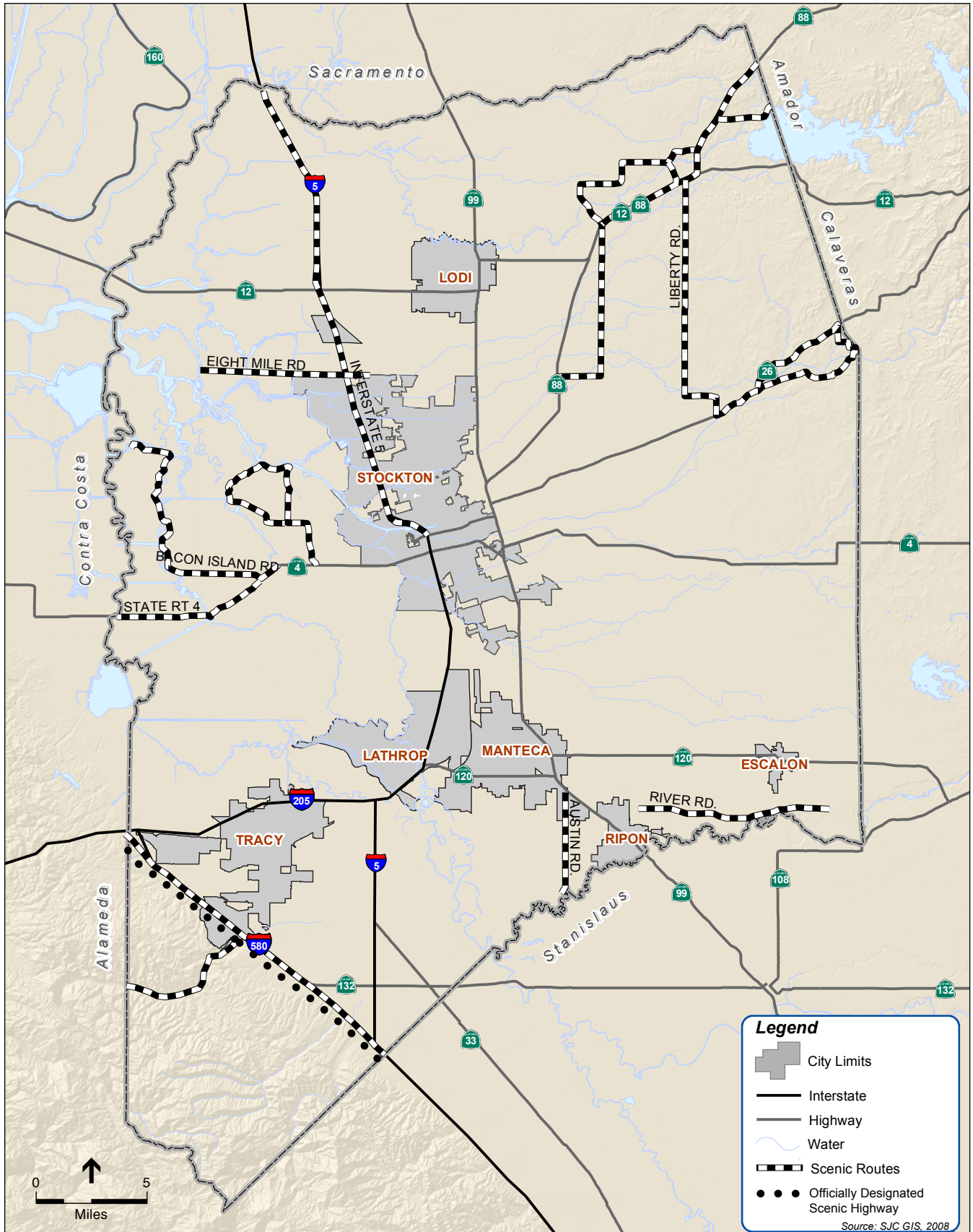
¹ The Delta Protection Act, which identified the Delta as a natural resource of statewide significance, is intended to ensure protection, maintenance, and enhancement of the Delta. The Act is also intended to balance use of the Delta resources and to improve flood protection. As part of the Delta Protection Act, the Primary Zone and Secondary Zone of the Delta have been mapped as shown in Figure 4.L-4.

**TABLE 4.L-1
LOCAL SCENIC ROUTES**

Road Name	Segment Begin	Segment End	Configuration	Scenic Resources
Liberty Road	SR 88	Amador County Line	east/west 2-lane rural road	range/grazing land; Camanche Reservoir
Collier Road	Mackville Rd	SR 88	east/west 2-lane rural road	range/grazing land
Mackville Road	SR 12/88	Collier Road	north/south 2-lane rural road	community of Clements; cropland; aggregate mine; park; Mokelumne River
Jahant Road	Tully Road	Mackville Road	east/west 2-lane rural road	range/grazing land; rural residences
Tully Road	Jahant Road	Peltier Road	north/south 2-lane rural road	cropland; rural residences
Peltier Road	Elliott Road	Tully Road	east/west 2-lane rural road	cropland; rural residences
Elliott Road	East Hammond Street	Peltier Road	north/south 2-lane rural road	community of Lockeford; cropland; Mokelumne River; rural residences
Jack Tone Road	Comstock Road	East Hammond Street	north/south 2-lane rural road	community of Lockeford; cropland; orchards; rural residences
Comstock Road	SR 88	Jack Tone Road	east/west 2-lane rural road	cropland; orchards; rural residences
Clements Road	Comstock Road	SR 12/88	north/south 2-lane rural road	cropland; range/grazing land
Comstock Road	Clements Road	Fine Road	east/west 2-lane rural road	orchards
Fine Road	SR 26	Clements Road	north/south 2-lane rural road	orchards
SR 26	Fine Road	Calaveras County Line	east/west 2-lane rural highway	orchards; Mormon Slough; range/grazing land
Shelton Road	SR 26	Calaveras County Line	east/west 2-lane rural road	Calaveras River; orchards; range/grazing land
Interstate 5	SR 4	Sacramento Co. Line	north/south 6/4-lane rural freeway	cropland; Mokelumne River; riparian vegetation
Eight Mile Road	Empire Tract	Thorton Road	east/west 2-lane rural road	cropland; riparian vegetation; Delta waterways
Empire Tract Perimeter Roads	Eight Mile Road	Eight Mile Road	2-lane rural road	cropland; riparian vegetation; Delta waterways
Inland Drive	SR 4	McDonald Road	2-lane rural road	cropland
McDonald Road	Inland Drive	Neugebauer Road	2-lane rural road	cropland
Neugebauer Road	McDonald Road	Holt Road	2-lane rural road	cropland; riparian vegetation; Delta waterways
Holt Road	Neugebauer Road	McDonald Road	2-lane rural road	cropland
SR 4	Contra Costa Co. Line	Trappers Road	east/west 2-lane rural highway	cropland; riparian vegetation; Delta waterways
Bacon Island Road	SR 4	Connection Slough	2-lane rural road	cropland; riparian vegetation; Delta waterways
Corral Hollow Road	Alameda Co. Line	Interstate 580	east/west 2-lane rural road	range; Diablo Range foothills; Corral Hollow canyon
Austin Road	Stanislaus Co. Line	SR 99	north/south 2-lane rural road	cropland
River Road	Ripon Road	Santa Fe Road	east/west 2-lane rural road	cropland; orchards; riparian vegetation; Stanislaus River

See Figure 4.L-1 for general locations.

SOURCE: Mintier Harnish, 2009



SOURCE: San Joaquin County GIS Department

San Joaquin County 2035 General Plan . 209529

Figure 4.L-1
Scenic Routes



a. View from Highway 4, looking east toward bridge crossing near Bacon Island Road.



b. View of Delta waterway from West Lower Jones Road near Holt Road.



c. View southwest from Highway 4.



a. View of historic building in Lockeford, as seen from State Route 88.

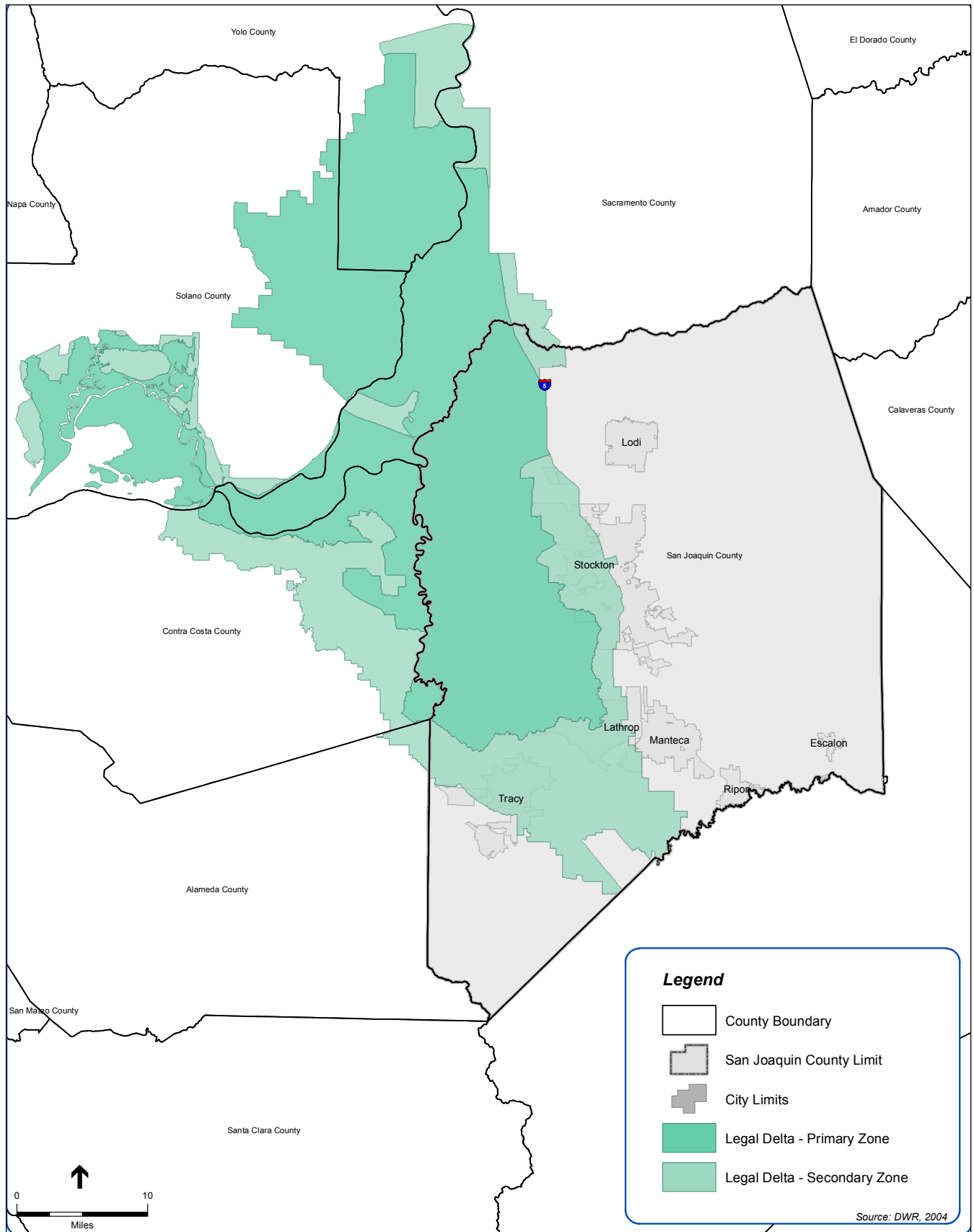


b. View of distant Coast range from I-5, looking southwest.

SOURCE: ESA

San Joaquin County 2035 General Plan . 209529

Figure 4.L-3
Views from Scenic Routes in Northeast and
Southwest Portions of San Joaquin County



SOURCE: San Joaquin County GIS Department, 2014

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Figure 4.L-4
The Delta

Dry Creek. Old River is also an important river in the southern portion of the county just north of the Mountain House community. These rivers form important visual resources within the county and also serve as important recreational amenities (see **Figure 4.L-5**).

Agricultural Lands and Rangelands

Large expanses of the county include level agricultural lands that are irrigated for row crops, vineyards, orchards, and field crops such as alfalfa. Depending on the time of year, these agricultural lands take on different visual characteristics ranging from fallow lands in mid-winter to vibrant fruit trees in bloom in early spring. Grazing occurs in many portions of the county, from the flat agricultural lands outside of the City of Tracy to the rolling hills in the northeastern portion of the county near Clements and Linden. During summer and fall, the rolling hills in the eastern portion of the county are composed of dry grasses that transform to brilliant green after heavy winter and spring rains. Views of these rangelands can be found while driving on State Routes 12, 88, 4, and 26.

Significant Oak Groves

Significant oak groves are found in the southwestern corner of San Joaquin County, as well as in scattered locations near Stockton, Lodi, and the northeastern portion of the county. The oak groves form a strong contrast to the often prevailing grass-covered terrain (see **Figure 4.L-5**).

Hillsides and Ridges

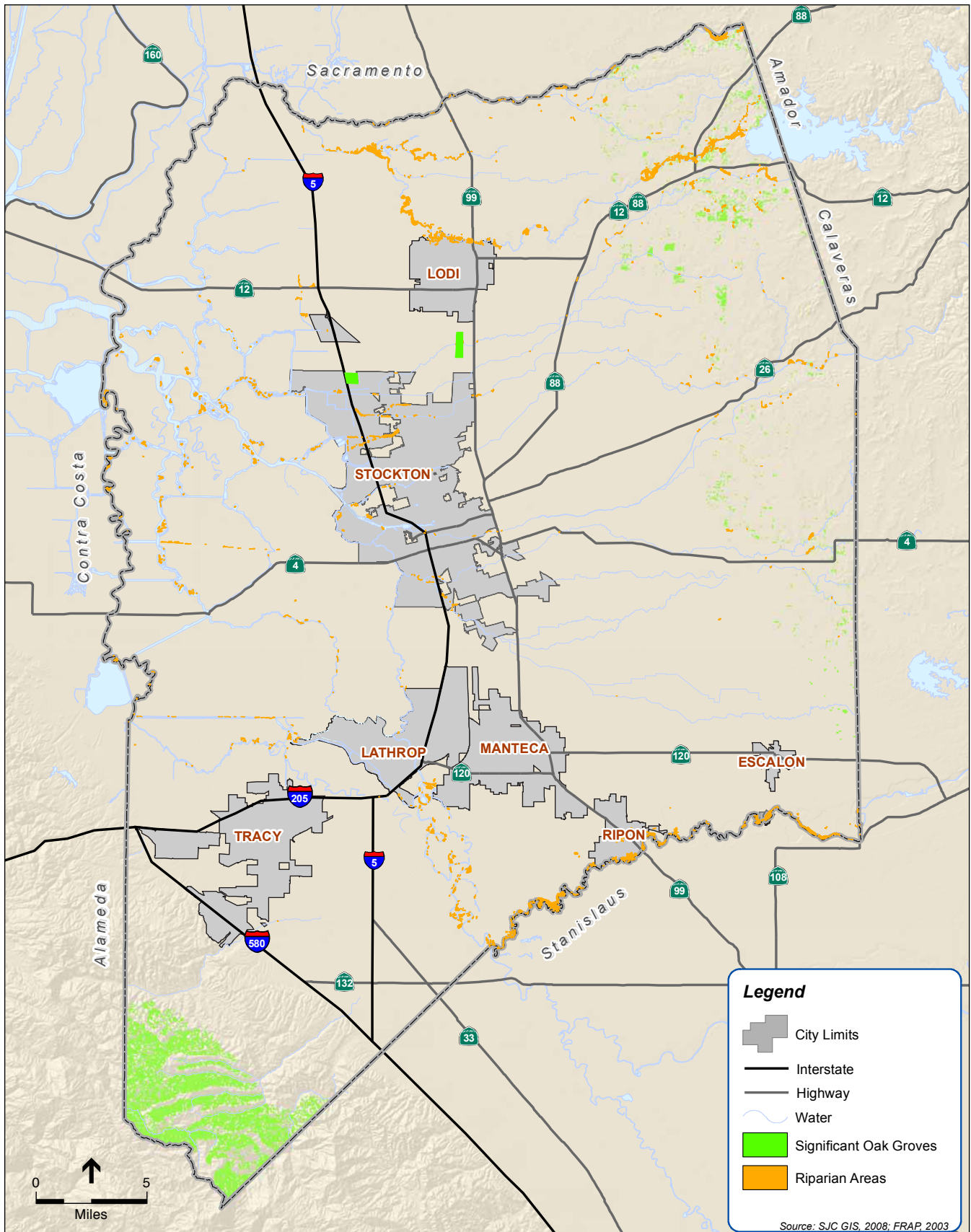
The foothills in the southwestern portion of the county and along the eastern boundary are key visual resources that add contrast to the predominantly level terrain associated with agricultural operations and much of the county's urbanized development. The primarily grass-covered hillsides are visible from many locations across the county.

Parklands

A number of state and regional parks are scattered throughout San Joaquin County, with many of these located in areas of significant visual features such as oak groves, rivers, and other similar features. More than half of the parks shown in **Figure 4.L-6** are operated by the County. The Carnegie State Vehicle Recreation Area is in a remote area in the southwestern corner of the county and focuses on the vehicle recreation aspect of the park. Caswell State Park is located in the southern portion of the county adjacent to the Stanislaus River. A number of other local parks are located throughout the county, primarily within Stockton. The incorporated cities of Manteca, Tracy, and Woodbridge also have local parks (Mintier Harnish, 2009).

Light and Glare

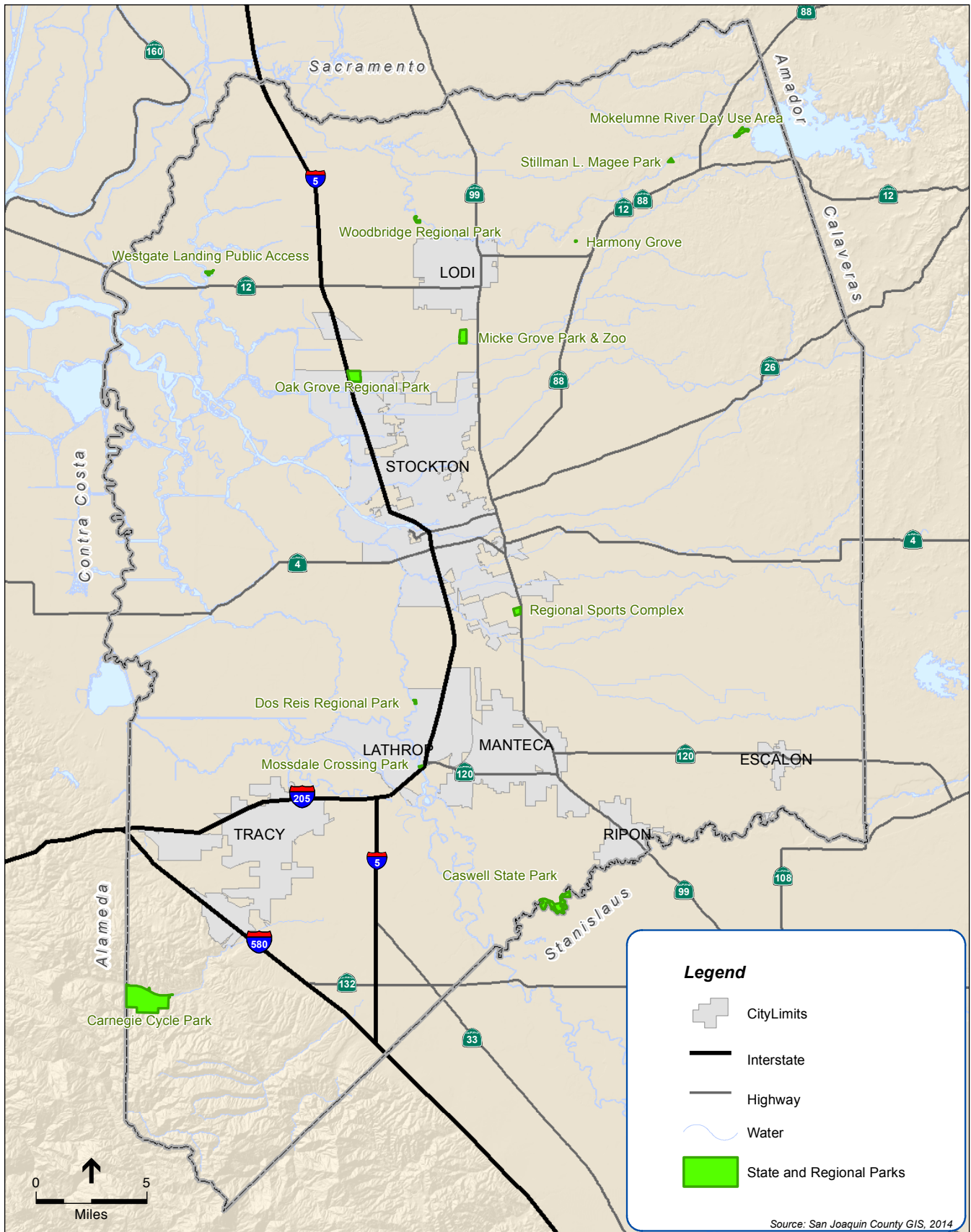
The following two sources of light intrusion are the main sources that can have visual quality impacts: 1) light emanating from structural interiors and passing through windows, and 2) light from exterior sources, such as street lighting, building illumination, security lighting, event lighting in resort areas, traffic headlights, and landscape lighting.



SOURCE: San Joaquin County GIS Department, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.L-5
Oak Woodlands and Riparian Areas



SOURCE: San Joaquin County GIS Department

San Joaquin County 2035 General Plan . 209529

Figure 4.L-6
State and Regional Parks

Land uses such as residences, hospitals, and hotels are considered light-sensitive, as they are typically occupied by persons who may be disturbed by bright lights. At night, lights from cities and communities illuminate developed areas, providing a contrast with the generally uninterrupted darkness of the surrounding agricultural lands within San Joaquin County. The preservation of views of the night sky has been identified as valuable to the community.

Glare results mainly from sunlight reflection off flat building surfaces, with glass and reflective metal surfaces typically contributing to the highest degree of reflectivity. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources, such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Glare-sensitive uses generally include residences, transportation corridors, and airports. Existing sources of light and glare within San Joaquin County are primarily located in the cities and other development areas.

Scenic Vistas

The major scenic vistas in San Joaquin County are provided by the east-west travel corridors that provide views of the Sierra Nevada foothills as one drives eastward and views of the Diablo Range as one drives westward. These visual resources within the county are also visible from I-5 and I-580, two major highways within the county.

More “close-in” scenic vistas are also available as one drives on two-lane roads through rural portions of the county, viewing lands under agricultural production, vineyards, and orchards. Views of major river corridors are most clearly visible from parklands that adjoin the rivers, as the motorist often catches only a quick glimpse of the river corridors while crossing bridges.

L.3 Regulatory Setting

This section identifies the policies related to the physical environment and that pertain to the project’s effects on scenic vistas and resources, and visual quality and character of the project site and adjacent areas.

Federal

No federal regulations related to aesthetics are relevant to the proposed 2035 General Plan.

State

Many state highways are located in areas of outstanding natural beauty. California’s Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or are currently designated. These highways are identified in Section 263 of the Streets and Highways Code.

A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. Because a scenic corridor is the land generally adjacent to and visible from the highway, it is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon.

The corridor protection program does not preclude development, but seeks to encourage quality development that does not degrade the scenic value of the corridor. Jurisdictional boundaries of the nominating agency are also considered. The agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program.

In San Joaquin County, the only designated scenic highways are the 0.7-mile-long stretch of I-5 from the Stanislaus County line to I-580 and all of I-580 to where it joins I-205. This stretch of I-580 parallels portions of the Delta-Mendota Canal and the California Aqueduct, as well as rangelands and rolling hills (see Figure 4.L-1) (Caltrain, 2013).

Local

No local regulations related to aesthetics are relevant to the proposed 2035 General Plan.

L.4 Impacts and Mitigation Measures

Significance Criteria

This analysis evaluates the proposed project's impacts on visual resources based on the criteria identified in the CEQA *Guidelines*, Appendix G. The 2035 General Plan could have a significant impact on visual resources 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 which would adversely affect daytime or nighttime views in the area.

Relevant Policies

The following relevant policies of the proposed 2035 General Plan address aesthetics. Some policies indirectly address aesthetics by promoting protection of open space and natural areas within the county.

NCR-2.4: Preservation of Significant Oak Groves. The County shall require new development in the vicinity of significant oak groves to be designed and sited to maximize the long-term preservation of the trees and the integrity of their natural setting. (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 4, modified)

NCR-2.7: Natural Open Space Buffer. The County shall require a natural open space buffer to be maintained along any natural waterway to provide nesting and foraging habitat and to protect waterway quality. (RDR) (Source: Existing GP, Vegetation, Fish, and Wildlife Habitat; Resource Protection and Management, Policy 8, modified)

NCR-7.1: Scenic Roadways. The County shall protect the visual character of designated scenic roadways. (RDR) (Source: New Policy)

NCR-7.2: Views from Public Lands and Roadways. The County shall ensure that views of waterways, hilltops, and oak groves from public land and public roadways are protected and public access is provided to them whenever possible. (RDR) (Source: Existing GP, Open Space, Policy 10 and Policy 11, combined)

NCR-7.3: Designate Scenic Routes. The County shall preserve scenic views from roadways by designating scenic routes based on the following criteria:

- leads to a recreational area;
- provides a representative sampling of the scenic diversity within the County;
- exhibits unusual natural or man-made features of interest;
- provides opportunities to view activities outside the normal routine of most people;
- provides a route for people to view the Delta waterways; and
- links two scenic routes or connects with scenic routes of cities or other counties. (PSP)

(Source: Existing GP, Open Space, Policy 12, modified)

NCR-7.4: Visually Complementary Development. The County shall require new development adjacent to scenic resources to be sited and designed to visually complement those resources, except in MR-Z designated areas. (RDR) (Source: New Policy)

NCR-7.5: Require Landscape Plans. The County shall require landscape plans for new development along State- or County-designated scenic routes. (RDR/PSP) (Source: Existing GP, Open Space, Implementation 7, modified)

NCR-7.6: Preservation of Ridgelines and Hill Tops. The County shall ensure that ridgelines and major hill tops remain undeveloped. (RDR/PSP) (Source: Existing GP, Open Space, Policy 5)

NCR-7.7: Reducing Light Pollution. The County shall encourage project designs, lighting configurations, and operational practices that reduce light pollution and preserve views of the night sky. (RDR) (Source: New Policy)

NCR-7.8: Underground Utility Lines. The County shall require all new electric and communication distribution facilities adjacent to scenic routes to be placed underground,

whenever feasible. Where overhead utility lines are unavoidable, every effort should be made to reduce the visual impact through elements of design. (RDR) (Source: New Policy)

LU-2.15: Agricultural Conversions. When reviewing proposed General Plan amendments to change a land use diagram or zoning reclassification to change from an agricultural use to non-agricultural use, the County shall consider the following:

- potential for the project to create development pressure on surrounding agricultural lands;
- potential for the premature conversion of prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and confined animal agriculture;
- potential for impacts on surrounding farming operations and practices; and
- provision of infrastructure and services to the new use and the potential impact of service demands or on the surrounding area.

(PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 13 Implementation 14, modified)

LU-2.16: Agriculture-Urban Reserve Designation. The County shall require a General Plan amendment to permit urban development on lands the County designates Agriculture-Urban Reserve. (RDR/PSP) (Source: Existing GP, Agricultural Lands, Agricultural Land Use Categories and Densities, Policy 4)

LU-3.1: Contextual and Compatible Design. The County shall ensure that new development respects San Joaquin County's heritage by requiring that new development respond to its context, be compatible with the traditions and character of each community, and develop in an orderly fashion which is compatible with the scale of surrounding structures. (RDR) (Source: New Policy)

LU-3.2: Distinctive Neighborhoods. The County shall encourage new development of diverse and distinctive neighborhoods that build on the patterns of the natural landscape and respect the character of existing surrounding development. (RDR) (Source: New Policy)

LU-3.3: Transitions in Scale. The County shall encourage a balance of the scale and massing of new development to the physical and visual character of adjoining uses to provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods. (RDR) (Source: New Policy)

LU-3.4: Walkable and Bikeable Streets. The County shall encourage new streets within Urban and Rural Communities and City Fringe Areas to be designed and constructed to not only accommodate auto and truck traffic, but also serve as comfortable pedestrian and cyclist environments and reflect public health goals by encouraging physical activity. These should include, but not be limited to:

- street tree planting adjacent to curbs and between the street and sidewalk to provide a buffer between pedestrians and automobiles, where appropriate,
- minimize curb cuts along streets, sidewalks on both sides of streets,

- bike lanes and walking paths, where feasible on collectors and arterials, and traffic calming devices such as roundabouts, bulb-outs at intersections, and traffic tables.

(RDR/PSP) (Source: New Policy)

LU-3.5: Streetscape Continuity. The County shall ensure that streetscape elements (e.g., street signs, trees, and benches) maintain visual continuity and follow a common image for each community. (RDR/PSP) (Source: New Policy)

LU-3.6: Crime Prevention Through Environmental Design. The County shall encourage design of new developments, streets, and public spaces that enhances public safety and discourages crime by providing street-fronting uses (“eyes on the street”), adequate lighting and sight lines, and features that cultivate a sense of community ownership. (RDR) (Source: New Policy)

LU-3.7: Development Along Freeways and Highways. The County shall ensure new development located along freeways and highways protects the public from the adverse effects of vehicle-generated air emissions, noise, and vibration, by using such techniques as:

- requiring extensive landscaping and trees along the freeway fronting elevation; and
- include design elements that reduce noise and provide for proper filtering, ventilation, and exhaust of vehicle air emissions.

(RDR) (Source: New Policy)

LU-3.8: Parking Location. The County shall encourage automobile-oriented uses to locate parking in areas less visible from the street (e.g., reverse frontage commercial centers). (RDR) (Source: New Policy)

LU-3.10: Visual Access. The County shall encourage new development to maintain views of hillsides, creeks, and other distinctive natural areas by regulating building orientation, height, and bulk. (RDR) (Source: New Policy)

LU-4.10: Incompatible Land Uses. The County shall ensure that residential development is protected from incompatible land uses through the use of buffers, screens, and land use regulations, while recognizing that agriculture and farming operations have priority in rural areas. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 9, modified)

LU-5.4: Commercial Conflicts and Visual Impacts. The County shall require new commercial development to address potential land use conflicts and visual impacts through site specific performance standards related to landscaping, screening, lighting, access, signage, setbacks, and architectural design. (RDR) (Source: Existing GP, CODP, Commercial Development, Policy 11, modified)

LU-5.11: Freeway Service Development. The County shall require that Freeway Service developments are designed in an attractive manner that creates a favorable impression of the County by considering the relationship to adjacent uses, site design and scale of development, building architecture, landscaping, signage, and circulation and parking. (RDR) (Source: New Policy)

LU-5.12: Limited Freeway Service Centers. The County shall limit the number of Freeway Service designated interchanges to encourage clustering of uses at selected

interchanges and maintain the open space and agricultural character of the county experienced by the freeway traveler. (RDR/PSP) (Source: New Policy)

LU-5.13: Freeway Service Master Sign Plans. The County shall encourage comprehensive or integrated master sign plans for significant Freeway Service areas through the preparation of Special Purpose Plans. Integrated sign regulations included in an approved Special Purpose Plan may supersede the County's specific sign regulations for the CFS zone in the Development Title. (RDR/PSP) (Source: Existing GP, CODP, Commercial Development, Policy 13, modified)

LU-8-1: Open Space Preservation. The County shall limit, to the extent feasible, the conversion of open space and agricultural lands to urban uses and place a high priority on preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water resource protection, and overall community benefit. (PSP) (Source: New Policy)

LU-8-2: Open Space Character. The County shall require new development in Resource Conservation designated areas to be planned and designed to maintain the scenic open space character of the surrounding area, including view corridors from highways. New development should use natural landforms and vegetation in the least visually disruptive manner possible, and use design, construction, and maintenance techniques that minimize the visibility of structures. (RDR) (Source: New Policy)

LU-8-3: Waterway Conservation and Restoration. The County shall encourage the conservation and restoration of rivers, creeks, and sloughs as multi-functional open space corridors that complement adjoining development and connect city and county recreation facilities (e.g., parks). (RDR/PSP) (Source: New Policy)

Relevant Implementation Programs

The following are relevant implementation programs contained in the 2035 General Plan that relate to visual quality:

ED-I: Signage and Wayfinding Program. The County, in coordination with Caltrans, chambers of commerce, and the Lodi Winegrowers Association, shall develop, adopt, and maintain a comprehensive signage and wayfinding program for agritourism, wineries, recreation, and heritage sites that will help tourists easily navigate from one destination to another throughout the county. (Source: New Program)

IS-K: Undergrounding of Utilities. The County shall update the Development Title to include provisions regarding the underground placement of gas and electricity transmission and distribution facilities and telecommunications facilities. (Source: Existing GP, Infrastructure, Utilities, Implementation 2, modified)

Approach to Analysis

For a program level EIR such as this EIR on the 2035 General Plan, it is speculative to assess visual impacts of individual development projects since details about individual development projects are not known. The methodology used in this section focuses on development that may occur in the vicinity of designated scenic routes and the effectiveness of proposed policies in the

2035 General Plan, not only in relation to scenic routes, but in relation to scenic vistas, important visual resources, and light and glare.

Impact Analysis

2035 General Plan Impacts

Impact 4.L-1: Development under the proposed 2035 General Plan could have a substantial adverse effect on a scenic vista. (Significant)

A number of scenic vistas exist throughout San Joaquin County, largely due to the level terrain and the openness of views to nearby and distant rolling hills, oak groves, and other natural features. As shown in Figure 4.L-1, the county includes a number of state scenic highways and local scenic routes that provide public viewing locations for such scenic areas.

New development could affect a scenic vista, depending on the location of the new development, the intensity and height of new buildings, and the overall design of the project. Development in areas proposed for land use changes (see **Figure 3-4**) could affect scenic vistas (see Figure 4.L-1) in the following locations: 1) along I-5 north of Stockton, 2) along State Route 12/88 west of Liberty Road, and 3) along State Route 4 at southwest edge of Stockton.

A number of the proposed policies would protect the overall visual quality of the county by encouraging visual buffers, setbacks, appropriately scaled development, and other programs. Policy LU-3.10 specifically requires new development to maintain views of scenic vistas, and therefore would reduce impacts related to scenic vistas. Policies NCR-7.3, NCR-7.4, and NCR-7.5 address designation and protection of scenic routes, and visually complimentary development.

New infrastructure such as new or expanded roadways could also have impacts on scenic vistas. For example, River Road near Ripon is now proposed as part of the Traffic Impact Mitigation Fee (TIMF) Capital Improvement Program, and this road is also designated as a scenic route. Additional mapped scenic routes (e.g., Elliot Road) in the Lockeford/Clements area are also shown as part of the TIMF Capital Improvement Program (see **Figure 3-6** and Figure 4.L-1). Such roadway changes could affect the experience for the driver along these roads by removing scenic features such as mature trees, historic structures, orchards, or riparian vegetation. Implementation of **Mitigation Measure 4.L-1** would ensure that impacts on scenic vistas from these roadway changes would be less than significant.

Mitigation Measure 4.L-1: The following implementation program shall be added to the 2035 General Plan:

IS-S: The County shall work with Caltrans to ensure that any road expansions of identified scenic routes shall minimize disruption of the elements that make the route scenic (e.g., orchards, historic structures, and riparian vegetation).

Significance after Mitigation: Less than Significant.

Impact 4.L-2: Development facilitated by implementation of the proposed 2035 General Plan could damage scenic resources, including, but not limited to, trees, rocks, outcroppings, and historic buildings within a state scenic highway. (Significant)

Figure 4.L-1 identifies state scenic highways within the county. I-580 in the southwest corner of the county and a very short stretch of I-5 in this same area near the county border with Stanislaus County are the only two stretches of state scenic highway in San Joaquin County. Figure 3-4 shows the areas of land use changes within the county. As discussed under Impact 4.L-1 above, new development could cause impacts in the vicinity of County-designated scenic routes; in addition, road improvements could also affect scenic routes. However, no new land use changes or infrastructure improvements are proposed (see Figure 3-4) near state scenic highways (see Figure 4.L-1). Therefore, the impact on state scenic highways would be less than significant and no mitigation measures would be necessary. Refer to Mitigation Measure 4.L-1 in regard to changes to scenic resources that are visible from County-designated scenic routes.

Mitigation Measure 4.L-2: Implement Mitigation Measure 4.L-1.

Significance after Mitigation: Less than Significant.

Impact 4.L-3: Development facilitated by implementation of the proposed 2035 General Plan could substantially degrade the existing visual character or quality of the site and its surroundings in a substantial manner. (Significant)

Industrial development identified near major roadways and as proposed by land use changes shown in Figure 3-4 could substantially degrade existing visual quality, depending on how the new development is designed. It is not possible to assess the extent of this degradation without knowing if such land use changes would occur (as certain criteria would have to be met for the change to be permitted), and without knowing the design of such development. However, such development would remove existing agricultural lands, some of which are visible from designated scenic routes. Development and infrastructure improvements (e.g., road additions or widenings) would also possibly remove open space and resources such as areas of scenic vegetation.

Multiple policies included in the 2035 General Plan would reduce this impact. These include Policies NCR-7.2, NCR-7.4, NCR-7.5, LU-3.3, LU-3.7, LU-3.10, LU-5.11, LU-5.12, and LU-5.13. Implementation Program IS-K would minimize the intrusion of overhead utilities, but other infrastructure such as roads could degrade the visual quality of the immediate surroundings due to the removal of scenic resources such as riparian vegetation (e.g., River Road east of Ripon). Mitigation Measure 4.L-1 above addresses this impact.

In addition, Mitigation Measure 4.A-2 suggests removal of land use changes proposed within the Primary Zone of the Delta, and this would also mitigate associated visual impacts.

Mitigation Measure 4.L-3: Implement Mitigation Measures 4.L-1 and 4.A-2.

Significance after Mitigation: Less than Significant.

Impact 4.L-4: Development facilitated by implementation of the proposed 2035 General Plan could create a new source of substantial light or glare that could adversely affect day or nighttime views in the project area. (Significant)

It is anticipated that most new sources of light and glare resulting from development under the 2035 General Plan would occur within and around already-urbanized areas. However, new development and new or expanded roadways to serve that development could result in substantial light or glare if adequate design measures are not undertaken to reduce such light and glare. Increased lighting could result from new street lights, exterior and interior lighting of buildings, lighting of parking areas, lighting of billboards and signage, and lights from traffic. In addition, light and glare could be created by land use changes (see Figure 3-4) proposed in relatively rural areas; for example, nighttime lighting of industrial facilities could alter views of the night sky for residents residing in these areas. Also, glare could result from new buildings that may include reflective glazing. Such glare could occur when the sun is at a certain angle and reflecting off the glass. Mitigation Measure 4.L-4 proposes text revisions to Policy NCR-7.7, to include impacts from glare during daytime hours, in addition to impacts from nighttime light pollution. The potential for significant lighting impacts associated with signage near new freeway service areas would be reduced by Policy LU-5.13, which addresses freeway service master sign plans. In addition, Mitigation Measure 4.L-4 proposes text revisions to Program ED-I that would reduce impacts from lighting of new signs associated with the proposed signage and wayfinding program for agritourism, wineries, recreation, and heritage sites. With implementation of Mitigation Measure 4.L-4 below, impacts would be less-than-significant.

Mitigation Measure 4.L-4: Policy NCR-7.7 shall be revised as follows:

NCR-7.7: Reducing Glare and Light Pollution. The County shall encourage project designs, lighting configurations, complementary land uses, and operational practices that reduce the potential for glare during daytime hours and reduce nighttime light pollution ~~and to protect adjacent land uses from light and glare and~~ preserve views of the night sky. (RDR) (Source: New Policy)

To reduce lighting impacts from new signage, Implementation Program ED-I shall be revised as follows:

ED-I: Signage and Wayfinding Program. The County, in coordination with Caltrans, chambers of commerce, and the Lodi Winegrowers Association, shall develop, adopt, and maintain a comprehensive signage and wayfinding program for agritourism, wineries, recreation, and heritage sites that will help tourists easily navigate from one destination to another throughout the county. Lighting of any signage shall be designed to minimize glare for its surroundings. (Source: New Program)

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.L-5: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, approved, pending, and reasonably foreseeable future projects, could result in cumulatively considerable impacts to aesthetic resources. (Significant)

The geographic area evaluated for the cumulative visual quality analysis considers development within all of San Joaquin County. No major land use changes are proposed at the edges of the county that would affect adjoining counties. Past, present, and reasonably foreseeable future projects include those within incorporated cities as well as those within the unincorporated portions of the county. Specific aesthetic impacts identified for the project such as impacts on scenic resources, impacts on scenic routes, and the potential for increased light and glare would also be cumulatively significant. The 2035 General Plan's incremental contribution would be cumulatively considerable and mitigation measures have been recommended. The identified policies and implementation programs discussed above that address visual quality within the county would partially mitigate potential cumulative visual quality impacts associated with the 2035 General Plan in combination with past, present, approved, pending, and reasonably foreseeable future projects. With the recommended mitigation measures for potential visual impacts, the cumulative visual impacts would also be reduced to less-than-significant levels.

Mitigation Measure 4.L-5: Implement Mitigation Measures 4.L-1 and 4.L-4.

Significance after Mitigation: Less than Significant.

L.5 References – Aesthetics

American Planning Association, 2012. Planning Magazine, "*The Devil is in the Delta*" by Paul Shigley, January.

California Department of Transportation (Caltrans), 2013. The California Scenic Highway System. *Eligible and Officially Designated Routes*, www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm, accessed March 12, 2014.

Mintier Harnish, 2009. *San Joaquin County General Plan Background Report: Public Review Draft*, July 2, 2009.

M. Public Services and Recreation

M.1 Introduction

This section describes public services and facilities, including police, fire and emergency services, parks and recreation facilities, as well as public schools and libraries. The section analyzes projected demand on each of these services as related to the 2035 General Plan. The “Environmental Setting” section was developed in part using information contained in the General Plan Background Report (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession of 2009 contributed to significantly slower population and housing growth than what had been projected for San Joaquin County.¹ In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2009 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes.

M.2 Environmental Setting

Fire and Emergency Services

Fire protection services for the unincorporated areas of San Joaquin County are provided by independent special district fire departments, the California Department of Forestry and Fire Protection (CAL FIRE), and in some cases through contracted service with city fire departments. Collectively, there are 22 fire protection districts protecting the San Joaquin County region, which are staffed with paid firefighters, reserve firefighters, volunteer firefighters, and administrative staff that provide support services (LAFCo, 2011).

City fire departments in Stockton, Lodi, Tracy, and Manteca provide urban fire protection within their respective incorporated areas. The Lathrop-Manteca Rural County Fire Protection District provides fire protection services to the City of Lathrop and the unincorporated areas surrounding Lathrop and Manteca. The City of Stockton Fire Department provides contract fire protection services to the Boggs Tract, Lincoln, Tuxedo-Country Club, and Eastside Fire Districts. The City of Escalon and City of Ripon Fire Departments are “consolidated fire districts” that provide fire protection to surrounding unincorporated areas. Additional fire districts provide fire protection within unincorporated areas and outlying small communities. All public fire protection agencies in San Joaquin County operate under a master mutual aid agreement. When a fire agency’s normal facilities are exhausted, other fire departments are called on to provide assistance (or to provide backup service) at no charge to the responsible fire agency. **Table 4.M-1** provides information on individual fire districts in San Joaquin County. **Figure 4.M-1** shows the location of fire stations and extent of each district’s service area.

¹ In the San Joaquin Council of Governments (SJCOC) 2005-2030 Population and Employment Projections (2004), countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three-year period.

**TABLE 4.M-1
FIRE PROTECTION DISTRICTS IN SAN JOAQUIN COUNTY**

District/ Department Name	Size ¹	Service Pop. ²	Type of Personnel ³	Stations ⁴	EMT ⁵	Calls for Service	Percent Medical Calls	Response Time ⁶	I S O Rating ⁷	Access Problems ⁸	Force Adequate
Clements Rural	115	2,350	1P, 19V	1	13	250	60%	4:16	5-8b		
Collegeville	28.5	2,500	4P, 9V	1	10	112	60%	8	7	--	YES
Escalon Consolidated	64	13,000	10P, 15R, 1A	2	19	1038	74%	7:25	4, 8b	AD	YES
Farmington	100	2,010	1P, 19R	1	6	262	60%	10:14	6/8b	RD	YES
French Camp-McKinley	16	7,272	7P, 9R,	1	11	1,000	79%	6:15	4/8b	--	YES
Lathrop-Manteca	84.7	25,197	37P, 18R, 3A	4	53	2,504	50%	4 to 6	4 & 9	--	NO
Liberty Fire District	36	3	21 total	1	13	293	61%	5	8B	--	YES
Linden-Peters	127	5,650	10P, 10R	1	15	584	48%	5-6	4/8	RD, T, AD	YES
Lodi Fire (City)	15.5	63,000	54P, 7A	4 (+1)	52		70%	4 90%	3	RD	YES
Manteca City (City)	17.2	65,300	43P, 20R	3	33		65%	4:42	3		
Mokelumne	34	6,500	9P, 10V, 1A	1	15	559	65%	5	5/8B	--	YES
Montezuma	9.1	8,150	24 total	2	20	679	46%	3:00 U, 4:00 R	5	AD	NO
Ripon	56	22,000	14P, 22V, 2A	2	12	1,555	75%	4:00U, 8:00R	4 (8.5)	--	NO
Stockton (City)	91	330,000	181P, 21A	13	279		82%	4:45 90%	3/6	Tall Buildings	YES/NO
Thornton	43.8	2,020	4P, 16R, 1A	1	13	370	83%	6:46	6, 9	RD	NO
Tracy (City and Rural)	167	109,551	73P, 1.15R, 2A, 2.3O	7	72	6,323	50%	4:23S, 6:47R	3/8B & 4/8B	RD, AD	YES
Waterloo Morada	36	13,122	15P, 12V, 7A	2	28	1,541	45%	4:24	5 & 8	AD, RD, T	NO
Woodbridge	192	15,000	27P, 5V, 2A	4	30	1,300	65%	6:08	5 & 8	--	NO

¹ Square miles in district.

² Service population, 2007 Census or District consultation.

³ Personnel: P=paid, V=volunteers, R=reserves, and A=administrative.

⁴ Existing and (planned) fire stations

⁵ EMT: Emergency Medical Technician.

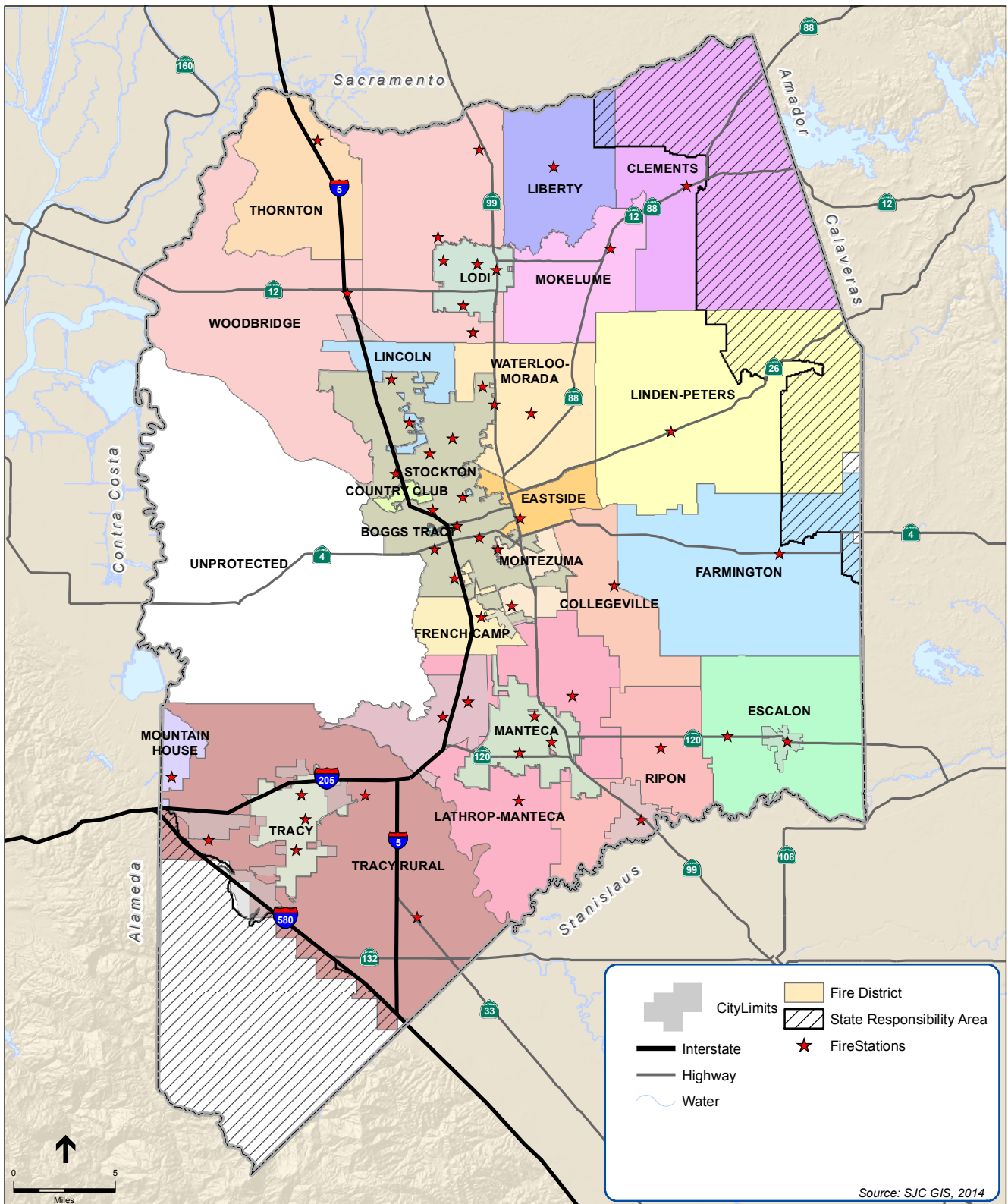
⁶ Average response time in minutes.

⁷ ISO, Insurance Services Office fire rating, dwelling classification. Multiple numbers may represent different areas of district (e.g., city/rural, hydrant/non-hydrant).

⁸ Access: RD = Road conditions; T = Turn-around; AD = Address display.

* Service area includes Lincoln, Eastside, Tuxedo County Club, and Boggs Tract Fire Protection Districts for a combined service area. 280,000 City population, 38,000 contract population.

SOURCE: Mintier Harnish, 2009; San Joaquin LAFCo, 2011; interviews with district chiefs, 2014.



SOURCE: San Joaquin County GIS, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.M-1
Fire Stations and Districts

The only major area in the county that is not protected by a fire district or department is the Southern Delta encompassing agricultural land, recreational areas, and approximately 540 residential units housing a population of approximately 2,400 people; this area is not under protection due primarily to accessibility issues. The adjoining rural fire districts and the City of Stockton may provide emergency medical response for life-threatening incidents, including automobile accidents and structure fires; however, neither the fire districts nor the City has any responsibility, since this area is not within a fire district and is not served by CAL FIRE under a State Responsibility Area. In this area, fire protection is primarily the responsibility of private parties and individuals unless the fire threatens County property, such as bridges or roads, at which point the County Public Works Department responds. There are primarily agricultural, residential, and recreational uses in this area, and it is anticipated that recreational development, travel along State Route 4, and traffic in the waterways would increase with time, in turn increasing the need for fire protection by both land and water.

Issues that were identified by districts in San Joaquin County include cuts in funding as a result of state and local budgetary issues, the annexation of unincorporated lands by rural districts without sufficient increases in funding, and a dwindling supply of reserve and volunteer firefighting staff.

Response Time

National and state guidelines call for urban fire departments to respond within five to six minutes of receiving an emergency call at least 90 percent of the time. As shown in **Table 4.M-1**, most departments fall within the 4- to 6-minute range. In general, response times depend on the availability of personnel, travel distance, ability to locate the fire, and conditions of the road and parking areas that must be navigated. Rural areas tend to have longer response times as they typically have one or two fire stations serving a large area and must rely heavily on the assistance of volunteer firefighters. In addition, firefighters may have trouble driving on dirt and gravel roads during the rainy season, or have problems locating a fire in a rural area, causing further delays in response time for emergencies in rural areas.

Fireflows

Most of the fire districts in the county follow the fireflow requirements in the California Fire Code; however, all rural districts must bring water along when responding to calls to ensure adequate supplies. The amount of fireflow available for each call varies by district, and each district has unique standards for manpower and equipment that correspond with their individual needs and budgets. While several districts have sprinkler ordinances, there is no countywide ordinance that requires fire sprinkler installation.

Emergency Medical Services

The San Joaquin Emergency Medical Services (EMS) Agency monitors and enforces more than 25 contracts and agreements in the county for the provision of advanced life support (ALS) emergency ambulance services, ALS and basic life support (BLS) non-emergency ambulance services, ALS and BLS first response services, base hospital medical direction, receiving hospital services, trauma services, training programs, and other EMS services. The San Joaquin EMS

Agency plans, implements, and evaluates the local EMS system, ensuring a coordinated and appropriate response from the time 911 is called to the arrival of a patient at a hospital. The details of how the San Joaquin EMS Agency coordinates the provision of ambulance dispatch, emergency rescue, ambulance response, and hospital services are set forth in written agreements between the EMS Agency, the dispatch center(s), hospitals, air and ground ambulance providers, and fire departments/districts. These agreements also address response time compliance for emergency (911) ambulance requests.

There are four emergency Advanced Life Support (ALS) ambulance services with exclusive rights to provide emergency ALS ambulance services in the county: American Medical Response, Ripon Consolidated Fire District, Ripon Ambulance; Manteca District Ambulance, and Escalon Community Ambulance. There are three air ambulance (helicopter) providers authorized to provide services within San Joaquin County: Air Methods/Medi-Flight, PHI/Air Med Team, and REACH. There are five authorized non-emergency ground ambulance providers in San Joaquin County: American Medical Response, Escalon Community Ambulance, Manteca District Ambulance, Priority One Medical Transport, and ProTransport-1, LLC.

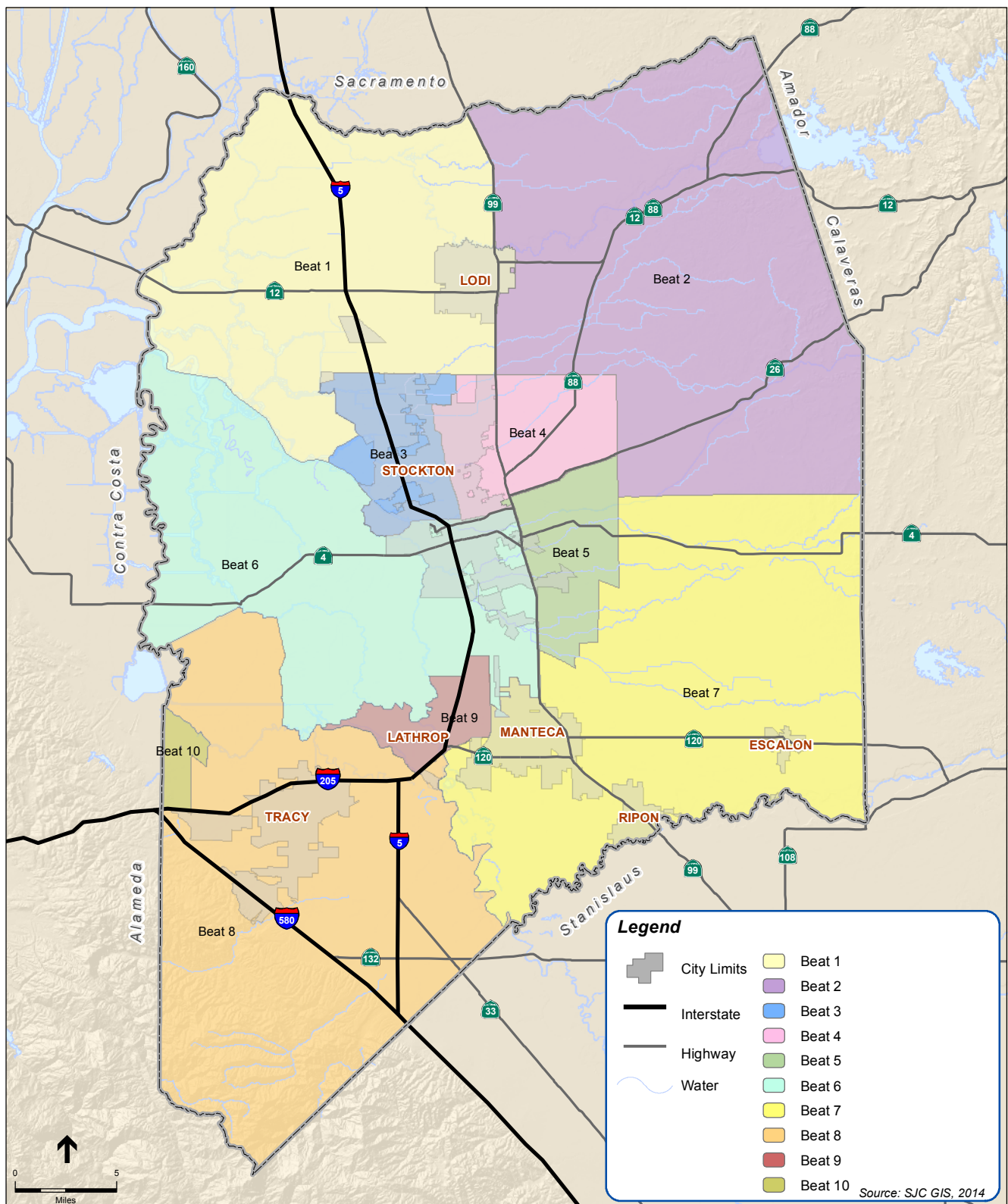
Police Services

The County Sheriff's Office has the primary responsibility for protecting the life and property of the citizens living in the unincorporated areas of San Joaquin County. This responsibility covers an estimated 21 percent of the total County population. The Sheriff's Office also provides other law enforcement services as needed. The Sheriff's Office consists of seven divisions: Civil and Custody Division, Coroner's Office, Internal Affairs Division, Public Information and Records Division, Administration Division, Investigations Division, and Operations Services Division.

The Sheriff's Office Civil and Custody Division includes the civil, detention, and court programs. The Investigations Division is responsible for investigation of all criminal activities occurring in unincorporated areas and apprehension of individuals who have violated the law. The Sheriff also functions as the County Coroner and Public Administrator. The Sheriff's Department follows national and state standards for incident command and mutual aid agreements, and acts as the mutual aid coordinator for the County.

The Sheriff's Office staffs a County Communication Center that operates on a 24-hour, seven-days-per-week basis. The Communications Center has the primary responsibility for answering all emergency 911 calls originating in the unincorporated county areas and the City of Lathrop. The Communications Center is the Public Safety Answering Point (PSAP) in the county as well as the alternate answering point for other PSAPs or call centers in the county. The Center also maintains a comprehensive Master Street Address Guide for the entire county.

The unincorporated county is divided into eight districts, or "beat areas," that are staffed around the clock by Deputy Sheriffs who provide emergency response capability to citizens in their beat area. **Figure 4.M-2** shows the eight Sheriff beat areas in the county. The Sheriff's Office also contracts with the City of Lathrop and the Mountain House Community Services District to provide full police and law enforcement services. In addition to their regular highway-related



SOURCE: San Joaquin County GIS, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.M-2
Sheriff Beat

duties, the California Highway Patrol maintains routine patrols and investigates traffic incidents on public roads in unincorporated communities.

The Boating Safety Unit provides enforcement of state and local laws and regulations on waterways within the county. Assigned deputies also inspect vessels, aid injured persons, assist emergency medical personnel, perform search and rescue operations, and recover drowning victims. Funding for the Boating Safety program is secured from the County's share of unsecured property tax revenue on boats registered in San Joaquin County. The Boating Safety Unit patrols over 600 miles of Delta waterways with seven patrol boats.

In 2007, the Sheriff's Office reintroduced the Community Car Program to provide community-oriented policing services in several underserved areas throughout the county during peak times of service. The program assigns at least one deputy to unincorporated towns in the county and encourages the deputies to get to know their assigned communities so they may better provide policing services. As of 2008, there were four deputies and one sergeant deployed in the Community Car Program who covered the communities of Woodbridge, Lockeford, and Thornton. By 2013, the County Board of Supervisors and Sheriff's Office planned to expand the program to deploy a total of two lieutenants, three sergeants, and 24 deputies in the communities of Boggs Tract, Taft, County Club, Lincoln Center, Morada, French Camp, Linden, Acampo, and East Stockton.

As of 2007, responsibility for law enforcement in the County's parks was transferred to the Patrol Division. The Sheriff's Office also coordinates citizen volunteer units such as STARS (Sheriff's Team of Active Retirees), Sheriff Reserve Deputies, Horse Posse, and Search and Rescue volunteers. Divisional lieutenants manage and coordinate these citizen volunteers.

Staffing

The Sheriff's Office has 156 sworn allocations servicing patrol operations at this time. This level does not include Mountain House Police Services District, City of Lathrop Police Services, Stockton Metropolitan Airport security and police, or Park Deputy Program. The Park Deputy positions were added after agreement by the Board of Supervisors for the Sheriff's Office to take over law enforcement services to the County park system. Overall levels would indicate a staffing level of 1.47 officers per 1,000 residents.

A closer examination of current allocations indicates that about 104 deputies are assigned to patrol as beat deputies, and 12 community car deputies with 137 total deputy allocations are assigned. At these levels, the Sheriff's Office is providing about 0.95 deputies per 1,000 residents in the unincorporated areas. The difference in the number of deputy allocations listed in **Table 4.M-2** below and the number of actual sworn allocations can fluctuate each year based on needs, the per-population ratio, and the department budget. For example, the San Joaquin County Sheriff's Office recommends a ratio of 1.5 line deputies per 1,000 residents countywide, while the Federal Bureau of Justice (U.S. Department of Justice) recommends 2.5 officers per 1,000 residents (Mintier Harnish, 2009).

**TABLE 4.M-2
SAN JOAQUIN COUNTY SHERIFF'S OFFICE STAFF ALLOCATIONS**

Department	Number of Staff Allocations
Public Information	
Deputy Sheriff	1
Sheriff Coroner	1
Under Sheriff	1
Administrative Support	
Administrative Assistant	1
Senior Office Assistant	1
Internal Affairs	
Sergeant	2
Senior Office Assistant	1
Custody Division	
Assistant Sheriff	1
Courts	59
Detention	318
Civil	20
Administrative Services	
Sheriff Director of Administration Services	1
Management of Information Systems	47
Operations Division	
Assistant Sheriff	1
Investigations	52
Field Forces	156
Support Services	62
Lathrop Police Department	24
Metro Narcotics	7
Mountain House	4
Total Sheriff Office Staff	760

Based on the population increase within the unincorporated areas of San Joaquin County, calls for service increased between 2000 and 2008. As a result, the number of actual allocations of field support has also increased. The types of calls for service include, but are not limited to, burglary, vandalism, property thefts, and violent crimes. The population growth impact on the Sheriff's Office resources and overall need for more field officers are driving factors necessitating the increased staffing ratios.²

² Staffing levels are from the 2009 General Plan Background Report and may not reflect staffing levels in the most recent year.

Response Time

The average response time, or time it takes for an officer to respond to calls, within the county is around 15 minutes and increases to 24 minutes for non-emergency calls. Response times vary depending on the number of officers in a patrol area, the size of the patrol area, and the density of the population being served. Response times are also affected by the distance to the call, the amount of traffic congestion during the response period, and the number of incidents that are simultaneously occurring (Mintier Harnish, 2009).

Crime Rates

Statistics on county crime rates are kept by the Records Division of the Sheriff's Office and reported to the State Department of Justice. Countywide arrest data showed that a total of 32,870 adults were arrested in 2006. Reported county and statewide crime rate trends for the period 2000 to 2006 show that San Joaquin County has experienced significant increases in reported crimes rates for most crime categories compared to statewide trends over the same period. For example, between 2000 and 2006, the violent crime index throughout California decreased 7.8 percent. This compares to a 32.3 percent increase for San Joaquin County over the same period. Reported statewide property crimes from 2000 to 2006 increased 21.3 percent in comparison to 60.2 percent for San Joaquin County. Overall, in terms of crime rate trends, San Joaquin County is experiencing a significant increase in crime compared to California as a whole.³

Jail Capacity

Between 2000 and 2007, the County jail system's average daily population (ADP) levels increased by 27.8 percent. In 2007, the ADP of 1,566 inmates represented 117.5 percent of the jail system's rated bed capacity and exceeded the "court cap" by 12.7 percent, or 176 inmates. Since 2000, daily "court cap" releases at 50 percent time served have become routine, and since 2005, the ADP has been higher than the available 1,329 beds, leading to an increase in daily "court cap" releases with inmates serving as little as 25 percent of their total court sentence (Mintier Harnish, 2009).

The County understands that an increase in population would mean more pressure on an already overcrowded criminal justice and custody system. In addition to various detention alternatives, San Joaquin County and the Sheriff's Office initiated a jail expansion project in order to accommodate the projected growth in inmate population by expanding the bed capacity of the jail. San Joaquin County has received \$80 million in Assembly Bill (AB) 900 funding for the project, for a net gain of 1,280 beds and supporting infrastructure, all of which would meet Corrections Standards Authority (CSA) standards without eliminating existing beds.

³ Crime rates are from the 2009 General Plan Background Report and may not reflect rates in the most recent year.

Schools

Public and Private Schools

There are over 145,000 elementary and secondary school students in San Joaquin County who are served by 14 school districts. A majority of the students, or 93 percent, are served by eight unified school districts that offer grades K-12: Escalon, Lincoln, Linden, Lodi, Manteca, Ripon, Tracy, and Stockton. The remaining students, including those in the Mountain House community, are served by elementary school districts offering grades K-8, including Banta, Jefferson, Lammersville, New Hope, New Jerusalem, and Oak View Union. As of 2014, there were over 218 K-12 public schools in the county, of which 12 percent were charter schools. Private school enrollment within San Joaquin County accounts for approximately 4.6 percent of the total elementary and secondary (K-12) enrollment in the county (NCES, 2014a; NCES, 2014b).

Table 4.M-3 shows the district enrollment in the county. The San Joaquin County Office of Education (SJCOE) oversees public education within the county. The SJCOE is a regional agency that acts as an intermediary between the California Department of Education and the school districts within the county, and also provides the County's special education programs, alternative education programs, and vocational and adult education programs.

Enrollment Trends

Enrollment in public schools in San Joaquin County experienced a relatively steady increase from 1994 to 2002, with an average increased annual enrollment of up to 3.6 percent. From 2005 to 2008, enrollment remained stagnant, and in some districts enrollment declined after 2008, most likely as a result of the economic downturn forcing families to leave the area for more affordable living. This decline in enrollment alleviated pressure on some school districts that had been at capacity, allowing them to accommodate changes in enrollment through 2012 and plan for additional facilities if growth was to exceed capacity in the future. The California State Department of Finance (DOF) projected that school enrollment in San Joaquin County would see a gradual increase in enrollment from 2013 to 2023, with the annual growth rate ranging from below one percent up to 1.2 percent in the 2022-23 school year (DOF, 2013).

School Funding and Identified Needs

The current condition of school facilities varies between excellent and adequate with respect to quality since many schools have undergone renovations based on modernization funding. However, despite the recent slowdown in enrollment (2006-2008), many school classroom and administrative facilities are experiencing some form of overcrowding. When statutory fees have been inadequate to meet existing and projected facility needs, some school districts have been successful in negotiating agreements with the development community for additional contributions to schools over and above statutory requirements. The terms of the agreements vary from district to district, but most payments are based on either a dollar amount per square foot of home or a lump sum per housing unit (Mintier Harnish, 2009).

**TABLE 4.M-3
SCHOOL ENROLLMENT BY SCHOOL DISTRICT, 2012-2013**

School District	Grades K-6	Grades 7-8	Grade 9-12	Total Enrollment
Banta Elementary	247	72	-	319
Escalon Unified	1,451	449	915	2,815
Jefferson Elementary	1,860	617	-	2,477
Lammersville Elementary ¹	1,902	458	-	2,360
Lincoln Unified	4,719	1,474	2,939	9,132
Linden Unified	1,186	348	787	2,321
Lodi Unified	16,447	4,572	9,203	30,222
Manteca Unified	12,327	3,618	7,254	23,235
New Hope Elementary	172	44	-	216
New Jerusalem Elementary	1,387	463	1,267	3,117
Oak View Union Elementary	310	92	-	402
Ripon Unified	1,703	563	972	3,238
Stockton Unified	22,643	5,753	10,010	38,435
Tracy Joint Unified	7,993	2,386	7,026	17,405
Public School Total	74,347	20,909	40,373	135,694
Correctional Education Association ²	-	-	412	412
SJC Office of Education ³	691	403	2,281	3,452
Private School ⁴	3,386	983	1,859	6,228
COUNTY TOTAL	78,424	22,295	44,925	145,786

NOTE: Enrollment figures for public school districts include California Youth Authority (CYA) schools and State Special Schools.

¹ Lammersville Elementary provides services to the communities of Lammersville and Mountain House.

² Provides Correctional Education for adults and juveniles in rehabilitation programs. Data is from 2011-12, the most recent year available.

² San Joaquin County Office of Education provides educational programs such as charter schools, regional occupational programs, and alternative education programs.

³ Private school data is for the 2011-2012 school year, the most recent year available.

SOURCES: National Center for Education Statistics. PSS Private School Universe Survey data 2011-2012 school year.

<http://nces.ed.gov/surveys/pss>

California Department of Education, Educational Demographics Unit. DataQuest Query for San Joaquin County School Districts. <http://dq.cde.ca.gov/dataquest/dataquest.asp> Data as of 7/7/2008.

The current State School Facility Program (SFP) requires a local match, unless the district meets specific criteria to be a hardship district. Most districts meet their match requirement using development fees (for new construction) or voter-approved general obligation bonds, which allow a local government to levy a property tax to meet debt service requirements. General obligation bonds may be approved by voters districtwide, or for a portion of the school district (School Facility Improvement District - SFID). It is anticipated that this would continue to be the most viable method to obtain local funds for classrooms and related facilities, including major modernization. Bonds may also be issued against Mello Roos revenues. Some districts have issued Certificates of Participation (COPs) secured by their General Fund to meet the match, or to provide for facilities for which there is not a state funding program.

Higher Education

There are several higher education institutions located in San Joaquin County. The San Joaquin Delta Community College in Stockton is a two-year community college that had approximately 23,000 students enrolled as of 2010 (San Joaquin Delta Community College, 2010). The Delta Community College has campuses in Stockton as well as in the Mountain House community.

The University of the Pacific (UOP) is a private university that offers graduate and undergraduate degrees to an average of 6,100 students each year. California State University Stanislaus-Stockton Center is an extension campus offering upper division and graduate courses to around 6,640 students pursuing baccalaureate and master's degrees. Humphrey's College, with around 1,000 students, and Laurence Drivon School of Law, with around 700 students, also have campuses located in Stockton. National University offers several undergraduate and graduate programs at its Stockton Campus, and the San Joaquin County University of California Cooperative Extension (UCCE) offers agricultural, consumer science, youth development, applied research, and educational programs throughout the county.

Parks and Recreation

Federal and State Facilities

There are four federal and state wildlife facilities located within San Joaquin County that provide protection for special-status species and opportunities for public wildlife viewing. While a majority of the National San Joaquin River National Wildlife Refuge is in Stanislaus County, an approximate 35-acre portion known as the Mohler Tract falls in the boundaries of San Joaquin County. As of 2009, there were plans to open parts of the refuge for limited passive recreation, but these plans did not include the Mohler Tract area. The State Department of Fish and Wildlife owns and manages three additional wildlife facilities in the county: the White Slough Wildlife Area, Woodbridge Ecological Preserve (Isenberg Crane Reserve), and the Corral Hollow Ecological Reserve. The Woodbridge Ecological Preserve is managed as seasonal habitat for Sandhill Cranes that allows for viewing opportunities. The Corral Hollow Ecological Reserve serves as habitat for the endangered large flowered fiddleneck and several other special-status species. The Caswell Memorial State Park is a 290-acre park located near the city of Ripon along the Stanislaus River. The park preserves riparian oak woodland habitat that supports several endangered species, including the riparian brush rabbit. The Carnegie State Vehicular Recreation Area, which spans parts of Alameda and San Joaquin Counties, provides a diverse terrain for off-road recreation.

Regional Facilities

San Joaquin County has several regional park facilities that offer a wide variety of recreational opportunities. The county's regional parks feature lands with unique environmental, ecological, and scenic value and draw people not only from communities within the county, but throughout the state. **Table 4.M-4** lists the eleven regional parks in San Joaquin County. The County owns and operates nearly half of the regional parks facilities, while the remaining parks are owned and operated by cities within the county. The county's regional parks offer various degrees of active

**TABLE 4.M-4
EXISTING PARK AND OPEN SPACE AREAS IN SAN JOAQUIN COUNTY**

Type/ Name of Park	Acres	Type/ Name of Park	Acres
<i>Regional Parks and Recreation Areas</i>		<i>Local Parks and Recreation</i>	
Micke Grove Regional Park	128	Community Parks	1298
Oak Grove Regional Park	180	Neighborhood Parks	696
Dos Reis Regional Park	9	Mini Parks	41
Westgate Landing Public Access	21	Plazas/Pocket Parks	5
Mossdale Crossing Regional Park	4	Public Golf Courses	516
Harmony Grove Church	2	Baseball/Softball Fields	19
Regional Sports Complex	70	Center Street Tennis Courts	0
Stillman L. Magee Regional Park	18	Skate Parks	1
Mokelumne Day Use Area	53	Barkleyville Dog Park	2
Woodbridge Wilderness Area	22	Bikeway/Greenbelt	37
Mountain House Old River Regional Park	82	Other	16
Jacob Myers Park	11	<i>Subtotal</i>	<i>2,632</i>
McHenry Recreation Area	40		
<i>Subtotal</i>	<i>500</i>	<i>State Wildlife Areas</i>	
<i>State Parks and Recreation Areas</i>		San Joaquin River National Wildlife Refuge	35
Caswell Memorial State Park	290	White Slough Wildlife Area	880
Carnegie State Vehicular Recreation Area	1,205	Woodbridge Ecological Preserve	372
<i>Subtotal</i>	<i>1,494</i>	Corral Hollow Ecological Reserve	99
		<i>Subtotal</i>	<i>1,386</i>

SOURCE: GIS data provided by San Joaquin County, compiled by ESA, 2014.

and passive recreation, including hiking and fishing, sports fields, boat launching, zoos, gardens, museums, and amusement parks.

The San Joaquin County Parks and Recreation department manages the operation and expansion of all County-owned regional, community, and neighborhood park facilities. The San Joaquin County Parks Commission consists of seven members, elected by the County Board of Supervisors to advise on issues relating to park maintenance and expansion. The County does not have a master plan that identifies plans to expand the regional parks system in the near future.

Local Parks

Local parks in San Joaquin County include neighborhood parks, community parks, and mini parks and are mostly owned and operated by cities, with the exception of two facilities that are located in the unincorporated county. The Morada Park is operated exclusively as a Little League facility in the community of Morada, and the Mountain House Park is operated by the Mountain House Community Services District.

Other Recreational Opportunities

Other recreational opportunities in the county include school playgrounds, bikeways, and portions of I-580 and I-5 that are designated as scenic highways. There are a total of 27 public and private golf courses located in the unincorporated county. The county has three museums – the Haggin Museum, San Joaquin County Historical Museum, and Stockton Children’s Museum – that preserve the art and history of the region. Additional cultural resources include the Stockton Symphony, San Joaquin County Ballet, and the Stockton Civic Theater.

The California Delta serves as an important recreational opportunity for residents of the county and broader Bay Area region. With over half of its waterways located within the boundaries of San Joaquin County, the Delta provides a wide variety of both land-based and water-based recreational and tourism activities. Land-based activities include hunting, camping, picnicking, hiking, biking, wildlife viewing and photographing, sightseeing, attending special events, visiting historic and cultural sites, and visiting wineries. Water-based activities include fishing, sailing, water skiing, operating personal watercraft, cruising, canoeing and kayaking, swimming, boat camping, house boating, windsurfing, and hunting. Water-based recreation activities are the most popular recreational activity in the Delta. Boating use averages more than 2.13 million trips and more than 6.4 million visitor days annually.

In addition to the Delta, the county has several waterway recreation areas where residents can go fishing, boating, water skiing, swimming, and hiking, among other activities. The Camanche Reservoir and Mokelumne Day Use Area are owned and operated by the East Bay Municipal Utility District, providing opportunities for fishing, turbing, rafting, boating, and other water sports in the reservoir and along the Mokelumne River. Additional access to the Mokelumne River is granted through the Stillman L. Magee Regional Park and the Woodbridge Regional Park, which are both run by the County. The San Joaquin River is accessible for recreation by Dos Reis Regional Park and the Mossdale Crossing Regional Park. The Stanislaus River is a narrow river with limited recreation opportunities. The Caswell Memorial State Park is the only public recreation area in the county that provides access to the Stanislaus River. The Calaveras River is also limited in recreation opportunities with only one public access area at the levees on Mormon Slough below the Bellota Dam.

Future Facilities

Over the past 25 years, the county’s park and recreation areas have decreased by over 200 acres, despite policies in the 2010 General Plan to expand park services. The County has not been able to accommodate requests for new facilities, including baseball and soccer fields, fish planting, Frisbee golf, and group picnic and wedding reception areas. The County recreation system generally lacks trails for hikers, cyclists, and horseback riders, as well as nature study, wildlife observation, and education areas. Financing is the primary barrier to obtaining and developing regional recreation facilities.

Senate Bill 1556, signed by the Governor in September 2006, directed the creation of a California Delta Trail and required the Delta Protection Commission (DPC) to create a plan for designing, constructing, and maintaining this trail. The California Delta Trail is planned to be a bike and

pedestrian trail system and a recreation corridor along more than 1,000 miles of Delta waterways within San Joaquin, Sacramento, Yolo, Contra Costa, and Solano Counties. This trail is expected to increase demands for land-based recreation facilities such as campsites, picnic areas, and restrooms.

Libraries

The Stockton-San Joaquin County Public Library system offers public library services throughout the county, with a collection of over one million items and an annual circulation of nearly 2.1 million items in 2008. Funding for the library system is provided through the City of Stockton, San Joaquin County, and the State of California through Public Library Foundation Program funding. There are six service areas within Stockton, including the main Chavez Central Library, and nine additional areas throughout the county. Branch libraries are located in the cities of Escalon, Lathrop, Manteca, Ripon, and Tracy, as well as in the unincorporated communities of Linden, Mountain House, and Thornton. Each branch library has a unique collection that reflects the interests and needs of the community it serves. In order to reach city and county neighborhoods that do not have a branch library nearby, the Mobile Library circulates throughout 24 separate stops in the county and Stockton. The Mobile Library provides library resources and materials, as well as a mobile family literacy unit that offers free literacy services. The Library's Strategic Plan, Facilities Master Plan, and Economic Benefit Study (2008) identify a target of providing between 0.4 and 0.6 square feet of library space per capita by the year 2030.

M.3 Regulatory Setting

This subsection briefly describes policies pertaining to public services and recreation as they apply to the proposed project.

Federal

National Fire Plan

The National Fire Plan was developed under Executive Order 11246 in August 2000, with the intention of actively responding to severe wildland fires and their impacts on communities while ensuring sufficient firefighting capacity for the future. The plan is implemented by the United States Department of Agriculture (USDA) Forest Service and the Department of the Interior, and provides assistance to communities that have been or may be threatened by wildland fire. Agencies provide support for educating citizens and a variety of grant programs including Rural, State, and Volunteer Fire Assistance and Economic Action Programs, for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at higher risk of damage from wildfire due to their location within the wildland-urban interface, the area where homes and wild lands intermix. In 2001, four San Joaquin communities were identified as Communities at Risk and published in the Federal Register: Bellota, Clements, Linden, and Lockeford.

Homeland Security Presidential Directive (HSPD)-5 National Incident Management System (NIMS)

The Homeland Security Presidential Directive (HSPD) directs the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS). This system provides a consistent nationwide template to enable federal, state, local, and tribal governments and private-sector and nongovernmental organizations to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism. San Joaquin County has acted to reduce potential damages from disaster events by adopting and complying with the NIMS standards. The San Joaquin County Board of Supervisors formally adopted NIMS in 2006 as the basic disaster management system for County agencies. Shortly after this action, the San Joaquin County Office of Emergency Services (OES) sent out guidance encouraging and assisting other public agencies in the County to adopt NIMS and to comply with existing training standards.

State

Senate Bill (SB) 244 (Wolk)

SB 244 was adopted in 2011 as a means to address the complex legal, financial, and political barriers that contribute to regional inequity and infrastructure deficits within disadvantaged unincorporated communities by including these communities in the long-range planning of a city or county. SB 244 aims to result in a more efficient delivery system of services and infrastructure including but not limited to sewer, water, and structural fire protection. Under SB 244, on or before the next adoption of a housing element, GC Section 65302.10.(a) requires that each city and county review and update the land use element of its general plan, based on available data, including, but not limited to, the data and analysis developed pursuant to Section 56430, of unincorporated island, fringe, or legacy communities inside or near its boundaries. The updated land use element shall:

- identify and describe each “island community” or “fringe community,” that exist within its sphere and is a disadvantaged unincorporated community,
- identify and describe each legacy community, as defined, within the boundaries of a county that is a disadvantaged unincorporated community,
- include an analysis of water, wastewater, stormwater drainage, and structural fire protection needs or deficiencies for each of the identified communities, and
- include an analysis in the land use element of potential funding mechanisms that could make the extension of services and facilities to identified communities financially feasible.

SB 1241 (Kehoe)

SB 1241, last amended June 7, 2012, requires cities and counties to address fire risk for State Responsibility Areas and very high fire hazard severity zones in general plan updates and requires the Office of Planning and Research (OPR) to update the California Environmental Quality Act (CEQA) Guidelines and the General Plan Guidelines to include provisions mandating the update

of the safety element, and any other materials related to fire hazards or fire safety. The bill also requires cities and counties, upon the next revision of the housing element on or after January 1, 2013, to review and update the safety element as necessary to address the risk of fire for land classified as State Responsibility Areas and land classified as very high fire hazard severity zones. The review must consider the advice included in OPR's most recent publication of "Fire Hazard Planning, General Technical Advice Series" and must include information on fire hazards, as well as goals, policies, and implementation measures to carry out the policies.

California Fire Code Ordinance Number 4343

This ordinance was adopted in November 2007 for the protection of the public health and safety of the unincorporated portions of San Joaquin County. It prescribes regulations governing conditions hazardous to life and property, fire, or explosion; provides for the issuance of permits, including inspection and fees; provides for violation penalties; and adopts the 2007 California Fire Code.

California Fire Plan

The California Fire Plan is the State of California's road map for reducing the risk of wildfire. The Fire Plan, finalized in 1996, is a cooperative effort between the State Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection, directing each CAL FIRE unit to prepare locally specific Fire Management Plans. A key product of the California Fire Plan is the development of wildfire safety zones to reduce citizen and firefighter risks from future large wildfires. In compliance with the California Fire Plan, individual CAL FIRE units are required to develop Fire Management Plans for their areas of responsibility. Parts of San Joaquin County are located in multiple Fire Plan areas based on the location with respect to CAL FIRE administrative area boundaries. The northeastern tip of the county is located in the Amador-El Dorado Unit 2005 Fire Plan; eastern San Joaquin County is located in the Tuolumne-Calaveras Unit Fire Plan; and the southwestern portion of the county is located in the Santa Clara Unit Fire Plan. Each unit is located within areas more likely to experience wildfires and is described more fully below.

Santa Clara Unit Fire Management Plan, 2005

Through the use of the Fire Management Plan, the Santa Clara Unit is working to reduce unplanned ignitions within the unit and limit damage caused by uncontrolled fires through the use of education, pre-fire mitigation projects, patrol, and law enforcement. The primary goal of wildland fire protection in the Santa Clara Unit is to safeguard the wide range of assets found within the unit from the effects of wildfire. This Fire Management Plan covers the southwestern portion of San Joaquin County.

Tuolumne-Calaveras Unit Fire Management Plan, 2005

The 2005 Tuolumne-Calaveras Unit Pre-Fire Management Plan is a comprehensive plan that combines all the Unit's pre-fire components into one document. It includes the Tuolumne-Calaveras Unit (TCU) concept of the Pre-Fire Management Plan; a current description of the

TCU; a discussion of the stakeholders, fuels, weather, level of service (LOS), and assets at risk in the TCU; the Unit-wide and Battalion Pre-Fire Management Plans; and a discussion of the institutional issues related to implementation of the Unit Pre-Fire Management Plan. This plan addresses how Unit staff is trying to mitigate the wildland fire hazard and ignition problem in the Unit. This Fire Management Plan covers approximately 596,396 acres in the eastern portion of San Joaquin County.

Amador-El Dorado Unit Fire Management Plan, 2005

The Amador El Dorado Unit's Fire Management Plan assesses the fire potential within its area of service. It identifies strategic opportunities for proactive project-based solutions identified by people who live and work within the fire threat areas as well as engaging the private landowners to take action. This plan coordinates CAL FIRE's pre-fire activities with adjacent CAL FIRE units, National Forests, and local collaborators. This plan is the foundation for planning, prioritizing, and funding the Unit's projects. This Fire Management Plan covers the northern tip of San Joaquin County (serving a population area of approximately 281 people).

State Responsibility Areas

State Responsibility Areas are classified by the State Board of Forestry and Fire Protection as being the primary financial responsibility of the State for preventing and suppressing fires. These lands include lands covered wholly or in part by timber, brush, undergrowth or grass, whether of commercial value or not; lands that protect the soil from erosion, retard run-off of water, or accelerated percolation; lands used principally for range or forage purposes; lands not owned by the federal government; and lands not incorporated. Lands are removed from State Responsibility Areas when housing densities average more than three units per acre over an area of 250 acres.

Section 700-716, Public Resources Code

Section 700-716 of the Public Resources Code establishes, generally, the authority of the California Department of Forestry and Fire Protection.

Section 4125-4136, Public Resources Code

Section 4125-4136 of the Public Resources Code establishes State Responsibility Areas, requires the development of fire plans to protect them, and places them under the jurisdiction of the California Department of Forestry and Fire Protection.

Section 4290, Public Resources Code

Section 4290 of the Public Resources Code establishes minimum fire safety standards for development in State Responsibility Areas.

Section 4291, Public Resources Code

Section 4291 of the Public Resources Code requires a minimum of 100 feet of clearance for fire safety surrounding all structures on State Responsibility Area lands in California.

Section 4740-4741, Public Resources Code

Section 4740-4741 of the Public Resources Code provides for the California Department of Forestry and Fire Protection to assist local governments in the prevention of wildland fires.

Section 4291, Public Resources Code

In recognition of the severity of wildland fire hazards in certain areas of California, the State of California has enacted legislation requiring local jurisdictions to adopt minimum recommended road standards for fire equipment access; standards for identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts to achieve fuel reductions. With certain exceptions, all new development and construction in SRAs after July 1, 1991, must meet the new standards. The state requirements do not supersede more stringent local regulations.

Emergency Services Act

The Emergency Services Act is the State of California's basic law establishing the foundation for emergency response. The Act is contained in the California Government Code beginning with Section 8550. The Act gives the Governor and chief executives of all political subdivisions emergency powers, establishes the Governor's Office of Emergency Services, assigns emergency functions to state agencies, provides for mutual aid, and authorizes such organizations as are necessary to carry out the provisions of the law. This regulatory area applies to OES only. Division 2.5 of the Health and Safety Code provides the statutory authority and describes the duties of the State Emergency Medical Services (EMS) Authority and local (County) EMS agencies for the administration and planning of EMS systems. This statute requires the local county EMS agencies to "plan, implement, and evaluate an emergency medical services system consisting of an organized pattern of readiness and response services based on public and private agreements and operational procedures." As pertains to EMS planning activities, the State EMS Authority has developed planning and implementation guidelines which are used by county EMS agencies as a planning tool by which to measure and improve all aspects of their EMS system. As set forth in the Emergency Services Act, these EMS System Standards and Guidelines are comprised of the following topic areas: 1) manpower and training, 2) communications, 3) transportation, 4) assessment of hospitals and critical care centers, 5) system organization and management, 6) data collection and evaluation, 7) public information and education, and 8) disaster response.

California Government Code, Title 2, Chapter 7, Article 9.5, Section 8607, Standardized Emergency Management System

The Standardized Emergency Management System requires local and state governments to use a standard organizational system for responding to disasters in order to receive selected state recovery funds. This regulatory area applies to the Office of Emergency Services and the Emergency Medical Services Authority.

Title 22 - California Code of Regulations, Division 9 – Pre-hospital Emergency Medical Services

These regulations provide the enforcement framework from which the State EMS Authority and local county EMS agencies conduct regulatory aspects of EMS system oversight as defined in the National Emergency Medical Services Systems Act of 1973. These regulations address first aid, emergency medical technicians (EMTs), disciplinary orders and conditions of probation for EMTs, trauma systems, EMS air services, poison control centers, EMS continuing education, and EMS system quality improvement.

Section 24000 of the California Government Code

This section mandates that the Office of Sheriff be established in each county in California. The Government Code describes the duties of the Office of Sheriff-Coroner, which include acting as bailiff in the Superior Court, maintaining a jail, and preserving the peace.

Mello-Roos Community Facilities Act of 1982

In 1978, Californians enacted Proposition 13, which limited the ability of local public agencies to increase property taxes based on a property's assessed value. In 1982, the Mello-Roos Community Facilities Act of 1982 (Government Code Sections 53311-53368.3) was created to provide an alternate method of financing needed improvements and services. Mello-Roos bonds provide developers with upfront funds for infrastructure improvements and new public service facilities, including new schools, parks, and recreation centers. Repayment of the bonds is shifted to homebuyers through a special tax under Proposition 13. Sellers must fully disclose the use of Mello-Roos funding to potential home buyers.

State of California Proposition 1A/Senate Bill 50

SB 50 (1998) created the present School Facility Program (SFP), which is a state/local match program for the funding of new K-12 school facilities and the modernization of existing facilities. The program was initially made operative and funded by voter passage of Proposition 1A. Program provisions have been modified by subsequent legislation. The program has been successively funded by a series of voter-approved state bonds.

SB 50 also created a number of statutory changes in the area of development fees for school facilities, the most notable effect being the pre-emption of school mitigation by the state. Satisfaction of the development fee process outlined in the statute is deemed to be "full and complete mitigation" of the impacts upon school facilities by new development, regardless of the identified level of impact. This included mitigation for the purposes of the California Environmental Quality Act. Local agencies are in effect prohibited from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "legislative or adjudicative act... involving... the planning, use, or development of real property (GC 65996(b); and from imposing mitigation (development) fees in excess of that determined by the statutory formulas."

SB 50 established a base fee for both residential (called Level 1) and commercial/industrial development. This base has been adjusted for inflation every two years. School districts must

establish the nexus between the development and the need for school facilities via a fee justification study in order to impose the biannual increase. A growing district that meets statutory criteria, including participation in the SFP, may impose a higher fee for residential development. The amount of the fee is determined by a process set forth in the statute, which also provides for a doubling of that fee (Level 3) when the Legislature determines that state funds are not available. All fees are levied and collected at the time the building permit is issued. District certification of the payment of the applicable fee is required before the city or county can issue the building permit.

Sections 65560–65568, State Government Code: Open Space Lands

This part of California planning law defines open space and requires every city and county to prepare open space plans as a required element of their General Plans. Building permits, subdivision approvals, and zoning ordinance approvals must be consistent with the local open space plan.

Section 5076, State Public Resources Code: Open Space Elements and Trail Considerations

This law requires that during development of the General Plan, counties must consider trail-oriented recreational use and must consider such demands in developing specific open space programs. Further, cities must consider the feasibility of integrating their trail routes with appropriate segments of the state system.

Section 66477, State Government Code, Subdivision Map Act

Referred to as the Quimby Act, this law permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The required dedication and/or fee are based upon the residential density, parkland cost, and other factors. Land dedicated and fees collected pursuant to the Quimby Act may only be used for developing new, or rehabilitating existing, park or recreational facilities. The maximum dedication and/or fee allowed under current state law is equivalent to providing three acres of park land per 1,000 persons, unless the park acreage of a municipality exceeds that standard, in which case the maximum dedication is five acres per 1,000 residents.

Local

San Joaquin County Ordinance Code Section 4-1006, Access Roadways for Fire Apparatus

As issued by the San Joaquin County Fire Chiefs Association, the California Fire Code requires that fire access roads be provided for every facility where the building is located more than 150 feet from an approved route. The fire access road must be in accordance with adopted standards.

San Joaquin County Ordinance Code Section 3-4300, Delta Fire Protection Tax

In accordance with Section 53978 of the Government Code, voters approved a special fire tax for fire prevention and suppression in the Delta. This special tax assesses properties in the Delta Fire Protection District an annual fee for fire protection, fire suppression, and emergency medical services.

Weed Abatement Ordinance Number 4286

This ordinance was adopted in March 2006 to amend the County Ordinance Code and incorporate Title 4, Division 1, Chapter 6, Abatement of Hazardous Weeds and Rubbish, to regulate the control and abatement of weeds and rubbish on lots or parcels, or the public right-of-way within unincorporated areas of the county, that constitute a public nuisance and are a fire hazard.

OES Multi-Hazard Functional Plan

The Office of Emergency Services (OES) is the single coordinating center for major emergency activities. In cooperation with others, OES maintains and oversees the Multi-Hazard Functional Plan (MHFP). The plan is a comprehensive disaster preparedness program. For example, during a major emergency, OES is granted emergency powers to control and direct emergency operations, obtain vital supplies and equipment, recruit necessary personnel, and make and issue rules and regulations on matters related to the protection of life and property affected by the emergency. The OES program becomes the Emergency Operations Center from which all department heads direct and control emergency operations. Emergency situations requiring emergency services by OES include dam evacuation procedures and hazardous materials incidents.

San Joaquin County Local Hazard Mitigation Plan

As part of the MHFP, the San Joaquin County Local Hazard Mitigation Plan is used as guidance during restoration, repairs, or new development of property or structures related to actual or potential disaster events. The plan contains goals and mitigation actions to reduce repetitive damages caused by hazards such as storms or flood events by taking appropriate mitigation actions in advance of such events.

Ambulance Ordinance of San Joaquin County – Ordinance No. 4231 (Division 7, §4-7100, et seq., San Joaquin County Code)

This ordinance provides formal policies and regulations for licensing and regulating the operation of ambulances in the County. The purpose of the ordinance is as follows: 1) enact formal policies and regulations for licensing and regulating the operation of ambulances; 2) protect the public by assuring that ambulances operate safely; 3) allow for adequate, appropriate, and efficient emergency ambulance service and non-emergency ambulance services in all areas of the county; and 4) allow for the orderly and lawful operation of a local emergency medical services system pursuant to the provisions of Health and Safety Code Section 1797 et seq.

M.4 Impacts and Mitigation Measures

Significance Criteria

Consistent with CEQA *Guidelines* Appendix G, if implementation of the proposed project could have a significant impact on the environment if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
 - Fire protection;
 - Police protection;
 - Schools;
 - Parks; or
 - Other public facilities;
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Relevant Policies

The following relevant policies of the 2035 General Plan address public services:

LU-4.6: Residential Support Services. The County shall encourage the development and siting of residential support services (e.g., convenience commercial uses, parks, schools) in Urban Communities that are accessible by all residents. (PSP/RDR) (Source: Existing GP, CODP, Residential Development, Policy 5, modified)

LU-4.7: Non-residential Uses in Residential Designations. The County may permit residential support services, home occupations, and open space recreation uses in areas designated for residential development, provided they have or obtain through application appropriate underlying zoning. (RDR) (Source: Existing GP, CODP, Residential Development, Policy 7, modified)

LU-8.1: Open Space Preservation. The County shall limit, to the extent feasible, the conversion of open space and agricultural lands to urban uses and place a high priority on preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water resource protection, and overall community benefit. (PSP) (Source: New Policy)

LU-8.3: Waterway Conservation and Restoration. The County shall encourage the conservation and restoration of rivers, creeks, and sloughs as multi-functional open space corridors that complement adjoining development and connect city and County recreation facilities (e.g., parks). (RDR/PSP) (Source: New Policy)

LU-8.4: New Parks and Open Spaces. The County shall ensure that sufficient parks, open space, waterways, and trails are planned throughout the County, to ensure adequate facilities are available to existing and future residents, including underserved areas and low-income neighborhoods. (PSP) (Source: New Policy)

C-2.1: Planning for Urban Communities. The County shall plan Urban Communities to accommodate most of the unincorporated County's projected growth; provide a variety of land uses; receive urban services, including community wastewater treatment, water, and storm drainage. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 1, modified)

C-2.3: Urban Community Growth. The County shall direct new growth and development to Urban Communities that have available land within their established boundaries and adequate infrastructure and services to accommodate planned residential, commercial services, and employment uses. (PSP) (Source: New Policy)

C-3.2: Development in Rural Communities. The County shall limit development in Rural Communities to those that have adequate public services to accommodate additional population and commercial services that provide for immediate needs of the community's residents or the surrounding agricultural community. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 2, modified)

C-5.4: Services for New Urban Communities. The County may allow the conversion of a Rural Community to an Urban Community provided that public services required to accommodate urban uses are available. The County shall require conversions to satisfy one of the following:

- Provide a will-serve letter from a City and obtain LAFCo approval for an out-of-agency service;
- Provide a will-serve letter from an existing independent special districts (e.g., County special district, Community Service District, Mello-Roos Community Facilities District, or other non-city public utility agency) and obtain LAFCo approval for annexation or an out-of-agency service as appropriate;
- Fund the formation of a new independent special districts (e.g., Community Service District, Mello-Roos Community Facilities District or other non-County public utility agency) to provide ongoing operation and maintenance. The Applicant would be responsible for the initial financing, design and construction of the infrastructure facilities (subject to County Public Works review and approval);
- Utilize the County's allocation of the Regional Wastewater Control Facility for existing and future unincorporated developments. The Regional Facility is currently maintained by the City of Stockton's Municipal Utilities Department (MUD).
- When approved by the Department of Public Works, fund the formation of a new County special district that would perform ongoing maintenance. The Applicant would be responsible for the financing, design and construction of the infrastructure facilities (subject to County Public Works review and approval). (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 3)

C-6.15: New Urban Community Parks and Open Space. The County shall require new Urban Communities to include a comprehensive and integrated system of parks, open space, and street/park trees that frames and complements neighborhoods and commercial and employment areas. New Urban Communities shall include sufficient parks, open space, parkways, and trails throughout the community to ensure adequate facilities are available to residents. (RDR/PSP) (Source: New Policy)

C-6.17: New Urban Community Services. The County shall require new Urban Communities to be served by public water, wastewater, and terminal storm drainage systems and provide for urban levels of police, fire, and flood protection. Public services shall be designed in such a manner as to be capable of serving only the proposed new Urban Community. The County shall require the formation of a Community Services District to provide services, including, but not limited to water, wastewater, drainage, police, and fire protection. The County shall not create a County Service Area to provide any services to new communities. Applicants for new Urban Communities shall be required to study and guarantee, through a development agreement, that water and wastewater infrastructure needs can be provided and maintained. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Implementation 18, 19 modified)

IS-1.1: Essential Facilities and Services. The County shall strive to ensure that adequate public facilities and services essential for public health and safety are provided to all County residents and businesses and maintained at acceptable service levels. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals. (RDR/PSP/IGC) (Source: New Policy)

IS-1.4: Infrastructure Maintenance. The County shall work with agencies to maintain, improve, and replace public facilities as necessary to maintain adequate levels of service for existing and future development and reduce the need for new facilities. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals. (PSP/IGC) (Source: Existing GP, CODP, Growth Accommodation, Policy 25, modified)

IS-1.5: Infrastructure and Service Expansions. The County shall base the expansion of public facilities and services on current needs and planned or projected development patterns. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 26, modified)

IS-1.13: Infrastructure Financing. The County shall approve new development only when financial mechanisms are in place to ensure that adopted County service standards are met and that long-term infrastructure and facility maintenance can be provided. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Policy 30, Policy 32, Policy 34)

IS-1.14: Equitable Infrastructure Financing. The County shall ensure that infrastructure and facility financing mechanisms for urban services are imposed equitably, and shall require the reimbursement from subsequent developments which benefit from the improved system. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 31)

IS-1.17: Maximize Resources. The County shall make maximum use of Federal, State, regional, local, and private resources to address local infrastructure and facility needs. (PSP/FB) (Source: Existing GP, CODP, Growth Accommodation, Policy 35, modified)

IS-5.6: Consistent Fire Protection Standards for New Development. The County, in coordination with local water agencies and fire protection agencies, shall ensure consistent and adequate standards for fire flows and fire protection for new development. (RDR/IGC) (Source: New Policy)

PHS-1.1: Effective Emergency Response. The County shall maintain adequate facilities equipment and staffing to respond effectively to emergencies. (PSP/SO) (Source: Existing GP, Emergency Preparedness, Policy 1)

PHS-4.6: Fire Protection Coordination. The County shall encourage well-organized and efficient coordination between fire agencies, CalFire, and the County. (IGC) (New Policy)

NCR-1.2: Open Space in Urban Communities. The County shall ensure that open space within urban communities is provided through the development and maintenance of open and recreation areas. (PSP) (Source: Existing GP, Open Space, Policy 7, modified)

NCR-1.3: Open Space Opportunities. The County shall support efforts to create opportunities for the public to experience and appreciate open space resources. (PSP) (Source: Existing GP, Open Space, Policy 9, modified)

NCR-2.3: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. The County shall continue to implement the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan to mitigate biological impacts resulting from open space land conversion. (RDR/PSP/IGC) (Source: New Policy)

NCR-8.1: Comprehensive Park System. The County shall continue to acquire, develop, maintain, and operate, based on available funding, a comprehensive system of parkland and recreational facilities that include active and passive recreation for a wide range of users. (PSP) (Source: New Policy)

NCR-8.2: Park Ratio Standard. The County shall encourage and support the development of recreational facilities to serve unincorporated communities at a ratio of 10 acres of regional parks and three acres of local parks per 1,000 residents. (PSP) (Source: New Policy, based on existing park development standards)

NCR-8.3: Interagency Coordination. The County shall coordinate the development of regional parks in cooperation with local, regional, State, and Federal agencies and the private sector and shall seek to establish new partnerships to enhance recreation opportunities in the County. (IGC) (Source: New Policy)

NCR-8.4: Support Recreation Programs. The County shall continue to encourage and support the efforts of private, non-profit, and community-based organizations in providing recreation programs in the County. (IGC/JP) (Source: Existing GP, Public Facilities, Recreation, Policy 22)

NCR-8.5: Publicize Recreation Programs. The County shall continue to promote parks and recreation systems through public information programs. (Parks & Recreation) (PI) (Source: Existing GP, Public Facilities, Recreation, Implementation 6)

NCR-8.6: Public Amenities Adjacent to Private Recreation Facilities. The County shall consider providing public amenities (e.g., fishing, picnic areas) in or adjacent to private

recreation facilities, particularly if the owner or operator of the private facility agrees to supervise and manage the public amenity. (PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 21)

NCR-8.7: Protect Resources. The County shall strive to protect the diverse resources upon which recreation is based, such as waterways, marsh lands, wildlife habitats, unique land and scenic features, and historical and cultural sites. (RDR) (Source: Existing GP, Public Facilities, Recreation, Objective 2)

NCR-8.8: County Role in Developing Parks. The County shall continue to be a major developer and operator of regional parks and shall facilitate the development and operation of local parks. The County's involvement in developing and maintaining parks shall be congruent with available funding and County staff resources. (PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 1)

NCR-8.9: Park Development Criteria. The County shall require parks to be developed using the criteria outlined in **Table 4.M-5**. (RDR) (Source: Existing GP, Public Facilities, Recreation, Policy 2)

**TABLE 4.M-5
CRITERIA FOR PARK DEVELOPMENT**

Park Type	Approximate Size (Acres)	Recreational Use	Service Area Radius	Access Requirements
Regional Park	15-200	Nature-oriented outdoor recreation, picnicking, boating, fishing, camping, trail uses and play areas.	1 hour drive time; serving several communities	Arterial and bicycle access
Community Park	15+	Intense recreation facilities, athletic fields & complex, swimming pools, picnicking, and play areas.	1 mile	Arterials or Collector, and bike and pedestrian access
Neighborhood Park	Less than 15	intense recreation activities, field games, court games, crafts, playground apparatus, picnicking, etc.	0.5 mile	Any roadway, and bicycle and pedestrian access
Mini Park	1 or less	Specialized use facilities for special user groups (tots, seniors,) nature or historic information marker, etc.	0.25 mile or less	Any roadway, and bicycle and pedestrian access

NCR-8.10: Local Parks in Urban Communities. The County shall require an operational authority be designated and funding for operations and maintenance be established before a local park is developed within an Urban Community. (RDR) (Source: Existing GP, Public Facilities, Recreation, Policy 4, modified)

NCR-8.11: Recreation Needs and Site Accessibility. The County shall ensure that recreation needs and site accessibility by the target service population are considered in the acquisition and development of new parks and recreation areas. (RDR) (Source: Existing GP, Public Facilities, Recreation, Policy 5, modified)

NCR-8.12: Consideration of Special Needs Groups. The County shall give special consideration to the recreational needs of the elderly, persons with disabilities, youth, and

people of low and moderate incomes in designing the layout, features, and programs for a park. (RDR) (Source: Existing GP, Public Facilities, Recreation, Policy 6)

NCR-8.13: Preserve Natural Features. The County shall encourage natural features to be preserved in recreation areas to increase opportunities for users to experience natural settings. (RDR) (Source: Existing GP, Public Facilities, Recreation, Policy 7, modified)

NCR-8.14: Joint Use Facilities. The County shall cooperate and coordinate with school districts in the joint planning, acquisition of land, and use of school buildings and facilities for park and recreational opportunities. (IGC) (Source: Existing GP, Public Facilities, Recreation, Policy 10)

NCR-8.15: Prevent Misuse of Recreation Areas. The County shall strive to prevent the overuse and misuse of recreation areas. (PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 11, modified)

NCR-8.16: Recreation Opportunities Along Waterways. The County shall encourage areas for the following recreational opportunities to be provided along the County's waterways:

- bank fishing;
- boating;
- water skiing;
- hiking, bicycling, and horseback riding;
- picnicking; and
- nature study.

(PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 12)

NCR-8.17: Public Access to Waterways. The County shall ensure adequate public access to waterways at selected appropriate locations. (RDR/PSP) (Source: Existing GP, Public Facilities, Recreation, Policy 13, modified)

NCR-8.18: Protect Water-Related Resources. The County shall protect water-related resources, especially the Delta, Mokelumne River, and Stanislaus River, for their importance to recreational uses. (RDR/PSP) (Source: Existing GP, Public Facilities, Recreation, combined Policy 14 and Policy 15)

NCR-8.19: Waterway Navigability. The County shall encourage the Corps of Engineers or other appropriate agencies to maintain navigability of the County's waterways. (IGC) (Source: Existing GP, Public Facilities, Recreation, Implementation 8)

NCR-8.20: Promote Land Donations. The County shall promote donations of land for recreation. (PSP/FB) (Source: Existing GP, Public Facilities, Recreation, Implementation 1(b))

NCR-8.21: Abandoned Publicly-Owned Land for Recreation. Prior to abandonment of any publicly-owned land, the County shall review the site for its recreational potential. (PSP) (Source: Existing GP, Public Facilities, Recreation, Implementation 1(e))

NCR-8.22: Park Dedication and In-lieu Fees. The County shall require dedication of parkland or in-lieu fees for local parks until other methods of sufficient financing are established. In-lieu fees shall:

- be collected for new developments proposed in those communities where the General Plan has identified a local recreation area;
- include land acquisition and site development costs, such as grading, access, drainage, and fencing; and
- be given to the agency providing local recreation facilities.

(RDR/FB) (Source: Existing GP, Public Facilities, Recreation, Implementation 11)

NCR-8.23: Marina Facilities. The County shall require new or expanded marinas to include the following facilities: adequate restrooms, pumpout facilities, trash containers, and oil waste disposal facilities. (RDR) (Source: Existing GP, Public Facilities, Recreation, Implementation 15)

NCR-8.24: Waterways, Levees, and Utility Corridors. The County shall consider waterways, levees, and utility corridors as major elements of the open space network and shall encourage their use for recreation and trails in appropriate areas. (PSP) (Source: Existing GP, Open Space, Policy 6)

NCR-8.25: Levee Rehabilitation. The County shall advocate for inclusion of recreation sites and trails in State/Federal Delta levee rehabilitation plans and programs. (PSP/IGC) (Source: Existing GP, Public Facilities, Recreation, Implementation 4)

D-3.4: Location-based Recreation. The County shall support efforts to enhance recreation in the Delta, including enhancing Delta waterways, developing dispersed points of natural and cultural interest and focal points, and expanding access to natural resource areas. (PSP) (Source: New Policy)

D-3.5: Waterway Facilities and Access. The County shall encourage expansion of existing privately-owned, water-oriented recreation and access facilities, and ensure appropriate planning, development and funding for expansion, ongoing maintenance and supervision of existing public recreation and access areas. (RDR/PSP) (Source: New Policy)

D-3.6: Delta Trails. The County shall encourage the development of a regional system of trails within the Delta provided that trails are located and developed to mitigate and minimize potential environmental, agricultural, infrastructure, and law enforcement conflicts, and does not adversely affect private property. (RDR/PSP) (Source: New Policy)

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan address public services and recreation:

LU-E: The County shall adopt standards for facilities and services in rural communities that protect basic public health and safety and the environment, but are financially supportable at rural densities and do not encourage urban development. (RDR) (Source: New Program)

IS-M: Library Facilities Master Plan. The County shall review and update as necessary the Stockton-San Joaquin County Library Facilities Master Plan every five years. (PSP) (Source: Existing GP, Infrastructure, Libraries, Implementation 1, modified)

IS-N: Ongoing Needs Assessment. The County shall conduct a bi-annual survey to assess the need for additional library services at existing branch libraries and by the bookmobiles. Based on findings from the studies, the County shall make recommendations to the Stockton-San Joaquin County Library on addressing identified deficiencies and needs. (PSP/PI) (Source: Existing GP, Infrastructure, Libraries, Implementation 3, modified)

IS-O: Seasonal Law Enforcement Standard. The County shall establish a seasonal law enforcement service standard to address increased demand for deputies on County waterways during certain periods of the year. The standard shall be based on relevant factors, such as the number of registered boaters in the County, the number of calls for service from previous years, and service population averages. (RDR) (Source: Existing GP, Fire Safety and Law Enforcement, Implementation 6)

IS-P: Fireflows. The County shall coordinate with local fire districts and CalFire to update the Development Title to include water system fireflow requirements for new development. (RDR/IGC) (Source: Existing GP, Fire Safety and Law Enforcement, Implementation 3, modified)

IS-Q: Defensible Space. The County shall develop and adopt a Defensible Space Concepts Design Review Manual. (RDR) (Source: Existing GP, Fire Safety and Law Enforcement, Implementation 7, modified)

IS-R: Impact Fees. The County shall develop and adopt impact fees to offset the costs of providing fire and law enforcement services. (FB) (Source: Existing GP, Fire Safety and Law Enforcement, Implementation 9, modified)

PHS-L: Community Wildfire Protection Plan. The County shall review and update the Community Wildfire Protection Plan every five years. (PSP) (Source: New Program)

NCR-Q: Park and Recreation Master Plan. The County shall prepare, maintain, and implement a Park and Recreation Master Plan that identifies long-range recreational needs of the county, potential park sites and trail corridors, opportunities for partnerships, and financing strategies for local and regional parks. The Plan shall include an inventory of recreational facilities in existing communities and an analysis of needed additional facilities. The County shall update the Master Plan every five years to respond to changing community needs and recreation trends. (PSP) (Source: New Program)

NCR-R: Public Land Acquisition for Recreation. The County shall conduct a study to identify sites for potential future recreation facilities. Based on current and projected park and recreation needs, the County shall acquire the identified sites when funds become available. Special consideration shall be given for early acquisition and/or protection to those areas that have special features or are in areas planned for urban development. (PSR) (Source: Existing GP, Public Facilities, Recreation, Implementation 1, modified to be based on a Parks and Recreation Master Plan, modified)

NCR-S: Study Recreational Potential of Selected Waterways. The County shall prepare a study of the recreational potential of selected waterways, particularly for trails, along the

Calaveras River, the San Joaquin River, the Stockton Diverting Canal, and water conveyance projects. The potential for land use conflicts associated with public use of waterways (e.g., trespassing, littering, vandalism, compromising the integrity of flood protection) shall be assessed for selected recreation sites. (PSR) (Source: Existing GP, Public Facilities, Recreation, Policy 16, modified)

Approach to Analysis

Impacts of increases in population and land use intensity that would result from development under the 2035 General Plan were evaluated based on information provided by the fire departments, police departments, and school districts with jurisdiction in portions of the county. This information addressed service capabilities, service ratios, response times, and performance objectives.

Impact Analysis

2035 General Plan Impacts

Impact 4.M-1: Development under the proposed 2035 General Plan could result in an increase in calls for fire protection and emergency medical response services, and could require new or physically altered fire protection facilities in order to maintain acceptable performance standards. (Less than Significant)

Under the proposed 2035 General Plan, new development would be constructed in designated areas to accommodate a reasonable share of the region's projected population growth, which would increase the need for fire protection services. The need for increased fire protection services could require a need for new or expanded fire protection facilities, the construction of which could have adverse environmental impacts.

Implementation of the proposed 2035 General Plan would direct population and housing growth to areas where infrastructure and service systems already exist, including the city fringe areas, or unincorporated areas that fall within each city's Sphere of Influence (SOI), and the unincorporated urban and rural communities. As discussed in Chapter 3, *Project Description*, the largest increase in population would occur in the City of Stockton SOI, which would see a net increase of 74,400 people and 24,500 housing units by 2035. The City of Stockton SOI is served by the Stockton Fire Department, which provides contract fire protection services to the Boggs Tract, Lincoln, Tuxedo-Country Club, and Eastside Fire Districts. Rural districts that cover parts of the Stockton SOI include Woodbridge, Lincoln, Waterloo Morada, and Montezuma. Relative to the existing population, increases within the Stockton SOI would not be substantial (22 percent over 2010 population); however, some districts, including Montezuma and Waterloo Morada, have expressed that while they currently meet target response times, they are not adequately staffed to handle the volume of calls they receive. In addition, the Stockton Fire Department saw significant staff reductions in 2009 that decreased their ability to adequately provide services in more recent years.

Substantial growth would also occur in the Lathrop SOI, with 49,800 people and 13,700 housing units; the Tracy SOI, with 38,100 people and 11,700 housing units; and the Manteca SOI with 36,400 people and 12,300 housing units. The Lathrop-Manteca Fire District maintains an average response time similar to other districts in the county; however, the level of staffing is not adequate to meet the volume of calls received due to revenue loss that occurs as most development within its service area is annexed to city districts. Tracy City and Rural Fire Department indicated that, as of 2012, it has been able to meet its target response times and is adequately staffed to provide fire protection services.

It is anticipated that growth that occurs in the city SOI areas would be annexed into the incorporated cities. The remaining population growth in the county would fall in the unincorporated urban and rural communities. The urban community that would see the highest growth is Mountain House, with 35,238 people and 12,008 housing units by 2035; it should be noted that approximately 85 percent of the projected growth in unincorporated communities is projected to occur in the Mountain House urban community alone. The Mountain House community contracts with Tracy City and Rural Fire Department for fire protection services. As discussed above, the Tracy Fire Department is able to meet its target response times and has adequate staffing to handle its call volume. In anticipation of future growth within its service area, the Department has plans to relocate two stations and increase staffing, potentially building up to four new fire stations citywide.⁴

Substantial growth would also occur in Lockeford, with 2,929 people and 998 housing units; and in Linden, with 968 people and 330 housing units. This represents 89 percent growth in Lockeford and a 54 percent increase in population in Linden over the baseline population in 2010. Lockeford is served by the Mokelumne Fire District, which is headquartered in Lockeford and currently maintains a five-minute response time and has an adequate force to handle the average call volume. Linden is served by the Linden-Peters Fire District, which is headquartered in Linden and is also adequately staffed to maintain target response times.

The rural communities that would see the highest growth are Farmington, with 423 people and 144 housing units; Collierville, with 525 people and 179 housing units; and Victor, with 88 people and 30 housing units. These communities are served by the Farmington Fire District, Woodbridge Fire District, and Mokelumne Fire District, respectively. Although growth in the rural communities is significant relative to the baseline population in 2010, it generally would not be large enough to require the construction of new facilities to handle the increase in demand.

The 2035 General Plan includes goals and policies that would help reduce substantial adverse physical impacts associated with the provision or need for new or physically altered public services and facilities. The Communities Element contains policies that limit growth to areas that are already served by public services and facilities. Policy C-2.1 and Policy C-2.3 explain the County's intent to concentrate growth in the Urban Communities, and only those that have available land and adequate services to support such growth. As stated in Policy C-3.2,

⁴ Substantial environmental impacts from construction of these new stations falls under the jurisdiction of the City of Tracy, and therefore is not analyzed as part of this EIR.

development in Rural Communities would only occur when adequate public services are provided that can accommodate additional population.

Policies in the Infrastructure and Services Element would ensure that adequate public facilities are provided for both existing residents and new developments, while reducing the need to construct new facilities. Policy IS-1.1 states that the County would strive to ensure that adequate public facilities and services are provided and maintained at acceptable service levels. Under Policy IS-1.4, the County would maintain and improve public facilities so as to maintain adequate levels of service while reducing the need for new facilities, and Policy IS-1.5 states the County would base the expansion of services on current and projected needs. Policies IS-1.13, IS-1.14, and IS-1.17 state the County's intent to only approve new developments when there is a mechanism for funding new services, including through the use of federal, state, regional, and local resources.

The proposed 2035 General Plan does not contain policies that specify level of service standards for fire districts serving unincorporated areas; instead, policies state the County's intent to provide adequate fire protection facilities and infrastructure to existing and new development and ensure such facilities are sufficiently funded. Policy C-6.17 states that the County shall require new Urban Communities to provide for urban levels of fire protection, among other services, and that the County shall require the formation of a Community Services District to provide these services only to a new Urban Community. Policy IS-5.6 states the County shall coordinate with local water agencies and fire protection districts to ensure consistent and adequate standards for fire flows and fire protection are provided for new development. Under the Public Health and Safety Element, Policy PHS-1.1 ensures that the County would maintain adequate facilities to respond to emergencies, and Policy PHS-4.6 states the County's intent to coordinate amongst local fire agencies, CAL Fire, and the County.

Implementation of the 2035 General Plan would result in population and housing growth in the county that would create a need for increased fire protection services, including the need for new facilities to maintain service levels, the construction of which could result in adverse environmental impacts. Existing County policies and regulations and proposed 2035 General Plan policies are intended to reduce impacts associated with fire protection facilities, and ensure adequate service levels are provided to all areas of the unincorporated county. As the 2035 General Plan is a long-range planning document, impacts on fire districts resulting from growth would not occur immediately, and instead would occur over time as various development projects are approved and built. New or expanded facilities proposed under the County's jurisdictional authority are typically required to obtain certain permits that comply with applicable regulations that protect environmental resources. Each project would be subject to independent review under CEQA to determine significant environmental effects and implement required mitigations when feasible.

The proposed 2035 General Plan includes several implementation programs that build upon proposed policies to increase fire protection in the county. Program LU-E requires the County to adopt standards for facilities and services in rural communities that protect public health and safety but do not encourage urban development. Program IS-P requires the County to develop

water system fireflow requirements for new development. Program IS-Q requires the County to adopt a Defensible Space Concepts Design Review Manual to assist the public with creating defensible space and protecting themselves against wildland fires. Program IS-R requires the County to develop and adopt impact fees to offset the cost of providing fire protection services. Program PHS-L requires the County to review and update the Community Wildfire Protection Plan every five years.

Existing regulations (e.g., provisions associated with development standards and restrictions regarding structure design, fuel modification zone design, adequacy of emergency access, water for firefighting), proposed policies, and implementation programs outlined in the proposed 2035 General Plan would ensure that development facilitated by the implementation of the proposed 2035 General Plan would be served by adequate fire facilities and would not adversely affect fire protection services. Thus, this impact would be less than significant.

Mitigation: None required.

Impact 4.M-2: Development under the proposed 2035 General Plan could result in an increase in calls for police services, and could require new or physically altered police facilities in order to maintain acceptable performance objectives. (Less than Significant)

Under the 2035 General Plan, new development would be constructed in designated areas to accommodate a reasonable share of the region's projected population growth, which would increase the need for police services. The need for increased police services could require a need for new or expanded police facilities, the construction of which could have adverse environmental impacts.

The San Joaquin County Sheriff's Office patrols all areas of the county, which is divided into ten separate beat districts. **Table 4.M-6** identifies projected population and housing growth within the ten beat areas under the proposed 2035 General Plan. As shown in this table, all beat areas would experience growth in population and housing under the 2035 General Plan. Beat areas that would see the greatest net increase in population and housing units include Beats 3, 4, 5, and 6 combined, which serve the Stockton SOI and the surrounding communities (net increase of 74,477 people and 24,526 housing units), and Beat 7 serving the Manteca SOI, Ripon SOI, Escalon SOI, and Farmington (net increase of 49,123 people and 16,844 housing units). Although Beats 3, 4, 5, and 6 would serve the greatest population and housing units under the proposed 2035 General Plan, they generally would not experience substantial percentage growth when compared to existing conditions. Beat areas that would experience the greatest percentage growth, relative to the 2010 baseline, include Beat 10 serving Mountain House (323 percent), Beat 2 serving primarily unincorporated communities in the northeast (164 percent), and Beat 1 serving the Lodi SOI and surrounding communities (80 percent).

In order to provide quality law enforcement services to the county population, staffing levels must be increased to an appropriate level as indicated by county goals and industry standards. As discussed in the "Environmental Setting" section above, the San Joaquin County Sheriff's Office

**TABLE 4.M-6
POPULATION GROWTH BY SHERIFF BEAT AREAS**

Beat	City Sphere of Influence or Community	Population 2010	Population 2035	Population Net Growth 2010-2035	Percent Population Growth	New Housing Units 2010-2035
1	Lodi	65,700	73,000	7,300	11	2,700
	Collierville	2,345	2,870	525	22	179
	Woodbridge	3,787	3,831	44	1	15
	Acampo	462	462	0	0	0
	Thornton	809	1,176	367	45	0
	<i>Subtotal</i>	<i>73,103</i>	<i>81,339</i>	<i>8,236</i>	<i>80</i>	<i>2,894</i>
2	Lockeford	3,301	6,230	2,929	89	998
	Clements	-	-	-	-	0
	Linden	1,814	2,782	968	53	330
	Victor	395	483	88	22	30
	Peters	520	520	0	0	0
	<i>Subtotal</i>	<i>6,030</i>	<i>10,015</i>	<i>3,985</i>	<i>164</i>	<i>1,358</i>
3, 4, 5, 6	Stockton	344,300	418,700	74,400	22	24,500
	Morada	4,387	4,446	59	1	20
	Glenwood	-	-	-	-	0
	Noble Acres	0	18	18	0	6
	French Camp	4,421	4,421	0	0	0
	<i>Subtotal</i>	<i>353,108</i>	<i>427,585</i>	<i>74,477</i>	<i>23</i>	<i>24,526</i>
7	Farmington	249	672	423	170	144
	Escalon	7,300	9,700	2,400	33	900
	Ripon	14,700	24,600	9,900	67	3,500
	Manteca	69,100	105,500	36,400	53	12,300
	<i>Subtotal</i>	<i>91,349</i>	<i>140,472</i>	<i>49,123</i>	<i>323</i>	<i>16,844</i>
8	Tracy	87,500	125,600	38,100	44	11,700
	Chrisman*	-	-	-	-	0
	New Jerusalem*	-	6	6	NA	2
	Vernalis*	-	-	-	-	0
	Banta*	-	161	161	NA	55
	Stoneridge*	-	-	-	-	0
	Lamersville*	-	94	94	NA	32
	<i>Subtotal</i>	<i>87,500</i>	<i>125,861</i>	<i>38,361</i>	<i>44</i>	<i>11,789</i>
9	Lathrop	18,100	67,900	49,800	275	13,700
10	Mountain House	9,996	45,234	35,238	353	12,008

NOTES: Population estimates for cities include anticipated growth in their surrounding SOI.

* Indicates no population information is available for 2010.

SOURCE: Mintier Harnish, 2009; beat area maps; and Project Description.

recommends a ratio of 1.5 line deputies per 1,000 residents countywide, while the Federal Bureau of Justice (U.S. Department of Justice) recommends 2.5 officers per 1,000 residents. Past recommendations have varied the ratio between urban levels of 1.5 line deputies per 1,000 residents and rural levels of 1 line deputy per 1,000 residents. Using these standards, population increases in the county would require a minimum of 145 officers to serve the city SOIs, and an additional 43 officers to serve the unincorporated communities. The Sheriff's Office has long-term staffing plans that would increase staffing across multiple divisions and expand patrol services into various urban and rural areas to be used as substations. Additionally, the County is considering the expansion of the jail facility to accommodate the growing crime rates in the county.

The proposed 2035 General Plan includes goals and policies that would help reduce substantial adverse physical impacts associated with the provision or need for new or physically altered public services and facilities. The Communities Element contains policies that would limit growth to areas that are already served by public services and facilities. Policies C-2.1 and C-2.3 explain the County's intent to concentrate growth in the Urban Communities, and only those that have available land and adequate services to support such growth. As stated in Policy C-3.2, development in Rural Communities would only occur when adequate public services are provided that can accommodate additional population. Policy C-6.17 states that the County shall require new Urban Communities to provide for urban levels of police protection, among other services, and that the County shall require the formation of a Community Services District to provide these services only to the an Urban Community.

Policies in the Infrastructure and Services Element would ensure that adequate public facilities are provided for both existing residents and new developments, while reducing the need to construct new facilities. Policy IS-1.1 states the County would strive to ensure adequate public facilities and services, as well as provide and maintain acceptable service levels. Under Policy IS-1.4, the County would maintain and improve public facilities so as to maintain adequate levels of service while reducing the need for new facilities, and Policy IS-1.5 states that the County would base the expansion of services on current and projected needs. Policies IS-1.13, IS-1.14, and IS-1.17 state the County's intent to only approve new developments when there is a mechanism for funding new services, including through the use of federal, state, regional, and local resources. Policy PHS-1.1 would ensure that the County maintains adequate facilities to respond to emergencies. Implementation programs in the 2035 General Plan that support police services include Program IS-O, which would require the County to establish a standard to increase patrols on waterways during certain times of the year; and Program IS-R, which would require the County to develop and adopt impact fees to offset the costs of providing law enforcement services. Program LU-E would require the County to adopt standards for facilities and services in rural communities that protect public health and safety but do not encourage urban development.

Implementation of the proposed 2035 General Plan would result in population and housing growth in the county that would create a need for increased police services, including the potential need for new facilities to maintain service levels, the construction of which could result in adverse environmental impacts. Existing County policies and regulations and proposed 2035

General Plan policies and implementation programs are intended to reduce impacts associated with police facilities and ensure that adequate service levels are provided to all areas of the unincorporated county. As the proposed 2035 General Plan is a long-range planning document, impacts on police services resulting from growth would not occur immediately, and instead would occur over time as various development projects are approved and built. New or expanded facilities proposed under the County's jurisdictional authority are typically required to obtain certain permits that comply with applicable regulations that protect environmental resources. Each project would be subject to independent review under CEQA to determine significant environmental effects and implement required mitigations when feasible. At this time, the exact location and environmental constraints associated with any potential new police facilities cannot be determined. Proposed policies outlined in the proposed 2035 General Plan would ensure that development facilitated by the implementation of the proposed 2035 General Plan would be served by adequate police facilities and would not adversely affect police services. Thus, this impact would be less than significant.

Mitigation: None required.

Impact 4.M-3: Development under the proposed 2035 General Plan could result in new students for local schools, and could require new or physically altered school facilities in order to maintain acceptable performance objectives. (Less than Significant)

Under the proposed 2035 General Plan, new development would be constructed in designated areas to accommodate a reasonable share of the region's projected population growth, which would increase the need for public school services. The need for increased public school services could require a need for new or expanded public school facilities, the construction of which could have adverse environmental impacts.

School districts operate entirely independently of the County of San Joaquin government, providing education to all school-age residents of the region. School districts were created by the State of California and are subject to the overview of the state Legislature. Elected governing school boards are responsible for budgeting and decision-making. The State Department of Education establishes school site and construction standards.

San Joaquin County is served by a total of 14 school districts. All school districts would see an increase in population and housing units under the proposed 2035 General Plan. The California State Allocation Board Office of Public School Construction reports that the statewide student yield factor per dwelling unit is 0.5 students for grades K through 6 and 0.2 students for grades 7 through 12, resulting in a unified school district average of 0.7 students per household. This would result in an additional 58,800 students by 2035 who would attend San Joaquin County schools.

As discussed in Chapter 3, *Project Description*, the largest increase in population would occur in the City of Stockton SOI (74,400 people and 24,500 housing units). Elementary and high school students in the Stockton SOI may attend the Stockton Unified School District, Lincoln Unified

School District, or Lodi Unified School District. Substantial growth would also occur in the Lathrop SOI (49,800 people and 13,700 housing units) where students may attend schools in the Banta Elementary School District, Manteca Unified School District, or Tracy Joint Unified School District. The Tracy Joint Unified School District would see a substantial increase in students, through new development in the Tracy SOI (38,100 people and 11,700 housing units) and Mountain House (35,238 people and 12,008 housing units). Elementary school districts that feed into Tracy Unified School District include the Lammersville Elementary School District, Banta Elementary School District, Jefferson Elementary School District, and New Jerusalem Elementary School District.

Increases in student enrollment without expansion of facilities to accommodate those increases can result in overcrowding of schools. To maintain acceptable service ratios, the construction of new or expanded school facilities would be required. As previously discussed, many schools in the county have historically experienced issues with overcrowding, and schools are having trouble securing adequate funding to support new school facilities and existing facility modernization and expansion.

The proposed 2035 General Plan includes goals and policies that would help reduce substantial adverse physical impacts associated with the provision or need for new or physically altered public services and facilities. The Land Use Element contains policies that would encourage support services, including schools and parks, to be located in residential areas to enhance accessibility (Policies LU-4.6 and LU-4.7). Other policies in the Communities Element and Infrastructure and Services Element would limit growth to areas that are already served by public services, including schools.

While development in accordance with the proposed 2035 General Plan would increase enrollment in public schools, developer payment of standard school impact fees would partially cover a fair share of any need for new or altered school facilities. The California Division of the State Architect (DSA) would oversee construction of all new school facilities. New or expanded facilities proposed under the County's jurisdictional authority are typically required to obtain certain permits that comply with applicable regulations that protect environmental resources, and each project would be subject to independent review under CEQA to determine significant environmental effects and implement required mitigations when feasible. Additionally, existing County policies and regulations and proposed 2035 General Plan policies are intended to reduce impacts associated with public school facilities, and ensure that adequate service levels are provided to all areas of the unincorporated county. The exact location and size of needed school facilities cannot be determined at this time. Existing regulations (SB 50) and proposed policies outlined in the proposed 2035 General Plan would ensure that development facilitated by the implementation of the proposed 2035 General Plan would be served by adequate public school facilities and would not adversely affect public education services. Thus, this impact would be less than significant.

Mitigation: None required.

Impact 4.M-4: Development under the proposed 2035 General Plan could result in increased use of other governmental facilities, including libraries, and may require new or physically altered government facilities in order to maintain acceptable performance objectives. (Less than Significant)

Under the 2035 General Plan, new development would be constructed in designated areas to accommodate a reasonable share of the region's projected population growth. The projected increase in population would result in an increase in the number of persons that must be provided with public library services, and could require a need for new or expanded library facilities, the construction of which could have adverse environmental impacts.

The majority of library service areas would experience growth in population and housing with implementation of the 2035 General Plan. Library service areas that would experience the greatest increase in demand for services under the 2035 General Plan include libraries serving the Stockton SOI, including the Margaret K. Troke Branch Library, Cesar Chavez Central Library, Fair Oaks Branch Library, and Maya Angelou Southeast Branch Library. Other library service areas that would see an increase in demand include the Lathrop Branch Library, Ripon Branch Library, and Mountain House Branch Library.

The Stockton-San Joaquin County Public Library's Strategic Plan, Facilities Master Plan, and Economic Benefit Study (2008) identify a target of providing between 0.4 and 0.6 square feet of library space per capita by the year 2030. With implementation of the 2035 General Plan, the library system would need to expand by a minimum of 104,600 square feet to serve the projected population. The Stockton-San Joaquin County Public Library is in the process of updating the Strategic Plan to identify new goals and objectives for the library system looking outward from the year 2014. The plan would contain financial management goals, facilities plans, and fundraising strategies to allow library facilities to be enhanced in the upcoming years and to help the library meet its service target.

The proposed 2035 General Plan includes goals and policies that would help reduce substantial adverse physical impacts associated with the provision or need for new or physically altered public services and facilities. As discussed above, the Communities Element contains policies that would limit growth to areas that are already served by public services and facilities. Policies in the Infrastructure and Services Element would ensure that adequate public facilities are provided for both existing residents and new developments, while reducing the need to construct new facilities.

Development in accordance with the 2035 General Plan would increase demand for public library facilities. New or expanded facilities proposed under the County's jurisdictional authority are typically required to obtain certain permits that comply with applicable regulations that protect environmental resources, and each project would be subject to independent review under CEQA to determine significant environmental effects and implement required mitigations as necessary. Existing County policies and regulations and proposed 2035 General Plan policies are intended to reduce impacts associated with library facilities and ensure that adequate service levels are provided to all areas of the unincorporated county. At this time, it is not possible to know the specific location and size of new library facilities that may be needed. However, Program IS-M

would require that the County review the Stockton-San Joaquin Library Facilities Master Plan every five years, and Program IS-N would require the County to conduct bi-annual surveys to identify needs for additional library services. The impacts would be less than significant.

Mitigation: None required.

Impact 4.M-5: Development facilitated by implementation of the proposed 2035 General Plan could increase the use of existing neighborhood and regional parks and recreation centers, or require the construction or expansion of recreational facilities that could have an adverse physical effect on the environment. (Significant)

Under the proposed 2035 General Plan, new development would be constructed in designated areas to accommodate a reasonable share of the region's projected population growth, which would increase the need for parks and recreation facilities. The need for increased parks and recreation facilities could require a need for new or expanded parks or recreation facilities, the construction of which could have adverse environmental impacts. While local parks are generally provided within incorporated cities and would not be the responsibility of the County, the focus of the analysis below is on the need for regional parks to serve populations of both unincorporated and incorporated areas.

Standards for the ratio of park acreage to population are set by the California State Subdivision Act, which limits the local park standard to 3.0 acres per 1,000 people, and the National Recreational Park Association (NRPA) recommends 15 to 20 acres of regional parkland per 1,000 people. Proposed 2035 General Plan Policy NCR-8.2 would establish a countywide park ratio standard of 10 acres of regional parks and 3 acres of local parks per 1,000 residents. As noted in Chapter 3, *Project Description*, in the General Plan baseline year 2010, the unincorporated county had a population of 142,000 people. There are approximately 500 acres of regional public parkland in the unincorporated county and a total of 3,381 acres including state parks. However, many of these regional parks provide recreational facilities to serve populations within incorporated areas as well as unincorporated areas. Thus, with the county's total population of 704,379, the regional parkland ratio would be 0.7 acres per 1,000 people, or 4.8 acres per 1,000 people when including state parks. For local parks and recreation facilities, the countywide ratio is 3.74 acres to every 1,000 residents; however, most of these facilities are located near the major cities, and rural areas generally do not exceed 3.0 acres of local parkland per 1,000 people. To recover the deficit of regional parkland and accommodate an additional 260,000 people under the 2035 General Plan, the county would need to expand regional park facilities by a minimum of 6,263 acres to meet the regional parkland standard of 10 acres per 1,000 residents established in Policy NCR-8.2. A total of 261 new local parks and recreation facilities would be needed, throughout the county to meet the standard of 3 acres per 1,000 residents, as established by Policy NCR-8.2.

The proposed 2035 General Plan includes goals and policies that would encourage the provision of adequate park acreage in association with new development. However, without associated applicable regulations and fee programs, it may be difficult to meet the identified ratios. The fees

allowed by the Quimby Act and by other mechanisms such as Mello-Roos funding may assist in the provision of new park facilities. Policy NCR-8.15 states that the County shall prevent the overuse and misuse of recreation areas.

The Land Use Element contains policies that would encourage support services, including schools and parks, to be located in residential areas to enhance accessibility (Policies LU-4.6 and LU-4.7). Policy LU-8.1 would limit the conversion of open space to urban uses and place a high priority on the preservation of open lands for recreation, among other uses. Policy LU-8.3 would preserve waterways for conservation and recreation, and Policy LU-8.4 states that the County shall ensure that adequate parks, open space, waterways, and trails are planned throughout the county and serve all residents. Additionally, Policy C-6.15 would require that a comprehensive system of parks and open space is provided for any new Urban Community.

The Natural Resources Element contains policies that would ensure the adequate provision of open space and recreation facilities while limiting substantial adverse physical impacts that could occur in natural resource areas. Policies NCR-1.2, NCR-1.3, and NCR-8.1 state the County's intent to provide and support opportunities for open space and recreation in Urban Communities and throughout the county. Policy NCR-2.3 addresses reduction of impacts on sensitive biological species that could occur through open space land conversion, stating the County's intent to continue to implement the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. Policies NCR-8.3 through NCR-8.6 state the County's intent to coordinate with state, regional, local, and private entities to support, enhance, and expand recreation opportunities throughout the county. Additionally, Policies NCR-8.8 and NCR-8.9 state that the County would be a major developer and operator of parks, including regional, community, neighborhood, and mini parks. Additional policies regarding the acquisition and location of new facilities, as well as consideration of resident needs, include Policies NCR-8.10 through NCR-8.14 and NCR-8.20. Policies regarding the preservation and enhancement of waterway recreation facilities include Policies NCR-8.16 through NCR-8.20 and NCR-8.23 through NCR-8.25. Policies specific to recreation in the Delta include Policies D-3.4 through D-3.6, which state the County's intent to enhance and expand Delta recreation opportunities and encourage the development of a regional system of trails within the Delta.

Development of local parks and recreation facilities to support population and housing growth under the 2035 General Plan would be facilitated by Policy NCR 8.22, which would establish a parkland dedication or in-lieu fee requirement for new developments in communities where local recreation areas are established in an adopted General Plan. However, impacts on regional parkland under the proposed 2035 General Plan could be significant, as the County does not have a fee program to ensure that adequate acreage is provided for all new developments to meet the national standard for regional parkland. In addition, the County is lacking in an established facilities park master plan to ensure that such parks are provided. Projected growth in the county may result in substantial deterioration of existing facilities as well as the need for new facilities; without an assurance of adequate funding to offset these impacts, the impact associated with recreational facilities could be significant. In addition, the provision of adequate park facilities would be partially outside of the control of the County, as some parks would be provided at the

city level and other parks may be provided at the state level. An estimated 6,263 acres of regional parkland would be needed in the county if national standards were to be met based on the current deficit and projected population. Mitigation Measure 4.M-5 below would reduce impacts on parks and recreation facilities by directing the County to consider the feasibility of a development fee that would contribute to the acquisition and development of new regional parkland.

The 2035 General Plan includes implementation programs that would address some of these concerns by helping the County increase recreational areas. Program NCR-Q would require the County to prepare, maintain, and implement a Park and Recreation Master Plan that identifies long-range recreational needs of the county, potential park sites and trail corridors, opportunities for partnerships, and financing strategies for local and regional parks. The plan would be required to include an inventory of existing recreational facilities and analysis of needed facilities, and be updated every five years. Program NCR-R would require the County to conduct a study to identify sites for potential future recreation areas and acquire those areas when funding becomes available. Program NCR-S would require the County to prepare a study of the recreational potential, particularly for trails, along the Calaveras River, the San Joaquin River, the Stockton Diverting Canal, and water conveyance projects.

Policies and implementation measures in the 2035 General Plan would require that the County expand or build new parks or recreation facilities, the construction of which could have adverse environmental impacts; however, there are no projects proposed under the 2035 General Plan to expand or construct such facilities. At this time, it is not possible to know the specific location and size of new recreation facilities that may be needed.

New or expanded facilities proposed under the County's jurisdictional authority are typically required to obtain certain permits that comply with applicable regulations that protect environmental resources, and each project would be subject to independent review under CEQA to determine significant environmental effects and implement required mitigations as necessary. Existing County policies and regulations and proposed 2035 General Plan policies are intended to reduce impacts associated with construction of parks and recreation facilities. Existing regulations and policies and implementation of Mitigation Measure 4.M-5 would result in this impact being less than significant.

Mitigation Measure 4.M-5: The following new policy shall be included in the 2035 General Plan as a means of reducing the impact on regional parkland:

NCR-8.26: Regional Parkland Development. The County shall assess the feasibility of adopting a development fee program for new development to contribute to the acquisition and development of new regional parkland.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.M-6: Development facilitated by implementation of the proposed 2035 General Plan, in conjunction with other past, current, or foreseeable development in the unincorporated county, could result in impacts related to public services. (Less than Significant)

The geographic area considered for the analysis of cumulative impacts related to public services is San Joaquin County. Cumulative projects would result in a need for expansion of existing public service facilities to support new development. Cumulative projects proposed under the general plans of surrounding cities and counties, such as commercial, residential or industrial projects, would result in an increased demand for services from within the region. Within each city, approval of development projects is dependent upon the ability to provide sufficient public services and facilities, and each city uses development impact fees to fund public service facility expansion projects.

The Bay Delta Conservation Plan (BDCP) is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the BDCP's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that construction under the BDCP could result in the potential displacement or disruption of public services and facilities located in the plan area. As mitigation, the BDCP would provide funding for the relocation of facilities or construction of new facilities, and local agencies would be closely coordinated to minimize disruptions in service.

Development of future land in city SOIs would result in a cumulative increase in demand for public services, which may require the provision of new or physically altered facilities, the construction of which could result in adverse environmental impacts. Cumulative public service and facility projects would undergo environmental review, and would be required to demonstrate compliance with CEQA and/or the National Environmental Policy Act (NEPA) prior to project approval. Where feasible, impacts from construction of new facilities will be mitigated down to a less-than-significant level. The proposed 2035 General Plan, in combination with the identified cumulative projects, would have a less-than-significant cumulative impact.

Mitigation: None required.

Impact 4.M-7: Development facilitated by implementation of the proposed 2035 General Plan, in conjunction with other past, current, or foreseeable development in the unincorporated county, could result in impacts related to recreation. (Significant)

The geographic area considered for the analysis of cumulative impacts related to recreation is San Joaquin County. Cumulative projects would result in a need for expansion of existing recreation facilities to support new development. Cumulative projects proposed under the general plans of

surrounding cities and counties, such as commercial, residential or industrial projects, would result in an increased demand for recreation facilities from within the region. Within each city, approval of development projects is dependent upon the ability to provide sufficient public services and facilities, and each city uses development impact fees to fund recreation facility expansion projects. As discussed under Impact 4.M-5 above, policies in the proposed 2035 General Plan instruct the County to increase regional park facilities through adoption of a parks master plan, which would be used by all residents in the county, and establish a development fee to provide adequate recreation facilities for unincorporated communities. Further, implementation of Mitigation Measure 4.M-5 would ensure that the potential of adopting a development fee program for new development to contribute to the acquisition and development of new regional parkland would be investigated.

The Bay Delta Conservation Plan (BDCP) is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the BDCP's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that construction under the BDCP could result in the potential displacement or disruption of public services and facilities located in the plan area. As mitigation, the BDCP would provide funding for the relocation of facilities or construction of new facilities, and local agencies would be closely coordinated to minimize disruptions in service.

For recreation-specific impacts, construction, noise, visual degradation, traffic detours, boat traffic delays, and other impediments are temporary impacts that may occur during construction of the train tunnel associated with the BDCP. The EIR/EIS contains mitigation measures that protect birds and wildlife and provide alternative access to fishing sites along banks to minimize temporary disruptions. The BDCP would effectively increase recreational facilities in San Joaquin County. The BDCP proposes a 61,000-acre reserve system with 170 miles of trails, four picnic areas, 15 new trail heads, an updated boating facility, and a new boat launch.

Future development of land in city SOIs would result in a cumulative increase in demand for recreation facilities, which may require the provision of new or physically altered facilities, the construction of which could result in adverse environmental impacts. Cumulative recreation projects would undergo environmental review, and would be required to demonstrate compliance with CEQA and/or NEPA prior to project approval. Where feasible, impacts from construction of new facilities will be mitigated down to a less-than-significant level. The proposed 2035 General Plan, in combination with the identified cumulative projects, would have a less-than-significant cumulative impact with implementation of Mitigation Measure 4.M-5.

Mitigation Measure 4.M-7: Implement Mitigation Measure 4.M-5.

Significance after Mitigation: Less than Significant.

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N. Utilities and Service Systems

N.1 Introduction

This section discusses existing utilities and service systems that serve San Joaquin County (the County), including: water service (potable and fire protection), wastewater collection and treatment, stormwater and drainage, solid waste collection and disposal, energy (electricity and natural gas), and telecommunications, and the impacts of the project to those utilities. The environmental setting section was developed in part using information contained in the General Plan Background Report (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession of 2009 contributed to significantly slower population and housing growth than what had been projected for San Joaquin County.¹ In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2009 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes. Many of the small rural districts providing water, wastewater, and storm drainage systems have not experienced significant land use changes or development since 2009 and conditions remain similar in 2013.

N.2 Environmental Setting

Potable Water Supply

Potable water for irrigation and domestic use in the County is provided through multiple agencies and water projects, including federal, regional, and local water districts, special districts, and private systems. Irrigation, water, and water conservation districts are located throughout the County, some small, others spanning several planning areas. While some cities and unincorporated areas of the County are served by imported surface water from water districts or municipal water systems, some communities are not located within water districts or do not have water systems that provide water service. These communities must rely on private wells and groundwater. However, most water supply districts in San Joaquin County have been transitioning away from groundwater sources to surface water to reduce overdraft of groundwater. The following unincorporated communities are not served by a water district and rely on groundwater pumping: Banta, Stoneridge, Glenwood, Noble Acres, Collierville, Coopers Corner, New Jerusalem, French Camp, and Peters.

The Central Valley Project (CVP) delivers about seven million acre-feet of water each year for agricultural, urban, and wildlife uses throughout the Central Valley, including San Joaquin County. Roughly five million acre-feet are dedicated to farmland irrigation, and 600,000 acre-feet are

¹ In SJCOG's 2005-2030 Population and Employment Projections (2004) countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three year period.

dedicated to municipal and industrial uses in the Central Valley. CVP contractors on the San Joaquin River and the Mendota Pool receive around 4,600 acre-feet (AF) from the Sacramento-San Joaquin Delta via the Tracy Pumping Plant and the Delta Mendota Canal. Water is also conveyed into the San Luis Canal, which serves the Friant Dam on the San Joaquin River and CVP contractors near the Madera and Friant-Kern canals. Water for water rights holders in the Stanislaus River watershed and northern San Joaquin Valley is stored in the New Melones Reservoir located east of San Joaquin County.

The Goodwin Tunnel Project is part of the New Melones Conveyance System that diverts water from New Melones Reservoir to the Stockton East Water District Water Treatment Facility. The Goodwin Tunnel diverts water into natural creeks and waterways and then moves the water to a treatment facility. The local water districts manage the distribution of water from main canals to individual users, while irrigation distribution systems rely on lateral canals and pipelines to convey water to individual farms. Public Law 84-130 allows the United States Bureau of Reclamation (USBR), who manages the operation and maintenance of dams and power plants, to administer loans for private users to build their own distribution systems.

Irrigation Districts

Irrigation districts provide a reliable and economical source of irrigation water to the agricultural areas of the County. Some irrigation districts provide water to cities and water districts that process the water for domestic use. Irrigation districts in San Joaquin County (e.g., the South San Joaquin Irrigation District) also treat and distribute domestic water and provide other services such as electricity. There are 14 irrigation districts throughout San Joaquin County that provide irrigation water to agricultural areas, and some of these also may treat water for domestic or other uses.

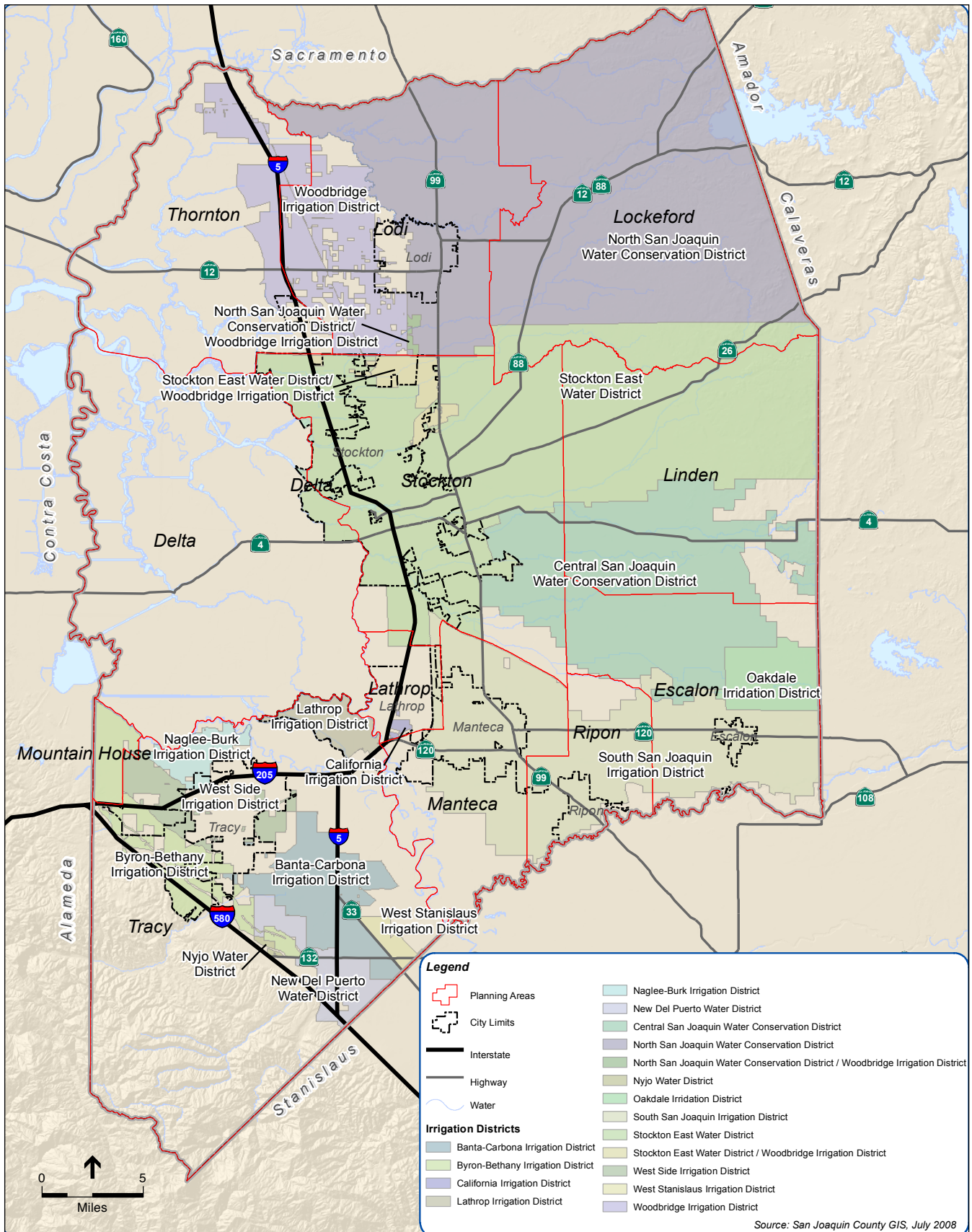
Figure 4.N-1 shows the areas served by each irrigation district, which are described below. As previously mentioned, much of this information is from the San Joaquin County General Plan Background Report (Mintier Harnish, 2009) and was updated when possible.

Woodbridge Irrigation District

The Woodbridge Irrigation District is located in northwest San Joaquin County. The District, which owns and operates the Woodbridge Dam located on the Mokelumne River, covers 32,992 acres and includes a system of canals that spans over 100 miles in length. The District also provides water for irrigation and provides the City of Lodi with 6,000 acre-feet per year of surface water.

North San Joaquin Water Conservation District

The North San Joaquin Water Conservation District is located in northeastern San Joaquin County and provides water to the communities of Acampo, Clements, Collierville, Coopers Corner, Lockeford, and Lodi. The District provides water to serve about 155,071 acres of land and overlaps with the Woodbridge Irrigation District between Lodi and Stockton for about 482 acres. The District operates a pump station on the Mokelumne River to help with the irrigation of farms. In wet years, the East Bay Municipal Utilities District, which operates the Camanche Reservoir and Pardee Reservoir, stores an additional 20,000 acre-feet per year of irrigation water for the District.



SOURCE: San Joaquin County GIS, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.N-1
Irrigation Districts

Stockton East Water District

The Stockton East Water District (SEWD) is located in central San Joaquin County and covers 143,287 acres of land that include the City of Stockton and all the land east of the city to the County line. The Stockton East Water District overlaps with the Woodbridge Irrigation District for about 5,065 acres to provide irrigation to an area northeast of Stockton. The District operates check-dam facilities located on the Calaveras River, Mormon Slough, and Mosher Slough, which it uses to store water for irrigation. The District operates a 60 MGD water treatment plant that treats water for deliveries to the City of Stockton Municipal Utilities District (COSMUD), Cal Water, and San Joaquin County for delivery to the Lincoln Village Maintenance District (MD) and Colonial Heights MD (unincorporated areas located within City of Stockton limits). In the future, the Plant may be expanded to accommodate a base load capacity of 72 MGD. The District also operates a groundwater recharge facility. SEWD's total water supply in 2010 was around 74,000 acre-feet of water and its water treatment plant (WTP) capacity was around 55,680 acre feet. By 2035 total water supplied by SEWD could reach 124,400 acre-feet and WTP treatment capacity could reach 67,290 acre feet (COSMUD, 2011).

The SEWD's Joe Waidhofer Drinking Water Treatment Plant, located on East Main Street in Stockton, has been in operation since 1978. The plant delivers approximately 50,000 acre-feet of treated drinking water annually to the City of Stockton, Cal Water, and other parts of San Joaquin County. The Plant receives about half of its water supply from New Melones Reservoir and the other half from the New Hogan Dam via pipelines. The plant operates at a rate of 50 million gallons per day (mgd) with future plans to expand the facility to operate at 60 to 70 mgd. As part of the Farmington Groundwater Recharge Program, there is a groundwater recharging facility located adjacent to the plant on about 60 acres of land that consists of recharge ponds and fields and has a recharge rate of about 0.5 feet per day. The Farmington Program, which is led by SEWD, is open to any interested landowner with the objective of recharging an average of 35,000 acre-feet per year into the Eastern San Joaquin Basin.

Central San Joaquin Water Conservation District

The Central San Joaquin Water Conservation District is located in eastern San Joaquin County, extending from east Stockton to the eastern County line. The District provides irrigation and domestic water to about 66,781 acres, in the Linden, Escalon, and Stockton planning areas, including the communities of Farmington and Peters. The District is provided with about 49,000 acre-feet of water per year from New Melones Reservoir through the Goodwin Tunnel Project, and operates a series of check dams which provide irrigation water to farms and diverts water into natural channels and waterways to keep streams flowing.

South San Joaquin Irrigation District

The South San Joaquin Irrigation District (SSJID) covers about 72,552 acres of land in southeast San Joaquin County, including the cities of Escalon, Ripon, and most of Manteca. The District has water rights to about 300,000 acre-feet per year of water from the Stanislaus River, and the District stores water in reservoirs behind the Donnells, Beardsley, and Tulloch dams, which are all co-owned with Oakdale Irrigation District (OID), and Woodward dam, which is solely owned by the District. SSJID, OID, and Stockton East Water District each own a one-third interest in Goodwin Dam.

The District has provided domestic drinking water to Tracy, Manteca, and Lathrop since 2005 through the South County Water Supply Project (SCWSP) which is treated at the Nick C. DeGroot Water Treatment Plant, the result of a cooperative effort by the District and the cities of Manteca, Escalon, Lathrop, and Tracy. A second phase of construction is proposed that would expand the Treatment Plant from 36 million gallons per day (mgd) to 56.8 mgd, in order to provide water to Escalon. The District also provides limited stormwater drainage conveyance to cities and farms within its district boundary.

Oakdale Irrigation District

The Oakdale Irrigation District is located in southeastern San Joaquin County in the Escalon Planning Area. The District owns facilities on the San Joaquin River and Stanislaus River that provide water for both irrigation and domestic uses. The majority of the District's service area is located in Stanislaus County, with about 9,124 acres (12 percent) located in San Joaquin County.

Lathrop Irrigation District

The Lathrop Irrigation District is located in western San Joaquin County covering 4,979 acres within the city limits of the City of Lathrop.

California Irrigation District

The California Irrigation District covers 416 acres in the Lathrop Planning Area, east of Interstate 5 and north of Highway 120.

Banta-Carbona Irrigation District

The Banta-Carbona Irrigation District is located in the southwestern portion of San Joaquin County, in the Tracy Planning Area. The District provides water for over 17,900 acres of land extending from the City of Tracy south to the County line near the Community of Vernalis, including about 16,500 acres of farmland. The district purchases surface water from the CVP which is delivered through the Delta Mendota Canal and the San Joaquin River via intake pumps. On average, about 9,500 acre-feet of water are pumped from the Delta Mendota Canal.

Byron-Bethany Irrigation District

The Byron-Bethany Irrigation District provides water to about 14,174 acres of land located in the southwestern portion of San Joaquin County, in the Tracy and Mountain House Planning Areas, extending from the Old River north of Mountain House south to Highway 132. About 20,600 acre-feet of water are purchased through the CVP for delivery to agricultural and domestic users. The unincorporated community of Mountain House has rights to 9,413 acre-feet of water per year from the District. The Mountain House water treatment plant has been developed in phases and is ultimately designed to accommodate an average daily demand capacity of 10.2 mgd at full buildout.

Naglee-Burk Irrigation District

The Naglee-Burk Irrigation District is located in southern San Joaquin County within the Tracy Planning Area and provides water for irrigation to about 2,750 acres of land near Mountain House.

New Del Puerto Water District

The New Del Puerto Water District is located in southern San Joaquin County within the Tracy Planning Area and provides water to 115 farms spanning about 8,135 acres of land.

West Side Irrigation District

The West Side Irrigation District is located in the Tracy Planning Area and provides water for irrigation to about 30 farms spanning 6,589 acres of land.

West Stanislaus Irrigation District

The West Stanislaus Irrigation District is located in the southern part of the Tracy Planning Area and provides water for irrigation to about 82 farms spanning 2,024 acres of land.

Central Delta Water Agency

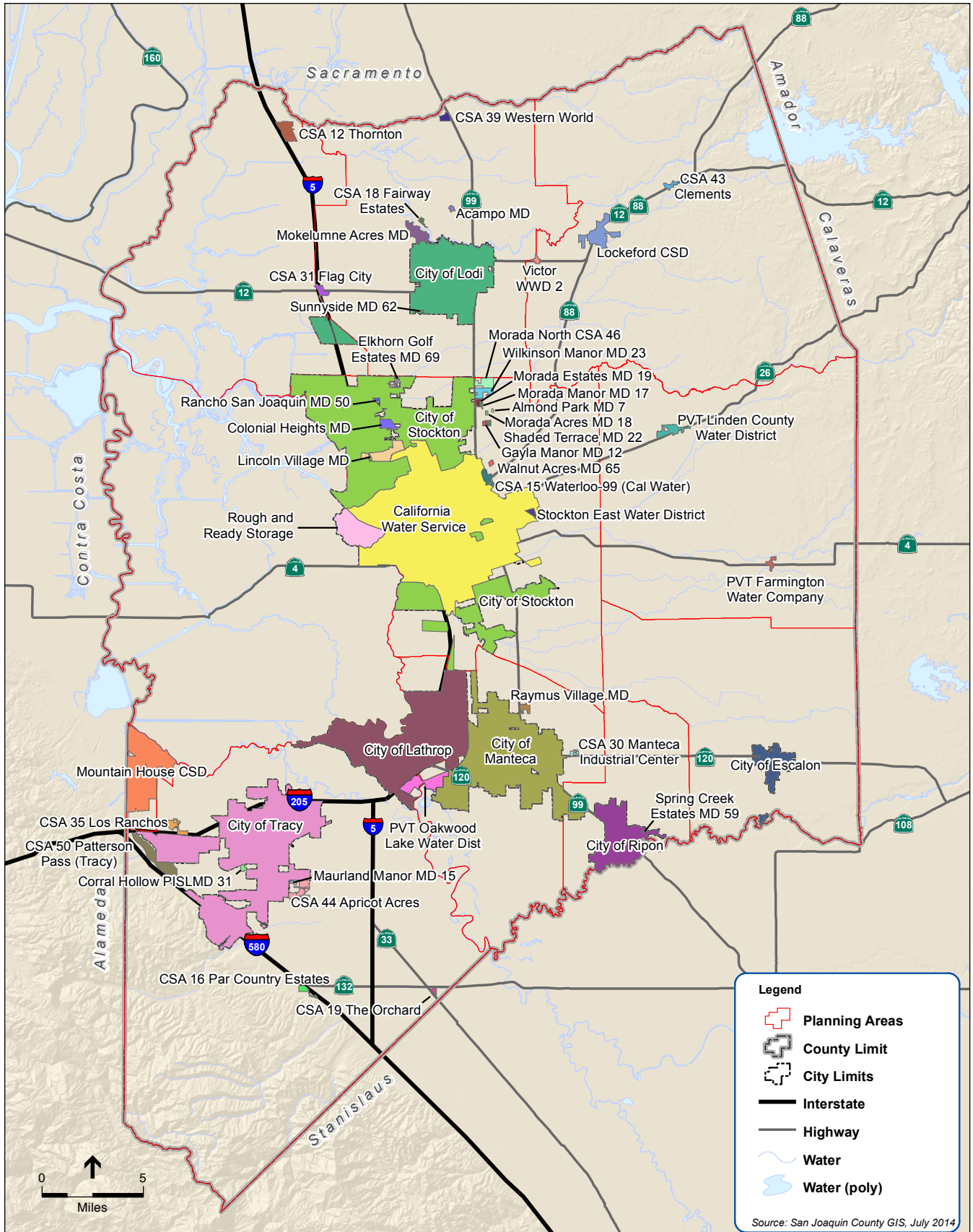
The Central Delta Water Agency (CDWA) protects water supply within the area and assists landowners and reclamation districts with water issues. There are 120,000 acres within the CDWA boundary, which includes primarily agricultural uses, with crops such as vineyards, trees, row, and field crops. CDWA represents landowners in flood control matters. No facilities are owned by the CDWA, and Groundwater is not extensively used within the CDWA. The only source of water is surface water from the Delta.

South Delta Water Agency

The South Delta Water Agency (SDWA) helps area landowners to address water supply problems, including issues with artificially low water levels and salt accumulation induced by the State and Federal Project pumps. In addition, reduced flows and poor water quality in the Lower San Joaquin River contribute to the lack of fresh water supplies and poor water quality in the South Delta. There are approximately 150,000 acres within the SDWA boundaries, which is primarily used for farming, as well as some parts of Tracy and Lathrop. Property owners have individual water rights, and the SDWA helps to protect these property owners; SDWA does not own any facilities or water rights. The majority of water used within the agency boundaries is surface water. There are some shallow groundwater wells that are used by individuals, but most of the groundwater is unusable due to salinity.

Domestic Water Providers

Domestic water is supplied to customers throughout San Joaquin County by cities, water districts, maintenance districts (MD), County Service Areas (CSAs), Community Service Districts (CSDs), and other local agencies, using both surface and groundwater sources. **Figure 4.N-2** shows the areas served by city water districts, maintenance districts, county services areas and community service districts. In general, larger cities act as major water providers, maintaining large distribution systems and their own water treatment facilities, while smaller cities may rely on other agencies for treated water and maintain smaller distribution systems. City water providers generally rely on groundwater and purchased surface water to provide potable water to residents in Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. The unincorporated communities, and unincorporated areas surrounding existing city limits, are served by other special districts and local agencies that are



SOURCE: San Joaquin County GIS, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.N-2
Water Districts

supplied by groundwater wells, some of which are treated for high mineral and metal concentrations that are typical of groundwater near the Delta, including arsenic, iron, and manganese. A discussion of water districts and CSAs that deliver water to unincorporated areas of the County for domestic purposes is provided below.

City of Stockton

Residents in the Stockton Metropolitan Area receive water from either the City of Stockton Municipal Utilities Department (COSMUD) or the California Water Service Company (Cal Water). There are two County Maintenance Districts (MD) located within the unincorporated areas inside the boundaries of the City of Stockton that receive water from the County, including Lincoln Village MD and Colonial Heights MD.

COSMUD delivered approximately 33,333 acre-feet of potable drinking water to residents in northern and southern Stockton in 2010. COSMUD estimates that water demand for its service area will reach 54,032 acre-feet by 2035, or 45,577 acre-feet with implementation of SBx7-7 conservation measures, as described in its Urban Water Management Plan (UWMP). An estimated 75 percent of the City's water is supplied by surface water from the Stockton East Water District (SEWD), the Delta Water Supply Project (DWSP), and the Woodbridge Irrigation District (WID). The City supply allocation from SEWD has historically been based on the amount of water delivered in the previous year. It has been 45%-55% of SEWD's WTP production historically and is projected to decrease to 25%-35% of SEWD's WTP production with the addition of the DWSP supply. SEWD's total water supply in 2010 was around 74,000 acre-feet of water and its water treatment plant (WTP) capacity was around 55,680 acre feet. By 2035 total water supplied by SEWD could reach 124,400 acre-feet and WTP treatment capacity could reach 67,290 acre feet. The DWSP Treatment Plant was recently constructed to provide up to 30 MGD of additional treated drinking water for the Stockton Metropolitan Area; future expansion of the project could expand the capacity of the Plant to 90 MGD by 2035 with an annual production of 50,000 acre-feet per year. The remaining 25 percent of COSMUD's water is supplied by groundwater, with approximately 5,475 acre-feet pumped in 2010 and a projected 23,114 acre-feet of groundwater supplied by 2035.

Cal Water estimates that demand will reach around 34,000 acre-feet per year, or 31,965 acre-feet with implementation of SBx7-7 conservation measures, as described in its UWMP. Residents in central Stockton are served by Cal Water, who delivered 25,461 acre-feet in 2010. Around 65 percent of the Cal Water's water supply is purchased from SEWD. The remaining 35 percent of Cal Water's supply is pumped from the Eastern San Joaquin Subbasin via 23 active wells with a current design capacity of 28,225 gpm. Cal Water estimates that in 2010, 4,976 acre-feet was pumped from the subbasin to meet demand; by 2035, Cal Water estimates a total of 9,962 acre-feet will be supplied with groundwater (CalWater, 2010).

Groundwater overdraft has been a concern in the San Joaquin Valley Basin since the 1920's; however, natural recharge conditions, active recharge projects and reduced groundwater pumping have reduced overdraft concerns in more recent years. Major groundwater extractions around Stockton in particular have caused a greater than average rate of decline; DWR estimates the annual overdraft from the Eastern San Joaquin Subbasin to be approximately 70,000 acre-feet.

The cities of Stockton and Lodi are jointly investigating the feasibility of using Lodi's treated wastewater as a recycled water source for the City of Stockton, which would extend Stockton's water resources for northern Stockton and help address groundwater overdraft issues west of the City. The preferred project would provide approximately 3,720 acre-feet per year for urban and non-residential landscape irrigation and artificial lake filling. Cal Water does not anticipate a need for or availability of recycled water in the future.

City of Lodi

The City of Lodi provides water to over 63,000 people within its City limits. The City has an average water demand of 17,300 acre-feet per year with an estimated demand of 25,100 acre-feet per year by the year 2030. According to the City's UWMP, in 2010 the City delivered 15,000 acre-feet of water and the City estimates that 18,200 acre-feet will be needed to meet demand by 2035. Lodi's water delivery system contains twenty-six computer controlled wells located throughout the City, and water is stored in a water tower and a one-million gallon storage tank. Over 220 miles of pipelines supply water to the customers. Groundwater pumped from the wells is high quality, generally meeting or exceeding all Federal and State standards. The Lodi Wastewater Treatment Plant also provides over 2,500 acre-feet of water per year for agricultural purposes. The City purchased water rights from Woodbridge Irrigation District for 6,000 acre feet of surface water from the Mokelumne River. The City recently built a new surface water treatment plant to treat the surface water and reduce reliance on groundwater.

City of Escalon

The City of Escalon includes about 1,990 water service connections. The City receives its water from groundwater sources via four active wells which have the capacity to pump about 1,200 gpm, and one additional well that is used for emergencies. Well Site 1 is treated for Dibromochloropropane (DBCP) while other wells have chlorine facilities that help protect the water from possible microbial contamination. The existing pipe distribution system contains approximately 33 miles of pipe throughout the City of Escalon, with pipe sizes ranging from three inches to 16-inches in diameter. By the year 2035, the City estimates that water demand could rise to 5.7 million gallons per day (mgd). The City has plans to construct a pipeline to convey treated water from the SSJID South County Water Supply Project (SCWSP) to supplement its groundwater sources with up to 2,799 acre-feet² of surface water by 2020. According to the SCWSP Urban Water Management Plan (UWMP) the actual demand for water will be much lower, at 1,000 acre-feet per year by 2030.

City of Lathrop

The City of Lathrop's water supply comes from groundwater and surface water from the SCWSP. In 2010, 1,090 acre-feet of water was delivered from the SCWSP; it is anticipated that 8,007 acre-feet of surface water will be delivered to the City to meet demand by 2030. Groundwater is also pumped from five wells with an additional well that is on standby for emergencies. The City has several storage tanks that range from million gallon tanks to hundred gallon tanks. The City has water quality problems due to salt water intrusion and chemical contamination. Mandatory

² One acre-foot is equivalent to approximately 271,329 gallons of water.

monitoring systems are in place at wells to monitor levels of salt water intrusion and arsenic contamination levels.

City of Manteca

The City of Manteca provides water to about 15,000 water connections with an average water demand of 11.0 mgd. Water is both supplied by groundwater wells and purchased from the SCWSP. The capacity of the existing pumps is 31.5 mgd and the system includes 18 active groundwater wells, 170 miles of water delivery pipes, and an elevated water storage tank that holds 300,000 gallons. In addition to groundwater resources, the City is also supplied water through the SCWSP, with 5,745 acre feet delivered in 2010 and an anticipated demand of 11,500 acre feet of water by 2030. The City is experiencing problems with groundwater overdraft as a result of current demand; new development may require new wells or other alternative sources of water.

City of Ripon

The City of Ripon has an average water demand of 1.0 mgd which is supplied by groundwater sources. The City's water system includes six groundwater wells and two large elevated water storage tanks. Water quality is of concern to the City, which is severely impacted by nitrates and Dibromochloropropane (DBCP). To supplement the City's water supply, the South San Joaquin Irrigation District is under contract to provide up to 4,695 acre-feet per year to the City by 2020.

City of Tracy

The City of Tracy owns and operates its water system which utilizes groundwater wells and surface water supplied by the South San Joaquin Irrigation District. The City's maximum annual water supply amounts to over 31,500 acre-feet per year from its contract entitlements to surface water from the Delta Mendota Canal and the Central Valley Water Project, as well as its groundwater sources, and allocation of Stanislaus River water via the South County Water Supply Project (SCWSP). Additional water is potentially available to the City through: future agreements with BBID for up to 49,500 acre-feet per year, increased allocations from the SCWSP up to 3,000 acre-feet per year, groundwater banking opportunities increasing future supply by 6,500 acre-feet, and purchase through the open market via one or multi-year contracts. The City provides water to 23,449 metered service connections across 44 square-miles that encompass land within the City limits and portions of the SOI. The 2010 Urban Water Management Plan estimates that in 2010, the City's total potable water demand was 16,394 acre-feet and that future water demand would reach 33,600 acre-feet by 2035.

Water is treated at the John Jones Water Treatment Plant, located at the southern end of the City, which has a treatment capacity of 30 mgd and is designed for an ultimate capacity of 45 mgd. Groundwater is extracted through nine wells from the 539 square-mile Tracy Groundwater Sub-Basin, as part of the Tulare Formation in the San Joaquin subregion of the Central Valley groundwater basin. The wells have a total extraction capacity of 15 mgd. Levels in the wells have remained fairly constant over the last 10 years, and overdraft is not a significant concern. The aquifer does have elevated concentrations of chloride, nitrate, sulfate and boron and the groundwater near Tracy is considered to be very hard (City of Tracy, 2011).

Acampo Maintenance District

Acampo Maintenance District provides water to the community of Acampo in north San Joaquin County, and is operated by San Joaquin County. The water supply comes from two groundwater wells, one of which is operational.

County Service Area 12 Thornton

County Service Area 12 (CSA 12) provides water to the community of Thornton in north San Joaquin County, and is owned by the district and operated by San Joaquin County. The water supply comes from two groundwater wells, each equipped with 5,000 gallon hydro-pneumatic systems. Groundwater pumped by CSA 12 is treated for methane gas, iron and manganese.

County Service Area 16 Par County Estates

CSA 16 Par County Estates provides water to the community of Chrisman in the Tracy Planning Area. There are three groundwater wells in the CSA, two of which are operational and provide water to the Par County Estates and Hillside Greens subdivisions. Groundwater from the CSA 16 wells is known to have high concentrations of nitrates above the action levels of 22 parts per million (ppm), but meets the drinking water standards of 45 ppm. If a contaminant exceeds its specified action level, monitoring and additional treatment is sometimes required to ensure the water deliveries meet standards for drinking water.

County Service Area 18 Fairway Estates

CSA 18 provides water to Fairway Estates, north of the Mokelumne River in the community of Woodbridge in the Lodi Planning Area. Water distributed by CSA 18 is supplied by groundwater wells and there are no known water quality issues.

County Service Area 35 Los Ranchos

CSA 35 supplies water to several properties located near the community of Lammersville in the Tracy Planning Area. Water is supplied by wells which are known to have high concentrations of salts.

County Service Area 43 Clements

CSA 43 supplies water to the community of Clements in the Lockeford Planning Area. There are about 74 water service connections within the community served by two wells.

Morada Area

Portions of the community of Morada are serviced by nine individual districts, including: CSA 46 Wilkinson Manor, Wilkinson Manor Zone A, Morada Estates, Morada Manor, Morada Acres, Almond Park, Gayla Manor, and Shaded Terrace.

Farmington Water Company

The Farmington Water Company supplies water to the community of Farmington in the Linden Planning Area. The Company is owned by its customers and supplies the area with water from wells for domestic use and fire protection. The wells are impacted by microbial contaminants and

nitrites. The Farmington Water Company made a repair to one well in efforts to eliminate the contamination, which reduced the water production of the well and capacity to serve any further growth until new wells are constructed. The Farmington Water Company has applied for State Revolving Funds to construct new wells and a distribution system.

French Camp

The community of French Camp receives water from onsite wells and a small public water system. Some of the wells are contaminated with Coliform bacteria, due to poor well construction and maintenance. Other wells have a high concentration of salt, especially when the well exceeds 300 feet in depth. Higher levels of the groundwater table are impacted with nitrites above acceptable drinking water standards. Deeper water is impacted by arsenic above acceptable standards.

Linden Water District

The Linden Water District supplies water to the community of Linden in the Linden Planning Area. The District operates and maintains five groundwater wells and supplies water for approximately 569 homes. The average amount of water per year is 1.45 mgd with an average of 600,000 gallons per day pumped from the wells. There are no known water quality issues in Linden.

Lockeford Community Services District

The Lockeford Community Services District supplies water to the community of Lockeford in the Lockeford Planning Area. There are four groundwater wells that serve the community. District plans include adding additional wells to serve future development. Water quality is good and readily available.

Mokelumne Acres Maintenance District

Mokelumne Acres Maintenance District supplies water to users south of the Mokelumne River, in the Lodi Planning Area from seven groundwater wells. The District has adequate capacity to serve existing demand and there are no known pollutants in the water.

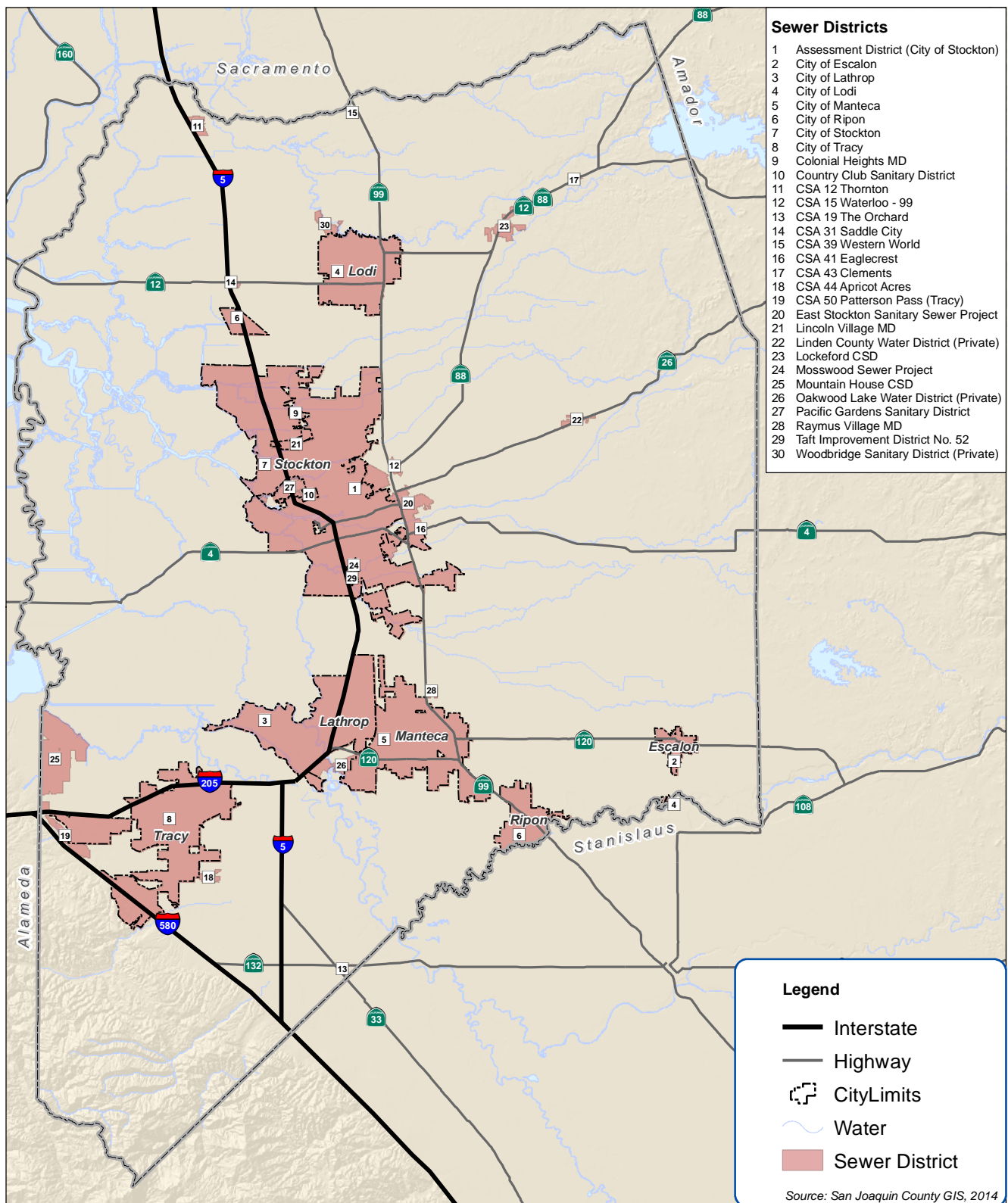
San Joaquin Water Works District No. 2 (Victor)

The Water Works District supplies water to the community of Victor in the Lodi Planning Area. There are approximately 100 service connections in the District, served by two wells, two pressure tanks, and 12 hydrants. The pesticide DBCP has been found in one of the community's wells and is being monitored to ensure safety.

Wastewater

Existing Conditions

Sanitary sewer service within San Joaquin County is provided by several special districts that serve individual communities, as shown in **Figure 4.N-3**, and include community service districts, public utility districts, sanitary districts, and sewer maintenance districts. Some special



SOURCE: San Joaquin County GIS, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.N-3
Sewer Districts

districts are connected to cities but operated independently, while other districts were created to serve planned developments that were never built. Some agencies provide sewer collection services only, and contract with major sewer districts who have sewer treatment facilities for wastewater treatment and disposal. The cities of Escalon, Ripon, and Tracy primarily provide service to residents in incorporated areas, and rely on private septic systems to serve unincorporated areas.

Several of the unincorporated communities lack sanitary sewer infrastructure and use individual or community septic systems. These communities include: Acampo, Banta, Chrisman, Collierville, Coopers Corner, the Delta Planning Area, Farmington, French Camp, Glenwood, Lammersville, Morada, New Jerusalem, Noble Acres, Peters, Stoneridge, Thornton, Vernalis, and Victor. The community of Banta has experienced problems with high groundwater levels, and some lots are too small to be serviced by a septic system. Coopers Corner and Morada are both served solely by individual septic systems. Several residences in the Delta Planning Area have individual systems while some communities have their own wastewater disposal systems. There are five locations within San Joaquin County that are able to discharge effluent into the Delta waters, which include: Lodi, Tracy, Manteca/Lathrop, Mountain House, and Stockton. Much of this information is from the San Joaquin County General Plan Background Report (Mintier Harnish, 2009) and was updated when possible.

City of Stockton

The City of Stockton wastewater disposal is provided by the City of Stockton and private septic systems. The City's wastewater treatment is provided by the Stockton Regional Wastewater Control Facility, which operates according to NPDES permit No. CA0079138 and Regional Board Order No. R5-2002-0083. As of 2012, average flows through the plant were 32 mgd. The plant's permitted capacity is 42 mgd. The Stockton sewer network runs on gravity fed, trunk lines, and pressurized pipes with several pump and lift stations. The lines have not been recently inspected, and pipe conditions vary throughout the system.

The following special districts fall outside of the City of Stockton service area, but are either connected to the City's wastewater system or located in or adjacent to the City:

- **Colonial Heights Maintenance District:** The Colonial Heights Maintenance District covers about 193 acres in the Stockton Planning Area north of the City of Stockton. The sewage system has a gravity flow network that is connected to the City of Stockton sewer system.
- **Country Club Sanitary District:** The Country Club Sanitary District is a private district that covers 227 acres in the Stockton Planning Area. The District is located in the western part of the City of Stockton.
- **Lincoln Village Maintenance District:** The Lincoln Village Maintenance District is located below the Colonial Heights Maintenance District and covers 533 acres. The sewage system has a gravity flow network and is connected to the City of Stockton sewer system, and a pumping station with a capacity of 1,000 gpm.

- **County Service Area 41 Eaglecrest:** CSA 41 extended sewer service to serve the Tierra del Sol subdivision in 2006. The sewage system has a gravity flow network and is connected to the City of Stockton sewer system.
- **East Stockton Sanitary Sewer Project:** East Stockton Sanitary Sewer Project covers a large area in an unincorporated area east of Stockton. The sewage system has a pumping lift station and is connected to the City of Stockton sewer system.
- **CSA 15:** CSA 15 is an industrial/commercial district located east of the City of Stockton that has its own sewer treatment plant.
- **Mosswood Sewer Project:** The Mosswood Sewer Project covers 134 acres and includes properties that have existing septic systems as well as a City-maintained sewer collection system that is connected to the City of Stockton sewer system.
- **Pacific Gardens Sanitary District:** Pacific Gardens Sanitary District is located on the western side of the City of Stockton, covering 671 acres. The Sanitary District has a sewer pumping station with a capacity of 1,000 gpm and the collection system is connected to the City of Stockton sewer system.
- **Taft Improvement District No. 52.** The Taft Improvement District No. 52 covers about 168 acres containing properties that have existing septic systems and properties that are connected to the City of Stockton sewer system.
- **County Service Area 15 Waterloo/99.** CSA 15 provides wastewater collection and disposal to 167 acres in the Waterloo area east of central Stockton in the Stockton Planning Area. The CSAs treatment plant has a capacity of 125,000 gpd.

City of Lodi

The City of Lodi, Woodbridge Sanitary Sewer, and private septic systems provide wastewater treatment to City of Lodi Planning Area. The unincorporated acres around the City are serviced by private septic systems. Wastewater is sent to the City's White Slough Treatment Plant, which also receives wastewater from Flag City and County Service Area 31. The plant has a design capacity of 8.5 mgd and is currently processing 6.6 mgd. The City's sewer network consists of gravity fed pipelines ranging in size from 4 inches to 48 inches in diameter. The City currently discharges all wastewater effluent that is not used for recycled water, around 5,000 AF per year, into Dredger Cut, a slough flowing into the Delta. The City plans to expand the wastewater treatment plant to support anticipated growth.

City of Escalon

The City of Escalon provides wastewater treatment to its residents in the Escalon Planning Area. There are two wastewater treatment facilities in the city: a municipal plant and an industrial plant that serves local food processing facilities. Both plants are located south of the City near the Stanislaus River. The municipal plant serves the residential and commercial communities and has an average flow of 0.060 mgd, with permitted capacity for the treatment of 0.90 mgd. The projected flow for the treatment plant is 6.2 mgd by 2030. The plant operates under permits Order No. 2006-0003-DWQ and Order No. 5-00-142. The plant disposes of treated solids through the land application method, which fertilizes fields for crop production.

Existing pipes in the Escalon sewer system are 8 inches in pipe diameter or less for the main lines and 14 inches for the trunk lines and includes gravity lines, pressurized force mains, and six lift stations. Additional pump stations are planned to handle the increased load on the system to accommodate anticipated future development.

City of Lathrop

The City of Lathrop provides wastewater treatment to its residents in the Lathrop Planning Area through two sewer disposal systems: the Lathrop Wastewater Recycling Plant and the Manteca-Lathrop Water Quality Control Facility. The Lathrop Wastewater Recycling Plant operates at 0.75 mgd under permit, Order No R5-2008-0045. Raw sewage is collected by gravity fed pipes and lift stations and transported to the treatment facilities. The Lathrop Wastewater Recycling Plant needs to be expanded to serve the existing city and anticipated new development.

City of Manteca

The City of Manteca Wastewater Treatment Plant serves the cities of Manteca and Lathrop, and the Raymus Village Maintenance District. The plant currently treats approximately 6.5 mgd of wastewater, and has a capacity of approximately 10 mgd. The sewer system is a network of gravity fed sewer lines and lift stations. The City is planning on phasing out the pump and lift stations when three new sewer trunk lines are installed. The amount of wastewater projected for the year 2028 is 23.0 mgd. The three trunk lines were designed to handle the additional load of proposed development. The Raymus Village Maintenance District covers 112 acres in the Manteca Planning Area. The District has a sewer pumping station that has a capacity of 1,000 gpm, and the County maintains the sanitary collection system which is connected to the City of Manteca sewer system and wastewater treatment plant.

City of Ripon

The City of Ripon provides wastewater services to residents in the City of Ripon, while some residents are served by private septic systems. The City's treatment plant is permitted for 1.4 mgd and currently processes flows averaging 1 mgd. The sewer system runs on gravity fed sewer pipes connected to a series of eight pump stations. Wastewater is disposed at a 100-acre site along the Stanislaus River and treated effluent is disposed of through evaporation and aeration ponds, and land irrigation (for industrial wastewater). The ponds have a capacity to handle wastewater for over 13,000 people. There are two sewage disposal areas in the City. A public sewage disposal area handles residential, commercial, and industrial uses, and a private sewage disposal area is owned and operated by the Fox River Paper Company. The City is planning for an additional wastewater treatment plant, and may eventually connect to the City of Modesto's sewage system.

City of Tracy

Wastewater treatment and disposal is provided by the City of Tracy and private septic systems. Development in the unincorporated areas, including Larch-Clover, Mountain View, and Valpico, is served by individual private septic systems. On average, the City generates an average dry weather flow (ADWF) of 7.6 mgd, and it is estimated that future ADWF could reach 21.2 mgd with the development of projects that are currently planned or proposed. The City's domestic wastewater treatment plant has a permitted ADWF capacity of 16 mgd and a current influent

design ADWF capacity of 10.8 mgd. Treated and disinfected effluent is discharged to Old River, which is connected to the Delta, via a 3.5-mile outfall pipeline and diffuser system, and stabilized biosolids are dried and hauled offsite for land application. The City has plans to expand their total wastewater treatment capacity by either: 1) expanding the existing facility to accommodate total projected flows of 21.2 mgd, or 2) building a new 2.0 mgd water recycling facility in addition to expanding the existing facility to accommodate 19.1 mgd (City of Tracy, 2012).

Woodbridge Sanitary District

The Woodbridge Sanitary District covers 420 acres in the Lodi Planning Area. Wastewater collection and disposal in the community of Woodbridge is provided by the Woodbridge Sanitary District (WSD), as well as several private septic systems and leach fields, especially in the area north of the Mokelumne River. The existing sewage treatment plant has a percolation and evaporation pond system, and a capacity of 500,000 gallons per day (gpd).

Country Service Area 12 Thornton & Housing Authority

Wastewater disposal in Thornton is provided almost entirely by private septic systems. The San Joaquin County Housing Authority maintains its own wastewater collection and treatment facilities to serve its properties, which comprise roughly 30 percent of the housing units in the community. The community has a high water table, which has caused problems with the operation of private septic systems in the past.

Linden County Water District

The Linden County Water District is located in the Linden Planning Area and covers 308 acres. Wastewater is treated at the District's plant, located about a mile to the east of Linden near Mormon Slough. The collection system consists of gravity flow lines, a lift station, and a 6-inch pressure line to the treatment plant, which has one aeration pond and two evaporation-percolation ponds. The plant was designed to serve about 3,000 people. The ponds receive stormwater runoff and are near capacity during heavy rainstorms in the winter months.

Lockeford Community Services District

The Lockeford Community Services District is located in the Lockeford Planning Area and covers 789 acres. The District provides wastewater collection and disposal to residential and commercial areas in the community of Lockeford. Industrial development southwest of the community is served by an independent wastewater disposal system. The Lockeford wastewater treatment plant treats approximately 240,000 to 290,000 gpd with a capacity of 400,000 gpd.

Mountain House Community Services District

The Mountain House Community Services District covers 3,688 acres in the Mountain House Planning Area. Mountain House has a sewer network that contains gravity fed pipes, lift stations and force mains. The Mountain House Wastewater Treatment Plant has a maximum design capacity of 5.4 mgd, with current effluent flows around 0.448 mgd. Wastewater is treated and then disposed into Old River to the north of the community under a permit with the Regional Water Quality Control Board.

County Service Area 31 Saddle City

CSA 31 covers 104 acres of the Lodi Planning Area. The CSA decommissioned its treatment plant and is now connected to the City of Lodi's White Slough Wastewater Treatment Plant.

County Service Area 43 Clements

CSA 43 serves a total of 84 acres in the community of Clements and the Lockeford Planning Area. The community relies entirely on individual residential septic tanks for wastewater collection and treatment.

County Service Area 44 Apricot Acres

CSA 44 covers 197 acres in the Tracy Planning Area southeast of the City of Tracy. Properties are either served by private septic systems or connected to the sewer collection system which flows to one of two sewer package plants. The package plants are rated at 0.030 mgd and 0.055 mgd.

County Service Area 50 Patterson Pass

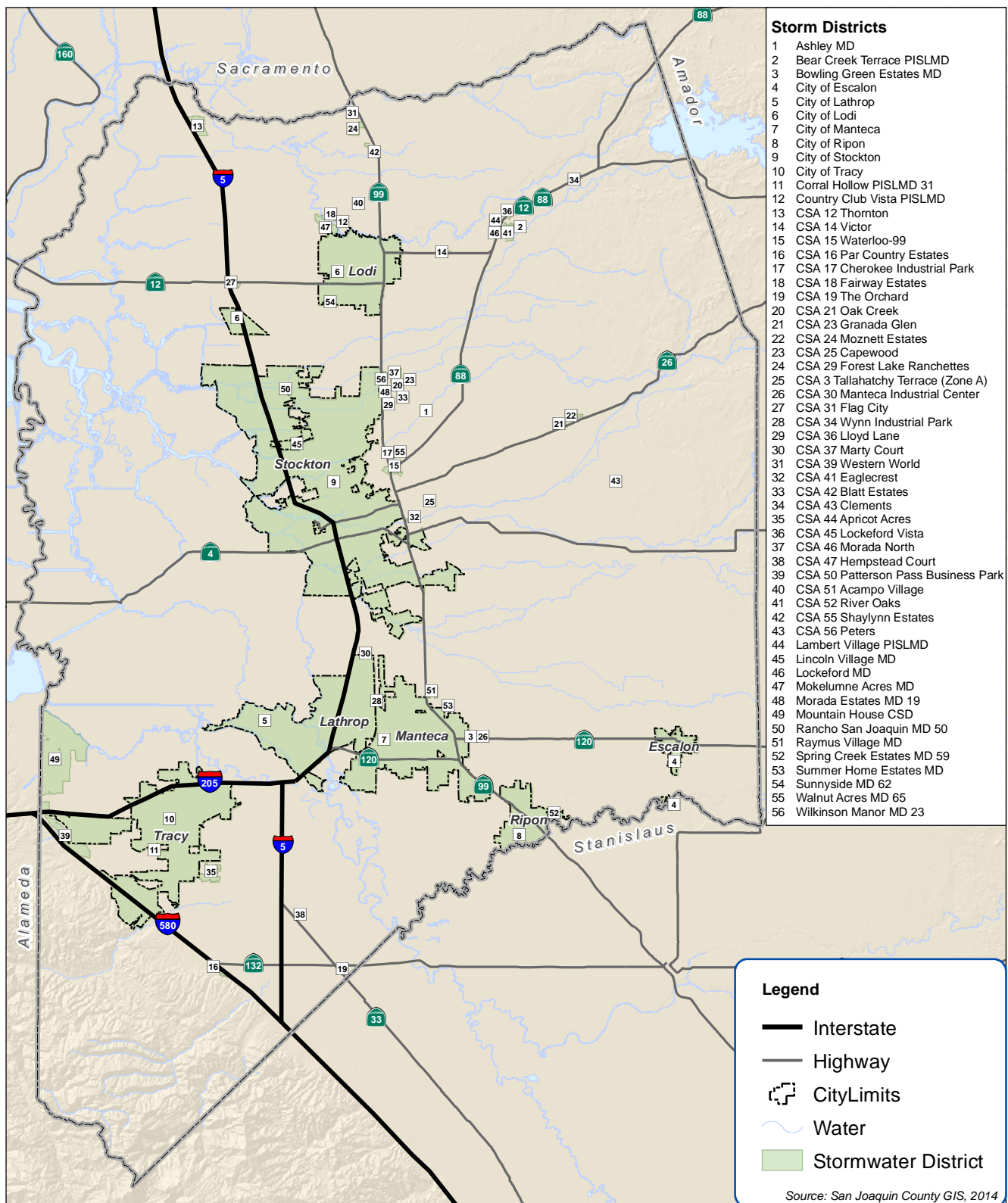
CSA 50 provides wastewater collection and disposal to 620 acres on Patterson Pass and is serviced by the City of Tracy, primarily serving a business park located between the Delta-Mendota Canal and the California Aqueduct.

Stormwater Drainage

San Joaquin County is the primary provider for storm drainage infrastructure to unincorporated areas in the County. Storm drainage districts serving the County are shown in **Figure 4.N-4**. Many communities do not have a storm drainage system in place and other communities rely entirely on surface drainage to convey stormwater. Surface drainage systems typically receive little maintenance and may experience increased instances of flooding. Typically, there is little time to treat stormwater runoff in these systems, posing a threat to wildlife, farm animals, and groundwater supplies as the runoff picks up contaminants from pavement and is discharged into groundwater aquifers, rivers, or irrigation ditches. The Stormwater Quality Control Criteria Plan (SWQCCP) was adopted in 2009, as a joint effort between the County of San Joaquin and the City of Stockton, to protect surface and groundwater resources from the effects of urban stormwater runoff. The SWQCCP helps to ensure implementation of NPDES and State permits, provides clear best practice development standards in stormwater quality control, supports integration of Low Impact Development (LID) measures, and includes maintenance procedures to ensure long term pollution control. Much of this information on stormwater drainage is from the San Joaquin County General Plan Background Report (Mintier Harnish, 2009) and was updated when possible.

Existing Conditions

Several cities discharge their stormwater to City-maintained detention basins, where flows are metered before being pumped to surrounding rivers and canals. Due to low topography, many drainage systems require pumps to discharge to these rivers and canals. Some agencies, including the City of Manteca, recommend improvements to their levees and outlet canals to increase



SOURCE: San Joaquin County GIS, 2014

San Joaquin County 2035 General Plan . 209529

Figure 4.N-4
Stormwater Districts

capacity for future drain connections. The unincorporated areas are mostly served by smaller individual or private systems. There are many communities in the County that lack storm drainage infrastructure, and instead employ roadside ditches, private ponds, and/or dry wells to contain runoff. These communities include Banta, Coopers Corner, Farmington, French Camp, Glenwood, Noble Acres, Lammersville, and Stoneridge. Banta has a high groundwater table limiting the use of on-site ponds, though the community could install pipelines and lift stations to discharge into the San Joaquin River. Farmington has a limited storm drainage system that relies on catch basins, culverts, roadside borrow ditches, railroad borrow ditches, and on-site private drainage ponds which discharge into Duck Creek and Little John's Creek. French Camp currently relies on the underground piping to French Camp Slough with on-site ponds for drainage; however, the city could install an outfall pumping system in order to discharge into Little John's Creek or increase discharges to French Camp slough. Lammersville has limited infrastructure and additional problems due to a relatively flat topography. Stoneridge has drainage problems during heavy rains due to a high groundwater table.

City of Stockton

Storm drainage capture and transport in the Stockton community area is provided by the City of Stockton, roadside ditches, and on-site private drainage ponds. Urbanized areas of Stockton are served by a system of underground storm drains which are separate from the sanitary sewer system. Stormwater flows to detention basins or to outfall points along the City's natural drainage ways. There are several locations where storm drain catch basins feed into the sanitary collection system. The storm drainage system is generally connected to flood control canals and channels which drain into sloughs of the San Joaquin Delta. Some unincorporated parts of the Stockton community area are served by roadside drainage ditches.

Stormwater collection facilities in Stockton include catch basins, pipes, ditches, and pump stations, which according to City records, have adequate capacity. Runoff collected within the City of Stockton is pumped into several channels. The primary channels that drain the City are: San Joaquin River, Bear Creek, Mosher Slough, Five Mile Slough, Fourteen Mile Slough, Calaveras River, Stockton Diverting Canal, Smith Canal, Mormon Slough, Stockton Channel, French Camp Slough, and Walker Slough Duck Creek.

Several smaller maintenance districts serve drainage areas in Stockton and the immediately surrounding areas. These districts include Ashley Maintenance District (MD), CSA 31, CSA 15, CSA 17, CSA 21, CSA 25, CSA 36, CSA 41, CSA 42, CSA 46, Lincoln Village MD, Morada Estates MD, Rancho San Joaquin MD, Walnut Acres MD, and Wilkinson Manor MD.

City of Lodi

The City of Lodi's storm drainage system consists of a network of underground pipes, lift stations, catch basins, and detention ponds that are used to convey stormwater to the Mokelumne River and Woodbridge Irrigation District canal. The system includes: 110 miles of pipe, 2,750 catch basins, 1,600 manholes, 45 pumps at 14 pump stations, 11 detention basins, and eighteen outlets. The detention basins are sized to control runoff from a 100-year storm. The City of Lodi and WID maintain a Storm Drainage Discharge Agreement which allows the City to discharge

stormwater into the WID canal. Water quality concerns include nitrates from lawn fertilizers and suspended solids. Surrounding unincorporated areas are served by roadside ditches and private retention ponds. Several smaller maintenance districts serve drainage areas in Lodi and the immediate surrounding areas. These districts include Country Club Vista MD, CSA 14, CSA 18 or MAMD, CSA 29, CSA 31, CSA 39, CSA 51, CSA 55, CSA 40, and Sunnyside MD 62.

City of Escalon

The City of Escalon maintains a drainage service area of 1,503 acres. Existing storm drainage facilities in the City of Escalon consist of drain inlets, manholes and piping, ten detention basins, ten pump stations, and three South San Joaquin Irrigation District (SSJID) laterals. Escalon is divided into ten drainage sheds, each of which contains a drainage system that conveys runoff from within the shed to a City maintained storm drain basin. Runoff is stored in the basins and then pumped into the laterals at a reduced flow rate. The laterals convey drainage as well as irrigation water. SSJID requires the capacity of the laterals be maintained year round for delivery of irrigation water.

City of Lathrop

The City of Lathrop provides drainage to 12,618 acres in the Lathrop Planning Area, 16 acres in the Manteca Planning Area, one acre in the Tracy Planning Area, and 0.4 acres in the Delta Planning Area. Stormwater collection and conveyance in the Lathrop community area is provided by the City stormwater drainage system, roadside ditches, and on-site private drainage ponds. Drainage facilities consist of pipes, ditches, inlets, manholes, detention basins, and pump stations that discharge to the San Joaquin River through two storm drain pipes. Recent construction is sized for the 10-year storm event, while basins are sized for 100-year, 48-hour storm. Roadside ditches serve the older and more rural areas. Outside the City of Lathrop, CSA 37 serves 19 acres in the northeast part of the Lathrop Planning Area. The system would need to undergo major expansions to serve future development.

City of Manteca

The City of Manteca serves 11,290 acres in the Manteca Planning Area. Storm drainage capture and transport in the Manteca community area is provided by the City of Manteca, roadside ditches, and on-site private drainage ponds. The SSJID operates drainage facilities that carry a part of the City's drainage. Water from the SSJID and drainage piped by the City flows west to the French Camp Outlet Canal (FCOC), draining into the French Camp Slough, with a final destination of the San Joaquin Delta.

The capacity of the FCOC limits flow rates from drainage systems in the City. Detention basins help meter runoff flows prior to discharging to laterals and the FCOC. The City of Manteca strives to provide a 10-year storm drainage protection for all development and a 100-year storm protection for all structures. The City's Public Facilities Implementation Plan recommends improvements to the FCOC to increase capacity for future drain connections. The City of Manteca Storm Drainage System consists of approximately 170 miles of pipeline, 36 Pump Stations and 35 Detention Basins. Runoff flows through this system into the South San Joaquin Irrigation District Drains and Laterals, and eventually into the San Joaquin River.

Several smaller maintenance districts serve drainage areas in Manteca and adjacent areas. These districts include Bowling Green Estates MD, CSA 30, CSA 34, Raymus Village MD, and Summer Home Estates MD.

City of Ripon

The City of Ripon has four drainage systems. Stormwater in the industrial part of the City west of SR-99 flows into industrial sewage lines in one system. Another system pumps runoff into South San Joaquin Irrigation District lines or canals. The third system's drainage flows by gravity through seven outfalls directly into the Stanislaus River. The fourth system's runoff from the commercial area north of SR-99 near Jack Tone Road is collected and taken to a stormwater detention pond. The water is then pumped south into a City storm drain line in Jack Tone Road that drains into the Stanislaus River. Terrain in the City generally slopes toward the Stanislaus River allowing gravity flow of stormwater runoff. The City has developed a storm basin in the North Point Area to serve 1,000 acres of future development in the area. The City also recommends the installation of new facilities to accommodate future growth. Adjacent to the City of Ripon, Spring Creek Estates MD serves a drainage area of 14 acres.

City of Tracy

The City of Tracy serves 13,874 acres in the Tracy Planning Area. Storm drainage capture and transport in the Tracy Community area is provided by the City of Tracy, roadside ditches, and on-site private drainage ponds. Stormwater in Tracy drains through open channels and pipes that are operated by the City of Tracy and the West Side Irrigation District (WSID). These channels drain into four outfalls: the Sugar Cut Outfall, Lammers Road Storm Drain Force Main, Westside Irrigation District (WSID) Main Drain, and Patterson Run. These outfalls eventually discharge stormwater runoff into the Old River to the north, which is a part of the San Joaquin Delta. The City maintains detention basins and pump stations to store and meter flows before being released into the outfall facilities. From these three outfalls, drainage outfalls to the Old River. The City's Storm Drain Master Plan divides the City into six drainage systems: West Side Channel System, Eastside Channel System, Tracy West Area Watershed, Banta System, I-205 Corridor Specific Plan System, and the Sugar Cut System.

Obstructions to overland flow, such as railroads, cause water to flow into two open channels on the City's northeast and northwest sides. A network of storm drains and catch basins within the City feed into the channels. Although these facilities function well in most parts of the City, some areas (especially on the south side) are inadequately served and experience flooding during winter rains. The City's Storm Drainage Master Plan identifies improvements needed to reduce these problems and accommodate future growth, including improvements to the existing system, installation of new storm drains, enlargement of existing storm drains, and construction of new detention facilities.

Several smaller maintenance districts maintain several drainage areas in Tracy and the immediately surrounding areas. These districts include Corral Hollow MD, CSA 16, CSA 19, CSA 44, CSA 47, and CSA 50.

CSA 14 Victor

CSA 14 provides storm drainage service to the community of Victor. The western part of CSA 14 is within the Lodi Planning Area, while the eastern part is in the Lockeford Planning Area. The Services Area collects stormwater by a piped collector system and conveys the water with pumping facilities to the North San Joaquin Water Conservation District canal, which drains into Pixley Slough. The system has a design capacity to drain a 10-year storm within 24 hours.

CSA 29 Collierville

CSA 29 provides storm drainage services to a portion of the community of Collierville. CSA 29 serves 213 acres in the northern part of the Lodi Planning Area. The service area is located between North Lower Sacramento Road and Highway 99, approximately one half mile south of Liberty Road. Most of the community is served by roadside drainage ditches and retention basins. Topographic features and the lack of a community-wide drainage system pose a long-term constraint to growth in Collierville.

CSA 51 Acampo

CSA 51 provides storm drainage services to a six-lot subdivision in the community of Acampo. The Service District covers about six acres. The district is served by roadside drainage ditches and a retention basin.

Morada Area

The Morada Area serves 57 acres in the Stockton Planning Area east of SR99. Existing storm drainage capture and transport in most of Morada is limited to roadside ditches and on-site private drainage ponds. Some special districts (CSA 46, Morada Estates, Walnut Acres, and Wilkinson Manor Zone A) have public drainage systems. Because existing drainage systems are geographically dispersed, it may be difficult to incorporate them into a community-wide system in the future.

CSA 16 Chrisman

CSA 16 provides service to the community of Chrisman. The CSA covers about 84 acres. Drainage facilities consist of pipes, drainage ponds, natural swales, retention ponds, and catch basins. The Par Country Subdivision located in Chrisman, has individual retention ponds on each lot, and the Hillside Greens storm drain is privately maintained by a Homeowners Association.

CSA 47 Hempstead Court

CSA 47 provides service to a portion of the community of New Jerusalem. The Service Area covers about 21 acres. With the exception of the Hempstead Court subdivision, which receives storm drainage services from County Service Area 47, drainage is limited to roadside ditches. New Jerusalem has no plans for future drainage facilities.

Mountain House Community Services District (CSD)

Mountain House CSD serves 3,674 acres in the Mountain House Planning Area. The service area is located along the Alameda County/San Joaquin County line and is bound by the Old River on

the north side and I-205 on the south side. Several watersheds southwest of the Mountain House area drain through the community. According to the Mountain House Master Plan, drainage from the offsite watersheds must be considered in the design of the community storm drain system. Mountain House has a primary storm drainage system which conveys off-site and on-site runoff to Old River. Primary drainage facilities include trunk lines, open channels and six detention basins and pumps. Mountain House's secondary storm drain system is located within the local streets of the community and it consists of gutters, swales, channels, catch basins, and underground pipes. These drainage facilities transport onsite drainage to trunk lines, detention basins, or terminal drains. Design of the system is based on the 100-year storm event.

CSA 12 Thornton

CSA 12 provides public storm drainage service to the community of Thornton. The CSA covers about 362 acres. The CSA collects stormwater by piped collector system and conveys the water with pumping facilities to the Mokelumne River.

County Service Areas 23 and 24

CSAs 23 and 24 provide service to a portion of the community of Linden. CSA 23 covers about 46 acres and CSA 24 covers about 66 acres. Storm drainage capture and transport in Linden is provided by County Service Areas, roadside ditches, and on-site private drainage ponds. Linden lacks a community-wide storm drainage system. The newer subdivisions have independent drainage systems maintained by County Service Areas. The older areas are served by roadside ditches or drain into dry infiltration wells or ponds. Localized flooding occurs due to the flat topography and man-made drainage barriers such as the railroad.

County Service Area 56 Peters

CSA 56 provides service to a portion of the community of Peters. The CSA covers about 32 acres. Storm drainage facilities in other areas of Peters are limited to private drainage ponds and roadside ditches.

County Service Area 43 Clements

CSA 43 provides service to a portion of the community of Clements. The CSA covers about 84 acres. Other areas of Clements do not have a community drainage system. A limited drainage system consisting of roadside ditches and onsite private drainage ponds handles the storm drainage along State Route 12/88 at Mackville Road. Natural runoff occurs towards Bear Creek and the Mokelumne River. Flooding and standing water are problems in areas where natural drainage provisions are inadequate. These infrastructure deficiencies severely constrain development potential. A new subdivision, Oak Ridge Estates, has a centralized drainage system maintained by a homeowner's association.

Lockeford Area

A portion of the Lockeford area is serviced by Bear Creek Terrace, CSA 45, CSA 52 Lockeford MD and Lambert Village MD. Lockeford covers about 92 acres. These drainage systems consist of a combination of County-maintained underground pipes that drain into on-site ponds and the

Mokelumne River and Bear Creek. Terminal drainage systems have been constructed for the Bear Creek Terrace and Lockeford MD.

Mokelumne Acres Maintenance District

Mokelumne Acres Maintenance District (MAMD) provides service to most of the community of Woodbridge. The Maintenance District covers about 373 acres. In general, the MAMD system is in good condition, although localized problems occur during high river flows. The older sections of Woodbridge have a less complete drainage system; catch basins have been installed to help relieve localized ponding.

Solid Waste

The unincorporated County is divided into six solid waste collection franchise areas, which are serviced by five solid waste collection services, including Central Valley Waste Services, Allied Waste, Gilton Solid Waste Management, Stockton Scavengers Association, and Delta Disposal Services. The San Joaquin County Code requires residential service once a week and commercial and industrial service a minimum of two times per week. In addition to curbside collection services, drop boxes are also provided to collect wastes in the unincorporated communities. There are three active solid waste disposal/landfill facilities in San Joaquin County, as listed in the California Department of Resources Recycling and Recovery (CalRecycle) Solid Waste Information System (SWIS). The Foothill Landfill and North County Landfill are Class III Landfills that are owned and operated by the San Joaquin County Public Works Department. The County also operates Lovelace Materials Recovery Facility and Recycle Center, a Household Hazardous Waste (HHW) facility. The Forward Landfill is the only Class II landfill in the County and is owned and operated by Forward Inc./Allied Waste North America.

The County has implemented several aggressive special waste collection and recycling programs that have led it to surpass the recycling goals required by the State. Composting, enhanced recycling, and waste oil programs are provided at recycling centers, materials recovery facilities, and transfer facilities throughout the County. These facilities and programs include: nine active or planned green and agricultural waste composting facilities; nine transfer or processing facilities, and 73 recycling centers. In 2000, the CalRecycle³ estimated the unincorporated area of San Joaquin County generated 369,581 tons of waste and disposed of 181,045 tons annually. Between 2000 and 2006, the County achieved a solid waste diversion rate around 58 percent, exceeding the state mandated goal of 50 percent diversion. The CalRecycle estimates that the three remaining landfills have sufficient capacity to serve the County through 2020 and possibly through 2054 (CalRecycle, 2008).

The Certified Unified Programs Agency acts to consolidate six State-mandated environmental programs at the local level, and within the County includes the Hazardous Materials Program and the Hazardous Waste Program. These programs ensure the proper handling and disposal of hazardous material and wastes created by local businesses and industries.

³ CalRecycle stands for California Department of Resources Recycling and Recovery (formerly the California Integrated Waste Management Board).

The San Joaquin County Permanent Household Hazardous Waste (HHW) Consolidation Facility is a two acre parcel located at 7850 R.A. Bridgeford Street in Stockton. The facility accepts various hazardous waste materials, including: paints, primers, solvents, varnishes, thermometers, asbestos (non-friable), anti-freeze, transmission fluids, motor oil, pool chemicals, batteries (rechargeable and nickel-cadmium [NiCad]), pesticides, cleaners, strippers, and medical waste (sharps). The HHW materials are stored temporarily and then hauled to various disposal sites outside of the County. The HHW facility includes a free ReUse Room that allows residents to take home certain materials that are useable, not a banned product, and full enough to be worthwhile, such as left over paint or cleaning supplies. The service is free for residents of San Joaquin County. Certain businesses that qualify for Conditionally Exempt Small Quantity Generator (CESQG) status pay a fee for disposal. Each year the facility handles wastes from approximately 6,000 residents and businesses.

N.3 Regulatory Setting

This section briefly describes State and local plans and policies related to the adequate provision and protection of utilities.

Federal

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), administered by the United States Environmental Protection Agency (EPA) in coordination with the California Department of Public Health (CDPH), is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. In 1996, Congress amended the Safe Drinking Water Act to emphasize sound science and risk-based standard setting, small water supply system flexibility and technical assistance, community-empowered source water assessment and protection, public right-to-know, and water system infrastructure assistance through a multi-billion-dollar state revolving loan fund.

Clean Water Act (CWA)

The CWA is the cornerstone of surface water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric although narrative criteria based on bio-monitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. The SWRCB and the RWQCB are responsible for ensuring implementation and compliance with the provisions of the Federal CWA.

In 1972, the CWA was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges, including discharges associated with construction activities, under the NPDES program.

State

State Water Resources Control Board

The State Water Resources Control Board (the State Water Board) was created by the Legislature in 1967 with the mission of ensuring the highest reasonable quality for waters of the State, while allocating those waters to achieve the optimum balance of beneficial uses. The Water Board has authority over water allocation by administering and regulating appropriative water right permits and licenses, as per the Water Code, which require all use of water to be “reasonable and beneficial,” which includes municipal and industrial uses, irrigation, hydroelectric generation, and livestock watering.

Central Valley Regional Water Quality Control Board

In 1970, the Porter-Cologne Water Quality Act created nine Regional Water Quality Control Boards (Regional Boards) which develop and enforce water quality objectives and implementation plans within their region. San Joaquin County falls under the jurisdiction of the Central Valley Regional Water Quality Control Board, which is the largest and most diverse region in California and includes the watersheds that drain into the Sacramento River, San Joaquin River, and the Delta. The Regional Boards oversee various programs which protect surface water and groundwater quality, and enforce the federal National Pollutant Discharge Elimination System (NPDES) Wastewater Program, and NPDES Stormwater Program. The Regional Boards are also responsible for developing and implementing Total Maximum Daily Loads (TMDLS) for impaired water bodies.

Groundwater Management Act (AB 3030)

Passed in 1992, AB 3030 (California Water Code Sections 10750-10756) provides a systematic procedure for an existing local agency to develop a groundwater management plan. This section of the code provides such an agency with the powers of a water replenishment district to raise revenue to pay for facilities to manage the groundwater basin (extraction, recharge, conveyance, quality).

SB 244 (Wolk)

Senate Bill 244 was adopted in 2011 as a means to address the complex legal, financial, and political barriers that contribute to regional inequity and infrastructure deficits within disadvantaged unincorporated communities, by including these communities in the long range planning of a city or county. SB 244 aims to result in a more efficient delivery system of services and infrastructure including but not limited to sewer, water, and structural fire protection. Under SB 244, on or before

the next adoption of a housing element, Government Code Section 65302.10.(a) requires that each city and county review and update the land use element of its general plan, based on available data, including, but not limited to, the data and analysis developed pursuant to Section 56430, of unincorporated island, fringe, or legacy communities inside or near its boundaries. The updated land use element shall:

- identify and describe each “island community” or “fringe community,” that exists within its sphere and is a disadvantaged unincorporated community,
- identify and describe each legacy community, as defined, within the boundaries of a county that is a disadvantaged unincorporated community,
- include an analysis of water, wastewater, stormwater drainage, and structural fire protection needs or deficiencies for each of the identified communities, and
- include an analysis in the land use element of potential funding mechanisms that could make the extension of services and facilities to identified communities financially feasible.

California Water Code

The California Water Code, a section of the California Code of Regulations, establishes the governing laws pertaining to all aspects of water management in California. Domestic water service in the unincorporated areas of San Joaquin County is generally provided by special districts. These agencies operate in accordance with the California Water Code.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Section 10610 to 10656). The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet annually, should make every effort to ensure the appropriate level of reliability in its water service is sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act requires that urban water suppliers adopt and submit an urban water management plan at least once every five years to the Department of Water Resources. Non-compliant urban water suppliers are ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the State until the Urban Water Management Plan (UWMP) is submitted pursuant to the Urban Water Management Planning Act.

Cortese-Knox-Hertzberg Governmental Reorganization Act of 2000

The Cortese-Knox-Hertzberg Governmental Reorganization Act of 2000 requires California Local Agency Formation Coalitions (LAFCOs) to conduct municipal service reviews for specified public agencies under their jurisdiction. One aspect of municipal service reviews is to evaluate an agency’s ability to provide public services within its ultimate service area. A municipal service review is required before an agency can update its sphere of influence.

Senate Bills (SB) 610 and SB 221

SB 610 and SB 221 amended State law, effective January 1, 2002, to improve the link between the information on water supply availability and certain land use decisions made by cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large (greater than 500 dwelling units) development projects. Both statutes also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Under SB 610, water assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects as defined in Water Code 10912 subject to the California Environmental Quality Act (CEQA).⁴ Under SB 221, approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply.

Small Community Wastewater Grant Program

The small community wastewater grant program (SCWG), funded by Propositions 40 and 50, provides grant assistance for the construction of publicly owned wastewater treatment and collection facilities. Grants are available for small communities with financial hardships. Communities must comply with population restrictions (maximum population of 20,000 people) and annual median household income (MHI) provisions (80 percent or less of the statewide MHI) to qualify for funding under the SCWG Program.

Title 22 of California Code of Regulations

Title 22 regulates the use of reclaimed wastewater. In most cases, only disinfected tertiary water may be used on food crops where the recycled water would come into contact with the edible portion of the crop. Disinfected secondary treatment may be used for food crops where the edible portion is produced above ground and would not come into contact with the secondary effluent. Lesser levels of treatment are required for other types of crops, such as orchards, vineyards, and fiber crops. Standards are also prescribed for the use of treated wastewater for irrigation of parks, playgrounds, landscaping and other non-agricultural irrigation. Regulation of reclaimed water is governed by the nine RWQCBs and the California Department of Public Health (CDPH).

California Storm Water Regulatory Program

Drawing authority from the federal Water Pollution Control Act (Clean Water Act) and the National Pollutant Discharge Elimination System (NPDES) Permit system, the State Water Board provides stormwater policy and regulatory oversight, on behalf of the federal government. Under the program, cities and other jurisdictions that operate large, medium, and small storm water systems, as well as specific industrial sites and construction sites, that disturb more than an acre of land must apply for stormwater permits. Construction permits are based on overall risk and may require certain measures to prevent erosion and reduce sediment and other pollutant

⁴ SB 610 water supply assessments are not required for General Plan Updates because they are not “water demand” projects as defined by SB 610. See CEQA Guidelines Section 15155(a)(1).

discharges. Industrial activities are required to use the best technology available to reduce pollutants, and may be required to develop a storm water pollution prevention plan and monitoring plan. Municipal sewer system operators must comply with permits that regulate storm water entering their systems under a two phase system, based on the size of the municipality.

California Code of Regulations

In accordance with the California Code of Regulations (CCR) Title 27, Sections 21600 through 21900, all solid waste disposal sites are jointly regulated under California Code of Regulations (CCR), Title 27, Division 2, Chapters 1 through 8, Section 20005 through 23014; the California Regional Water Quality Control Board (RWQCB); and the California Department of Resources Recycling and Recovery (CalRecycle). Solid waste transfer stations and compost sites are regulated under CCR, Title 14, Division 7, Chapters 3 and 4, Sections 17200 through 17870. Transfer stations and compost sites are primarily regulated by CalRecycle. The RWQCB has recently begun to regulate compost sites and has a limited authority regarding transfer stations. The San Joaquin County Environmental Health Department (SJCEHD) is the Local Enforcement Agency (LEA) for CalRecycle. The San Joaquin County Public Works Department and up to an additional 40 independent operators within San Joaquin County assist in supporting the County solid waste landfill diversion goals and operating the solid waste landfills within the County.

Integrated Waste Management Act (AB 939)

AB 939 established the “California Integrated Waste Management Act (IWMA) of 1989, which defined an integrated waste management hierarchy starting with the newly established CalRecycle (formerly the California Integrated Waste Management Board) and local agencies, to guide in implementation of, in order of priority as follows: (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal. AB 939 also replaced the various County Solid Waste Management Plans (CoSWMP) with Integrated Waste Management Plans (IWMP). AB 939 established statewide waste diversion goals to divert 25 percent of all solid waste from landfills by January 1, 1995 and 50 percent of all solid waste by January 1, 2000 through source reduction, recycling, and composting activities. AB 939 also established a comprehensive statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities.

California Global Warming Solutions Act of 2006

The passage of AB 32 requires a sharp reduction of greenhouse gas (GHG) emissions for the State of California to set the stage for its transition to a sustainable, low-carbon future. AB 32 was the first program in the country to take a comprehensive, long-term approach to addressing climate change, and does so in a way that aims to improve the environment and natural resources while maintaining a robust economy. As part of AB 32, landfill methane emissions are a targeted source of GHG reductions, as methane is a powerful GHG with about ten times the global warming potential of carbon dioxide.

San Joaquin County Ordinance Code

The San Joaquin County Ordinance Code (Title 5 Health and Sanitation, Division 2 Solid Waste Collection and Disposal, with specific ordinances) is used to regulate solid and household waste facilities at the local level. SJCEHD's role in the County-wide solid waste management program is to enforce solid waste laws; investigate closed and abandoned landfills, and investigate citizen complaints regarding solid waste. Hazardous wastes are regulated by the State Department of Toxic Substances Control (DTSC). The authority to regulate hazardous waste can be found in the California Health and Safety Code and Title 22, CCR. The SJCEHD does not implement the enforcement program for the RWQCB. The enforcement program is handled by the RWQCB staff. The San Joaquin County Public Works Department, Solid Waste Division, is responsible for the operation of the County-owned transfer station and disposal sites. There are privately-held transfer stations and disposal sites throughout the County.

Construction and Demolition Diversion Ordinance

In 2009, the San Joaquin County Board of Supervisors adopted Ordinance #4310, also known as the Construction, Demolition and Landscaping Debris Recycling and Diversion Ordinance. This Ordinance requires that all Applicable Projects must divert 50 percent of all Construction and Demolition Debris excluding Inert and Organic material and 90 percent of Inert and Organic materials from landfills through reuse and recycling. The ordinance also requires that all waste materials and materials that cannot be recycled or reused are delivered to an appropriate waste handling facility designated by San Joaquin County's Director of Public Works.

Regional

Delta Protection Commission (DPC) Land Use and Resource Management Plan (LURMP)

First adopted in 1995, and last updated in 2010, the Delta Protection Commission (DPC) Land Use and Resource Management Plan (LURMP) contains policies that outline the long-term land use requirements for the Sacramento-San Joaquin Delta, designated by a Primary and Secondary Zone. In San Joaquin County, the Delta Primary Zone includes land west of I-5, and the Stockton city limit, and north of the Old River which forms the northwest boundary of the City of Lathrop. The Secondary Zone extends beyond the Primary Zone for a few miles in all directions. Policies relating to utilities in the LURMP ensure construction of new utility and infrastructure facilities is appropriate and the impacts of such new construction on the integrity of levees, wildlife, recreation, agriculture, and Delta communities are avoided, minimized and mitigated. Policies in the LURMP provide mitigation to avoid impacts associated with the construction of new transmission lines and utilities, encourage the provision of infrastructure for new water, recreational, and scientific research facilities, and ensure Delta residences are served by recycling services. Policies also ensure potable water and wastewater systems that are built to serve new houses, outside of unincorporated towns, and agriculture are not residentially growth inducing and do not cause cumulative impacts to groundwater supplies. New municipal sewage treatment facilities are not permitted within the Delta Primary Zone.

The Delta includes approximately 1,100 miles of levees, which act as primary flood management facilities. The LURMP contains nine policies that support the improvement, emergency repair, and long-term maintenance of Delta levees and channels, and promote levee maintenance and rehabilitation to preserve the land areas and channel configurations in the Delta. These policies require local governments to regulate new construction within flood hazard areas to protect public health, safety and welfare, state that increased flood protection will not result in increased residential designations or densities beyond those allowed under zoning and general plan designations in place when the Delta Protection Act took effect on January 1, 1992, for lands in the Primary Zone. These policies also support programs for emergency levee repairs, levee encroachments that affect maintenance, levee design standards, and funding for unincorporated towns within the Delta to improve levees up to a 200-year flood protection level.

Eastern San Joaquin Integrated Regional Water Management Plan

The Eastern San Joaquin Integrated Regional Water Management Plan (IRWMP) was developed by the Northeastern San Joaquin County Groundwater Banking Authority (GPA) as a comprehensive approach to groundwater basin management for San Joaquin County. The IRWMP's Planning Area includes portions of the San Joaquin region which overlies the Eastern San Joaquin and Cosumnes Sub-Basins and coincides with the adopted Groundwater Management Area (GMA), overlying fifteen water agencies in the County. The IRWMP defines and implements the Integrated Conjunctive Use Program which is a comprehensive, prioritized suite of projects and actions described in the IRWMP to ensure the reliability and sustainability of water resources in the eastern San Joaquin County Region.

Local

Adopted Urban Water Management Plans in San Joaquin County

The Urban Water Management Planning Act (Water Code Section 10610 to 10656), discussed above, states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet adopt and submit an urban water management plan at least once every five years to the Department of Water Resources. Urban Water Management Plans (UWMPs) that have been adopted in San Joaquin County are listed below. The only city that is not currently required to adopt and submit a UWMP is Escalon, which does not currently exceed the threshold.

- City of Lodi UWMP (2010)
- City of Stockton Municipal Utilities District (COSMUD) UWMP (2010)
- California Water Service Company UWMP (2010)
- City of Tracy UWMP (2010)
- South San Joaquin Irrigation District, South County Water Supply Project UWMP (2010)
- Lathrop UWMP (2005)
- Ripon UWMP (2005)
- Manteca UWMP (2005)

San Joaquin County Drainage Design Standards

The stormwater drainage system for any proposed development within San Joaquin County must be designed in accordance with the most currently adopted San Joaquin County Department of Public Works Stormwater Management Plan. Currently, the Stormwater Management Plan requires that drainage collection and transmission infrastructure be designed to pass the 10-year, 24-hour storm. In addition, County standards require that increased runoff due to new development be metered to discharge at a rate not-to-exceed that occurring prior to development from a two-year storm, unless the flow is first constrained in a basin. When the latter occurs, the maximum rate of discharge is limited to that necessary to empty the basin within 48 hours.

N.4 Impacts and Mitigation Measures

Significance Criteria

Consistent with CEQA *Guidelines* Appendix G (Environmental Checklist), the project could have a significant impact if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- 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;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or could require construction of new water supply or treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste.

Relevant Policies

The following policies of the 2035 General Plan address utilities and service systems.

IS-1.1: Essential Facilities and Services. The County shall strive to ensure that adequate public facilities and services essential for public health and safety are provided to all County residents and businesses and maintained at acceptable service levels. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals. (RDR/PSP/IGC) (Source: New Policy)

IS-1.2: Infrastructure Standards. The County shall require new developments that include improvements to existing infrastructure or new infrastructure to meet the requirements and standards of the County or other agencies providing services. (RDR/IGC) (Source: Existing General Plan (GP), CODP, Growth Accommodation, Policy 24, modified)

IS-1.3: Facilities and Services Deficiencies. The County shall coordinate with other public facility districts and agencies (e.g., special districts, community service districts) to identify and find solutions to key infrastructure deficiencies in the County. (IGC) (Source: New Policy)

IS-1.4: Infrastructure Maintenance. The County shall work with agencies to maintain, improve, and replace public facilities as necessary to maintain adequate levels of service for existing and future development and reduce the need for new facilities. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals. (PSP/IGC) (Source: Existing GP, CODP, Growth Accommodation, Policy 25, modified)

IS-1.5: Infrastructure and Service Expansions. The County shall base the expansion of public facilities and services on current needs and planned or projected development patterns. (PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 26, modified)

IS-1.6: Efficient Infrastructure and Facilities. When performing maintenance, upgrading, or expanding infrastructure and facilities, the County shall use technologies that improve energy efficiency and conserve water, when feasible. (RDR/PSP) (Source: New Policy)

IS-1.7: Infrastructure Improvement Limitations. The County shall limit infrastructure improvements in areas that are not planned for future development. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 27)

IS-1.8: Infrastructure Financing, Design, and Construction. The County shall require new development to fund the initial financing, design, and construction of required infrastructure facilities. All financing (including operation and maintenance) and improvement plans shall be subject to County review and approval. (RDR) (Source: New Policy)

IS-1.9: Maximize Use of Existing Facilities. The County shall require new development to be designed and sited to use existing facilities and services to the extent practical and to the extent that such a design and site choice would be consistent with good design principles. (RDR) (Source: New Policy)

IS-1.13: Infrastructure Financing. The County shall approve new development only when financial mechanisms are in place to ensure that adopted County service standards are met and that long-term infrastructure and facility maintenance can be provided. (RDR) (Source: Existing GP, CODP, Growth Accommodation, Policy 30, Policy 32, Policy 34)

IS-1.14: Equitable Infrastructure Financing. The County shall ensure that infrastructure and facility financing mechanisms for urban services are imposed equitably, and shall require the reimbursement from subsequent developments which benefit from the improved system. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 31)

IS-1.15: Planning for Ultimate Improvement Needs. When necessary to ensure adequate infrastructure for an area planned for development, the County shall require system improvements beyond those necessary for a proposed new development. (RDR/PSP) (Source: Existing GP, CODP, Growth Accommodation, Policy 33, Policy 34)

IS-1.16: Master Planned Facilities. The County shall require new development including single-parcel development, to provide necessary on-site and off-site infrastructure improvements. Proposed new developments that cannot be served by an existing service provider shall be required to fund preparation of a master plan or specific plan for the parcel and adjacent areas that includes:

- a large enough area and mix of uses to support self-sustaining infrastructure service systems;
- detailed infrastructure and service plan, financing, and maintenance plan; and
- approval by the Director of Public Works. (RDR) (Source: New Policy)

IS-1.17: Maximize Resources. The County shall make maximum use of Federal, State, regional, local, and private resources to address local infrastructure and facility needs. (PSP/FB) (Source: Existing GP, CODP, Growth Accommodation, Policy 35, modified)

IS-2.1: Service Areas. The County shall seek to improve the provision of services to unincorporated areas by minimizing non-contiguous growth around cities and unincorporated communities and discouraging city annexations which leave irregular borders or “islands.” The County shall support city and San Joaquin LAFCo efforts to eliminate irregular border areas and annex islands. (IGC) (Source: Existing GP, Fire Safety and Law Enforcement, Policy 6, modified)

IS-2.2: Limit Formation of Special Districts. The County shall support San Joaquin LAFCo policy to approve new special districts only when the formation of a new district would ensure efficient, long-term service to existing or new development. (IGC) (Source: Existing GP, CODP, Growth Accommodation, Policy 37, modified)

IS-2.3: Special District Consolidation. Where Special Districts can be consolidated or eliminated, the County shall support San Joaquin LAFCo decisions to provide more efficient, cost-effective services. (IGC) (Source: Existing GP, CODP, Growth Accommodation, Policy 37)

IS-2.4: New County Service Areas. The County shall not create any new County Service Areas (CSA) for the provision of water or sewer services, except when approved by the Public Works Director, and shall, wherever feasible, eliminate or consolidate existing CSAs or convert them to another non-County public utility agency (e.g., Independent Special District, Community Service District, Mello-Roos Community Facilities District). (RDR/PSP) (Source: New Policy)

IS-2.5: Existing County Service Areas. The County shall continue to work with residents and property owners in existing County Service Areas (CSA) to address existing deficiencies and improve long-term viability by encouraging residents, property owners, or new developments within a CSA to:

- Create a benefit assessment or a Mello-Roos Community Facilities District to fund on-going infrastructure maintenance and services;

- Expand or consolidate with other districts to provide a larger user-base to fund infrastructure maintenance costs and upgrades;
- Merge into an adjacent existing Community Services District (CSD); or
- Reform into a Community Services District (CSD) responsible for financing, developing, and maintaining infrastructure and services.

(PSP) (Source: New Policy)

IS-2.6: New Development Requirements. The County shall require new development to provide water, sewer, stormwater, and/or street lighting service(s), using one of the following methods, subject to County review and approval:

- Obtain a will-serve letter from an existing Special District, Community Service District, Mello-Roos Community Facilities District or other non-city public utility agency and obtain LAFCo approval for annexation or out-of-agency service;
- Obtain a will-serve letter from a city and obtain LAFCo approval for out-of-agency service;
- Fund the formation of a new Community Service District, Mello-Roos Community Facilities District or other non-County public utility agency that would perform ongoing maintenance.; or
- When approved by the Director of Public Works, fund the formation of a new County Service Area (CSA) that would provide ongoing maintenance services.

(RDR) (Source: New Policy)

IS-2.7: Service Agency Notification. The County shall notify the appropriate agencies (e.g., cities, special districts, school districts, emergency agencies) of new development applications within their service areas early in the review process to allow sufficient time to assess impacts on facilities and services. (RDR/IGC) (Source: New Policy)

IS-2.8: Joint Use Facilities. The County shall encourage the joint use of public facilities (e.g., park and recreation uses in retention basins and schools) in order to improve efficiency and reduce public costs, as well as to encourage positive and healthy activity for residents of all ages in neighborhoods that may not have safe well-equipped nearby parks. The County shall encourage agreements for sharing costs and operational responsibilities among agencies. (PSP/IGC) (Source: New Policy)

IS-3.3: Energy Efficiency Retrofits. The County shall increase energy efficiency in older County buildings through energy efficiency and retrofits, renewable energy generation, and water conservation retrofits. (SO) (Source: New Policy)

IS-3.4: New Energy Efficient Buildings. When building new facilities, the County shall achieve a high standard (e.g., equivalent to LEED® certification) of energy efficiency and water conservation and employ renewable energy technologies. (SO) (Source: New Policy)

IS-3.10: County Recycling. The County shall expand opportunities for recycling at all County facilities, increase recycling and waste diversion by County employees, and use recycled materials and products where economically feasible. (SO) (Source: New Policy)

IS-4.1: Water Agency Support. The County shall support efforts of local water agencies, special district, and water conservation districts to ensure that adequate high-quality water supplies are available to support existing and future residents and businesses. (IGC) (Source: New Policy)

IS-4.2: Interagency Cooperation. The County shall work with local water agencies to address existing and future water needs for the County. (IGC) (Source: New Policy)

IS-4.3: Water Supply Availability. The County shall consider the availability of a long-term, reliable potable water supply as a primary factor in the planning of areas for new growth and development. (RDR/PSP) (Source: Existing GP, Infrastructure, Water Supply, Policy 1, modified)

IS-4.4: Water Rights Protection. The County shall support local water agencies in their efforts to protect their water rights and water supply contracts, including working with Federal and State water projects to protect local water rights. (IGC) (Source: New Policy)

IS-4.5: Drought Response. The County shall encourage all local water agencies to develop and maintain drought contingency and emergency services plans, emergency inter-ties, mutual aid agreements, and related measures to ensure adequate water service during drought or other emergency water shortages. (PSP/IGC) (Source: New Policy)

IS-4.6: Coordinate Efforts for Adequate Water Supply. The County shall support coordinated efforts to obtain adequate water supplies and develop water storage facilities to meet expected water demand. (PSP/IGC) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 4, modified)

IS-4.7: Conjunctive Use. The County shall support conjunctive use of groundwater and surface water by local water agencies to improve water supply reliability. (PSP/IGC) (Source: New Policy)

IS-4.8: Water Conservation Targets. The County shall achieve a 20 percent reduction in water and wastewater by 2020. (PSP) (Source: New Policy)

IS-4.9: Water Conservation Measures. The County shall require existing and new development to incorporate all feasible water conservation measures to reduce the need for water system improvements. (RDR) (Source: Existing GP, Infrastructure, Water Supply, Policy 5, modified)

IS-4.10: Groundwater Management. The County shall support cooperative, regional groundwater management planning by local water agencies, water users, and other affected parties to ensure a sustainable, adequate, safe, and economically viable groundwater supply for existing and future uses within the County. (IGC) (Source: New Policy)

IS-4.11: Groundwater Monitoring Program. The County shall continue to evaluate the quantity and quality of groundwater. (PSR/IGC) (Source: Existing GP, Infrastructure, Water Supply, Implementation 3)

IS-4.12: Integrated Regional Water Management. The County shall support and participate in the development, implementation, and update of an integrated regional water management plan. (PSP/IGC) (Source: New Policy)

IS-4.13: Water Supply Planning. The County shall encourage local water agencies to develop plans for responding to droughts and the effects of global climate change, including contingency plans, water resource sharing to improve overall water supply reliability, and the allocation of water supply to priority users. (PSP/IGC) (Source: New Policy)

IS-4.14: Water Quality Standards. The County shall require that water supplies serving new development meet State water quality standards. If necessary, the County shall require that water be treated to meet State standards and that a water quality monitoring program be in place prior to issuance of building permits. (RDR) (Source: Existing GP, Infrastructure, Water Supply, Policy 6, modified)

IS-4.15: Sufficient Water Supply Assessments. The County shall require new developments over 500 dwelling units in size to prepare a detailed water source sufficiency study and water supply analysis for use in preparing a Water Supply Assessment, consistent with any Integrated Regional Water Management Plan or similar water management plan. This shall include analyzing the effect of new development on the water supply of existing users. (RDR) (Source: New Policy)

IS-4.16: Test Wells. Prior to issuing building permits for new development that would rely on groundwater, the County shall require confirmation for existing wells or test wells for new wells to ensure that water quality and quantity are adequate to meet the needs of existing, proposed, and planned future development. (RDR/PSR) (Source: Existing GP, Infrastructure, Water Supply, Implementation 2, modified)

IS-4.17: Permit for Groundwater Export. The County shall continue to require a permit for the extraction of groundwater that is intended to be exported outside County boundaries. (RDR) (Source: New Policy, based on Groundwater Ordinance)

IS-4.18: Advocate Against Water Exports. The County shall advocate that water should not be exported to other areas of the state unless no other areas in San Joaquin County are impacted and the current and future needs of San Joaquin County can still be met. (PSP) (Source: Existing GP, Water Resources and Quality, Water Resource Management, Policy 12, modified based on County staff direction)

IS-4.19: Graywater and Rainwater Systems. The County shall encourage homeowners, businesses, and developers to install graywater systems and rainwater harvest systems, consistent with local and State guidelines, regulations, and standards in order to reduce consumption of potable water. (RDR/PSP) (Source: New Policy)

IS-4.20: Water Efficient Landscaping. The County shall encourage water efficient landscaping and use of native, drought-tolerant plants consistent with the Model Landscape Ordinance. (RDR) (Source: New Policy)

IS-4.21: Water Efficient Agricultural Practices. The County shall encourage farmers to implement irrigation practices, where feasible and practical, to conserve water. (Source: New Policy)

IS-5.1: Adequate Water Treatment and Distribution Facilities. The County shall ensure, through the development review process, that adequate water, treatment and distribution facilities are sufficient to serve new development, and are scalable to meet capacity demands when needed. Such needs shall include capacities necessary to comply with water quality and public safety requirements. (RDR) (Source: New Policy)

IS-5.2: Water System Standards. The County shall require the minimum standards for water system improvements provided in **Table 4.N-1** for the approval of tentative maps and zone reclassifications. (RDR)

**TABLE 4.N-1
WATER SYSTEM REQUIREMENTS**

General Plan Area	Minimum Requirements
Urban Communities	Public water system. For areas designated Rural Residential, private individual wells may be permitted if parcels are two acres or greater, no public water system exists, there are no groundwater quality issues, and the underlying aquifer is not in a state of overdraft.
Rural Communities	Public water system. If parcels are two acres or greater and no public water system exists, private individual wells may be permitted if there are no groundwater quality issues, and the underlying aquifer is not in a state of overdraft.
Freeway Service Areas Outside of Communities	Public water system serving at least each side of the freeway.
Industrial Areas Outside of Communities	Public water system serving the entire planned areas. Individual wells may be permitted in the Truck Terminals designation.
Commercial Recreational Areas	Public water system serving the entire planned area.
Agricultural Areas	Individual water wells if there are no groundwater quality issues, and the underlying aquifer is not in a state of overdraft.

SOURCE: Existing GP, Infrastructure, Water Supply, Policy 2, modified

IS-5.3: Water Service in Antiquated Subdivisions. The County shall require water service through a public water system prior to issuance of building permits for new residences on parcels less than two acres in antiquated subdivisions. Individual wells may be allowed if public water is not available and all well and sewage requirements can be met. (RDR) (Source: Existing GP, Infrastructure, Water Supply, Policy 4, modified)

IS-5.4: Water Infrastructure Fees. As a condition of approval for new developments, the County shall require verification of payment of fees imposed for water infrastructure capacity per the fee payment schedule from the appropriate local agency prior to the approval of any final subdivision map. (RDR) (Source: New Policy)

IS-5.5: Water System Rehabilitation. The County shall encourage the rehabilitation of irrigation systems and other water delivery systems to reduce water losses and increase the efficient use and availability of water. (PSP) (Source: New Policy)

IS-5.6: Consistent Fire Protection Standards for New Development. The County, in coordination with local water agencies and fire protection agencies, shall ensure consistent and adequate standards for fire flows and fire protection for new development. (RDR/IGC) (Source: New Policy)

IS-6.1: Wastewater System Maintenance and Expansion. The County shall encourage public wastewater system operators to maintain and expand their systems to meet the development needs of the County. (PSP/IGC) (Source: New Policy)

IS-6.2: Reclaimed Water. The County shall encourage public wastewater system operations to upgrade existing wastewater treatment systems to produce reclaimed water suitable for reuse. (PSP/IGC) (Source: New Policy)

IS-6.3: Adequate Wastewater Facilities. The County shall ensure through the development review process that wastewater collection, treatment, and disposal facilities are sufficient to serve existing and new development, and are scalable to meet capacity demands when needed. (RDR) (Source: New Policy)

IS-6.4: Wastewater System Standards. The County shall require the minimum standards for wastewater system improvements provided in **Table 4.N-2** for the approval of tentative maps and zone reclassifications. (RDR)

**TABLE 4.N-2
WASTEWATER TREATMENT**

General Plan Area	Minimum Requirements
Urban Communities	Public sewer system. Onsite wastewater treatment system may be permitted in Rural Residential areas, Commercial areas adjacent to Rural Residential areas, and in Warehouse Industrial zones, if General Plan policies and Development Title regulations are met.
Rural Communities	Onsite wastewater treatment system.
Freeway Service Areas Outside of Communities	Public sewer system for at least each side of the freeway.
Industrial Areas Outside of Communities	Public sewer system serving entire planned area. Individual commercial systems may be permitted in the Truck Terminals designation and in the Warehouse Industrial zones, if General Plan policies and Development Title regulations are met.
Commercial Recreational Areas Outside of Communities	Public sewer system serving entire planned Commercial Recreation area.
Agricultural Areas	Individual or commercial onsite wastewater treatment system.

SOURCE: Existing GP, Infrastructure, Wastewater, Policy 2

IS-6.5: Wastewater System Requirements. The County shall require new development to be served by an existing public wastewater treatment agency or by a new public utility service agency if no public agency is empowered to provide wastewater treatment services. The County may allow private wastewater systems or septic systems if the County Environmental Health Director determines that the systems meet the State Water Resources Control Board Onsite Wastewater Treatment Systems Policy and the approved Local Agency Management Plan. (RDR) (Source: Existing GP, Infrastructure, Wastewater, Policy 3, Policy 4, Policy 5, Policy 6)

IS-6.6: Wastewater Treatment System Standards. The County shall require that the development, operation and maintenance of wastewater treatment systems meet the requirements and standards of the wastewater treatment agency and the County, including the requirements and standards of the County Environmental Health Department. (RDR) (Source: Existing GP, Infrastructure, Wastewater, Policy 7, Policy 8, modified)

IS-6.7: Wastewater Treatment Facilities within the Delta. The County shall not allow wastewater treatment and disposal facilities, including storage ponds and effluent/sludge disposal areas, serving uses outside of the Delta Primary Zone (as defined by Public Resources Code Section 29728) to be located within the Delta Primary Zone. (RDR) (Source: Existing GP, Infrastructure, Wastewater, Policy 9, modified)

IS-6.8: Urban Community Expansion. The County shall limit the expansion of urban communities to those where existing community wastewater treatment systems have or would be upgraded to have sufficient capacity or where new systems would be constructed to meet existing and future demand. (RDR) (Source: Existing GP, CODP, Infrastructure, Wastewater, Policy 1, modified)

IS-6.9: Wastewater Facility Infrastructure Fees. As a condition of approval for new developments, the County shall have verification of payment of fees imposed for wastewater infrastructure capacity per the fee payment schedule from the local wastewater agency. (RDR) (Source: New Policy)

IS-6.10: Alternative Rural Wastewater Systems. The County shall support the use of alternative onsite rural wastewater treatment systems for individual homes that meet the State Water Resources Control Board Onsite Wastewater Treatment Systems Policy and the approved Local Agency Management Plan. (RDR/MPSP/PSR) (Source: New Policy)

IS-7.1: Adequate Stormwater Facilities. The County shall require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and dispose of runoff and minimize impacts to water quality. (RDR) (Source: New Policy)

IS-7.2: Stormwater Drainage System Standards. The County shall require the minimum standards for stormwater drainage system improvements provided in **Table 4.N-3** for the approval of tentative maps and zone reclassifications. (RDR)

**TABLE 4.N-3
STORMWATER DRAINAGE**

General Plan Area	Minimum Requirements
Urban Communities	Public drainage system, with terminal drainage unless a Master Drainage/Special Purpose Plan permits retention ponds. Onsite drainage may be permitted in Rural Residential designations if parcels are two acres or more.
Rural Communities	Public drainage system. Onsite drainage may be permitted if parcels are two acres or more.
Freeway Service Areas Outside of Communities	Public drainage system serving at least each side of the freeway.
Industrial Areas Outside of Communities	Public drainage system serving the entire planned area. On-site drainage may be permitted in the Truck Terminals designation.
Commercial Recreational Areas	Public drainage system serving the entire planned Commercial Recreation area.
Agricultural Areas	Onsite drainage.

SOURCE: Existing GP, Infrastructure, Stormwater Drainage, Policy 1

LU-2.11: Suitability for Development with Onsite Sewage Disposal System. The County shall ensure that new development that uses onsite sewage disposal meets the requirements of the State Water Resources Control Board (SWRCB) Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy) and local health and water quality standards. (RDR)

LU-2.12: Soil Suitability and Nitrate Loading Studies. The County shall require soil suitability and nitrate loading studies when needed to demonstrate that site conditions can safely accept wastewater in conformance with the State Water Resources Control Board Onsite Wastewater Treatment Systems Policy and local health and water quality standards. (RDR/PSR)

LU-2.13: Soil Suitability Studies. The County shall require applications for residential zoning that would create a parcel or parcels of less than two acres with septic systems to prepare a soil suitability study and nitrate loading study and demonstrate that soil conditions can safely absorb wastewater in conformance with local health and water quality standards. (RDR/PSR) (Source: Existing GP, CODP, Residential Development, Implementation 2, modified)

C-1.9: Available Infrastructure. The County shall only approve new development in Urban Communities and City Fringe Areas where adequate infrastructure is available from an existing City, agency, or special district or can be made available for the development and there are adequate provisions for long term infrastructure maintenance and operations. (RDR) (Source: New Policy)

Relevant Implementation Programs

The following relevant implementation programs of the 2035 General Plan address utilities and service systems.

LU-B: County General Plan Consistency. The County shall prepare written comments to the Local Agency Formation Commission (LAFCO) regarding the consistency with the General Plan of any proposed changes in the sphere of influence or other urban boundaries for governmental entities that provide water or sewer services. (RDR/IGC) (Source: New Program)

LU-D: The County shall develop and maintain a GIS database that identifies, by parcel, land use, infrastructure, and environmental information. (PSR) (Source: Existing GP, CODP, Growth Accommodation, Implementation 3)

IS-A: Infrastructure Improvements and Funding. The County shall prepare, adopt, and periodically update capital improvement programs for all County-owned and operated facilities and services to ensure consistency with the General Plan in order to maintain an adequate level-of-service. (PSP/FB) (Source: New Program)

IS -C: Sustainability Master Plan. The County shall prepare and adopt a Sustainability Master Plan that guides County efforts to incorporate sustainability strategies (e.g., energy efficiency, water conservation, waste reduction/recycling, purchasing preferences) into its facilities, operations, and activities. (PSP/SO) (Source: New Program)

IS -D: Required Water Supply Facilities. The County shall update the Development Title to specify requirements for water supply facilities for new development. (RDR) (Source: Existing GP, Infrastructure, Water Supply, Implementation 1, modified)

IS-E: Wastewater System Standards. The County shall review and update onsite septic system standards consistent with the State Water Resources Control Board Onsite Wastewater Treatment Systems Policy. (RDR) (Source: New Program)

IS-F: Required Wastewater Services. The County shall update the Development Title to include specific wastewater treatment requirements for new development. (RDR) (Source: Existing GP, Infrastructure, Wastewater, Implementation 1, modified)

IS-G: Best Management Practices. The County shall prepare and adopt updated low-impact development (LID) standards and best management practices (BMPs) for new development projects as part of its stormwater management and grading ordinance. These standards and BMPs will ensure compliance with National Pollutant Discharge Elimination System (NPDES) Phase 1 and Phase 2 Municipal Separate Storm Sewer System programs (MS4). It will also encourage alternative storm water management systems, natural drainage systems and LID approaches to managing stormwater that improve water quality. (RDR) (Source: New Program)

IS-H: Mandatory Collection Ordinance. The County shall develop and adopt an ordinance requiring solid waste collection, including recycling, from all Urban and Rural communities. (RDR) (Source: Existing GP, Infrastructure, Solid Waste, Implementation 1, modified)

IS-J: Waste Management Plan. The County shall review and update as necessary the Waste Management Plan every five years. (PSP) (Source: Existing GP, Infrastructure, Solid Waste, Implementation 5, modified)

NCR-C: Water Quality Maintenance. The County shall work with cities and water agencies to prepare a countywide hydrologic zone map indicating areas of known groundwater quality degradation to ensure proper well construction in those areas underlain by poor water quality and prohibition of use of the resource for specific purposes. (PSR/IGC) (Source: Existing GP, Water Resources and Quality, Implementation 1(g))

NCR-D: Management of Water Resources. The County shall develop and maintain a single database of water use separated by major land use - (i.e., agricultural, municipal, and industrial) for the three geographical areas of Eastern San Joaquin, Tracy Region, and Delta. The database should be updated on an as-needed basis. (PSR) (Source: Existing GP, Water Resources and Quality, Implementation 2)

NCR-E: Semi-Annual Groundwater Report. The County shall prepare a semi-annual Groundwater Report to monitor groundwater levels and groundwater quality, particularly around landfills and other facilities that could contaminate groundwater. (PSR) (Source: Existing GP, Water Resources and Quality, Implementation 1(e), modified)

NCR-H: Water Conservation Ordinance. The County shall review and update, as necessary, the Water Conservation Ordinance to incorporate best management practices for conserving water. (Source: New Program)

Approach to Analysis

This following impact analysis focuses on impacts of the proposed 2035 General Plan related to utilities and service systems.

Impacts and Mitigation Measures

2035 General Plan Impacts

Impact 4.N-1: Development under the proposed 2035 General Plan could result in an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)

San Joaquin County falls under the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), which regulates wastewater discharge for the Sacramento and San Joaquin Rivers and their tributaries, covering multiple counties throughout the Central Valley and Sierra Nevada mountains. Implementation of the proposed 2035 General Plan would direct future growth into the unincorporated areas surrounding cities and to the unincorporated urban and rural communities which are generally served by existing infrastructure and services, including wastewater treatment facilities in some areas. New residential, commercial and industrial developments would increase the demand for wastewater treatment capacity, and in some cases would require the need for new or expanded facilities to be constructed in order to maintain water quality standards. Although new facilities would be required to meet CVRWQCB wastewater treatment requirements in order to be permitted, a violation could occur if the demand for wastewater treatment services increased at a rate disproportionate to the capabilities of existing wastewater treatment facilities.

Development under the proposed 2035 General Plan would result in substantial increases in population that would require additional wastewater service, require the expansion of existing facilities, or require the construction of new facilities in order to avoid violating wastewater treatment standards, which would result in a significant impact. Since most service districts base their capacity on the existing General Plan land use designations, increased land use densities under the 2035 General Plan could exceed wastewater district capacities if proper planning does not occur prior to such land use changes.

Under the 2035 General Plan, new development would be directed toward city fringe areas which could be served by existing wastewater districts and facilities. Pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code § 56000 et seq), the San Joaquin County LAFCO would conduct a municipal services review prior to the approval of any annexation to ensure adequate services can be provided. In the unincorporated County, a majority of residential growth would occur in the Mountain House Community, with the remaining growth occurring in the other existing unincorporated communities. Additional land use changes are proposed for new General Industrial (I/G) and Commercial Freeway Service (C/FS) properties located southwest of Stockton, east of Tracy near Stoneridge, and west of Lodi. There is also a land use change to Low Density Residential (R/L) near Lockeford and a land use change proposed outside Lathrop for a Low Density Residential (R/L) area with a Commercial Recreation (C/R) overlay. Final approval of these proposed land use changes would be dependent on the documented availability of existing services, or ability to finance the construction of new or expanded services, as stated in policies IS-1.8, 1.9, and 1.13.

Several of the unincorporated communities lack sanitary sewer infrastructure and use individual or community septic systems. These communities include: Acampo, Banta, Chrisman, Collierville, Coopers Corner, the Delta Planning Area, Farmington, French Camp, Glenwood, Lammersville, Morada, New Jerusalem, Noble Acres, Peters, Stoneridge, and Victor. Although the 2035 General Plan would direct a majority of the growth towards areas that are served by wastewater treatment facilities, development may occur in these communities that could require the construction and use of new individual or community septic systems. Septic systems and their associated leach fields could be a source of groundwater contamination if not designed and constructed appropriately. The General Plan Background Report (2009) found that some communities, including Collierville, Morada, Thornton and Banta, were experiencing water quality issues from septic system leaching caused by poor soil conditions, increasing density, and a high water table. The County Environmental Health Department requires the acquisition of a sanitation permit, which specifies installation requirements for septic systems. Depending on site specific characteristics, such as proximity to surface water and groundwater resources, soil type, and slope, septic systems could be restricted in certain parts of the County. Determination of site suitability for septic systems would be analyzed on a case by case basis consistent with current Central Valley Regional Water Quality Control Board and County requirements. Newer septic system designs and implementation of current standards can be effective in limiting the potential for causing adverse water quality impacts to underlying groundwater resources.

As discussed in Section N.3, *Regulatory Context*, there are numerous federal and State regulations in place that reduce the potential for development under the 2035 General Plan to exceed wastewater treatment standards. The 2035 General Plan itself contains policies that would reduce the potential for new development to cause wastewater facilities to exceed the wastewater treatment requirements allowed by the CVRWQCB. Policies IS-6.1 through 6.12 would minimize the potential for exceedances of wastewater treatment requirements. Impacts from new septic systems will be reduced by compliance with the SWRCB Onsite Wastewater Treatment Systems Policy, County septic system standards, and demonstration of proper siting of septic systems (Policy LU-2.12, Policy LU-2.13, and Program IS-E).

The development of future land uses under the proposed 2035 General Plan would have the potential to result in the increased demand for wastewater treatment services. If new or expanded facilities are not provided to serve new development, a violation in wastewater treatment standards could occur. Policies in the proposed 2035 General Plan and existing federal, state, and local regulations would help to limit violations in wastewater treatment requirements; therefore, the proposed 2035 General Plan would result in a less than significant impact related to wastewater treatment requirements.

Mitigation: None required.

Impact 4.N-2: Development facilitated by implementation of the proposed 2035 General Plan could result in wastewater service demands that would result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve projected demand and result in the construction of new or expanded wastewater treatment facilities, the construction of which could cause significant environmental effects. (Less than Significant)

Future residential, commercial and industrial land uses developed under the proposed 2035 General Plan would result in an increased need for wastewater treatment services. The majority of new development would occur in city fringe areas that are currently served by wastewater treatment facilities; if new development occurs outside of the service area of an existing wastewater treatment facility, it would likely be served by an onsite septic system.

The districts serving the Stockton sphere of influence (SOI) would see the greatest net growth, including the City of Stockton, Colonial Heights MD, Country Club SD, Lincoln Village MD, CSA 41, CSA 15, Mosswood Sewer Project, Pacific Gardens SD, and Taft Improvement District No. 52. The City of Lathrop, which is primarily served by the Lathrop Wastewater Recycling Plant and partially served by the Manteca Wastewater Treatment Plant, would also see significant growth with 49,800 people and 13,700 housing units representing a 275 percent increase in population over 2010 conditions. Outside of the cities and their SOIs, it is estimated that the unincorporated areas of the County would grow by 43,200 people and 14,700 housing units, or 55 percent in population over 2010 conditions. The majority (80 percent) of that growth would occur in Mountain House and the remaining (20 percent) would occur near existing community service districts.

According to the City of Stockton Capital Improvement and Energy Management Plan (2011), projected wastewater flows for the Stockton Regional Wastewater Control Facility (SRWCF) in 2035 will reach 49.3 million gallons per day (mgd) while the current permitted capacity of the facility is 55 mgd. The facility generally complies with all applicable NPDES permit requirements and has indicated that although many of the structures and equipment are beyond their typical life expectancies, most could be rehabilitated to provide reliable service through 2035 (City of Stockton, 2011).

In 2010 the City of Tracy Wastewater Treatment Plant (WWTP) had a design capacity of 10.8 mgd while the average dry weather flows were 8.5 mgd and the wet weather flows were 10 mgd. Future expansions of the facility will ultimately provide 16.0 mgd of capacity, which with the addition of 2 mgd to handle wet weather flows, would accommodate anticipated 2041 dry weather flows of 15.4 mgd and wet weather flows of 18.0 mgd. A new Regional Water Recycling Facility (RWRF) is proposed in southern Tracy to serve the Tracy Hills development and produce recycled water for irrigation (City of Tracy, 2011).

Wastewater from the City of Lathrop is currently treated at the City's Water Recycling Plant (WRP-1-MBR), the Crossroads Publicly Owned Treatment Works (POTW), and the Manteca-Lathrop Wastewater Quality Control Facility (WQCF). The City has several projects planned to increase capacity across all plants for a total of 11.9 mgd, to accommodate a population of 65,434 people by 2038 (City of Lathrop, 2009). Population estimates for the 2035 General Plan,

which reflects more recent trends in population growth, are somewhat higher and estimate the population of Lathrop could reach 68,000 people by 2035. The City would need to further increase sewer system capacity to meet demand for services under the proposed 2035 General Plan.

The White Slough WWTP serves the City of Lodi and has a capacity of 8.5 mgd, which the City anticipates will be sufficient to manage flows through 2020, serving a population of over 76,000. The County's 2035 General Plan, which contains more updated population projections based on recent growth trends, expects the City would only reach 73,000 people by 2035 and would therefore have sufficient capacity to serve new development.

The City of Escalon owns two treatment plants. The municipal plant treats flows from residents and most businesses, while the industrial plant treats flows from industrial food processing facilities in the area. In 2007 the City of Escalon was permitted for 0.9 mgd, average flows were 0.7 mgd during dry months, and flows were projected to reach approximately 2.8 mgd by 2035. The City had identified several improvements that would need to be made to accommodate future flows and expand service lines to new developments as the City grows.

The City of Ripon's Wastewater Treatment Facility has met and expects to continue to meet annual wastewater collection and treatment demand within the SOI in compliance with the CVRWQCB's Waste Discharge Requirements (City of Ripon, 2011). The facility is designed to support a population of 20,000 people; as population could exceed 24,000 people under the proposed 2035 General Plan the facility would need to be expanded to accommodate new development.

In 2008, the City of Manteca estimated that the City's population would exceed 145,000 at full buildout of their 2023 General Plan and sewer flows would increase to 23.0 mgd over the 2008 capacity of 9.87 mgd. The City of Manteca has plans for sewer system capacity improvements that would accommodate the anticipated flows of 23.0 mgd. The 2035 General Plan, which reflects more recent trends in population growth, anticipates the city will have a much slower growth rate, reaching 105,500 people by 2035. Although a slower rate of population growth may reduce the extent of improvements needed, expansion of the City's system would still be necessary to support the projected population growth.

The Mountain House Wastewater Treatment Plant has a maximum design capacity of 5.4 mgd, with current effluent flows around 0.448 mgd. The Plant was designed to accommodate all projected flows at full buildout of the Mountain House Community Specific Plan.

Several policies describe the County's role in providing adequate infrastructure and services for new development (Policies IS-1.1, 1.2, and 1.5) and maintaining existing infrastructure and service systems (IS-1.3 and 1.4). The proposed 2035 General Plan reduces the potential for infrastructure expansion by requiring that adequate financing for infrastructure improvements is demonstrated prior to approval of new developments (Policies IS-1.8 and IS-1.13). Policy IS-2.1 states the County will minimize non-contiguous growth and discourage annexations that leave

irregular borders or “islands,” in turn reducing the potential to extend major infrastructure to small areas requiring limited services.

The County would require all new development to be served by a wastewater treatment agency or private system (IS-6.5) which meets development, operation and maintenance standards, and improvement standards, as specified by the wastewater treatment agency and County for new developments, tentative maps, and zone reclassifications (IS-6.4, IS-6.6, and Program IS-F). As a condition of approval for new developments, the County shall have verification of payment of fees imposed for wastewater infrastructure capacity (IS-6.9). The County will comply with policies in the Delta Protection Commission (DPC) Land Use and Resource Management Plan (LURMP) through Policy IS-6.7 which states the County shall not allow wastewater treatment and disposal facilities, including storage ponds and effluent/sludge disposal areas, serving uses outside of the Delta Primary Zone (as defined by Public Resources Code Section 29728) to be located within the Delta Primary Zone. Pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code § 56000 et seq), the San Joaquin County LAFCO would conduct a municipal services review prior to the approval of any annexation to ensure adequate services can be provided. As discussed above, existing wastewater treatment facilities in several cities would need to be expanded to accommodate population growth under the 2035 General Plan, including facilities serving Tracy, Lathrop, Escalon, Ripon, and Manteca. Most of these cities are either currently expanding or planning to expand their wastewater treatment facilities. Potential environmental effects associated with wastewater system improvements could include, but are not limited to, construction and operational air quality and noise effects, biological resource impacts, habitat and aquatic resources, geologic and hydrologic impacts from both construction and operation, and hazards. These potential environmental effects would be addressed as part of consideration of those improvements by service providers.

Most future wastewater treatment projects in the County would be required to conduct project-specific environmental review pursuant to CEQA prior to approval. Such analysis would identify project-specific impacts in greater detail, and provide mitigation measures and alternatives that would reduce impacts to a less than significant level when feasible.

Additional federal, state, and local regulations, discussed in Section N.3, *Regulatory Setting*, would also regulate environmental impacts created by the expansion of wastewater treatment facilities. Although implementation of the 2035 General Plan would result in a need for new or expanded wastewater treatment facilities to serve development, the construction of which could cause significant environmental effects, adherence to local, state, and federal regulations and adoption of the policies in the 2035 General Plan would ensure that the environmental effects would be less than significant.

Mitigation: None required.

Impact 4.N-3: Development facilitated by implementation of the proposed 2035 General Plan would require and result in the need for new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

Residential, commercial, and industrial development under the 2035 General Plan would increase the amount of impermeable surfaces within the unincorporated County. This increase would occur from the development of rooftops, parking lots, roads and driveways. Increases in impermeable surfaces would result in an increase in the amount of stormwater runoff that could exceed the capacity of existing stormwater drainage systems and require the construction of new or expanded facilities. Stormwater infrastructure is primarily found within cities as well as various County service areas (CSA's). Much of the unincorporated County is rural land that does not support or require stormwater drainage facilities. The General Plan Background Report found that it would be necessary to expand stormwater drainage infrastructure in cities and their SOIs in order to meet the demands of future urban growth under the 2035 General Plan. It also found that rural areas that do not fall within a defined drainage district and that have no storm drainage system cannot accommodate growth without the development of community-wide drainage systems, as these areas often experience issues with flooding or ponding.

The proposed 2035 General Plan contains several policies that describe the County's role in providing adequate infrastructure and services for new development (Policies IS-1.1, 1.2, and 1.5) and maintaining existing infrastructure and service systems (IS-1.3 and 1.4). Policies IS-1.8 and IS-1.13 require that adequate financing for infrastructure improvements is demonstrated prior to approval of new developments. Compliance with SB 244 is addressed in part through Policy IS-2.1, which states the County will minimize non-contiguous growth and discourage annexations that leave irregular borders or "islands," in turn reducing the potential to extend major infrastructure to small areas requiring limited services.

The County would require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and dispose of runoff and minimize impacts to water quality (IS-7.1) and meet minimum standards for system improvements for the approval of tentative maps and zone reclassifications (IS-7.2). The County may reduce potential environmental impacts by encouraging alternative storm water management systems, natural drainage systems and low impact development approaches to managing stormwater that improve water quality through the adoption and updated standards and best management practices to support the stormwater management and grading ordinance (Program IS-G).

The increase in stormwater runoff would require the construction or expansion of new stormwater facilities to handle the increased runoff flows, which would have the potential to result in significant environmental impacts. As discussed in Section 4.J, *Hydrology and Water Quality*, stormwater drainage requirements at the local, regional and State level are designed to address both water quality and water quantity so that new development does not create or exacerbate any potential flooding issues that may be present in receiving waters. In addition, local drainage requirements typically require that if proposed development is going to increase flow, which

developers may be required to fund improvements to existing drainage systems in order to receive the anticipated high flows during large storm events.

Future projects involving the construction of stormwater drainage infrastructure in the County would be required to conduct project-specific environmental review pursuant to CEQA prior to approval. Such analysis would identify project-specific impacts in detail, and provide mitigation measures and alternatives that would reduce potential environmental impacts to a less than significant level when feasible. Additionally, Federal regulations (CWA and NPDES) and State oversight, as discussed in *Section N.3 Regulatory Context*, minimize environmental impacts associated with stormwater drainage for municipalities, industrial facilities, and construction sites. Because all new or expanded stormwater facilities would undergo individual CEQA review, and because existing local, state and federal regulations are in place that would reduce potential impacts of increased stormwater runoff from development, this impact would be less-than-significant.

Mitigation: None required.

Impact 4.N-4: Development facilitated by implementation of the proposed 2035 General Plan could have insufficient water supplies available to serve new development from existing entitlements and new development could require the construction of new water supply or treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Significant and Unavoidable)

Future residential, commercial and industrial land uses developed under the 2035 General Plan would increase the demand for potable water and increase the volume of water that would need to be treated. Potable water for irrigation and domestic use in San Joaquin County is provided through multiple agencies and water projects, including federal, regional, and local water districts, special districts, and private systems. While some areas of the County are served by water districts and municipal water systems that import surface water from the Central Valley Project, parts of cities and many unincorporated communities rely heavily on groundwater and private wells, including: parts of Stockton and Manteca, Banta, Stoneridge, Glenwood, Noble Acres, Collierville, Coopers Corner, and Peters. Generally, most water supply districts have been transitioning away from groundwater sources to reduce groundwater overdraft and improve water supply quality.

Under the 2035 General Plan, some development would occur on land that is currently dedicated to agricultural uses and located outside of the major city limits, but within the city fringe areas. As discussed in Chapter 3, Project Description, it is anticipated that this land would be annexed to each respective city before development occurs. While the majority of unincorporated growth would occur in the Mountain House community, some land use changes are proposed outside of the city SOIs. These changes are primarily for new General Industrial (I/G) and Commercial Freeway Service (C/FS) properties located southwest of Stockton, east of Tracy near Stoneridge, and west of Lodi. There is also a land use change to Low Density Residential (R/L) near Lockeford and a land use change proposed outside Lathrop for a Low Density Residential (R/L) area with a Commercial Recreation (C/R) overlay. Final approval of these proposed land use

changes would be dependent on the documented availability of existing services, or ability to finance the construction of new or expanded services, as stated in 2035 General Plan Policies IS-1.8, 1.9, and 1.13.

Water Demand and Supply

At this time, a comprehensive analysis of water demand and supply in San Joaquin County does not exist. This analysis relies on the following water demand and supply projections from Urban Water Management Plans (UWMPs) that were completed for each major water supplier. UWMPs use a baseline measurement of water demand and project future demand in 5-year increments in order to plan for sufficient supply. By law, UWMPs must be updated every five years with the most recent adopted plans using a 2010 baseline year and future projections to 2035. Because the water demand in 2010 is based on factual data (actual water deliveries), it is used in the analysis below rather than using the 2012 baseline year which would involve interpolation and be highly speculative. Not every supplier in San Joaquin County has adopted a 2010 UWMP. In the absence of a 2010 UWMP, information for the cities of Lathrop and Manteca rely on their adopted 2005 UWMPs which use a horizon year of 2030. In addition, SSJID's UWMP for the South County Water Supply Project (SCWSP) projects water demand through 2030.

City of Lodi

The City of Lodi UWMP 2010, estimated a baseline (2010) service area population of 63,549 and an annual demand estimated at 15,000 acre-feet per year. By 2035 the UWMP estimates the service area population will reach 81,497 and water demands will total 18,200 acre-feet per year.

The City of Lodi estimates a safe yield for groundwater to be around 15,000 acre-feet per year. In 2012, Lodi completed construction of a surface water treatment plant that would treat 6,000 AF of water from the Mokelumne River, purchased through a 40 year contract with Woodbridge Irrigation District, for distribution to residents to relieve pressure on groundwater sources. In addition, Lodi treats approximately 7,100 AF per year of wastewater at the White Slough Wastewater Treatment Plant, and provides up to 2,500 acre-feet of tertiary treated wastewater to agricultural users in the vicinity of the plant, which has capacity to treat all wastewater flows to Title 22 standards, for recycled water.

The City estimates that through a combination of existing groundwater (15,000 AF), surface water (6,000 AF), and recycled water (9,592 AF), total water supply sources will equal 30,592 AF by 2035 and exceed the estimated demand by 12,392 AF. This represents a conservative estimate, as population projections prepared for the 2035 General Plan, which reflect more recent trends in population growth, estimate the City's population will reach 73,000 people by 2035, nearly 8,500 people less than estimates provided in the UWMP. In addition, water demand management programs found in the UWMP are likely to further reduce demand.

City of Stockton

The City of Stockton Municipal Utility District (COSMUD) service area generally encompasses portions of Stockton north of the Calaveras River and South of the California Water service Area. In 2010, COS MUD had an estimated service area population of 169,963 people and an estimated

water demand of 33,333 AF. By 2035 COSMUD estimated the service area population would reach 246,596 people and demand would be 54,032 AF, or 45,577 with implementation of demand management programs to comply with SBX7-7 water conservation targets.

Prior to 2012, COSMUD relied on surface water from Stockton East Water District (SEWD) (58 percent) and groundwater (42 percent) to meet its demand. In 2012, the City began supplementing its supplies with surface water from the San Joaquin River through the Delta Water Supply Project (DWSP), and Mokelumne River surface water from Woodbridge Irrigation District (WID). In 2035, COSMUD estimates total supplies to be around 87,214 AF through a combination of surface water from SEWD (17,500 AF), DWSP (33,600 AF), WID (13,000 AF), and groundwater (23,114 AF). By this account, COSMUD's water supply in 2035 will exceed projected demand by over 33,000 AF.

California Water Service Company

The California Water Service Company (Cal Water) has a service area that covers a portion of southern Stockton with an estimated population of 162,860 people in 2010 and delivered 25,461 AF of water to its customers. By 2035, Cal Water estimates their service population will reach 173,140 people and demand will reach 30,240 AF per year.

Cal Water supplies its customers through surface water purchases from the SEWD (82 percent in 2010) and groundwater (remaining 18 percent). Cal Water does not anticipate any new sources of supplies will be needed to meet future demand and that by 2035, SEWD surface water and groundwater will provide 31,965 AF for its customers. In the SEWD Long Term Water Supply Study, SEWD plans to expand the treatment plant, which currently has a capacity of 60 MGD, to a base load capacity of 72 mgd (80,650 AFY) with a pumping peaking capacity of 94 mgd at 55 psi.

As per the Second Amendment Contract, signed by all purveyors of SEWD water sources in the Stockton Metropolitan Area, SEWD sources for each water year are allocated based on each purveyor's percentage share of total SEWD plant output for the previous year. Cal Water is currently negotiating for a new allocation method, which would result in a firm supply of approximately 48 percent of the total available water from the SEWD WTP, or 38,712 AF, which would exceed 2035 estimated demand by 6,747 AF.

The possible expansion of the SEWD water treatment plant could result in significant environmental effects in areas such as hydrology, biology, and air quality. These projects, and other future water treatment projects in the County, would be required to conduct environmental review pursuant to CEQA prior to approval. Such analysis would identify project-specific impacts in greater detail, and provide mitigation measures and alternatives that would reduce impacts to a less than significant level when feasible.

City of Tracy

According to the City of Tracy 2010 UWMP, the service area population in 2010 was 82,484 and water demand was 16,603 AF. By 2035, the UWMP estimates service area population will reach 126,110 people and demand will reach 33,600 AF.

The City will continue to rely on its existing rights to Central Valley Project (CVP) water from the Delta Mendota Canal (DMC), South County Water Supply Project (SCWSP) deliveries, and groundwater extractions. Although Tracy can sustainably extract up to 9,000 AF per year of groundwater, the City is planning to scale back its groundwater extraction to increase the overall quality of its water supply, and rely on groundwater for peaking and drought emergency supplies. By 2015, the City expects to increase surface water deliveries from the CVP/DMC and SCWSP, while also receiving water from the Byron-Bethany Irrigation District (BBID) to supplement its supplies.

By 2035, the City expects to have up to 49,500 AF of water available through its existing and anticipated water rights and contractual agreements, which exceeds the anticipated demand by 15,900 AF. In addition, the City is working to secure 6,500 AF of drought supply through semitropic aquifer storage and recovery, which would bring the total available water supply in 2035 to 56,000 AF.

South County Water Supply Project

The South San Joaquin County Irrigation District (SSJID) UWMP exclusively covers the water supplies treated and delivered by the South County Water Supply Project (SCWSP). SSJID derives its water supply from three sources, mainly surface water diverted from the Stanislaus River at Goodwin Dam, as well as groundwater pumped by the District and private land owners, and irrigation return flows from a neighboring water district. SSJID's water deliveries are largely governed by a 1988 Agreement and Stipulation ("1988 Agreement") with the United States Bureau of Reclamation (USBR) and Oakdale irrigation District. Since the 1988 Agreement has been in effect, the District's lowest water supply was 252,670 AF in 1992, and its highest water supply has exceeded 300,000 AF. At a minimum, under the 1988 Agreement, the District will receive 225,000 AF.

SCWSP water is diverted from the Stanislaus River and stored in Woodward Reservoir, before it is treated at the Nick C. DeGroot WTP and delivered to the cities of Manteca, Tracy and Lathrop. The cities of Escalon and Ripon plan to receive treated water from the SCWSP in the near future. In 2010, total SCWSP water deliveries for all cities was 17,430 AF, and projected water demands by 2030 under existing contracts will be 30,507. Under current allotments (Phase I) of SCWSP, a total of 31,552 AF of water may be delivered to the cities; this exceeds contracted 2030 demand by about 1,000 AF.

The Cities of Lathrop, Manteca, and Tracy rely on a mix of groundwater extraction and SCWS water deliveries to meet their potable water demand. In 2010 the City of Lathrop received 1,090 AF of water from SCWSP, and is contracted to receive 8,007 AF by 2030. The City of Manteca received 5,745 AF of water from SCWSP in 2010, and is contracted to receive 11,500 AF by 2030. The City of Tracy received 10,595 AF of water from SCWSP in 2010, and is contracted to receive 10,000 AF by 2030. The City of Escalon currently relies on groundwater supplies, but plans to construct a pipeline to convey SCWSP treated water to supplement their supply by 2020. In 2010 the City did not receive water from SCWSP, but is contracted to receive

1,000 AF by 2030. Ripon receives some water from SSJID that is used for groundwater recharge purposes, but is not currently under contract to receive water from the SCWSP.

SSJID anticipates that demand will exceed existing contract allotments by 9,658 AF by 2030, and that these demand will only be met after new agreements are signed with SSJID, or through purchasing unused SCWSP project water through other cities. These demands include: 1,968 AF for Manteca, 3,000 AF for Tracy, and 4,695 AF for Ripon⁵. The Nick C. DeGroot Water Treatment Plant has capacity to treat up to 40,350 AF/year of potable water, which SSJID expects will be sufficient to serve projected water demand through 2030. At that time, Phase II may be implemented, which includes an expansion of the facilities from 36 MGD to 56.8 MGD (~63,600 AF/year) and would increase contracted allotments for all cities from 31,552 AF to 43,090 AF.

The possible Phase II expansion of the Nick C. DeGroot water treatment plant, as well as new water conveyance and treatment facilities to serve Escalon and Ripon could result in significant environmental effects in areas such as hydrology, biology, and air quality. These projects, and other future water treatment projects in the County, would be required to conduct environmental review pursuant to CEQA prior to approval. Such analysis would identify project-specific impacts in greater detail, and provide mitigation measures and alternatives that would reduce impacts to a less than significant level when feasible.

City of Manteca

According to the City of Manteca 2005 Urban Water Management Plan,⁶ the service area population in 2005 was 61,500 people and water demand was 15,491 AF. By 2030, the UWMP estimates service area population will reach 141,778 people and demand will reach 35,735 AF. Potable water supplies consist of a combination of groundwater and treated surface water from the South County Water Supply Program (SCWSP). Manteca will receive up to 11,500 acre-feet per year from the SCWSP through 2015 and ultimately up to 18,500 acre-feet per year in Phase II. The utilization of treated surface water will allow Manteca to reduce its reliance on groundwater pumping and meet the safe-yield target of 1 acre-foot per acre per year.

City of Lathrop

According to the City of Lathrop UWMP (2005)⁷, potable water supplies consist of a combination of groundwater and treated surface water from the South County Water Supply Program (SCWSP). In 2010 the City's population is estimated around 33,854 people, increasing to 71,080 people by 2030. The UWMP estimated that the demand for water in 2030 would reach 20,867 AF and that a combination of groundwater pumping and SCWSP deliveries would result in 23,887 AF of available water supplies in that year; however, this would be dependent on the availability of SCWSP Phase II allotments and the expansion of the Nick. C. DeGroot WTP.

⁵ Ripon's ability to purchase treated water is subject to negotiating an agreement with SSJID, permitting, CEQA, funding, and constructing necessary facilities.

⁶ As of the writing of this document, the City of Manteca had not adopted a 2010 UWMP, and had not completed any other comprehensive water demand and supply studies that reflect more current conditions.

⁷ As of the writing of this document, the City of Lathrop had not adopted a 2010 UWMP, and had not completed any other comprehensive water demand and supply studies that reflect more current conditions.

Lathrop will receive up to 8,000 acre-feet per year from SCWSP through 2015 and ultimately up to 11,791 acre-feet per year in Phase II. In an effort to reduce potable water demands, the City of Lathrop is committed to implementing water conservation programs and has put into practice ordinances contained in its City of Lathrop Code which are triggered by the severity of drought or water emergency and vary in water reduction goals ranging as high as fifty percent.

As discussed above, the Phase II expansion of the Nick C. DeGroot water treatment plant could result in significant environmental effects in areas such as hydrology, biology, and air quality. Such a project would be required to conduct environmental review pursuant to CEQA prior to approval. This analysis would identify project-specific impacts in greater detail, and provide mitigation measures and alternatives that would reduce impacts to a less than significant level when feasible.

City of Ripon

The City's potable water is supplied entirely by groundwater, with some agricultural demand supplied with surface water from SSJID. According to the City of Ripon 2040 General Plan EIR (2006), total annual water demands would increase from around 6,000 acre-feet per year in 2006 to around 21,000 acre-feet per year by 2040, of which, 15,000 acre-feet would be dependent on groundwater. Despite increases in groundwater the 2006 EIR found that future impacts to the groundwater system could be positive as a result of the City's Groundwater Preservation Program, which increases groundwater recharge efforts. Furthermore, the urbanization of existing agricultural lands at the City's fringe would reduce the demand for water, partially off-setting increases from new development. Based on a total population of around 23,000 people by 2040, the 2006 EIR found that planned urban development would have no significant adverse effect on groundwater supplies. The 2035 General Plan anticipates slightly higher growth for the City with a total population of 24,600 by 2035.

Mountain House CSD

As previously mentioned, over 80 percent of new development in the unincorporated county will occur in Mountain House. The Mountain House Master Plan estimates that the water demand at build-out of the community will be approximately 11,457 AF per year, or 9,856 AF per year with implementation of conservation measures outlined in the Master Plan. The Byron Bethany Irrigation District (BBID) has contracted with the community to provide up to 9,413 AF per year, which is 443 AF less than the anticipated demand at buildout. The remaining demand may be supplied either through existing riparian water rights (up to 2,600 AF) or through contract negotiations with BBID. In total, it is anticipated that the community will have access to 12,013 AF of water per year through a combination of BBID deliveries and riparian water rights.

The Mountain House water treatment facility is currently permitted to process 12.5 mgd of water for treatment, has a capacity for up to 15 mgd, and is processing an average flow of 6 mgd. The facility is anticipating further expansion up to 20 mgd to accommodate buildout of the Mountain House Master Plan. Projected population growth under the 2035 General Plan for the Mountain House Community would slightly exceed the estimated population of full buildout of the Master Plan, at 45,234 residents by 2035 compared to 43,500 residents. The facility may, therefore, need

to be expanded to accommodate growth under the 2035 General Plan, which could result in significant environmental effects.

Groundwater

Implementation of the proposed 2035 General Plan could result in an increased demand on groundwater supplies for urban, rural, and agricultural uses within the County. Measurements over the past 40 years show a fairly continuous decline in groundwater levels in Eastern San Joaquin County whereas groundwater levels in the Tracy subbasin located to the west have been relatively stable (DWR, 2006). Due to the continued overdraft of groundwater within the Eastern San Joaquin subbasin, significant groundwater depressions are present below the City of Stockton, east of Stockton, and east of Lodi (DWR, 2006). While all cities and the County rely on groundwater for a portion of their water supply, cities in San Joaquin County have sought new sources of surface water to meet potable water demand, reduce groundwater dependency, and maintain sustainable extraction rates. The City of Lodi now supports groundwater extraction, with treated surface water provided from WID. The City of Stockton has increased its surface water deliveries through the Delta Water Supply Project and additional deliveries from the WID. The South County Water Supply Project provides Tracy, Manteca, and Lathrop with water and will eventually supply surface water to Escalon and Ripon. Some land use changes proposed as part of the General Plan may result in reduced water supply demands. For instance, the San Joaquin County Groundwater Banking Authority's Eastern San Joaquin Integrated Regional Water Management Plan (IRWMP) anticipated that by 2030 water demand would decrease by around 18,000 AF per year as agricultural land is converted to urban uses. Regardless, future water supply demands would be permitted only in accordance with the IRWMP.

General Plan Policies and Regulatory Actions

As discussed above and in *N.3 Regulatory Setting*, various federal, State, regional and local regulations exist that ensure adequate water supply would be provided as population grows under the 2035 General Plan. SB 610 and SB 221 require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large (greater than 500 dwelling units) development projects. Both statutes also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Under SB 610, water assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects as defined in Water Code 10912 subject to the California Environmental Quality Act (CEQA).⁸ Under SB 221, approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply.

Several policies describe the County's role in providing adequate infrastructure and services for new development (Policies IS-1.1, 1.2, and 1.5) and maintaining existing infrastructure and service systems (IS-1.3 and 1.4). Policies IS-1.8 and IS-1.13 require that adequate financing for infrastructure improvements is demonstrated prior to approval of new developments. Compliance with SB 244 is addressed in part through Policy IS-2.1, which states the County will minimize

⁸ SB 610 water supply assessments are not required for General Plan Updates because they are not "water demand" projects as defined by SB 610. See CEQA Guidelines Section 15155(a)(1).

non-contiguous growth and discourage annexations that leave irregular border or “islands,” in turn reducing the potential to extend major infrastructure to small areas requiring limited services.

The County will require that new developments: 1) prepare a detailed water source sufficiency study and water supply analysis for use in preparing a water supply assessment (IS-4.15); 2) are provided with water that meets State water quality standards (IS-4.14); and 3) incorporate all feasible water conservation measures to reduce the need for water system improvements (IS-4.9). The County will require water service through a public system for new residents on parcel two acres in antiquated subdivisions (IS-5.3), minimum standards for water system improvements for the approval of tentative maps and zone reclassifications (IS-5.2), and verification of payment of fees imposed for water infrastructure capacity (IS-5.4). The County will require confirmation for existing wells or test wells for new wells to ensure that water quality and quantity are adequate to meet the needs of existing, proposed, and planned future development (IS-4.16). The County will work with cities and water agencies to protect groundwater quality (Program NCR-C) and prepare semi-annual groundwater reports (Program NCR-E).

Long-term water conservation strategies occur on both local and regional levels. The State’s SB-7x initiative to reduce water use 20 percent by 2020 is implemented through the State’s Water Conservation Plan, and various State agencies, including DWR, the SWRCB, the California Energy Commission, the California Department of Public Utilities Commission, and many others. In addition, the California Building Code (Title 24) includes mandatory water conservation measures for new residential and commercial buildings and some renovated buildings. Local cities and agencies include demand management measures in their UWMPs to reduce water use and meet the SB-7x reduction target, with most water districts conducting public outreach and providing rebates and incentives to customers who take certain measures to reduce their water use. As discussed, several of the cities in San Joaquin County have taken action to reduce their dependence on groundwater and recharge programs are in place to restore groundwater aquifers.

Conclusion

The development of future land uses under the 2035 General Plan would increase the demand for potable water and would require the expansion of existing water treatment facilities. Although multiple planning documents exist to ensure a reliable water supply is available for future growth within the county, issues such as cutbacks in State Water Project deliveries, due to regulatory restrictions or unprecedented multiple dry years, cannot be predicted and are generally not accounted for in these documents. Such instances would also impact groundwater aquifers which generally serve as a reserve source of water during abnormally dry years. In addition, although many of the cities and agencies supplying water have identified or secured potential water contracts to meet supply through 2035, the City of Lathrop, the City of Manteca, and the SCWSP have not published updated planning documents to indicate that they have sufficient water supply beyond 2030; therefore, it cannot be determined whether sufficient water supplies have been secured for new development in these areas, at this time. Furthermore, the combined effect of the impacts related to obtaining additional water supplies, the uncertainties inherent in obtaining those supplies, and construction impacts related to extraction, processing and/or conveyance of

additional water supplies support the conclusion that the implementation of the 2035 General Plan would have a significant impact due to a lack of available water supplies.

While the County would not approve development that cannot be served by existing water treatment facilities, several facilities have identified necessary expansions in order to accommodate future population growth. Water treatment plants with planned expansions include the Mountain House Water Treatment Plant to serve the community of Mountain House, the SEWD Water Treatment Plant to serve increased demand in southern Stockton, and the Nick C. DeGroot Water Treatment Plant to serve development beyond 2030 within the Cities of Tracy, Manteca, Lathrop, and Escalon. The expansion of water treatment facilities could result in significant environmental effects in areas such as hydrology, biology, and air quality. These and any additional future water treatment projects in the County would be required to conduct environmental review pursuant to CEQA prior to approval. Such analysis would identify project-specific impacts in greater detail, and provide mitigation measures and alternatives that would reduce impacts to a less than significant level, when feasible. Additional federal and state regulations, discussed in Section N.3 *Regulatory Setting*, regulate environmental impacts to water treatment facilities.

Because the 2035 General Plan has the potential to exceed surface water and groundwater availability, and because facilities would need to be expanded to accommodate future population growth, the construction of which would cause significant environmental impacts, impacts to potable water supply and facilities would be significant. Although the 2035 General Plan would implement policies and programs that would reduce impacts associated with water supply, it is uncertain whether water supplies can be secured to serve new development and impacts would remain significant and unavoidable.

Mitigation: None available; Significant and Unavoidable.

Impact 4.N-5: Development facilitated by implementation of the proposed 2035 General Plan could be served by a landfill with insufficient permitted capacity to accommodate solid waste generated by the project, or that may result in non-compliance with federal, state, and local statutes and regulations related to solid waste. (Significant)

Physical landfill capacity is defined as the remaining volumetric capacity of existing landfills. Physical capacity represents the volume available to be filled, and is different from the rate at which materials would enter the landfill. On an annual basis, the County generates around 700,000 tons of Class III waste, or municipal solid waste, of which 390,000 tons are sent to County-owned facilities, including the Foothill and North County landfills, and 310,000 tons are sent to the Forward Landfill which is owned and operated by Allied Waste (SJPW, 2014). Nearly all of the solid waste that is sent to both the North County and Foothill landfills each year originates in the County, with a very small percentage of waste attributed to residents of neighboring counties using the drop off areas located at each landfill. Forward Landfill accepts additional tons of Class III waste from neighboring counties and it accepts Class II waste (contaminated soils, etc.) that are not allowed by permit at the County Landfills.

Using standard generation rates from CalRecycle (12.23 lbs/household/day and 10.53 lbs/employee/day), it is estimated that the additional 84,000 housing units and 51,000 jobs under the 2035 General Plan would generate an additional 259,000 tons of waste per year, for a total of 959,000 tons annually. This represents a conservative estimate; the actual waste generated by new development could be lower assuming the County's continued implementation of waste diversion programs. According to CalRecycle, as of 2008, the Forward Landfill had approximately 78 percent remaining capacity (23.7 million cubic yards) and an estimated closure date of 2020. As of 2009, the North County Landfill had 89 percent remaining capacity (41 million cubic yards) and an estimated closure date of 2048. The Foothill Sanitary Landfill had around 91 percent (125 million cubic yards) of capacity remaining in 2010 and an estimated closure date of 2082. The General Plan Background Report concluded that the County has, at a minimum, sufficient capacity through 2020 and with increasing success of County diversion programs, could extend capacity of its existing landfills to 2054 or beyond. The rate at which materials would enter these landfills is restricted by daily traffic and tonnage limits at disposal and transfer facilities, even though there may be sufficient physical capacity. The permitted daily disposal tonnages are specified in the Solid Waste Facility Permit for the facility, and sometimes in other permits. These limits are a matter of traffic control and health and welfare protection, and are changed through the permit review, modification or revision process.

Several policies describe the County's role in providing adequate infrastructure and services for new development (Policies IS-1.1, 1.2, and 1.5) and maintaining existing infrastructure and service systems (IS-1.3 and 1.4). Policies IS-1.8 and IS-1.13 require that adequate financing for infrastructure improvements is demonstrated prior to approval of new developments. Compliance with SB 244 is addressed in part through Policy IS-2.1, which states the County will minimize non-contiguous growth and discourage annexations that leave irregular borders or "islands," in turn reducing the potential to extend major infrastructure to small areas requiring limited services. Under Program IS-H, the County will develop and adopt an ordinance requiring solid waste collection, including recycling, from all Urban and Rural communities.

The development of future land uses under the 2035 General Plan would increase solid waste disposal needs and could have the potential to require the construction of new landfill facilities, or expansion of existing facilities. Construction of new solid waste disposal facilities could result in significant environmental effects in areas such as traffic, hydrology, biology, and air quality. Any future construction projects in the County would be required to conduct environmental review pursuant to CEQA prior to approval. Such analysis would identify project-specific impacts in greater detail, and provide mitigation measures and alternatives that would reduce impacts to a less than significant level when feasible. Additional federal and state regulations, discussed in *Section N.3 Regulatory Setting*, regulate environmental impacts from increased waste disposal.

However, because the 2035 General Plan does not contain policies specific to landfills or increasing countywide waste diversion, it could have significant impacts on landfill capacity. Therefore, the following new policy is recommended.

Mitigation Measure 4.N-5: The County shall include the following new policy in the proposed 2035 General Plan:

IS-1.18: Landfill Capacity. The County shall analyze remaining landfill capacity and continue to implement solid waste diversion programs in order to increase the rate of diversion across all communities and increase the usable life of existing landfill disposal facilities.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.N-6: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to wastewater treatment facilities and systems. (Less than Significant)

The geographic area considered for the analysis of cumulative impacts related to utilities and service systems is San Joaquin County. Cumulative projects would result in a need for expansion of existing wastewater treatment facilities to support new development. Cumulative projects proposed under general plans of surrounding cities and counties, such as commercial, residential or industrial projects, would impact wastewater treatment services from within the region. As shown in Impact 4.N-1, nearly every City will need to expand their wastewater treatment system and facilities to accommodate cumulative growth under the 2035 General Plan, including growth within their city limits and new development in their SOI. For each city, approval of development projects is dependent upon the ability to provide wastewater treatment facilities. Each city utilizes development impact fees to fund infrastructure expansion projects and developers may be required to pay a share of the cost of infrastructure expansion improvements to serve new developments. Necessary expansion of infrastructure would occur prior to development, to ensure adequate treatment capacity and compliance with NPDES permits for treated wastewater discharges.

The Bay Delta Conservation Plan (BDCP) is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the Plan's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that construction under the BDCP could result in the potential displacement or disruption of utilities and utility infrastructure located in the plan area. As mitigation, the BDCP would provide funding for the relocation of facilities or construction of new facilities, and local agencies would be closely coordinated to minimize disruptions in service.

Development of future land in City SOIs would increase the demands on wastewater facilities, and may require the provision of new or physically altered facilities to avoid exceedance of wastewater treatment requirements of the CVRWQCB, which would have the potential to result in adverse environmental impacts. In order to maintain and support cumulative projects, the

expansion or relocation of wastewater systems and facilities could be required, which could have the potential to result in an adverse impact on the environment. Cumulative wastewater facility projects would undergo environmental review, and would be required to demonstrate compliance with CEQA and/or NEPA prior to project approval. Where feasible, impacts from construction of new facilities will be mitigated down to a less than significant level. The 2035 General Plan, in combination with the identified cumulative projects, would have a less than significant cumulative impact associated with wastewater treatment facilities.

Mitigation: None required.

Impact 4.N-7: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to potable water supply and treatment and delivery systems. (Significant and Unavoidable)

The geographic area considered for the analysis of cumulative impacts related to water supply, water quality, water treatment facilities and delivery system infrastructure is San Joaquin County. Cumulative projects would result in a need for expansion of existing water treatment facilities to support new development. Cumulative projects proposed under general plans of surrounding cities and counties, such as commercial, residential or industrial projects, would impact water supply and treatment services from within the region by increasing demand for potable water. As shown in individual city UWMP's and the San Joaquin County IRWMP, and summarized in **Impact 4.N-4**, most, but not all cities have secured adequate water supplies to support new development through the 2035 horizon year, and some cities will need to expand treatment facilities and/or water conveyance infrastructure to meet projected water demand.

For each city, approval of development projects is dependent upon the ability to secure adequate surface water or groundwater supplies and to provide adequate treatment plant and delivery infrastructure. Water infrastructure expansion projects are funded in part through development impact fees and developers may be required to pay a share of the cost of infrastructure expansion improvements to serve new developments. As discussed in Impact 4.N-4, although multiple planning efforts continue to be undertaken to ensure a reliable water supply is available for future growth in San Joaquin County, issues such as cutbacks in State Water Project deliveries, due to regulatory restrictions or unprecedented multiple dry years, cannot be predicted and generally cannot be accounted for in water supply planning documents. Furthermore, the combined effect of the impacts related to obtaining additional water supplies, the uncertainties inherent in obtaining those supplies, and construction impacts related to extraction, processing and/or conveyance of additional water supply contribute to significant cumulative impacts.

The Bay Delta Conservation Plan (BDCP) is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the Plan's 22 conservation measures across 15 project alternatives. The EIR/EIS

concluded that construction under the BDCP could result in the potential displacement or disruption of utilities and utility infrastructure located in the plan area. As mitigation, the BDCP would provide funding for the relocation of facilities or construction of new facilities, and local agencies would be closely coordinated to minimize disruptions in service.

According to the BDCP EIR/EIS, potential impacts to water supply include: changes in SWP and CVP reservoir storage, changes in Delta exports, and changes in SWP and CVP deliveries. Overall changes to water supply levels would not exceed 10 percent more or less than the current average annual levels. Impacts to surface water supply are concentrated upstream of the Delta and Sacramento River; surface water within San Joaquin County upstream of the Delta is not likely to be effected. Groundwater resources within the Delta may see impacts to: groundwater wells, agriculture drainage areas, and water quality near restoration areas. The BDCP will not result in adverse water quality effects upstream of SWP and CVP export service areas. Changes in hydrodynamics within the Delta could affect water quality; in such a case, the BDCP team will consult with water purveyors, agencies and stakeholders to implement mitigation measures for specific contaminants identified in the BDCP EIR/EIS. The EIR/EIS determined that impacts to groundwater quality would be localized and manageable, and primarily the result of dewatering, seepage, and drainage activities during construction. These impacts would generally occur near the proposed intake facilities and forebay area, which is located outside of San Joaquin County, with minor impacts occurring along the tunnel where vents or shafts are located. In any case, the BDCP team will partner with reclamation districts and land owners to address potential impacts before they occur.

In summary, although many planning efforts exist to ensure a reliable water supply is available for future growth, the uncertainty of securing such water supply and the possibility of additional effects relating to obtaining the additional water supply or constructing new infrastructure contribute to a significant cumulative effect. To support cumulative projects, the expansion of existing water treatment and conveyance facilities would also be required for the Mountain House Water Treatment Plant, the SEWD Water Treatment Plant, and the Nick C. DeGroot Water Treatment Plant, the construction of which could have the potential to result in an adverse impact on the environment. Cumulative water infrastructure projects would undergo environmental review, and would be required to demonstrate compliance with CEQA and/or NEPA prior to project approval. Where feasible, impacts from construction of new facilities will be mitigated to a less than significant level. However, because of the uncertainty of obtaining sufficient water supplies to support future population growth, in combination with the identified cumulative projects, implementation of the 2035 General Plan would have a significant and unavoidable cumulative impact associated with water supply.

Mitigation: Significant and Unavoidable.

Impact 4.N-8: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to stormwater drainage systems. (Less than Significant)

The geographic area considered for the analysis of cumulative impacts related to utilities and service systems is San Joaquin County. Cumulative projects would result in a need for expansion of existing stormwater drainage facilities to support new development. Cumulative projects proposed under the general plans of surrounding cities and counties, such as commercial, residential or industrial projects, would impact stormwater drainage services from within the region. For each City, approval of development projects is dependent upon the ability to provide sufficient utilities and services. Each City utilizes development impact fees to fund infrastructure expansion projects and developers may be required to pay a share of the cost of infrastructure expansion improvements to serve new developments. Necessary expansion of infrastructure would occur prior to development, to ensure adequate treatment capacity and compliance with NPDES permits for stormwater discharge.

The Bay Delta Conservation Plan (BDCP) is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the Plan's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that construction under the BDCP could result in the potential displacement or disruption of utilities and utility infrastructure located in the plan area. As mitigation the BDCP would provide funding for the relocation of facilities or construction of new facilities, and local agencies would be closely coordinated to minimize disruptions in service.

Development of future land in City SOIs would increase the need for stormwater drainage infrastructure, and may require the provision of new or physically altered facilities, which would have the potential to result in adverse environmental impacts. In order to maintain and support cumulative projects, the expansion or relocation of stormwater drainage facilities could be required, which could have the potential to result in an adverse impact on the environment. Cumulative stormwater drainage projects would undergo environmental review, and would be required to demonstrate compliance with CEQA and/or NEPA prior to project approval. Where feasible, impacts from construction of new facilities will be mitigated down to a less than significant level. The 2035 General Plan, in combination with the identified cumulative projects, would have a less than significant and unavoidable cumulative impact associated with stormwater treatment facilities.

Mitigation: None required.

Impact 4.N-9: Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to landfills and solid waste disposal facilities. (Significant)

The geographic area considered for the analysis of cumulative impacts related to utilities and service systems is San Joaquin County. Cumulative projects would result in a need for expansion of existing solid waste disposal facilities to support new development. Cumulative projects proposed under the general plans of surrounding cities and counties, such as commercial, residential or industrial projects, would increase solid waste generation from within the region. For each City, approval of development projects is dependent upon the ability to provide sufficient utilities and services. Under mitigation measure UTL-1, the County will analyze remaining landfill capacity and plan for future facilities as needed to serve new development in San Joaquin County. Solid waste reduction efforts led by each city and the County may increase the useful life of existing landfills, and in turn reduce potential environmental impacts of building new facilities.

The Bay Delta Conservation Plan (BDCP) is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the Plan's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that construction under the BDCP could result in the potential displacement or disruption of public services located in the plan area, which could include local recycling and transfer stations in the Delta. As mitigation the BDCP would provide funding for the relocation of facilities or construction of new facilities, and local agencies would be closely coordinated to minimize disruptions in service.

Development of future land in City SOIs may increase the need for solid waste disposal facilities and further reduce landfill capacity, potentially requiring the provision of new or physically altered facilities, which could result in adverse environmental impacts. In order to maintain and support cumulative projects, the expansion or relocation of solid waste disposal facilities could be required, which could have the potential to result in an adverse impact on the environment. Cumulative solid waste facility projects would undergo environmental review, and would be required to demonstrate compliance with CEQA and/or NEPA prior to project approval. Where feasible, impacts from construction of new facilities will be mitigated down to a less than significant level. The 2035 General Plan, in combination with the identified cumulative projects, would have a significant and unavoidable cumulative impact associated with solid waste facilities.

Mitigation: Implement Mitigation Measure 4.N-5.

Significance after Mitigation: Less than Significant.

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O. Mineral Resources

This section addresses the presence of known mineral resources within San Joaquin County and the likely impact on such resources from the projected growth associated with the proposed 2035 General Plan. The environmental setting section was developed in part using information contained in the General Plan Background Report (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession of 2009 contributed to significantly slower population and housing growth than what had been projected for San Joaquin County¹. In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2009 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes. Other data sources include the California Department of Conservation Special Report 160 (DOC, 1988), and the California Geological Survey Special Report 199 (DOC, 2012).

O.1 Environmental Setting

The primary mineral resources in San Joaquin County are sand and gravel aggregate. Limited extraction of peat, gold, and silver is also known to occur. Historically, placer gold deposits had been found in many of the rivers and creeks in San Joaquin County which were dredged by independent contractors during the 1849 gold rush. Today it is believed that all significant gold deposits have been fully extracted, and gold is typically found only as a secondary product of sand and gravel processing. During the 1970s and 1980s, the Delta Humus Company removed extensive amounts of peat soil from a portion of Venice Island; currently peat excavations occur on a very limited basis. The extent of silver mining in the county is unknown.

Mining activities are monitored by the State Office of Mining Reclamation (OMR) and the County Public Works Department to insure compliance with applicable laws, to promote reclamation that is cost-effective and beneficial to end-uses, and to protect public health and safety. **Table 4.O-1** lists the status of aggregate mines in San Joaquin County. As of 2013, the OMR identified a total of 41 mining sites within San Joaquin County, with 13 active mines and 4 newly permitted mines. The remaining mines are either closed or idle. Nearly all of the mines listed are related to the extraction and processing of sand and gravel aggregate, and are located near sand and gravel deposits in the southwest and northeast areas of the county. Aggregate deposits are most commonly found in channel, floodplain, and alluvial fan deposits. Aggregate is used extensively in road and building construction, and consists of sand, gravel, and crushed stone. Aggregate is a common component in Portland cement concrete (PCC), asphaltic concrete (AC), plaster, and stucco, providing from 80 to 100 percent of the material volume, and may be used on golf courses as brown sand. Aggregate materials are essential for maintaining existing

¹ In SJCOG's 2005-2030 Population and Employment Projections (2004) countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three year period.

**TABLE 4.O-1
STATUS OF AGGREGATE MINES IN SAN JOAQUIN COUNTY**

Mine ID	Mine Name	Mine Operator	Status
91-39-0001	Oakwood Lake Pit	Bank of America C/O Bc Land Group	Closed
91-39-0002	Vernalis	Granite Construction Company	Active
91-39-0003	Tierra Resources, Inc.	Questo	Newly Permitted
91-39-0004	Clements	Teichert Aggregates	Closed Reclamation Complete
91-39-0005	Rose	Teichert Aggregates	Closed Reclamation Complete
91-39-0006	Tracy Rock Plant	Teichert Aggregates	Idle
91-39-0008	Tracy Pit	Granite Construction Company	Idle
91-39-0009	Rme Pit	Granite Construction Company	Closed
91-39-0010	Valley Rock	West Coast Aggregates, Inc.	Idle
91-39-0011	Kasson Road Pit	F.T.G. Construction Materials, Inc.	Active
91-39-0012	Mossdale Road Pit	F.T.G. Construction Materials, Inc.	Closed Reclamation Complete
91-39-0013	El Rancho	Darby	Active
91-39-0014	Kerlinger - Huck	Cemex Construction Materials Pacific, Llc	Active
91-39-0015	Kerlinger - Rhodes	Cemex Construction Materials Pacific, Llc	Active
91-39-0016	Solari Pit	George Reed, Inc.	Closed Reclamation Complete
91-39-0017	Stampede Valley	Wood Company	Idle
91-39-0018	Featherstone Ranch	George Reed, Inc.	Closed
91-39-0019	Main Riverbank	George Reed, Inc.	Closed
91-39-0020	Knife River	Concrete Inc. Dba Knife River	Active
91-39-0021	Vernalis	Teichert Aggregates	Active
91-39-0022	Mossdale-Brown Sand	Brown Sand, Inc.	Active
91-39-0023	Christensen Ranch	George Reed, Inc.	Newly Permitted
91-39-0024	Traina East	Teichert Aggregates	Closed Reclamation Complete
91-39-0025	Christensen Ranch	George Reed, Inc.	Closed Reclamation Complete
91-39-0029	Dss Vernalis Plant	Dss Company	Active
91-39-0030	Burgin - Torlai	Reeves Sand & Gravel, Inc.	Closed Reclamation Complete
91-39-0031	Moffatt	A.A. And Bob Allen, Inc.	Active
91-39-0032	Mcgah & Peterson	Granite Construction Company	Closed
91-39-0033	Rumble Ranch	George Reed, Inc.	Closed Reclamation Complete
91-39-0034	Merritt Ranch	George Reed, Inc.	Closed
91-39-0035	Noceti Farms	Reeves Sand & Gravel, Inc.	Closed Reclamation Complete
91-39-0036	Reed/Clements Pit	George Reed, Inc.	Active
91-39-0037	Rose Property	Granite Construction Company	Closed Reclamation Complete
91-39-0038	Bellino Pit	George Reed, Inc.	Active
91-39-0039	Munn & Perkins 11.4 Acre Pit	George Reed, Inc.	Active
91-39-0040	Hendrick Pit	George Reed, Inc.	Newly Permitted
91-39-0041	Vernallis West & East Properties	Teichert Aggregates	Newly Permitted
91-39-0042	Gallo Ranch	Reeves	
91-39-0043	Harris Ranch	Reeves	
91-39-0044	Heisig Ranch	Reeves Sand & Gravel	

SOURCE: Office of Mine Reclamation, AB 3098 List November 2013 and Kevin Swanson, San Joaquin County Public Works Department.

infrastructure, as well as providing materials for new construction. As a low unit-value, high bulk weight commodity, it is costly to transport, quickly exceeding its unit value when hauled for long distances, increasing fuel consumption, construction costs, greenhouse gas emissions, and air pollution. For this reason, locally accessible supplies of high quality aggregate deposits are important to support future growth. In addition, competing land uses can constitute an impediment to finding suitable sites for new mines. For example, permanent open space easements, which often exist in prime aggregate extraction areas, can permanently preclude future extraction of mineral resources.

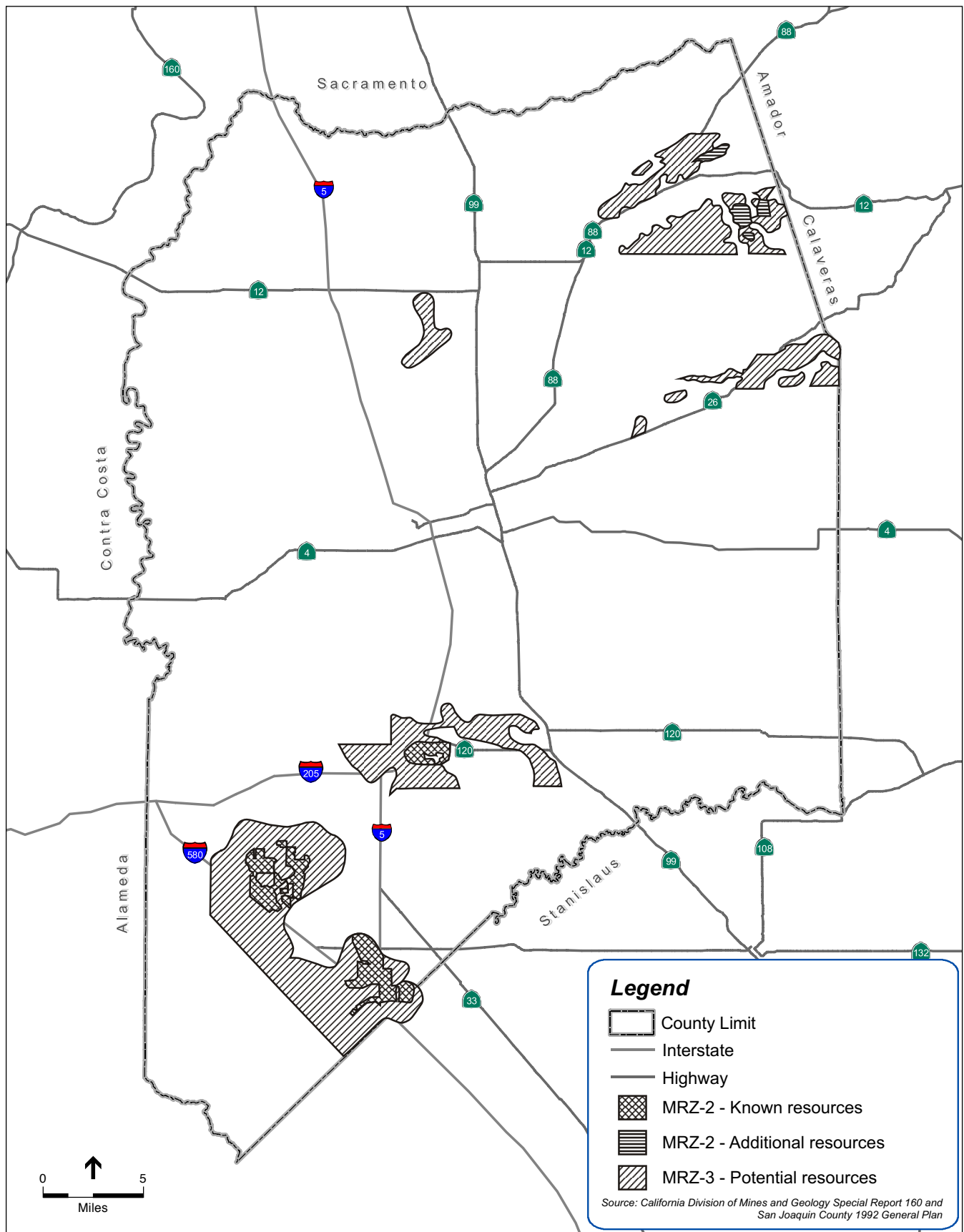
The California Division of Mines and Geology conducted a statewide survey of aggregate production in 2006. The survey estimated that in the Corral Hollow Creek production district, near Tracy and Manteca, between 5 and 10 million tons of aggregate are produced each year. Districts near Lathrop and south of Manteca are estimated to generate 0.5 to 2 million tons of aggregate annually. In the northeastern portion of San Joaquin County, the Mokelumne River district is also estimated to produce between 0.5 and 2 million tons of aggregate annually (Mintier Harnish, 2009).

The California Surface Mining and Reclamation Act of 1975 (SMARA) sets forth requirements for the state to classify all land into Mineral Resource Zones (MRZs) that indicate the potential for mineral resources irrespective of existing land use or ownership. **Figure 4.O-1** shows identified MRZ zones for San Joaquin County, including known resources (MRZ-2), additional resources (MRZ-2) and potential resources (MRZ-3). As part of the SMARA Minerals Land Classification Project, the California Geological Survey (CGS) has published multiple reports stating the availability and anticipated demand for Portland cement concrete grade (PCC-grade) aggregate, among other mineral resources, throughout California.

Special Report 160 (SR 160), originally published in 1988 and updated by the Department of Conservation (DOC) in 2006, provides information on the availability of sand and gravel deposits for the Stockton-Lodi Production-Consumption area, and estimated that the maximum sand and gravel aggregate resources in the county is around 600 million tons.

In 2006 CGS re-assessed production-consumption region estimates of aggregate demand and reserves. The projected 50-year (January 2006 to December 2055) aggregate demand for the Stockton-Lodi production-consumption area at that time was 728 million tons, while permitted resources are estimated at only 196 million tons (Mintier Harnish, 2009).

Special Report 199 (SR 199) was released in May of 2012 as an update to 1988 SR 160, which provides more accurate estimates of aggregate demand and reserves, and includes newly classified or permitted land. In 2012, the estimated 50-year demand for construction grade aggregate was 687 million tons and permitted aggregate reserves totaled 232 million tons. Based on these estimates, the report anticipates that current aggregate reserves will last through the year 2033 (DOC, 2012b).



SOURCE: California Division of Mines and Geology Special Report 160 and, San Joaquin County 1992 General Plan

San Joaquin County 2035 General Plan . 209529

Figure 4.O-1
Aggregate Resources

Noise Setbacks and Other Public Concerns

Noise from mining activities is typically the most recognizable environmental impact that would affect nearby sensitive land uses (such as residential developments, industrial developments, commercial developments, and major public facilities). In order to meet the standards outlined in the Noise Ordinance (County Code Section 36.401 et. seq), an adequate setback between noise-generating activities associated with extractive uses and sensitive land uses is necessary. Although setback distances would vary from project to project, a general noise setback area of approximately 1,300 feet is an adequate distance for most extractive operations to avoid exceeding allowable noise levels (in compliance with the County's Noise Ordinance). For example, 1,300 feet would usually attenuate typical heavy equipment noise levels of 75 to 90 dBA to the Noise Ordinance standard of 50 dBA for daytime residential land use. It is important to note that the setback is relative to the property line of a noise sensitive land use. The range of the setback area would vary, depending on the noise levels produced by the quarry, proposed blasting, production methods, extent of crushing and screening activities, topographic and site conditions, etc. Setback distance would also depend on the applicable sound level limits at the property line as determined by the Noise Ordinance and on the presence of natural or man-made noise barriers between the noise source and the property line. For example, significant topography could attenuate noise associated with extractive activities at the property line, allowing for a reduced setback to achieve Noise Ordinance compliance. Residents near mining activities can also be impacted by potential dust, blasting vibrations, truck traffic, unsightly scars on the land, and loss of habitat caused by aggregate mining.

O.2 Regulatory Setting

California Surface Mining and Reclamation Act of 1975

Enacted by the State Legislature in 1975, the Surface Mining and Reclamation Act (SMARA) insures a continuing supply of mineral resources for the state. SMARA also creates surface mining and reclamation policy to assure that:

- Production and conservation of minerals is encouraged;
- Environmental effects are prevented or minimized;
- Consideration is given to recreational activities, watersheds, wildlife, range and forage, and aesthetic enjoyment;
- Mined lands are reclaimed to a useable condition once mining is completed; and
- Hazards to public safety both now and in the future are eliminated.

SMARA contains provisions for the inventory of mineral lands in the State of California. The State Geologist, in accordance with the State Board's Guidelines for *Classification and Designation of Mineral Lands*, must classify Mineral Resource Zones (MRZ) as designated below:

- **MRZ-1:** Areas where available geologic information indicates that there is minimal likelihood of significant resources.

- **MRZ-2:** Areas underlain by mineral deposits where geologic data indicate that significant mineral deposits are located or likely to be located.
- **MRZ-3:** Areas where mineral deposits are found but the significance of the deposits cannot be evaluated without further exploration.
- **MRZ-4:** Areas where there is not enough information to assess the zone. These are areas that have unknown mineral resource significance.
- **SZ:** Areas containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

SMARA covers mining activities that impact or disturb the surface of the land. General implementation of SMARA relies on the Department of Conservation, Division of Mines and Geology, Office of Mine Reclamation for enforcement. In San Joaquin County, the Departments of Public Works and Community Development review reclamation efforts and permit new mine sites and operations in the county. The permit requirement for each mine operation is locally regulated under County Ordinance No. 3675, 9-1525.2, which is the County's regulatory mechanism for implementation of SMARA.

O.3 Impacts and Mitigation Measures

Significance Criteria

Significant impacts to mineral resources would occur if implementation of the 2035 General Plan:

- Results in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Relevant Policies

The following relevant policies and implementing actions of the 2035 General Plan address mineral resources.

NCR-4.1: Mineral Resource Protection. The County shall require mineral deposits of significant quantity, value, or quality, as identified and updated by the State Division of Mines and Geology reports as MRZ-2 Mineral Resource Zones, to remain in agricultural or open space uses until the extraction of the resources, unless the immediate area has been committed to other uses. (RDR) (Source: Existing GP, Extractive Resources, Policy 1, modified)

NCR-4.2: Discretionary Permit to Protect Mineral Resources. The County shall require all new development in areas of significant sand and gravel deposits, as identified by the State Division of Mines and Geology, to obtain a discretionary permit, conditioned to protect the resources. (RDR) (Source: Existing GP, Extractive Resources, Implementation 2, modified)

Impact Analysis

2035 General Plan Impacts

Impact 4.O-1: Implementation of the proposed 2035 General Plan could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or could result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (Significant)

The primary adverse effect to mineral resources in San Joaquin County is the loss of mineral resource availability by the placement of incompatible land uses, which either directly or indirectly make the resource inaccessible for future extraction. Mining operations require an adequate setback from these land uses due to the variety of environmental issues associated with mining, which include, but are not limited to, noise, traffic, air quality, and visual resources impacts.

Compatible land uses are defined in Article 6, Section 3675, of the State Mining and Geology Board Reclamation Regulations (SMGB, 2012) as land uses that require a minimum public or private investment in structures or land improvements and that would allow mining because of the relative economic value of the land and its improvements. Examples of such uses include, but are not limited to, very low density residential, geographically extensive but low impact industrial, recreational, agricultural, grazing, and open space uses.

Incompatible land uses are also defined in Article 6, Section 3675, of the State Mining and Geology Board Reclamation Regulations as land uses that require public or private investment in structures, land improvements, and landscaping and that would prevent mining because of the greater economic value of the land and its improvements. Examples of such uses would include, but are not limited to, high density residential, low density residential with high unit value, public facilities, geographically limited but impact intensive industrial and commercial land uses.

Significant known sand and gravel resources have been identified in the northeast of the county near Calaveras County, south of the Mokelumne River, and in the southwest part of the county, including deposits near the cities of Tracy, Lathrop, and Manteca. Resource recovery sites, or areas where important resource recovery sites could potentially be located, are designated by the CGS as MRZ-2 or MRZ-3, or as being underlain by Quaternary alluvium. In San Joaquin County, large swaths of land underlying Lathrop, Manteca, and Tracy are classified as potential resources (MRZ-3); MRZ-3 zones have also been identified in the Lockeford and Linden Planning Areas. There is an abundance of lower grade aggregate deposits in the county; however, PCC-grade aggregate deposits are much scarcer. As mentioned in the Setting Section, the DOC projects a 50-year demand for construction aggregate in the county of 687 million tons, of which 275 million tons must be PCC-grade aggregate. Currently, there are less than 232 million tons of remaining permitted PCC-grade aggregate reserves, and these are projected to last through 2033 (DOC, 2012).

Development under the 2035 General Plan could result in impacts to mineral resources that are not yet mapped within the county. Potential resource zones, designated MRZ-3, have been

identified underlying large portions of the cities of Tracy, Lathrop and Manteca. Other MRZ-3 designated land is located towards the northeastern border of the county, on lands primarily designated for agricultural uses (See Figure 4.O-1). Beyond each city's sphere of influence, remaining MRZ-3 zones that fall within the County's jurisdiction are generally occupied by compatible land uses, including rural residential uses, orchards and vineyards, grazing, livestock, and other agricultural uses. Under the 2035 General Plan, housing and employment growth would primarily occur within City SOIs, including the City of Tracy SOI, where much of the county's existing and potential aggregate resources are located. Significant housing and employment growth would also occur in the communities of Mountain House and Lockeford; however, neither community occupies land that has been designated as potential mineral resource zones.

Over the course of the 25-year planning horizon, the State of California could update its SMARA maps and could identify additional aggregate resources. Policies NCR-4.1 and NCR-4.2 of the 2035 General Plan provide some protection to mineral resources, as identified by SMARA; however, development could be allowed on or within important mineral resource zones if the immediate area had been committed to other uses, or if a discretionary permit was obtained. Such development would be incompatible with future mining operations and would result in a potentially significant impact to mineral resources. Implementation of Mitigation Measures 4.O-1 would reduce the potential impact to less than significant.

Mitigation Measure 4.O-1: The following implementation programs shall be added to the 2035 General Plan:

NCR-NEW1: Protection of Mineral Resource Sites. The County shall discourage the development of incompatible land uses, as defined by the State Mining and Geology Board (SMGB), within or immediately adjacent to existing and potential mineral resource sites, including existing and new Mineral Resource Zone (MRZ) 2 areas identified by the Surface Mining and Reclamation Act (SMARA) of 1975 and locally important mineral resource sites as they are identified in the future such that the development would impede or preclude mineral extraction or processing.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.O-2: Implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to mineral resources. (Significant)

The geographic area considered for the analysis of cumulative impacts related to mineral resources is San Joaquin County, and immediately adjacent areas, depending on the location of mineral deposits or operations. Construction and operation of cumulative projects identified in Section C of Chapter 3.0, Project Description, would have the potential to result in the loss of availability of known mineral resources. Urbanization and growth in the jurisdictions adjacent to San Joaquin County would have the potential to result in land uses that are incompatible with

mining and resource recovery and would result in a cumulative loss of available resources. The CGS has also classified land in Sacramento County, Stanislaus County, and the incorporated cities in the County of San Joaquin into MRZs. Adjacent jurisdictions have included protections in their general plans or other planning documents to protect these and other mineral resources. However, planned and projected growth in the region would result in a reasonably foreseeable loss of mineral resources due to the encroachment of incompatible uses that would limit future areas from being permitted for mining operations. Therefore, a significant cumulative impact to mineral resource availability would occur.

Projected growth in the region would result in a reasonably foreseeable loss of mineral resource recovery sites due to the encroachment of incompatible uses that would preclude the extraction of mineral resources. It is reasonably foreseeable that other cumulative projects in the region would also result in the loss of availability of known mineral resources. Therefore, a significant cumulative impact to mineral resource recovery sites would occur.

As discussed in Impact 4.O-1, the proposed 2035 General Plan would result in a potentially significant direct impact to mineral resource availability and mineral resource recovery zones because it proposes land uses in areas designated MRZ-2, MRZ-3, and would result in a potentially significant direct impact to mineral resource recovery sites because such development would preclude the extraction of resources by proposing land uses in areas known or likely to be resource locations. Therefore, in combination with other cumulative projects, the proposed project would result in a potentially significant cumulative impact. Refer to Mitigation Measure 4.O-1 in regard to policies additions that would reduce potential impacts to a less than significant level.

Mitigation Measure 4.O-2: Implement Mitigation Measure 4.O-1.

Significance after Mitigation: Less than Significant.

O.4 References – Mineral Resources

California State Mining and Geology Board, 2012. Surface Mining and Reclamation Act (SMARA) Regulations, California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1. Available: <http://www.conservation.ca.gov/smgb/Regulations/Documents/SMARA%20Regulations%20Revised%202010-19-12.pdf>

Department of Conservation, 2012. Special Report 199: Update of Mineral Land Classification for Portland Cement Concrete-grade Aggregate in the Stockton-Lodi Production-Consumption Region, San Joaquin and Stanislaus Counties, California. California Geological Survey.

Department of Conservation, Division of Mines and Geology, 1988. Special Report 160: Mineral Land Classification for Portland Cement Concrete-grade Aggregate in the Stockton-Lodi Production-Consumption Region.

Mintier Harnish, 2009. *San Joaquin County General Plan Background Report: Public Review Draft*, July 2, 2009.

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P. Energy and Climate Change

P.1 Introduction

This section of the Draft EIR addresses potential impacts to a variety of energy and climate change issues specific to the San Joaquin County 2035 General Plan. Greenhouse gas (GHG) projections and reduction strategies are included in the GHG Gap Analysis Appendix included in the 2035 General Plan (Gap Analysis), which is relied upon in this EIR.

The regulatory setting provides a description of applicable federal, state and local regulatory policies. The environmental setting provides a description of existing conditions in the county. A description of the potential impacts of the 2035 General Plan is also provided and includes the identification of feasible mitigation to avoid or lessen the impacts.

The environmental setting section was developed in part using information contained in the General Plan Background Report (Mintier Harnish, 2009). Since the General Plan Background Report was completed, the recession contributed to significantly slower population and housing growth than what had been projected for San Joaquin County.¹ In general, what little growth did occur was concentrated in larger cities; the unincorporated communities experienced little to no change in population and housing between 2007 and 2013. For this reason, much of the information presented in the 2009 General Plan Background Report is still relevant to the unincorporated county; updated information for 2013 is provided when it was available, especially for cities where growth may have resulted in more significant changes.

P.2 Environmental Setting

Greenhouse Gases

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal (IPCC, 2007), with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning and deforestation have

¹ In SJCOC’s 2005-2030 Population and Employment Projections (2004) countywide population was expected to increase by roughly 10 percent between 2009 and 2013, compared to actual population growth which was approximately 3 percent over the same time period. Actual housing unit growth was 3 percent, compared to projected 9 percent growth; between 2010 and 2013 housing growth slowed to only 1 percent over the three year period.

been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO₂, CH₄, and N₂O occur naturally, and are also generated through human activity. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing² associated with agricultural practices and landfills. Other human-generated GHGs include fluorinated gases such as HFCs, PFCs, and SF₆, which have much higher heat-absorption potential than CO₂, and are byproducts of certain industrial processes.

CO₂ is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO₂. CH₄ and N₂O are substantially more potent GHGs than CO₂, with GWPs of 21 and 310 times that of CO₂, respectively.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO₂ equivalents (CO₂e). CO₂e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH₄ and N₂O have much higher GWPs than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e, both from residential developments and human activity in general.

Potential Effects of Human Activity on GHG Emissions

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO₂ emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO₂ concentrations were found to have increased by nearly 30 percent above pre-industrial (c. 1860) concentrations.

² Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

There is international scientific consensus that human-caused increases in GHGs have contributed and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. As the California Air Resources Board (ARB) *Climate Change Scoping Plan* noted, the legislature in enacting Assembly Bill (AB) 32 found that global warming would cause detrimental effects to some of the state's largest industries, including agriculture, winemaking, tourism, skiing, commercial and recreational fishing, forestry, and the adequacy of electrical power generation. The *Climate Change Scoping Plan* states as follows (ARB, 2008): "The impacts of global warming are already being felt in California. The Sierra snowpack, an important source of water supply for the state, has shrunk 10 percent in the last 100 years. It is expected to continue to decrease by as much as 25 percent by 2050. World-wide changes are causing sea levels to rise – about 8 inches of increase has been recorded at the Golden Gate Bridge over the past 100 years – threatening low coastal areas with inundation and serious damage from storms."

Impacts of Climate Change

Ecosystem and Biodiversity Impacts

Climate change is expected to have effects on diverse types of ecosystems, from alpine to deep-sea habitat (U.S. EPA, 2008a). As temperatures and precipitation change, seasonal shifts in vegetation would occur; this could affect the distribution of associated flora and fauna species. As the range of species shifts, habitat fragmentation could occur, with acute impacts on the distribution of certain sensitive species. The IPCC states that "20 percent to 30 percent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 2 to 3°C (3.6 to 5.4°F) relative to pre-industrial levels" (IPCC, 2007). Shifts in existing biomes could also make ecosystems vulnerable to encroachment by invasive species. Wildfires, which are an important control mechanism in many ecosystems, may become more severe and more frequent, making it difficult for native plant species to repeatedly re-germinate. In general terms, climate change is expected to put a number of stressors on ecosystems, with potentially catastrophic effects on biodiversity.

Human Health Impacts

Climate change may increase the risk of vector-borne infectious diseases, particularly those found in tropical areas and spread by insects such as malaria, dengue fever, yellow fever, and encephalitis (U.S. EPA, 2008b). Cholera, which is associated with algal blooms, could also increase. While these health impacts would largely affect tropical areas in other parts of the world, effects would also be felt in California. Warming of the atmosphere would be expected to increase smog and particulate pollution, which could adversely affect individuals with heart and respiratory problems, such as asthma. Extreme heat events would also be expected to occur with more frequency and could adversely affect the elderly, children, and the homeless. Finally, the water supply impacts and

seasonal temperature variations expected as a result of climate change could affect the viability of existing agricultural operations, making the food supply more vulnerable.

Greenhouse Gas Emissions Estimates

Global Emissions

Worldwide emissions of GHGs in 2004 were 30 billion tons of CO₂e per year (UNFCCC, 2012). This includes both ongoing emissions from industrial and agricultural sources, but excludes emissions from land use changes.

U.S. Emissions

In 2009, the United States emitted about 6.7 billion tons of CO₂e or about 21 tons per year per person. Of the four major sectors nationwide — residential, commercial, industrial, and transportation — transportation accounts for the highest fraction of GHG emissions (approximately 33 percent); these emissions are entirely generated from direct fossil fuel combustion (U.S. EPA, 2011).

State of California Emissions

In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB, 2013). Emissions of CO₂ are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution, respectively, two of the most common processes of CO₂ sequestration. California produced approximately 452 million gross metric tons of CO₂e in 2010 (ARB, 2013). Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2010, accounting for 38 percent of total GHG emissions in the state. This sector was followed by the electric power sector (including both in-state and out-of-state sources) (21 percent) and the industrial sector (19 percent) (ARB, 2013).

San Joaquin County Emissions

The Gap Analysis includes an unincorporated countywide GHG emissions inventory. In order to establish a current baseline for GHG emission levels in the unincorporated areas of the county, a GHG emissions inventory was developed for 2007. A description of the GHG emission sectors and subsectors, along with emission factors and methodologies used to quantify GHG emissions for 2007 are contained in the General Plan Background Report (Mintier Harnish, 2009). Updated transportation vehicle-miles travelled (VMT) and agricultural livestock data are included in the Gap Analysis.

The purpose of the GHG emissions inventory is to assist policy makers and planners with identifying the current emission sources, relative contribution from each source, and the overall

magnitude of the county's GHG emissions. This aids in development of more specific and effective policies and emissions control strategies to reduce GHG emissions consistent with State mandates (i.e., AB 32). The county's GHG emissions inventory is divided into five GHG emission sectors: electricity consumption, natural gas consumption, transportation, waste, and agriculture. Emission sectors are also divided into land uses (e.g., residential, commercial, or industrial) and/or subsectors to provide further detail on the source of GHG emissions. The 2007 GHG emissions are depicted below in **Table 4.P-1**.

**TABLE 4.P-1
2007 SAN JOAQUIN COUNTY EMISSIONS BY SECTOR (CO₂E MT)**

Emission Sector	Subsector	Total
Energy – Electricity	Residential	174,391
	Commercial	356,393
	Industrial	21,933
	Total Electricity GHGs	552,717
Energy – Natural Gas	Residential	88,197
	Commercial	181,945
	Industrial	8,672
	Total Natural Gas GHGs	278,814
Transportation	Total	1,350,924
Waste	Total	41,067
Wastewater	Total	2,784
Agriculture	Residue Burn	40,089
	Livestock	518,780
	Rice Cultivation	5,996
	Farming Equipment	172,837
	Ag Pumps	28,116
	Fertilizer	59,871
	Total Ag GHGs	825,689
Total Unincorporated San Joaquin County GHGs		3,051,996

This table is from the Gap Analysis Appendix included in the 2035 General Plan.

Energy

Pacific Gas and Electric (PG&E), Modesto Irrigation District (MID), Lodi Electric Utility, and the Port of Stockton are the electric service providers in San Joaquin County. PG&E provides all of the natural gas services within the county.

Electricity Resources

The CEC maintains a power plant database that describes all of the operating power plants in the State by county. San Joaquin County has 26 power plants generating electricity of which 14 operate on oil and gas resources, nine operate on wind power, two are biomass plants (using agricultural and wood waste), and one is hydroelectric (Mintier Harnish, 2009).

Individuals have access to installing home-based solar systems through which they can generate most or all of their home electricity needs and sell excess power back through the grid to their local electricity provider. Commercial and industrial businesses can also set up small scale power generation, such as capturing methane from covered lagoons or installation of solar systems, through which they can generate most or all of their business electricity needs and sell excess power back through the grid to their local electricity provider.

Many power generation facilities are not owned by the electricity providers in San Joaquin County, with the exception of PG&E owning and operating most of the wind farms. The electricity providers purchase power wholesale and provide the transmission and distribution facilities and meters to the end customers.

Pacific Gas & Electric (PG&E)

PG&E is the primary supplier of electricity in San Joaquin County. PG&E is also responsible for maintenance of most of the transmission and distribution systems in the county. PG&E delivers approximately 86,000 GWh of electricity to its 15 million customers throughout the 70,000-square-mile service area in Northern and Central California. In 2007, PG&E delivered 1,540 GWh to 254,876 residential accounts and 2,394 GWh to 36,649 commercial and industrial accounts in San Joaquin County (Mintier Harnish, 2009).

Modesto Irrigation District (MID)

The MID, under the authority of the California Water Code, operates as an electric utility. MID provides electric service to over 112,000 accounts in southern San Joaquin County (including the communities of Escalon, Ripon, and Mountain House) and northern Stanislaus County. In 1893 MID and Turlock Irrigation District (TID) built the La Grange Dam on the Tuolumne River for water storage. In 1923, MID and TID built the Don Pedro Reservoir for both water storage and electricity generation for the Modesto area. In 1971, MID and TID built the new Don Pedro Dam. As a result of AB 1890, MID is now able to sell power at the retail level. MID distributes electricity through its transmission and distribution facilities in addition to providing wholesale power to PG&E (Mintier Harnish, 2009).

Lodi Electric Company

The Lodi Electric Company is a customer-owned utility supplier providing electricity to Lodi's residential, commercial, and industrial customers since 1910. Lodi does not own any generation facilities; rather, they purchase power through the Northern California Power Agency (Mintier Harnish, 2009).

Port of Stockton

The Port of Stockton created an electric system in June 2003 when its power purchases from PG&E were terminated. The Port is established as a publically owned utility under the Public Utilities Code section 9604. The Port serves the power needs of businesses on Rough and Ready Island, formerly a Navy base that closed in the mid-1990s (Mintier Harnish, 2009).

Transmission and Distribution Facilities

The components of transmission and distribution systems include the generating facility, switching yards and stations, primary substation, distribution substations, distribution transformers, various sized transmission lines, and the customers. In the United States, there are over a quarter million miles of transmission lines, most of them capable of handling voltages between 115 kv and 345 kv, and a handful of systems of up to 500 kv and 765 kv capacity. Transmission lines are rated according to the amount of power they can carry, the product of the current (rate of flow), and the voltage (electrical pressure). Generally, transmission is more efficient at higher voltages.

Generating facilities, hydro-electric dams, and power plants usually produce electrical energy at fairly low voltages, which is increased by transformers in substations. From there, the energy proceeds through switching facilities to the transmission lines. At various points in the system, the energy is "stepped down" to lower voltages for distribution to customers. Power lines are either high voltage (115, 230, 500, and 765 kv) transmission lines or low voltage (12, 24, and 60 kv) distribution lines.

Overhead transmission lines consist of the wires carrying the electrical energy (conductors), insulators, support towers, and grounded wires to protect the lines from lightening (called shield wires). Towers must meet the structural requirements of the system in several ways. They must be able to support both the electrical wires, the conductors, and the shield wires under varying weather conditions, including wind and ice loading, as well as a possible unbalanced pull caused by one or two wires breaking on one side of a tower. Every mile or so, a "dead-end" tower must be able to take the strain resulting if all the wires on one side of a tower break. Every change in direction requires a special tower design. In addition, the number of towers required per mile varies depending on the electrical standards, weather conditions, and the terrain. All towers must have appropriate foundations and be available at fairly regular spacings along a continuous route accessible for both construction and maintenance.

A right-of-way is a fundamental requirement for all transmission lines. A right-of-way must be kept clear of vegetation that could obstruct the lines or towers by falling limbs or interfering with the sag or wind sway of the overhead lines. Land acquisition and maintenance requirements can be substantial. The dimensions of a right-of-way depends on the voltage and number of circuits carried and the tower design. Typically, transmission line rights-of-way range from 100 feet to 300 feet in width.

The electric power supply grid within San Joaquin County is part of a larger supply network operated and maintained by PG&E that encompasses the entire northern California region. This system ties into yet a larger grid known as the California Power Pool that connects with the San Diego Gas and Electric and the Southern California Edison Companies. These companies coordinate the development and operation, as well as purchase, sale, and exchange of power throughout the State of California.

Within San Joaquin County, PG&E owns most of the transmission and distribution facilities, except for those owned and maintained by Lodi Electric, MID, and the Port of Stockton. Two

major 500 MW transmission lines pass through the county, connecting San Joaquin County to the national power grid, allowing the wheeling of power to locations where power is in demand.

Natural Gas Resources

PG&E operates a vast underground natural gas system delivering natural gas from three major sources: California, Southwestern U.S., and Canada. PG&E serves approximately 4.2 million customers in northern and central California. From natural gas wells, the gas is cleaned and treated (odorized) and delivered to compressor stations. Gas is stored in underground storage fields until it is needed, at which time it is transported through high-pressure distribution lines to regulators to reduce the pressure to local distribution mains. Smaller diameter lines from the distribution lines serve individual customers.

PG&E supplies natural gas to San Joaquin County and owns the primary gas transmission lines. The main spines run along I-5, I-580, and SR 12 with numerous side branches. In 2007 PG&E delivered 89,258,540 therms to 260,589 residential accounts and 154,961,659 therms to 12,716 commercial and industrial accounts in San Joaquin County (Mintier Harnish, 2009).

Energy Conservation

PG&E sponsors several energy conservation programs that include education, solar energy incentives, florescent lighting business program and a weatherization program for low income families. These services are intended to reduce energy consumption in homes through the replacement of inefficient appliances and minor housing repairs, making the home more energy efficient. Consumers also receive valuable educational materials that provide useful energy saving tips and information.

Additional conservation measures can be encouraged through programs and policies that address areas within the county that can potentially reduce energy consumption by reducing wasteful energy consumption practices and habits.

P.3 Regulatory Setting

The following sections provide federal, state and local regulations for energy as well as regulations for greenhouse gases and global climate change. These agencies work jointly, as well as individually, to understand and regulate the effects of greenhouse gas emissions and resulting climate change through legislation, regulations, planning, policy-making, education, and a variety of programs.

Federal

Energy Policies and Programs

On the federal level, the U.S. Department of Transportation, U.S. Department of Energy, and U.S. Environmental Protection Agency (EPA) are three agencies with substantial influence over energy policies and programs. Generally, federal agencies influence transportation energy

consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding for transportation infrastructure projects. In addition, the Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines as well as licensing hydropower projects. Licensing of hydroelectric facilities under the authority of FERC includes input from State and Federal energy and power generation, environmental protection, fish and wildlife, and water quality agencies. The California Energy Commission's Systems Assessment and Facilities Siting Division coordinates with FERC to ensure that needed energy facilities are authorized in an expeditious, safe, and environmentally acceptable manner.

The National Energy Policy, developed in May 2001, proposes recommendations on energy use and on the repair and expansion of the nation's energy infrastructure. The policy is based on the finding that growth in U.S. energy consumption is outpacing the current rate of production. Based on this policy document, during the years 2000 to 2020, the growth in the consumption of oil is predicted to increase by 33%, natural gas by over 50%, and electricity by 45%. While federal policy promotes further improvements in energy use through conservation, it focuses on increased development of domestic oil, gas, and coal and the use of hydroelectric and nuclear power resources. To address the over-reliance on natural gas for new electric power plants, the federal policy proposes research in clean coal technology and expanding the generation of energy to include energy derived from landfill gas, wind, and biomass sources.

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

The U.S. Supreme Court held that the United States Environmental Protection Agency (U.S. EPA) must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency* et al., 12 states and cities, including California, together with several environmental organizations, sued to require the U.S. EPA to regulate GHGs as pollutants under the Clean Air Act (CAA) (127 S. Ct. 1438 (2007)). The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and the U.S. EPA had the authority to regulate GHGs.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** The current and projected concentrations of the six key GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the U.S. EPA to develop “...mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy....” The Reporting Rule will apply to most entities that emit 25,000 metric tons of CO₂e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the U.S. EPA to verify annual GHG emissions reports.

State of California

California Energy Commission

The California Energy Commission (CEC) is California’s primary energy policy and planning agency. Created by the California Legislature in 1974, the CEC has five major responsibilities: 1) forecasting future energy needs and keeping historical energy data; 2) licensing thermal power plants 50 MW or larger; 3) promoting energy efficiency through appliance and building standards; 4) developing energy technologies and supporting renewable energy; and 5) planning for and directing State response to energy emergencies. Under the requirements of the California Public Resources Code, the CEC in conjunction with the California Department of Conservation (DOC) Division of Oil, Gas, and Geothermal Resources is required to assess electricity and natural gas resources on an annual basis or as necessary.

The State of California regulates energy consumption under Title 24 of the California Code of Regulations. The Title 24 Building Energy Efficiency Standards were developed by the CEC and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and non-residential buildings. The CEC updates these standards periodically.

California Public Utilities Commission

The California Public Utilities Commissions (CPUC) is a State agency created by a constitutional amendment to regulate privately-owned utilities providing telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation services, and in-State moving companies. The CPUC is responsible for assuring that California utility customers have safe, reliable utility services at reasonable rates, while protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities; and local distribution pipelines of natural gas.

Independent System Operator

The Independent System Operator (ISO), whose governing board is appointed by the Governor, manages most of California’s transmission system. The ISO’s primary function is to balance electricity supply with demand and maintain adequate reserves to meet the needs of California

homes and businesses. FERC regulates the ISO. The California Electricity Oversight Board monitors and reports on the activities of the ISO.

California Environmental Quality Act and Climate Change

CEQA requires lead agencies to consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to: raise sea levels, affect rainfall and snowfall, and affect habitat.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed AB 1493, which required the Air Resources Board (ARB) to develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state.”

To meet the requirements of AB 1493, the ARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California’s existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating of less than 10,000 pounds and which is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37% lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a gross vehicle weight of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24% between 2009 and 2016.

Because the Pavley standards (named for the bill’s author, state Senator Fran Pavley) would impose stricter standards than those under the federal CAA, California applied to the U.S. EPA for a waiver under the federal CAA; this waiver was denied in 2008. In 2009, however, the U.S. EPA granted the waiver.

Executive Order S-3-05

In 2005, in recognition of California’s vulnerability to the effects of climate change, former Governor Arnold Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide GHG emissions would be progressively reduced. The goals and target dates of the executive order are as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80% below 1990 levels.

Assembly Bill 32 and the California Climate Change Scoping Plan

Assembly Bill 32 Requirements

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires the ARB to design and implement feasible and cost-effective emissions limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. The ARB has identified a GHG reduction target of 15 percent from current levels for local governments (municipal and community-wide) and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

Scoping Plan Provisions

Pursuant to AB 32, the ARB adopted a *Climate Change Scoping Plan* in December 2008 (re-approved by the ARB on August 24, 2011 [ARB, 2008]) outlining measures to meet the 2020 GHG reduction goals. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures that are worth studying further, and that the State of California may implement, such as new fuel regulations. The *Climate Change Scoping Plan Update* (ARB, 2014) details progress towards meeting the 2020 reduction goal since the adoption of AB 32, as well as the GHG reduction framework to meet the 80 percent below 1990 levels by 2050. The primary focus areas identified in the *Climate Change Scoping Plan Update* to meet the long-term reduction goal are associated with energy, transportation, agriculture, water, waste management, natural and working lands, short-lived climate pollutants, green buildings, and cap-and-trade.

Cap-and-Trade Program

The Scoping Plan identified cap-and-trade as a key strategy for helping California reduce its GHG emissions (ARB, 2008). A cap-and-trade program sets the total amount of GHG emissions allowable for facilities under the cap and allows covered sources, including producers and consumers of energy, to determine the least expensive strategies to comply. AB 32 required the ARB to adopt the cap-and-trade regulation by January 1, 2011, and the program itself began in November 2012.

Carbon offset credits are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve the reduction of emissions from activities not otherwise regulated, covered under an emissions cap, or resulting from government incentives. Offsets are verified reductions of emissions whose ownership can be transferred to others. As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional. In January 2014, California connected its cap-and-trade program with that of Quebec, which increased the options

for emission reductions and represents a step forward in California's efforts to collaborate with global partners to reduce GHGs (ARB, 2014)

Executive Order S-1-07

Executive Order S-1-07, signed by then-Governor Arnold Schwarzenegger in 2007, proclaimed that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. The order established a goal of reducing the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020. It also directed the ARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

Senate Bills 1078 and 107 and Executive Orders S-14-08 and S-21-09

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the ARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33-percent-by-2020 goal was codified in April 2011 with Senate Bill X1-2, which was signed by Governor Edmund G. Brown, Jr. This new Renewable Portfolio Standard preempts the ARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new Renewable Portfolio Standard goals of 20 percent of retail sales from renewables by the end of 2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the CPUC to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The CEC was also required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Senate Bill 375

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate a "sustainable communities strategy" (SCS) that will achieve GHG emission reduction targets set by the ARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. SB 375 would be implemented over the next several years.

The San Joaquin County Council of Governments adopted the Final Draft 2014-2040 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) on June 26, 2014. The RTP/SCS is a region-specific, multimodal plan that meets SB 375 and that can be implemented through existing, as well as planned, programs and policies. GHG goals identified in the RTP/SCS include reductions of 23.9 percent below the 2005 baseline, by 2020.

Green Building Standards Code

In January 2010, the State of California adopted the California Green Building Standards Code (CALGreen) per CCR Title 24, Part 11, which establishes mandatory green building standards for all buildings in California. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. These standards include a mandatory set of minimum guidelines, as well as more rigorous voluntary measures, for new construction projects to achieve specific green building performance levels. This Code went into effect as part of local jurisdictions' building codes on January 1, 2011.

Local

San Joaquin Valley Air Pollution Control District (SJVAPCD)

The SJVAPCD published the *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (SJVAPCD, 2009) in December 2009. This *District Policy* applies to projects for which the District has discretionary approval authority over the project and serves as lead agency for CEQA purposes. The *District Policy* establishes an approach to streamline the determination of project GHG emissions significance through the incorporation of Best Performance Standards (BPS). According to the SJVAPCD, BPS are defined as the most effective means of reducing or limiting GHG emissions from a GHG emissions source. According to the SJVAPCD, projects implementing BPS would be determined to have a less than significant individual and cumulative impact on global climate change and would not require GHG quantification. Projects exempt from the requirements of CEQA, and projects complying with an approved GHG emission reduction plan or mitigation program would also be determined to have a less than significant individual and cumulative impact on global climate change and would not require project specific quantification of GHG

emissions (SJVAPCD, 2009). Quantification of project specific GHG emissions would be required for projects not implementing BPS. Such projects must be determined to have reduced or mitigated operational GHG emissions by 29 percent from BAU, consistent with GHG reduction targets established in AB 32, in order to be considered to have a less than significant individual and cumulative impact for GHGs.

The district has also published *Air Quality Guidelines for General Plans* (SJVAPCD, 2005), which provides guidance to local officials and staff on developing and implementing local policies and programs to be included in local jurisdictions' general plans. The recommendations of this document are general and are not in conflict with the 2035 General Plan policies described below.

County GHG Reduction Strategies

The following county GHG reduction strategies have been described and incorporated in the Gap Analysis of the 2035 General Plan:

Energy Strategy 1: Renewable Energy/PACE Program. The County shall develop and implement an incentive program to encourage the installation of solar hot water heaters and solar PV on existing and new developments. The County shall establish a Property Assessed Clean Energy (PACE) (AB 811) program and for residential and commercial energy efficiency retrofit projects.

Energy Strategy 2: Participation in PG&E Renewable Energy. The County shall participate in PG&E's Renewable Energy programs.

Transportation Strategy 1: Complete Streets. The County shall encourage the development of complete streets.

Waste Strategy 1: Diversion, Recycling, and Reuse. The County shall achieve a 75% diversion of landfilled waste by 2020, and shall achieve a diversion rate of 90% by 2035.

Water and Wastewater Strategy 1: Water Conservation. The County shall achieve a 20% reduction in water and wastewater by 2020.

Agriculture Strategy 1: Agricultural Equipment and Emissions. The County shall implement the following measures pertaining to agricultural equipment and emissions reductions:

- Support SJVAPCD programs to fund equipment upgrades, retrofits, and replacement through the Carl Moyer heavy-duty vehicle and equipment program or other funding mechanisms (e.g., Rule 9510).
- Work with SJVAPCD and stakeholders to identify practical and feasible options for fuel-efficient agricultural equipment.
- Work with agricultural organizations and stakeholders to provide workshops and presentations and outreach materials focused on promoting fuel efficient farm equipment and operations and encourage participation in the Carl Moyer incentive program.

Agriculture Strategy 2: Agricultural Fertilizer Application. The County shall work with agricultural organizations and stakeholders to implement best practices and create an outreach program to inform farmers about ways to reduce fertilizer application with minimal to no effects on crop yield.

Agriculture Strategy 3: Agriculture Burning. The County shall work with agricultural organizations and stakeholders to implement best practices to reduce agricultural burning (and create an outreach program to inform farmers).

Agriculture Strategy 4: Agricultural Energy Use. The County shall work with agricultural organizations, irrigation districts, and stakeholders to develop an outreach and incentives program (e.g., rebate opportunities, waive permit fees, registration amnesty program) to encourage farmers to improve the efficiency of irrigation pumps.

Agriculture Strategy 5: Manure Management. The County shall encourage sustainable manure management practices.

P.4 Impacts and Mitigation Measures

Significance Criteria

The significance criteria for this analysis were developed from criteria presented in Appendix F (for Energy) and Appendix G (for Sustainability), of the CEQA *Guidelines* and based on the professional judgment of San Joaquin County and its consultants. The proposed 2035 General Plan would result in a significant impact if it would:

- Result in inefficient, wasteful and unnecessary consumption of energy by residential, commercial, industrial, or public uses associated with increased demand due to anticipated development in the county;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, with consideration of the following:
 - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
 - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; for this EIR, the threshold is that GHG emissions are reduced 15 percent below existing (2007) total emissions by 2020.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

Relevant Policies

The following relevant policies and implementing actions of the 2035 General Plan address energy, sustainably, and GHGs.

LU-2.2: Sustainable Building Practices. The County shall promote and, where appropriate, require sustainable building practices that incorporate a “whole system”

approach to designing and constructing buildings that consume less energy, water and other resources, facilitate natural ventilation, use daylight effectively, and are healthy, safe, comfortable, and durable. (RDR) (Source: New Policy)

LU-2.4: Green Building Retrofit. The County shall encourage the retrofitting of existing structures with green building technologies/practices and encourage structures being renovated to be built to a green building standard (e.g., Leadership in Energy and Environmental Design (LEED)). (RDR) (Source: New Policy)

ED-2.4: Green Economy. The County shall encourage the development and expansion of industries and businesses that rely on environmentally-sustainable products and services, such as renewable energy, green building, clean transportation, water conservation, waste management and recycling, and sustainable land management. (PSP) (Source: New Policy)

ED-4.10: Carbon Offsets. The County shall support programs and projects that would help farmers and agricultural-processing facilities provide carbon offsets, if and when new regulations require industries to provide carbon offsets. (PSP) (Source: New Policy)

TM-1.7: Energy Conservation. The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions. (RDR/PSP) (Source: Existing GP, Transportation, Transportation System, Policy 7, Existing GP, Transportation, Transportation System, Implementation 4, modified)

TM-1.13: Smart Growth. The County shall encourage “smart growth” and sustainable planning principles, where appropriate, including the development of high density and commercial development near inter-modal transit facilities. (RDR/PSP) (Source: Existing GP, Transportation, LU Coordination, Policy 4, modified)

TM-9.1: Facilities for Emerging Technologies. The County shall support the development of alternative fueling stations (e.g., electric and hydrogen) for emerging technologies. (RDR/PSP) (Source: New Policy)

PFS-1.6: Efficient Infrastructure and Facilities. When performing maintenance, upgrading, or expanding infrastructure and facilities, the County shall use technologies that improve energy efficiency and conserve water, when feasible. (RDR/PSP) (Source: New Policy)

PFS-3.1: Efficient Operations. The County shall maintain County facility and operation standards in a manner that meets community needs, conserves resources, and reduces the County’s contribution to greenhouse gas emissions. (SO) (Source: New Policy)

PFS-3.2: Sustainable Plans and Operations. The County shall integrate sustainability concepts, greenhouse gas reduction strategies, and climate change resiliency planning into County facility and service plans and operations. (PSP/SO) (Source: New Policy)

PFS-3.3: Energy Efficiency Retrofits. The County shall increase energy efficiency in older County buildings through energy efficiency and retrofits, renewable energy generation, and water conservation retrofits. (SO) (Source: New Policy)

PFS-3.4: New Energy Efficient Buildings. When building new facilities, the County shall achieve a high standard (e.g., equivalent to LEED® certification) of energy efficiency and water conservation and employ renewable energy technologies. (SO) (Source: New Policy)

PFS-3.5: New Fleet and Equipment Purchases. The County shall purchase lower-emission and/or electric vehicles and energy efficient equipment when purchasing new fleet vehicles and maintenance/construction equipment. (SO) (Source: New Policy)

PFS-3.6: Clean Energy and Fuel Sources. The County shall use available clean energy and fuel sources where feasible to operate its buildings, vehicles, and maintenance/construction equipment. (SO) (Source: New Policy)

PFS-3.7: County Employee Actions. The County shall encourage its employees to reduce vehicle idling, reduce trips, establish efficient routing, and use public transportation, carpooling, and alternate modes of transportation when available to reduce energy consumption and costs. (SO) (Source: New Policy)

PFS-3.8: Purchasing Preferences. The County shall use Environmentally Preferable Purchasing (EPP), where feasible, when carrying out operations and activities, including giving preference to products that reduce or eliminate indirect greenhouse gas emissions and promote recycling. (SO) (Source: New Policy)

PFS-3.9: Contractor Preference. The County shall encourage contractors to use reduced emission equipment for County construction projects and contracts for services, as well as businesses which practice sustainable operations. (SO) (Source: New Policy)

PFS-3.10: County Recycling. The County shall expand opportunities for recycling at all County facilities, increase recycling and waste diversion by County employees, and use recycled materials and products where economically feasible. (SO) (Source: New Policy)

PHS-5.13: Energy Consumption Reduction. The County shall encourage new development to incorporate green building practices and reduce air quality impacts from energy consumption. (RDR) (Source: New Policy, SJVAPCD, Air Quality Guidelines for General Plans; Vision and Guiding Principles)

PHS-6.1: Municipal GHG Reduction Targets. The County shall reduce GHG emissions from County facilities and activities by 15 percent below 2007 levels by 2020, and shall strive to reduce GHG emissions 40 percent and 80 percent below reduced 2020 levels by 2035 and 2050, respectively. (SO) (Source: New Policy)

PHS-6.2: Community GHG Reduction Targets. The County shall reduce community greenhouse gas emissions by 15 percent below 2005 levels by 2020, and shall strive to reduce GHG emissions by 40 percent and 80 percent below reduced 2020 levels by 2035 and 2050, respectively. (RDR/PSP) (Source: New Policy, Consultants; Address AB 32 and EO A-3-05 requirements; Vision and Guiding Principles)

PHS-6.3: GHG Reduction Strategies. The County shall promote greenhouse gas emission reductions by encouraging efficient farming methods (e.g., no-till farming, crop rotation, cover cropping); supporting the installation of renewable energy technologies; and protecting grasslands, open space, oak woodlands, riparian forest and farmlands from conversion to urban uses. (PSP) (New Policy)

PHS-6.4: Methane Digesters. The County shall encourage large dairies to capture methane through use of manure digester systems to generate an alternative source of energy, reduce greenhouse gas emissions, and serve as a source of profit for agricultural operations. (PSP) (Source: New Policy)

PHS-6.6: Business-related GHG Reduction Strategies. The County shall encourage all businesses to help reduce GHG emissions by: replacing high mileage fleet vehicles with more

efficient and/or alternative fuel vehicles; increasing the energy efficiency of facilities; transitioning toward the use of renewable energy instead of non-renewable energy sources; adopting purchasing practices that promote emissions reductions and reusable materials; and increasing recycling. (RDR/PSP) (Source: New Policy, AB 32 requirement)

PHS-6.7: New Development. The County shall require new development to incorporate all feasible mitigation measures to reduce construction and operational GHG emissions. (RDR) (Source: New Policy, Consultants: Issues and Opportunities Report)

PHS-6.9: Public Awareness. The County shall support public awareness about climate change and encourage County residents and businesses to become involved in activities and lifestyle changes that will aid in reduction of greenhouse gas emissions through alternative energy use, energy and water conservation, waste reduction and recycling, and other sustainable practices. (PSP) (Source: New Policy, AB 32 requirement; Vision and Guiding Principles)

NCR-5.2: Alternative Energy. The County shall encourage residents, businesses, and energy providers to develop and use alternative, renewable energy sources, including but not limited to biomass, solar, wind, and geothermal. (RDR/PSP) (Source: Existing GP, Energy, Objective 2, modified)

NCR-5.10: Energy Conservation in Existing Residential Structures. The County shall encourage energy conservation measures, such as insulation and weather-stripping, in existing residential structures. (RDR) (Source: Existing GP, Energy, Site and Building Design, Policy 8)

NCR-5.11: Green Building Practices. The County shall encourage green building practices in new construction. (RDR) (Source: New Policy)

NCR-5.12: Energy Efficient Industry. The County shall support energy efficiency of industrial processes. (PSP) (Source: Existing GP, Energy, Site and Building Design, Policy 9)

NCR-5.15: Permitting Oil and Natural Gas Resources. The County shall permit the development of its oil and natural gas resources, consistent with State requirements, provided that such development ensures adequate environmental, public health, and safety protection, and is compatible with the current and projected uses of the land. (RDR) (Source: Existing GP, Extractive Resources, Policy 3, modified)

Relevant Implementation Programs

The following implementation programs of the proposed 2035 General Plan specifically addresses climate change and energy.

IS-B: Climate Change Impacts Monitoring. The County shall monitor and prepare regular reports on expected impacts on public facilities and services due to the results of climate change. Based on findings from these reports, the County shall make necessary updates to facility and services plans and operations to help the county adapt to the anticipated effects of climate change. (Source: New Program)

IS-C: Sustainability Master Plan. The County shall prepare and adopt a Sustainability Master Plan that guides County efforts to incorporate sustainability strategies (e.g., energy efficiency, water conservation, waste reduction/recycling, purchasing preferences) into its facilities, operations, and activities. (PSP/SO) (Source: New Program)

IS-I: Waste-to-Energy. The County shall prepare a study on the feasibility of developing a waste-to-energy facility, including a methane gas recovery operation. Based on findings from the study, the County shall make recommendations to the Board of Supervisors for follow-up implementation. (PSR) (Source: Existing GP, Infrastructure, Solid Waste, Implementation 4, modified)

PHS-E: Climate Change Monitoring and Adaptation. The County shall develop and implement a program to monitor the impacts of climate change and uses adaptive management to develop new strategies and modify existing strategies to respond to the impacts of climate change. (PSP/PSR) (Source: New Policy,)

PHS-F: Climate Change Information Program. The County shall prepare brochures and fliers, and provide information on its website to inform citizens of the potential impacts of climate change and how they can prepare for those impacts. Specifically, the promotional materials shall include information on the impacts of heat on human health. (Source: Existing GP, Emergency Preparedness, Implementation 2)

PHS-O: Monitor GHG Emissions. The County shall monitor GHG emissions a minimum of every five years and verify results of meeting the GHG emission reduction targets and goals. (PSR) (Source: New Program)

NCR-H: Renewable Energy/Pace Program. The County shall develop and implement an incentive program to encourage the installation of solar hot water heaters and solar PV on existing and new developments. The County shall establish a Property Assessed Clean Energy (PACE) (AB 811) program and for residential and commercial energy efficiency retrofit projects. (PSP) (Source: New Program)

NCR-I: Remove Barriers to Renewable Energy. The County shall review and revise, as necessary, building and development codes and the Development Title and remove or otherwise address barriers to renewable energy production. (RDR) (Source: New Program)

NCR-J: Solar Energy Ordinance. The County shall develop, adopt, and implement an ordinance that guides the construction, installation, operation, and decommissioning of solar energy facilities. The ordinance shall describe where solar energy facilities are permitted within the County and the approval process. The ordinance shall provide for the protection of agricultural and biological resources. (RDR) (Source: New Program)

NCR-K: Review of Energy Consumption of County Operations. The County shall annually review and report on County energy consumption performance and identify programs and techniques to increase its energy efficiency. (PSR) (Source: Existing GP, Energy, Implementation 5, modified)

NCR-L: Government Automobiles. As vehicles come up for replacement, the County shall evaluate the feasibility of replacing them with hybrids, alternative fuel, or smaller and more energy-efficient vehicles. (SO) (Source: Existing GP, Energy, Implementation 6, modified)

NCR-M: Industrial Design Standards. The County shall establish standards to incorporate design features that use renewable energy sources in commercial, industrial, and agricultural uses. These standards may include orientation of structures for solar energy use, orientation or provision of adequate structural support for solar collectors, or use of cogeneration facilities. (RDR) (Source: Existing GP, Energy, Implementation 4)

Approach to Analysis

Natural gas and electricity energy requirements associated with the buildout of the 2035 General Plan were quantified based on factors incorporated in the General Plan Background Report. In addition, transportation fuel usage was back-calculated based on the associated GHGs. In regards to the GHG impact analysis, projections of countywide GHGs and potential reductions for the years 2035 and 2050 are also summarized below. This analysis was detailed in the 2035 General Plan, and the methodology, results and reduction strategies are summarized below. Notably, GHG impacts are considered to be exclusively cumulative impacts as they are associated with global GHG emissions; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008).

Impact Analysis

2035 General Plan Impacts

Impact 4.P-1: Implementation of the proposed 2035 General Plan could result in the wasteful, inefficient or unnecessary consumption of energy by residential, commercial, or industrial uses associated with increased demand. (Less than Significant)

As described in the Project Description, about 2,200 acres of land now designated as “General Agriculture” and 635 acres of land now designated as “Open Space/Resource Conservation” may be converted to residential, commercial, or industrial use under the 2035 General Plan. The development of these new land uses under the 2035 General Plan would also contribute to the need for additional energy supplies (i.e., natural gas, electricity, and transportation fuels) and utility infrastructure. Future development subsequent to the 2035 General Plan would primarily occur in, adjacent to, or in the vicinity of existing developed urban areas. These land use patterns allow for the logical extension and utilization of existing utilities, and public services, and other amenities such as proximity to employment centers, commercial uses, and public transit. Such land use patterns reduce dependence on motor vehicles and allow for stronger public transportation systems and development of pedestrian and bicycle paths. Increased annual demand for natural gas (in therms), electricity (in kWh), transportation fuel (gasoline and diesel, in gallons), and agricultural diesel fuel (gallons) energy was estimated for the 2035 General Plan and is presented below in **Table 4.P-2**.

Implementation of policies, implementation programs, and reduction strategies in the 2035 General Plan would assist in minimization of energy consumption associated with development. Policies include incorporation of sustainable building practices (Policy LU-2.2); green building retrofits (Policy LU-2.4); reducing transportation fuel usage through a multi-modal system (TM-1.1); transportation energy conservation (TM-1.7); smart growth to reduce VMT (TM-1.13); development of fueling facilities for emerging technologies (TM-9.1); incorporation of efficient infrastructure and facilities (PFS-1.6); efficient County facility operations (Policy PFS-3.1); integration of sustainable plans and operations (Policy PFS-3.2); energy efficiency retrofits in older County buildings (Policy PFS-3.3); development of new energy efficient County buildings (Policy PFS-3.4); energy efficient vehicles for new County fleet and equipment purchases

**TABLE 4.P-2
SAN JOAQUIN COUNTY 2035 GENERAL PLAN INCREASED ANNUAL ENERGY DEMAND**

Sector	Year 2007	Year 2020	2020 Net Energy Demand (vs 2007)	Year 2035	2035 Net Energy Demand (vs 2007)
Natural Gas (therms)	52,404,139	60,413,029	8,008,890	71,186,550	18,782,411
Electricity (kWh)	1,384,906,533	1,596,560,890	211,654,358	1,881,277,322	496,370,790
Transportation Gasoline (gallons)	124,969,694	144,182,973	19,213,279	202,589,888	77,620,194
Transportation Diesel (gallons)	22,711,698	26,203,474	3,491,776	36,818,209	14,106,511
Agriculture Diesel (gallons)	19,901,118	19,901,118	0	19,901,118	0

Additional information regarding increased energy demand quantification is included in Appendix H Energy Demand.

(PFS-3.5); use of clean energy and fuels by the County (Policy PFS-3.6); encouragement for County employees to reduce vehicle trips (Policy PFS-3.7); incorporation of Environmental Preferable Purchasing (EPP) (Policy PFS-3.8); preference to contractors that use energy efficient equipment for County construction projects (Policy PFS-3.9); expansion of County recycling (Policy PFS-3.10); encouragement of energy consumption reduction strategies into new development (Policy PHS-5.13); promotion of GHG reduction strategies (Policy PHS-6.3); encouragement of large dairies to incorporate methane digesters for alternative and renewable energy (Policy PHS-6.4); business-related GHG reduction strategies (Policy PHS-6.6); incorporation of all feasible mitigation to reduce GHGs in new development (Policy PHS-6.7); promotion of GHG and energy use reduction through public awareness (Policy PHS-6.9); development of alternative energy sources (Policy NCR-5.2); encouragement of energy conservation in existing residential structures (Policy NCR-5.10); encouragement of green building practices in new construction (Policy NCR-5.11); and support of energy efficient industrial processes (Policy NCR-5.12). Implementation programs include preparation and adoption of a sustainability master plan (Program IS-C), development of a feasibility study and recommendations pertaining to waste-to-energy facilities (Program IS-I), removal of barriers to renewable energy production (Program NCR-I), development of a solar energy ordinance (Program NCR-J), review of energy consumption associated with County operations (Program NCR-K), evaluation of the replacement of County vehicles with more energy efficient models (Program NCR-L), and establishing of energy efficiency standards and design features in commercial, industrial, and agricultural uses (Program NCR-M). County GHG reduction strategies include development and participation in a renewable energy/PACE program (Energy Strategy 1), participation in PG&E renewable energy programs (Energy Strategy 2), support of SJVAPCD programs and encourage fuel efficient agricultural equipment (Agriculture Strategy 1), and encouragement for farmers to improve the efficiency of irrigation pumps (Agriculture Strategy 4). In addition, the County would ensure that future CEQA documentation be prepared for individual projects (with project-specific data), as needed, that would (if feasible) specifically mitigate any potential energy impacts to a less-than-significant level. This impact is considered less than significant because, notwithstanding the absolute increases in energy demand shown in Table 4.P-2, the proposed 2035 General Plan would

implement a number of policies designed to minimize wasteful, inefficient, or unnecessary consumption of energy. No mitigation is required.

Mitigation: None required.

Impact 4.P-2: Implementation of the proposed 2035 General Plan would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment or could conflict with the applicable plan, policy or regulation adopted for the purpose of reducing GHG. (Less than Significant)

As discussed in the Gap Analysis Appendix included in the 2035 General Plan, in order to be consistent with State statutes established by AB 32 and State objectives stated in Executive Order S-3-05, the County has established a GHG reduction target for 2020 and goals for 2035 and 2050. The 2020 target establishes a firm, near-term standard that must be met of 15 percent below 2007 (existing) levels by 2020, following guidance from the ARB (ARB, 2008). This reduction is deemed by ARB to be consistent with the statewide AB 32 goal of reducing emissions to 1990 levels. The goals for 2035 and 2050 establish the County's commitment to achieving long-term, ambitious GHG reductions of 80 percent below 1990 levels by 2050, with an interpolated reduction for 2035. Projections of countywide GHGs and potential reductions for the year 2035 are also summarized below.

The future-year forecasts depicted in **Table 4.P-3** below establish annual projections for future-year emissions under unmitigated conditions. In addition to the 2020 projection, the Gap Analysis includes a 2035 forecast to analyze the buildout potential of the 2035 General Plan.

As discussed in the Gap Analysis and presented in **Table 4.P-3** below, the County's 2020 emissions target is 2,594,196 MT CO₂e, equivalent to a 15 percent reduction from the existing (2007) emissions depicted in Table 4.P-1. This is a net annual reduction of 799,279 MT CO₂e. Several high-impact state-wide measures included in the AB 32 Scoping Plan target emissions from transportation and power generation, and will play a major role. The Low Carbon Fuel Standard (LCFS), the Pavley Bill for reducing passenger vehicle emissions (AB 1493), the Title 24 efficiency standards, and the Renewable Electricity Standard (RES) and Renewable Portfolio Standard (RPS) are expected to provide significant annual emissions reduction (about 699,603 MT CO₂e) benefits for the county.

In addition to the state-wide measures, the County GHG reduction strategies, which address energy, transportation, waste, water/wastewater, and agricultural sources of GHG emissions, are expected to reduce countywide emissions by 106,106 MT CO₂e per year by 2020 and would slightly exceed the 15 percent reduction target in combination with the legislative reductions described above. Thus, with implementation of the 2035 General Plan reduction strategies, the 2035 General Plan GHG impacts would be less than significant.

**TABLE 4.P-3
SAN JOAQUIN COUNTY 2035 GENERAL PLAN ANNUAL GHG EMISSIONS (CO₂E MT)**

Emission Sector	Subsector	Year 2020	Year 2035
Energy – Electricity	Residential	201,044	236,896
	Commercial	410,860	484,129
	Industrial	25,285	29,795
	Total Electricity GHGs	637,189	750,820
Energy – Natural Gas	Residential	101,676	119,808
	Commercial	209,751	247,156
	Industrial	9,998	11,781
	Total Natural Gas GHGs	321,425	378,745
Transportation	Total	1,558,620	2,189,999
Waste	Total	47,343	55,786
Wastewater	Total	3,210	3,782
Agriculture	Residue Burn	40,089	40,089
	Livestock	518,780	518,780
	Rice Cultivation	5,996	5,996
	Farming Equipment	172,837	172,837
	Ag Pumps	28,116	28,116
	Fertilizer	59,871	59,871
	Total Ag GHGs	825,689	825,689
Total Unincorporated San Joaquin County GHGs		3,393,475	4,204,821
Unincorporated County GHG Target/Goals		2,594,196	1,556,518

This table is from the Gap Analysis Appendix included in the 2035 General Plan.

Notably, as described in the Gap Analysis, the County is unable to achieve the more aggressive GHG emissions reduction goals beyond 2020 as established by Executive Order S-3-05. It has been acknowledged by the ARB that these long-term goals are currently unachievable due to existing conditions (e.g., low MPG vehicle fleet) and technological shortcomings (e.g. inefficient and costly solar). It is anticipated that with time, these shortcomings will be overcome through federal and state regulatory changes and technological advancements (Mintier Harnish, 2014).

Implementation of policies, programs, and reduction strategies in the 2035 General Plan would also assist in GHG reductions. GHG reduction policies include: incorporation of sustainable building practices (Policy LU-2.2); green building retrofits (Policy LU-2.4); supporting green economic ventures (Policy ED-2.5); supporting carbon offsets (Policy ED-4.10); reducing transportation fuel usage through a multi-modal system (TM-1.1); transportation energy conservation (TM-1.7); smart growth to reduce VMT (TM-1.13); development of fueling facilities for emerging technologies (TM-9.1); incorporation of efficient infrastructure and facilities (PFS-1.6); efficient County facility operations (Policy PFS-3.1); integration of sustainable plans and operations (Policy PFS-3.2); energy efficiency retrofits in older County buildings (Policy PFS-3.3); development of new energy efficient County buildings (Policy PFS-3.4); energy efficient vehicles for new County fleet and equipment purchases (PFS-3.5); use of clean energy and fuels by the County (Policy PFS-3.6); encouraging County employees to reduce

vehicle trips (Policy PFS-3.7); incorporating Environmental Preferable Purchasing (EPP) (Policy PFS-3.8); preference to contractors that use energy efficient equipment for County construction projects (Policy PFS-3.9); expansion of County recycling (Policy PFS-3.10); monitoring County energy efficiency projects (Policy PFS-3.11); encouraging energy consumption reduction strategies into new development (Policy PHS-5.14); establishing municipal (Policy PHS-6.1) and community GHG reduction targets (Policy PHS-6.2); promotion of GHG reduction strategies (Policy PHS-6.3); encouraging large dairies to incorporate methane digesters for alternative and renewable energy (Policy PHS-6.4); business-related GHG reduction strategies (Policy PHS-6.5); incorporation of all feasible mitigation to reduce GHGs in new development (Policy PHS-6.6); promoting GHG and energy use reduction through public awareness (Policy PHS-6.7); development of alternative energy sources (Policy NCR-5.2); encouraging energy conservation in existing residential structures (Policy NCR-5.10); encourage green building practices in new construction (Policy NCR-5.11); and supporting of energy efficient industrial processes (Policy NCR-5.12). Implementation programs include: climate change monitoring and reporting on expected impacts on public facilities (Program IS-B); preparation and adoption of a sustainability master plan (Program IS-C); development of a feasibility study and recommendations pertaining to waste-to-energy facilities (Program IS-I); development and implementation of a program to monitor and strategies to respond to climate change impacts (Program PHS-E); preparation of climate change information (Program PHS-F); monitoring GHG emissions (Program PHS-O); removal of barriers to renewable energy production (Program NCR-I); development of a solar energy ordinance (Program NCR-J); review of energy consumption associated with County operations (Program NCR-K); evaluate the replacement of County vehicles with more energy efficient models (Program NCR-L); and establishing of energy efficiency standards and design features in commercial, industrial, and agricultural uses (Program NCR-M). County GHG reduction strategies include: development and participation in a renewable energy/PACE program (Energy Strategy 1); participating in PG&E renewable energy programs (Energy Strategy 2); complete streets (Transportation Strategy 1); waste diversion, recycling, and reuse (Waste Strategy 1); water conservation (Water and Wastewater Strategy 1); support SJVAPCD programs that encourage fuel efficient agricultural equipment (Agriculture Strategy 1); encouragement and implementation of an outreach program to reduce fertilizer application (Agriculture Strategy 2); implementing best practices to reduce agricultural burning (Agriculture Strategy 3); encourage farmers to improve the efficiency of irrigation pumps (Agriculture Strategy 4); and manure management (Agriculture Strategy 5). In addition, the County would ensure that future CEQA documentation be prepared for individual projects (with project-specific data), as needed, that would (if technically possible) specifically mitigate any potential GHG impacts to a less-than-significant level. With implementation of the above 2035 General Plan policies and reduction strategies, the 2035 General Plan Update would achieve slightly more than a 15 percent reduction from existing (2007) levels by 2020 and would thus not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment, nor would the 2035 General Plan conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. This impact is considered less than significant. No mitigation is required.

Mitigation: None required.

Cumulative Impact

Impact 4.P-3: Implementation of the proposed 2035 General Plan, combined with other projects, could result in the wasteful, inefficient or unnecessary consumption of energy, or generate GHG emissions that have significant adverse cumulative impacts on the environment or conflict with the applicable plan, policy or regulation adopted for the purpose of reducing GHG. (Less than Significant)

The geographic context considered for the cumulative energy and GHG impacts includes the whole State of California, which when combined with the proposed 2035 General Plan, could result in cumulative energy and GHG impacts. Climate change impacts are inherently cumulative in nature, and are discussed above under Impact 4.P-2 (for discussion of cumulative nature of GHG/climate change impacts, see CEQA Guidelines Sections 15064(h)(3), 15126.4(c)(5), 15130(f), and 15183.5(b)(2); and CAPCOA 2008). The energy impacts discussed in Impact 4.P-1, which are closely tied to GHG impacts, are also cumulative in nature, as they consider past, present, and future demand. Therefore, separate “cumulative” impact statements are not provided, as the project analysis encompasses a cumulative scenario.

With implementation of the above mentioned policies regulations, and mitigation measures, implementation of the 2035 General Plan would result in less than significant energy and GHG impacts.

Additional effects would occur as a result of the Bay Delta Conservation Plan (BDCP), a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP Draft EIR/EIS considers the potential impacts of the Plan’s 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that GHG emissions would result from the construction, operations, and maintenance of water conveyance facilities of the proposed BDCP, and off road vehicles used during habitat restoration activities; however, these emissions would be mitigated to a net zero impact with the development and implementation of a GHG reduction program. In addition, the EIR/EIS proposes that the BDCP could have the positive community benefits of improved air quality through vehicle electrification and reduced energy bills through solar installations. The BDCP EIR/EIS determined that no significant impacts would occur from inefficient energy uses during the construction, operation, and maintenance of water conveyance facilities, or through habitat restoration activities.

Mitigation: None required.

P.5 References – Energy and Climate Change

California Air Pollution Control Officers Association (CAPCOA), *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, January 2008.

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- Mintier Harnish, 2009. *San Joaquin County General Plan Background Report: Public Review Draft*, July 2, 2009.
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- San Joaquin Council of Governments (SJCOC), 2014. *Draft Regional Transportation Plan/Sustainable Communities Strategy*, February 2014.
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- United Nations Framework Convention on Climate Change (UNFCCC), 2012. *Sum of Annex I and Annex II countries without counting Land-Use, Land-Use Change and Forestry (LULUCF)*, http://unfccc.int/ghg_emissions_data/predefined_queries/items/3814.php. (For countries for which 2004 data was unavailable, the most recent year was used.)
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- United States Environmental Protection Agency (U.S. EPA), 2008b. *Climate Change – Health and Environmental Effects*, <http://www.epa.gov/climatechange/effects/health.html#climate>.
- United States Environmental Protection Agency (U.S. EPA), 2011. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009; Executive Summary*, available online at <http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2011-Executive-Summary.pdf>.

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CHAPTER 5

Alternatives

The purpose of this chapter is to describe and evaluate a reasonable range of alternatives to the proposed project in order to inform the public and decision makers regarding the comparative merits of alternatives that might avoid or substantially lessen any of the project's significant environmental effects.

A. CEQA Requirements

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to the proposed project, or to the location of the proposed project, and evaluate the comparative merits of the alternatives (*CEQA Guidelines* Section 15126.6(a),(d)). The “range of alternatives” is governed by the “rule of reason,” which requires the EIR to set forth only those alternatives necessary to permit informed public participation and an informed and reasoned choice by the decision-making body (Section 15126.6(a),(f)).

The range of alternatives shall include alternatives that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant effects of the project (Section 15126.6(a)-(c)). CEQA generally defines “feasible” to mean an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors. In addition, the following may be taken into consideration when assessing the feasibility of alternatives: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and the ability of the proponent to attain site control (Section 15126.6(f)(1)). If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR (Section 15126.6(f)(2)(B)).

The description or evaluation of alternatives does not need to be exhaustive, and an EIR need not consider alternatives for which the effects cannot be reasonably determined and for which implementation is remote or speculative. An EIR need not describe or evaluate the environmental effects of alternatives in the same level of detail as the proposed project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed project (*CEQA Guidelines* Section 15126.6(d)).

The “No Project” alternative must be evaluated. This analysis shall discuss the existing conditions, as well as what could be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (Section 15126.6(e)(2)).

CEQA also requires that an environmentally superior alternative be selected from among the alternatives. The environmentally superior alternative is the alternative with the fewest or least severe adverse environmental impacts. When the “no project” alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives (Section 15126.6(e)(2)).

B. Project Objectives

As previously presented in Chapter 3, Project Description, the proposed 2035 General Plan is designed to achieve a specific set of objectives. The selection of alternatives was designed to create a range of action alternatives that would achieve most of the basic project objectives. The three alternatives evaluated in this EIR include: 1) No Project; 2) Blueprint Alternative; and 3) Mitigated Alternative. These are described in more detail below. **Table 5-1** itemizes each of the project objectives and determines whether each alternative evaluated may or may not meet the objectives.

**TABLE 5-1
COMPARISON OF ALTERNATIVES TO PROJECT OBJECTIVES**

Proposed Project Objective	No Project	Proposed 2035 General Plan	Blueprint Alternative	Mitigated Alternative
Preserve for future generations agricultural land and environmental resources, including the Delta, waterways, habitat areas, fish and wildlife, and other significant resources.	Yes	Yes	Partial, as much of the growth would occur outside County's jurisdiction	Yes
Maintain clear boundaries between cities and unincorporated communities and focus new, higher-density growth within incorporated cities and adjacent areas outside of cities with full urban services.	No; existing General Plan did not focus as much on growth within incorporated cities	Yes	Yes	Yes
Preserve and enhance the rural, small town character and agricultural heritage of unincorporated communities and areas, while promoting infill and ensuring a balanced mix of residential, commercial, and employment uses.	Yes	Yes	Partial; with large focus on development within cities, some of rural areas may have limited economic development opportunities	Yes
Ensure agriculture and agricultural-related industries remain one of the County's important economic sectors, while designating commercial and industrial areas suitable for the development of new industries.	Partial; this objective was not as clear with the adopted General Plan	Yes	Partial; with extensive infill development, there may be other types of industrial development that possibly result in less agricultural-related industries	Partial; reduces overall acreage for industrial uses
Plan agricultural land uses that support large-scale commodity farming, value-added agriculture, agri-tourism, and specialized farming practices and promote agricultural practices that support the farmer's ability to be productive, viable, and profitable.	Partial; this objective was not as clear with the adopted General Plan	Yes	Yes	Yes

TABLE 5-1 (Continued)
COMPARISON OF ALTERNATIVES TO PROJECT OBJECTIVES

Proposed Project Objective	No Project	Proposed 2035 General Plan	Blueprint Alternative	Mitigated Alternative
Create safe and efficient connections (e.g., auto, transit, bike, and pedestrian) between cities and unincorporated communities and promote regional transit connections (e.g., ACE Train) to reduce automobile trips.	No	Yes	Partial: more congested lane miles would occur with this alternative	Yes
Enhance goods movement infrastructure (i.e., truck routes, railways, shipping channels, and airports) efficiency to ensure goods movement facilities and terminals operate in a safe and effective manner, consistent with surrounding land uses.	Yes	Yes	Yes	Yes
Maintain infrastructure and services (e.g., water, sewer, drainage) to meet the needs of unincorporated communities and residents and businesses and ensure new development provides adequate infrastructure and services.	Yes	Yes	Yes	Yes
Enhance parks and recreational opportunities for all County residents and visitors and promote appropriate access to rivers and waterways throughout the County, while limiting impacts to property owners and agricultural operations.	Yes	Yes	Partial; with more infill development, there could be less opportunity for local park development	Yes
Encourage development patterns, transportation systems, "green" building practices, energy efficiency projects/practices (e.g., renewable energy generation, alternative energy use, water conservation, waste reduction and recycling), and other sustainable practices that reduce emissions and improve air quality.	No; this was not an objective at the time of the adopted General Plan	Yes	Yes	Yes
Minimize risks from major floods and fire hazards and ensure the continued maintenance and enhancement of flood control infrastructure (i.e., levees).	Partial; at the time of adoption of the existing General Plan, this was not as important an objective	Yes	Yes	Yes
Ensure an adequate supply of industrial and commercial land is designated for future development to allow the market to continue to expand in a manner that is compatible with agricultural production and existing uses.	Partial; fewer acres than proposed project shown for income-generating land uses	Yes	Partial; the land uses that are industrial and commercial would most likely be within city boundaries and would not produce revenue for the County	Partial; this alternative would eliminate about 600 acres of industrial land in the County's jurisdiction

C. Factors in the Selection and Rejection of Alternatives

The *CEQA Guidelines* provide that an EIR should briefly describe the rationale for selecting the alternatives to be discussed, identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination (*CEQA Guidelines* Section 15126.6(c)). The following factors were considered in identifying the reasonable range of alternatives analyzed in this EIR:

- the extent to which the alternative would accomplish most of the basic goals and objectives of the proposed project (shown in Chapter 3, Project Description);
- the extent to which the alternative would avoid or lessen any of the identified significant effects of the proposed project;
- the feasibility of the alternative, taking into account suitability, economic viability, availability of infrastructure, and consistency with other applicable plans and regulatory limitations;
- the appropriateness of the alternative in contributing to a "reasonable range" of alternatives necessary to permit a reasoned choice; and
- the requirement of the CEQA Guidelines to consider a "No Project" alternative and to identify an "environmentally superior" alternative in addition to the No Project Alternative (Section 15126.6(e)).

D. Alternatives Eliminated from Consideration

CEQA Guidelines Section 15126.6(c) requires an EIR to identify and briefly discuss any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process. In identifying alternatives, primary consideration was given to alternatives that would reduce significant impacts while still meeting most of the project objectives.

An alternative project location was determined to not be viable for continued evaluation and was eliminated from further consideration. Because the project is the update of the San Joaquin County General Plan, the entire County must be the subject of the EIR. Thus, alternatives must occur within the boundaries of the County.

During the General Plan process, a report was developed by the County's consultants entitled the *San Joaquin County General Plan Update Alternatives Report* (Minter Harnish, 2011). While three different alternatives were evaluated, it was determined that only one of these would be appropriate for the EIR as CEQA emphasizes that alternatives should reduce impacts identified for the proposed project. As stated in Section 15126.6(c) of the *CEQA Guidelines*: "The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects."

The two alternatives that were rejected from further consideration in this EIR were an alternative that distributed more population growth among the urban unincorporated communities of French Camp, Linden, Lockeford, Morada, Mountain House, Thornton, and Woodbridge than the proposed project. The other alternative focused new employment growth and some population growth in specific unincorporated locations along Interstate 5 (I-5) and State Route (SR) 99 (i.e., Thornton, New Jerusalem, Chrisman, and Vernalis). Under this last alternative, unincorporated employment growth would occur at key I-5 and SR 99 interchanges, including Flag City, the Stockton Airport, and between Manteca and Ripon. These two alternatives were rejected from further consideration in the EIR because they would have allowed development further from the city centers and would have resulted in associated transportation, air quality, and noise impacts. In addition, they would not have mitigated any of the significant impacts of the proposed project, and could have worsened some of the impacts such as removal of prime agricultural land, increased traffic, and associated air/noise impacts.

E. Description of Alternatives Selected for Analysis

According to the CEQA Guidelines, the range of alternatives required is governed by the “rule of reason” that requires the EIR to set forth only those feasible alternatives necessary to permit an informed and reasoned choice by the decision-making body and informed public participation. The following alternatives to the proposed project were selected to be addressed in this EIR:

- **No Project Alternative.** The No Project Alternative represents a continuation of the County’s existing 2010 General Plan (adopted in 1992), and the seven general plans of the incorporated cities within San Joaquin County (see CEQA Guidelines, Section 15126(e)(3)(A)).
- **Blueprint Alternative.** The Blueprint Alternative is an interpretation of the San Joaquin Council of Governments Blueprint. The Blueprint Alternative focuses growth in cities and assumes a more compact development pattern. Less development would occur within unincorporated areas of the County.
- **Mitigated Alternative.** The Mitigated Alternative would remove one large area proposed for land uses changes in the unincorporated County. This area is currently in the Primary Zone of the Delta where agricultural uses are encouraged to be retained. The proposed area that would not have a land use change is currently designated as General Agriculture (A/G) and includes 607.9 acres that were proposed to be changed to General Industrial (I/G) under the proposed project. The parcels border SR 4 at the southwest edge of the City of Stockton.

The following provides a general description of each alternative. **Table 5-2** shows a comparison of the alternatives in terms of overall population growth. As can be seen in Table 5-2, the No Project Alternative would ultimately have the same overall population growth in the County as the proposed 2035 General Plan. However, more growth would occur within the incorporated cities and their spheres of influence, and slightly less growth would occur in the unincorporated County areas. The same would occur under the Blueprint Alternative; however, with the Blueprint Alternative, a significant amount of the growth would occur within the incorporated cities rather than in the spheres of influence.

TABLE 5-2
COMPARISON OF NET NEW POPULATION GROWTH FOR ALTERNATIVES – 2010 TO 2035
(persons)¹

Location	No Project Alternative	Blueprint Alternative	Mitigated Alternative	Proposed 2035 General Plan
Unincorporated County				
Urban Communities	31,510	31,120	39,605	39,605
Rural Communities	245	240	1,315	1,315
Balance of Unincorporated County	6,380	1,580	2,280	2,280
<i>Subtotal²</i>	<i>38,135</i>	<i>32,940</i>	<i>43,200</i>	<i>43,200</i>
Cities and Spheres of Influence				
City limits	180,035	216,060	157,400	157,400
City Spheres of Influence	43,330	12,500	60,900	60,900
<i>Subtotal</i>	<i>223,365</i>	<i>228,560</i>	<i>218,300</i>	<i>218,300</i>
TOTAL COUNTY	261,500	261,500	261,500	261,500

¹ The growth projections have been modified to coincide with the growth projections for the County as shown in Chapter 3 of the EIR. Source: Mintier Harnish Associates 2009 and ESA 2014. The total population is shown as the same as the proposed project and the percentages within unincorporated and incorporated areas were adjusted, as needed.

² The subtotal of growth within the County does not include population growth within the cities' spheres of influence. While these areas are currently within the County's jurisdiction, it is assumed that over time, these areas would be annexed to the cities.

SOURCE: Mintier Harnish, 2014, email of table to A. Skewes-Cox dated April 28, 2014

With the Mitigated Alternative, the projected population would be the same as the proposed 2035 General Plan because the land use change at the southwest edge of Stockton would not happen (about 600 acres) but the retention in agricultural use would not impact overall population. This acreage is designated as Agriculture/General (A/G) and was proposed as part of the 2035 General Plan to be converted to General Industrial (I/G).

All of the alternatives, except the No Project Alternative, are assumed to have the same policy and implementation measure recommendations of the proposed 2035 General Plan. These policies and implementation measures would serve to reduce many impacts, as they do for the proposed 2035 General Plan.

E.1 The No Project Alternative

Section 15126.6(e) of the CEQA *Guidelines* requires that an EIR evaluate and analyze the environmental impacts of the “No Project” Alternative. When the project is the revision of an existing land use or regulatory plan or policy, the no project alternative will be the continuation of the existing plan or policy into the future. Therefore, the No Project Alternative analyzes the effects of continued implementation of the existing 2010 San Joaquin County General Plan (existing General Plan), which was adopted in 1992. Consequently, current development patterns would continue to occur in accordance with the existing General Plan, Zoning Ordinance, and established Growth Areas (i.e., prime opportunity areas, etc.).

The No Project Alternative is based on development trends described in the County's existing 2010 General Plan (adopted in 1992) and the seven adopted city general plans. The County's existing land use policies emphasize city-centered growth that uses city-provided urban services. The existing General Plan directs most unincorporated growth to urban communities and discourages growth in rural communities, except for minimal infill development. The existing General Plan also discourages growth in rural areas outside of designated communities since agriculture is the dominant land use in these areas. However, under the No Project Alternative and all the alternatives, the County would continue to allow homesite parcels in the agricultural areas of the County.

Since 1992, little unincorporated land in San Joaquin County has been developed, except for the community of Mountain House and some permitted homesite development (see **Figure 5-1**). Most of the development in the County has occurred in cities through annexation. Remaining unincorporated development capacity is estimated at about 35,910 dwelling units (or a population of 107,725 people) and 19.31 million square feet (or 37,520 employees) of industrial and commercial uses; however, much of this capacity is located adjacent to cities within the cities' Spheres of Influences (SOIs) and would likely develop within the cities through annexation. These numbers are for all of the County's unincorporated area but do not include the community of Mountain House which has its own Specific Plans directing new development. The Mountain House community has the potential for another 35,340 persons and about 4,330 new jobs at buildout.

Key features of the No Project Alternative include:

Community

- Activity focuses within and around city downtowns and suburban centers.
- Existing General Plan reinforces existing unincorporated community character and identity.
- Some amount of new development expands into agricultural and open space areas.

Housing

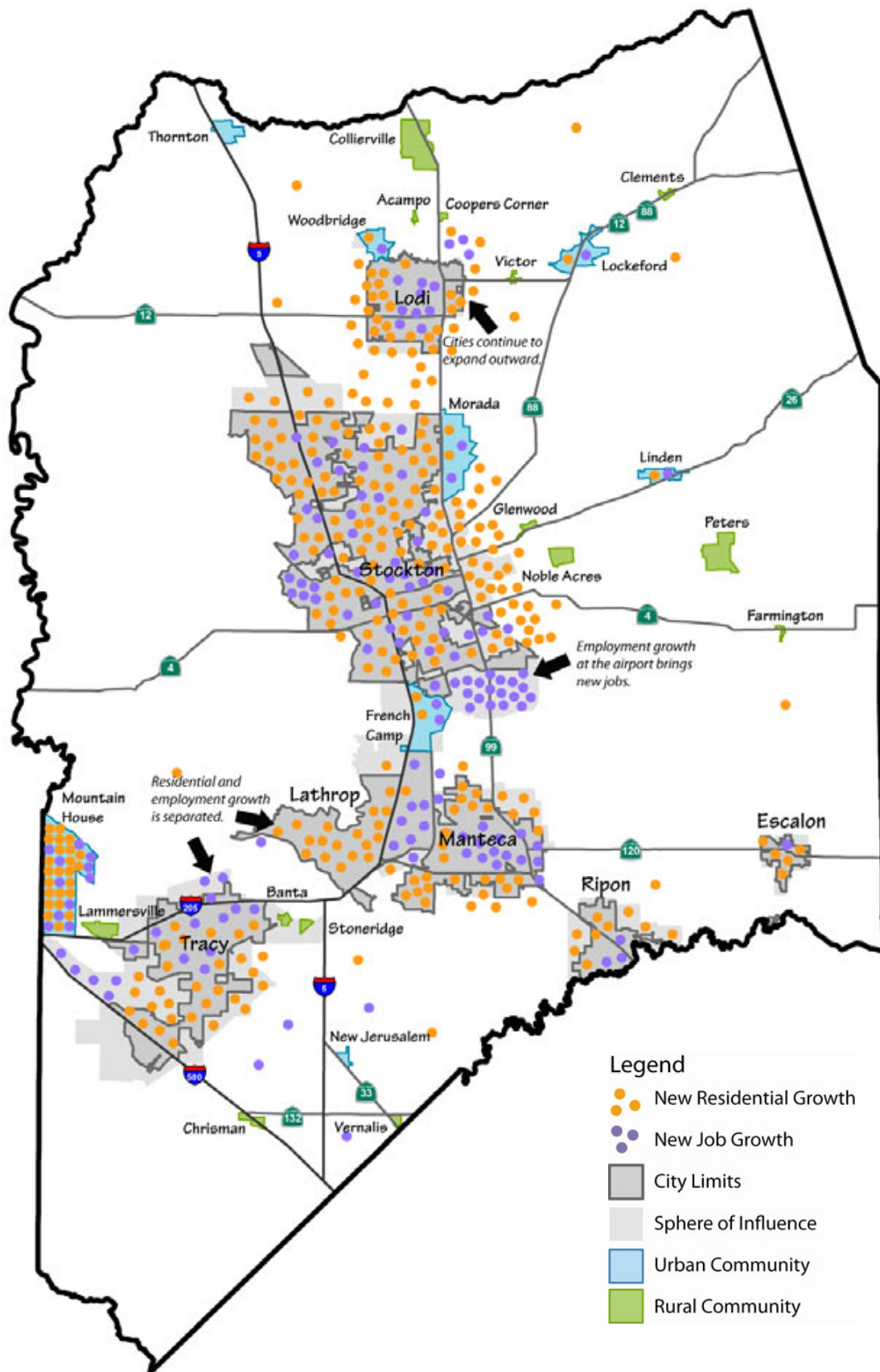
- Some new single-family homes are built in unincorporated communities.
- Greatly expands suburban residential subdivisions, including single-family homes and moderate-density apartments, around cities.

Jobs

- Most new jobs are located in retail, office, and industrial parks within and around cities.
- Provides limited employment growth in unincorporated areas.

Transportation

- People rely more on cars to get to most daily destinations, such that few options are available to travel by bike, foot, or transit.
- Greater emphasis is placed on funding roadway infrastructure than on alternative modes.



SOURCE: San Joaquin County General Plan Update

San Joaquin County 2035 General Plan . 209529

Figure 5-1
No Project Alternative/Base Case

E.2 Blueprint Alternative

The Blueprint Alternative is an interpretation of the San Joaquin Council of Governments (SJCOG) Blueprint.¹ The Blueprint Alternative increases densities and directs most population growth to the cities and the unincorporated community of Mountain House (**Figure 5-2**). Other unincorporated communities are expected to grow similar to the No Project Alternative. Population growth in remaining unincorporated areas (1,580 persons) would be significantly less than the No Project Alternative (6,380 persons) (see Table 5-2).

Residential growth under the Blueprint Alternative would be higher density, compact development and require less land than the No Project Alternative, proposed 2035 General Plan, or Mitigated Alternatives. In other words, under the Blueprint Alternative, cities would grow inward, rather than outward and multi-family housing would make up a larger proportion of new residential development. Under the No Project Alternative, about 79 percent of new development would be single-family and only 21 percent would be multi-family. Under the Blueprint Alternative, multi-family housing would make up about 32 percent of new residential development. This alternative would preserve the most farmland because more infill development would be provided for the projected population and employment growth.

The Blueprint Alternative directs more commercial and industrial growth to the cities, closer to where a majority of residents live and where there is adequate infrastructure and transit services. While most of the growth in the Blueprint Alternative is directed to cities, this alternative differs from the adopted city general plans because higher density areas would need to be provided than currently shown in the general plans. Fewer acres may also need to be annexed to the cities if higher density infill areas are provided. This alternative assumes that cities in San Joaquin County alter their existing land use plans to follow the principles of the SJCOG Blueprint. Since the County does not have jurisdiction within city boundaries and does not control decisions to annex land at the city fringes, the County's power to implement this alternative is limited.

Key features of the Blueprint Alternative include:

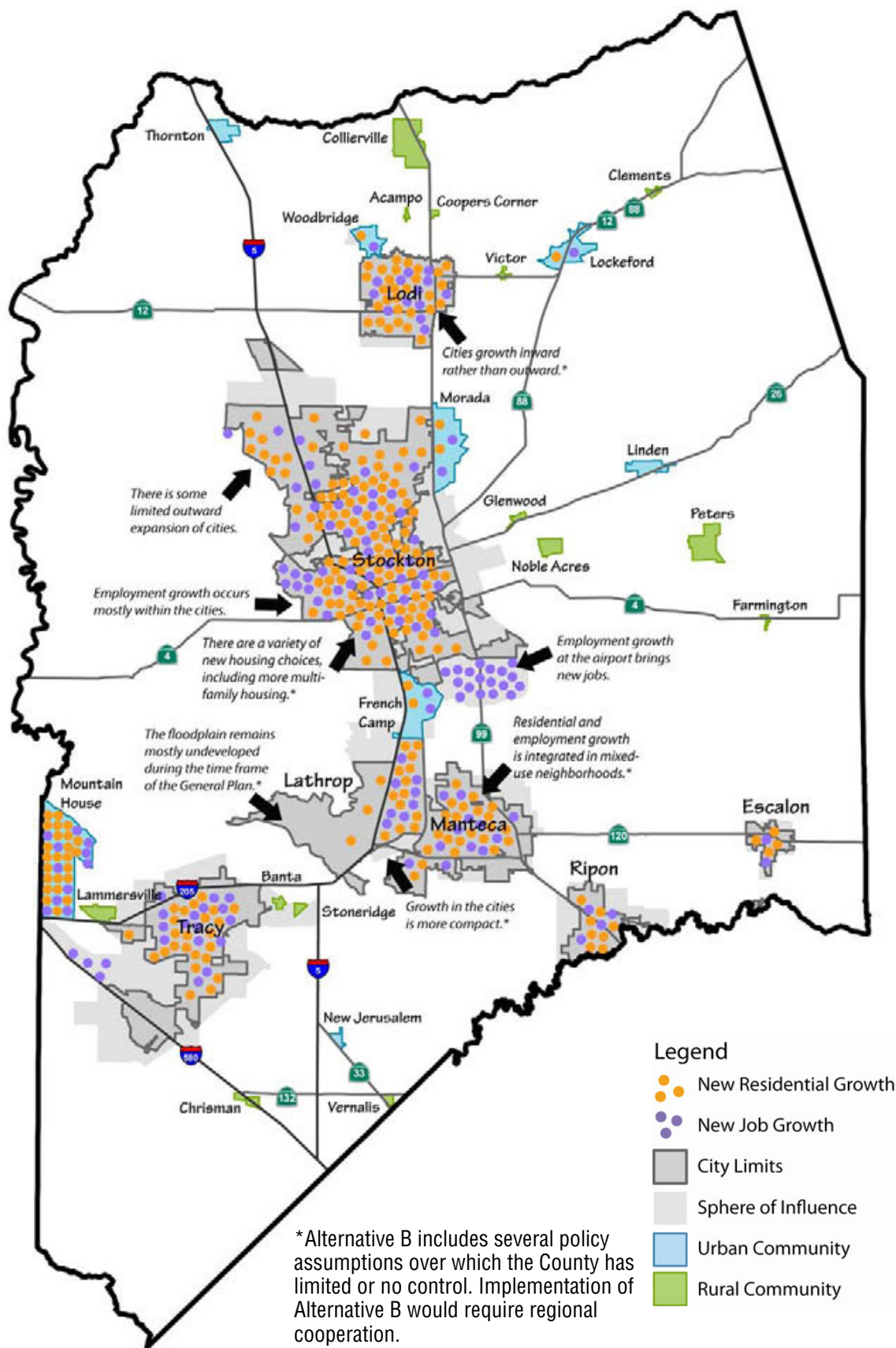
Community

- Activity focused on city downtowns and existing city neighborhood centers
- Employment and residential development integrated within cities
- Limited investment in unincorporated communities
- Agricultural and open space areas maintained

Housing

- Little new housing is built outside of cities
- New housing choices within cities include single-family homes, townhomes, and high-density condos and apartments

¹ San Joaquin Valley Blueprint, an effort launched in 2005 by the Regional Transportation Planning Agencies to provide a vision for urban growth in the eight Valley counties (San Joaquin County Council of Governments, 2014).



Jobs

- New jobs concentrated in city downtowns along major urban corridors
- Little employment growth occurs in unincorporated areas
- Retail and office employment expanded within cities

Transportation

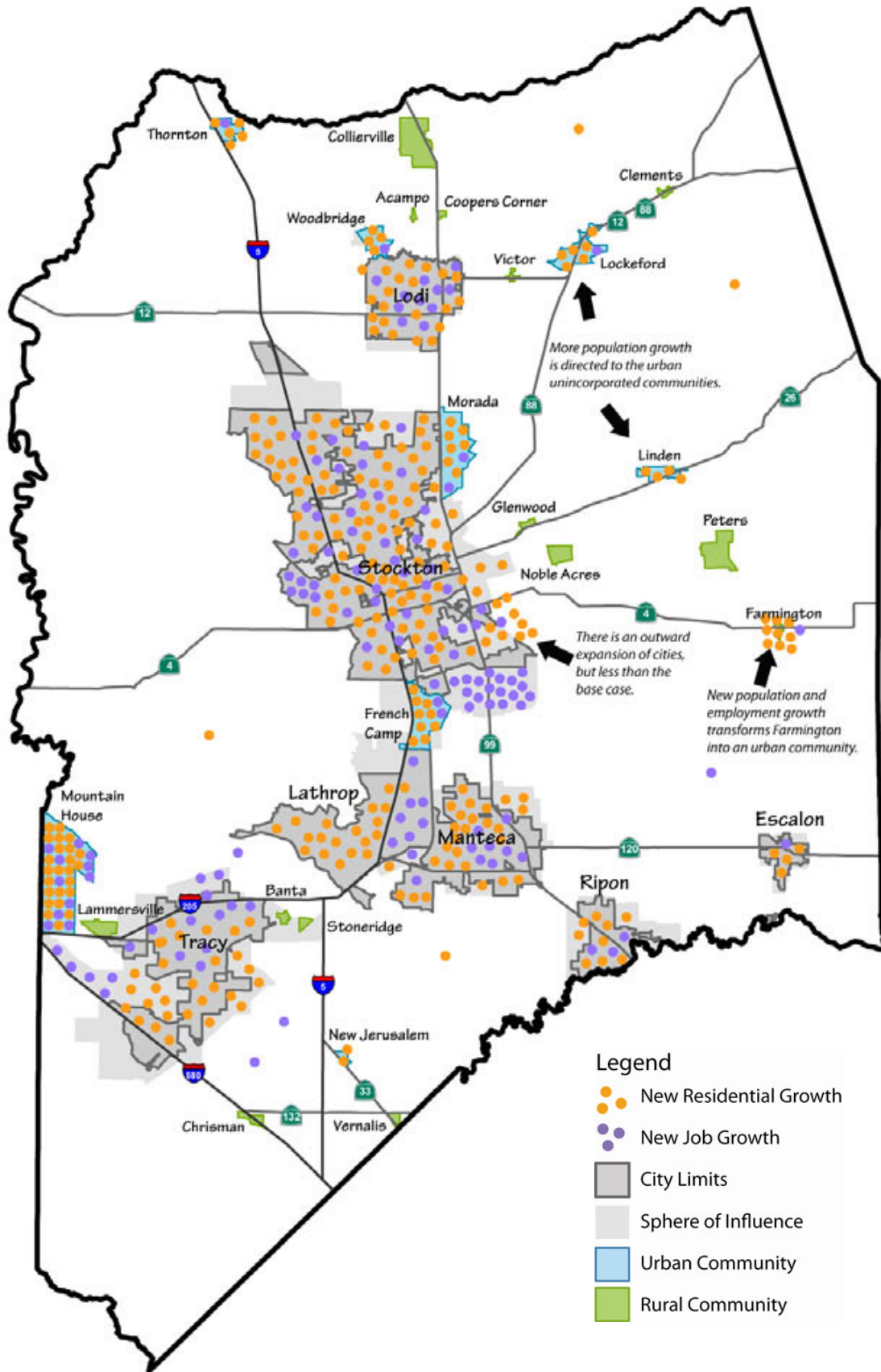
- More opportunities to utilize transit services are available resulting in the least amount of traffic congestion
- Greater reliance on auto travel in the unincorporated areas
- Less reliance on auto travel in the incorporated areas where expanded options to walk, bike, and take transit are available.
- Greater emphasis on funding public transit serving unincorporated area communities and maintaining the existing infrastructure versus adding new roadway capacity.

E.3 Mitigated Alternative

The Mitigated Alternative would focus new growth and development in the incorporated cities of the County and fewer land use changes would occur that would remove lands from existing Agricultural and Open Space/Conservation designations. The main change from the proposed 2035 General Plan would be the removal of the proposed land use changes in the unincorporated area at the southwest edge of Stockton that is within the Primary Zone of the Delta. Land use change areas for other unincorporated areas would remain as for the proposed 2035 General Plan. The proposed area that would not have a land use change is currently designated as General Agriculture (A/G) and includes 607.9 acres that were proposed to be changed to General Industrial (I/G) (see **Figure 5-3**). The removal of 600 acres of land proposed to be converted from agricultural use to General Industrial (I/G) at the southwest edge of Stockton (adjacent to SR 4) would eliminate the potential for about 1,050 jobs in this portion of the unincorporated County. Thus, the industrial jobs would end up being located elsewhere in the County or possibly within the incorporated areas of Stockton, Lathrop or other nearby city, or outside the County. Assuming that some of the new industrial development would occur elsewhere in the unincorporated portion of the County, and based on review of a map showing undeveloped I/G lands (see **Figure 5-4**), such lands are scattered throughout the County in the following locations: eastern edge of Thornton; eastern edge of Stockton; French Camp near I-5; and southern, western and eastern edges of Tracy.

F. Environmental Assessment

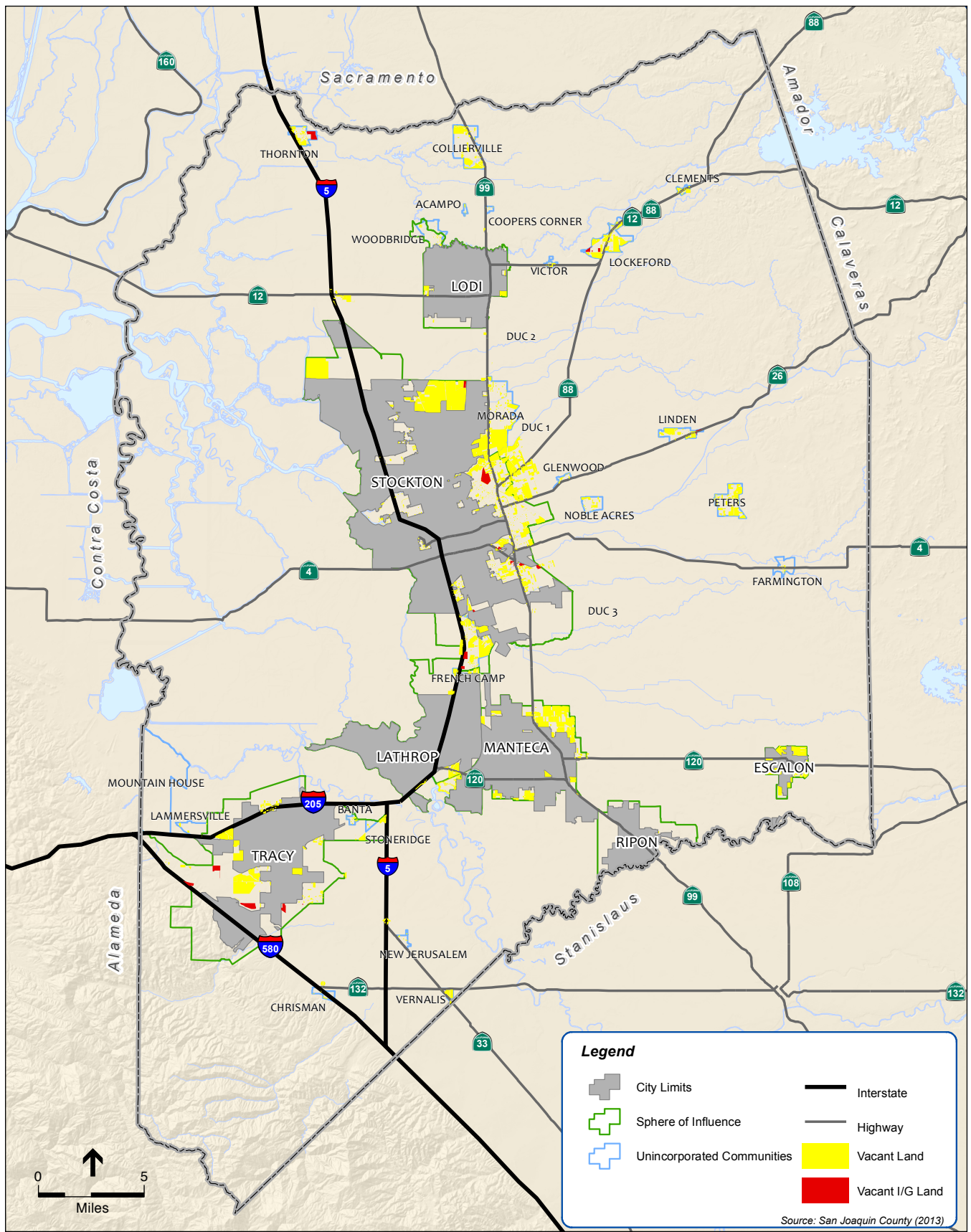
This section presents an environmental assessment of each alternative relative to the proposed project, by environmental topic. As permitted by CEQA, the significant environmental effects of the alternatives are discussed in less detail than are the effects of the proposed project (CEQA *Guidelines* Section 15126.6(d)). However, the analysis is conducted at a sufficient level of detail to provide the public and decision-makers with adequate information to fully evaluate the alternatives and to approve any of the alternatives without further environmental review.



SOURCE: San Joaquin County General Plan Update

San Joaquin County 2035 General Plan . 209529

Figure 5-3
Mitigated Alternative



SOURCE: San Joaquin County, 2013

San Joaquin County 2035 General Plan . 209529

Figure 5-4
Vacant General Industrial Lands

The proposed 2035 General Plan would result in significant environmental impacts, which are described in the previous sections of this document and summarized in Chapter 2. The impact discussion of each alternative below addresses each alternative's ability to avoid or reduce each of the significant impacts identified for the project. The following evaluation of the environmental impacts is summarized in **Table 5-3**.

**TABLE 5-3
IMPACT SUMMARY FOR EACH ALTERNATIVE FOR IMPACTS IDENTIFIED
FOR PROPOSED 2035 GENERAL PLAN**

Impact No. / Impact Statement	Proposed 2035 General Plan	No Project (Base Case)	Blueprint Alternative	Mitigated Alternative
Land Use Consistency and Compatibility				
The proposed project could divide the physical arrangement of an established community.	S	S=	S-	S=
The proposed project could conflict with other applicable adopted land use plans.	S	S-	S=	S-
Agricultural Resources				
Impacts to agricultural lands, conflicts with Williamson Act contract lands and cumulative impacts on agricultural lands would be significant and unavoidable.	SU	SU=	SU-	SU-
Population and Housing				
No significant impacts identified for proposed 2035 General Plan.				
Transportation and Circulation				
Proposed project would result in increased traffic volumes and decrease in LOS during peak hours that exceed both the RCMP and Caltrans LOS standards.	SU	SU+	SU-	SU=
Proposed project would result in increased daily traffic volumes on County roadways under future baseline conditions.	SU	SU+	SU+	SU+
Proposed project would contribute to cumulative significant transportation and circulation impacts.	SU	SU=	SU-	SU=
Cultural Resources				
Implementation of project could have significant impact on historical resources with the County, on both a project level and cumulative level.	SU	SU	SU	SU
Implementation of project could result in significant impacts on known unique archaeological resources, on project and cumulative basis.	S	S=	S-	S=
Implementation of project could result in significant impacts from the inadvertent discovery of unique archaeological resources.	S	S=	S-	S=
Implementation of project could result in discovery of unidentified unique paleontological resources, on project and cumulative basis.	S	S=	PS-	S=
Biological Resources				
No significant impacts identified for proposed 2035 General Plan.				

TABLE 5-3 (Continued)
IMPACT SUMMARY FOR EACH ALTERNATIVE FOR IMPACTS IDENTIFIED
FOR PROPOSED 2035 GENERAL PLAN

Impact No. / Impact Statement	Proposed 2035 General Plan	No Project (Base Case)	Blueprint Alternative	Mitigated Alternative
Air Quality				
Development facilitated by the Plan could result in violations of air quality standards due to construction activities.	S	S=	S=	S=
The proposed project's operational emissions could violate air quality standards or contribute substantially to an existing or projected air quality violation.	SU	SU=	SU+	SU+
Operation of the development under the proposed project could expose sensitive receptors to substantial concentrations of toxic air contaminants.	S	S=	S=	S=
Proposed project could conflict with or obstruct implementation of the applicable air quality plan.	SU	SU=	SU-	SU=
Project could contribute to cumulative criteria air pollutant air quality impacts.	SU	SU=	SU-	SU=
Noise				
Construction associated with the proposed project could expose persons to or generate noise levels in excess of the County standards.	S	S-	S=	S=
Development would place noise-sensitive residential uses in a noise environment that would exceed the County's standards for exterior/interior noise exposure.	S	S-	S+	S=
Geology, Soils and Seismicity				
In the event of a major earthquake, seismic ground shaking could injure people and cause collapse of or structural damage.	S	S-	S-	S-
In the event of a major earthquake, people and property could be exposed to seismically-induced ground failure, including liquefaction, lateral spreading, levee failure, and earthquake-induced settlement.	S	S-	S-	S-
Hydrology and Water Quality				
Development could place housing and other structures in an area subject to 100-year flooding.	S	S-	S-	SU=
Hazards and Hazardous Materials				
No significant impacts identified for proposed 2035 General Plan.				
Aesthetics				
Development could degrade the visual quality or character of the site and surroundings, on a project and cumulative basis.	S	S=	S=	S-
Public Services and Recreation				
Development associated with the project could increase the use of existing neighborhood and regional parks and recreation centers, or require the construction or expansion of recreational facilities which could have an adverse effect on the environment.	S	S=	S+	S=

TABLE 5-3 (Continued)
IMPACT SUMMARY FOR EACH ALTERNATIVE FOR IMPACTS IDENTIFIED
FOR PROPOSED 2035 GENERAL PLAN

Impact No. / Impact Statement	Proposed 2035 General Plan	No Project (Base Case)	Blueprint Alternative	Mitigated Alternative
Utilities and Service Systems				
Development facilitated by the Plan would have insufficient water supplies available to serve new development, on a project and cumulative basis.	SU	SU=	SU=	SU=
Development facilitated by the Plan could be served by a landfill with insufficient permitted capacity to accommodate solid waste generated by new development.	S	S=	S=	S=
Mineral Resources				
Implementation of the proposed 2035 General Plan could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State, or could result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	S	S=	S-	PS=
Implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to mineral resources.	S	S=	S=	S=
Energy and Greenhouse Gas Emissions				
No significant impacts identified for proposed 2035 General Plan.				

S: Significant Impact
 SU: Significant Unavoidable Impact
 PS: Potentially Significant
 =: Impact would be approximately the same as that of the proposed project.
 -: Impact would be less than that of the proposed project
 +: Impact would be greater than that of the proposed project

F.1 No Project Alternative

The No Project represents a continuation of the County's existing 2010 General Plan (adopted in 1992), and the seven city general plans.

Land Use

Land use changes could continue to occur within the unincorporated areas and with annexations to existing cities within the County. However, the level of development is expected to be less than with the proposed project because fewer acres of County land would be available for development than with the proposed 2035 General Plan. This does not account for additional acres that could be annexed into cities. The potential for division of existing communities would remain but would be slightly reduced due to the reduced overall level of development in the County.

Agricultural Resources

Under the No Project Alternative, slightly fewer acres of agricultural lands would be removed as fewer acres would be converted from agricultural uses to residential, commercial, and industrial uses as proposed by the land use changes of the proposed project. However, impacts to agricultural resources due to conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance would remain significant and unavoidable similar to the proposed 2035 General Plan.

Population and Housing

Employment growth would be slightly reduced under the No Project Alternative (within the County's jurisdiction) because no land use change areas to change agricultural lands to industrial and/or commercial designations would be proposed. The inducement of substantial population and housing growth would remain less than significant as for the proposed 2035 General Plan.

Transportation and Circulation

The number of congested lane miles would be greater under the No Project Alternative on state highways that traverse unincorporated areas of the County. However, the number of congested lane miles on County owned facilities would be more than the proposed 2035 General Plan (317.07 congested lane miles under the No Project compared to 255.12 congested lane miles under the 2035 General Plan). Total vehicle miles of travel (VMT) would be slightly greater under the No Project Alternative relative to the proposed General Plan (26,979,711 VMT under the No Project and 26,978,415 VMT under the proposed 2035 General Plan).

Cultural Resources

The No Project Alternative would also have similar potential impacts upon archaeological and historical resources as the proposed 2035 General Plan, but such impacts may be slightly reduced within the unincorporated areas due to the lack of land use change areas under this alternative.

Biological Resources

Biological impacts would be slightly reduced under this alternative because less acreage of the unincorporated County would be set aside for new development. However, the land use change areas could have sensitive resources that could be impacted.

Air Quality and Greenhouse Gases

The impact related to potential exposure to substantial concentrations of toxic air contaminants would be the same as for the proposed 2035 General Plan. Air impacts related to violation of air quality standards would be significant and unavoidable like the proposed 2035 General Plan. Obstruction of implementation of the applicable air quality plan would also remain significant and unavoidable.

Noise

Noise impacts related to construction and traffic would be similar to the proposed 2035 General Plan, but slightly reduced due to overall slightly reduced amount of development under the No Project Alternative. Construction-related and operational noise would be significant as for the proposed 2035 General Plan.

Geology and Seismicity

Slightly less area in the County would be subject to development under the No Project Alternative as fewer acres would be designated for land use changes. Thus, fewer areas would be subject to damage from seismic activity and other geologic events.

Hydrology

The No Project Alternative would have slightly less area of the County set aside for new development as no additional areas of land use changes would be proposed. Thus, the impacts associated with increased runoff, development in areas subject to flooding, and other hydrological issues would be reduced under the No Project Alternative.

Hazardous Materials

Like the proposed 2035 General Plan, the No Project Alternative would not have significant impacts related to hazardous materials. While new development could involve the transport, use, and storage of hazardous materials and wastes, existing County policies and regulations related to these, as well as State and federal regulations, would reduce potential impacts to less than significant.

Aesthetics

Similar to the proposed 2035 General Plan, the No Project Alternative could also have impacts on scenic vistas and could alter the visual quality of areas in a substantial manner. In addition, new light and glare could be created by new development. As such, visual impacts would be significant.

Public Services and Recreation

The No Project Alternative would also result in significant impacts on parks and recreation facilities due to the County's shortage of park facilities for the projected population. Impacts on police, fire, and other services would not be significant. The impact on recreational resources would remain significant.

Utilities and Service Systems

Impacts on wastewater and stormwater capacity would not be significant for the No Project Alternative. Impacts on water supply would remain significant and unavoidable, and impacts on landfill capacity would remain significant.

Mineral Resources

Like the proposed 2035 General Plan, the No Project Alternative could have impacts on known mineral resources and identification of locally-available mineral resources may be needed.

F.2 Blueprint Alternative

The Blueprint Alternative concentrates development in the incorporated areas of the County and increases densities in the urban centers so that ultimately less land is needed to serve the projected population. Of the projected 261,500 persons projected to reside in the County between the planning years of 2010-2035, about 58,700 more are projected to reside within the incorporated cities than with the proposed project (see Table 5-2). Fewer areas within the spheres of influence would be developed and fewer acres would be annexed to cities. Densities would be increased in the urban centers and more multi-family developments would occur. Less overall land would be used for new development, thus reducing overall impacts to agricultural lands within San Joaquin County.

Land Use

The Blueprint Alternative would have less potential for impacting lands in the Primary Zone of the Delta as development would be concentrated in the urban centers when compared to the proposed 2035 General Plan. Potential impacts of dividing communities may be slightly reduced as the need for new infrastructure (e.g., road, pipelines, transmission lines) would be reduced if development were concentrated within existing cities of the County.

Agricultural Resources

Fewer impacts on prime agricultural lands and lands within Williamson Act contracts would occur under the Blueprint Alternative as new development would be concentrated in the urban centers, as compared to the 2035 General Plan. Fewer applications for cancellation of Williamson Act contracts would be required. However, this impact would remain significant and unavoidable as agricultural lands and Williamson Act contract lands would be removed. The Blueprint study showed that about 23,800 acres of prime agricultural land could be saved under the Blueprint Alternative for San Joaquin County alone (San Joaquin County Council of Governments, 2014).

Population and Housing

The overall population and housing impacts may be slightly increased under the Blueprint Alternative. With increased densities in the urban centers, some amount of displacement of existing housing may occur; however, this impact would be less than significant as for the proposed 2035 General Plan. The amount of overall growth inducement may also be reduced as new development is concentrated in urban centers where services are readily available.

Transportation and Circulation

Roadway volumes resulting from the Blueprint Alternative would be generally less relative to the proposed 2035 General Plan. Hence, fewer County roadways would exceed the County's ADT

threshold under the Blueprint Alternative (less congested lane miles on local County roads) than the proposed 2035 General Plan. However, more congested lane miles would occur with the Blueprint Alternative than the proposed 2035 General Plan (345.15 congested lane miles under the Blue Print Alternative compared to 255.12 congested lane miles under the proposed 2035 General Plan).

Cultural Resources

Impacts on cultural resources may be reduced under the Blueprint Alternative as fewer undeveloped land areas would be developed due to higher densities within infill areas of the cities. With less land subject to disturbance, there would be less likelihood for disturbance to historical or archaeological resources. However, potential impacts to historical resources would remain significant and unavoidable.

Biological Resources

Biological impacts would be reduced under this alternative, as compared to the proposed 2035 General Plan, because less acreage of the unincorporated County would be set aside for new development. More development would be concentrated in the urban centers, reducing overall impacts on biological resources.

Air Quality and Greenhouse Gases

The Blueprint Alternative would have more congested lane miles compared to the proposed 2035 General Plan which could increase overall air emissions. The impact related to potential exposure to substantial concentrations of toxic air contaminants would be the same as for the proposed project. Air impacts related to violation of air quality standards would be significant and unavoidable as for the proposed project. Obstruction of implementation of the applicable air quality plan would also remain significant and unavoidable.

Noise

The Blueprint Alternative would have more congested lane miles of traffic compared to the proposed 2035 General Plan. Thus, noise impacts may be increased with this alternative. Noise impacts related to construction would be similar to the proposed 2035 General Plan as a similar amount of construction would occur. Construction-related and operational noise would be significant as for the proposed 2035 General Plan.

Geology and Seismicity

Slightly less area in the County would be subject to development under the Blueprint Alternative as new development would be concentrated within infill areas of the cities, and fewer acres of County lands would be designated for land use changes. Thus, fewer areas would be subject to damage from seismic activity and other geologic events, as compared to the 2035 General Plan.

Hydrology

The Blueprint Alternative would have less area of the County set aside for new development as urban infill would accommodate much of the County's future growth, as compared to the 2035 General Plan. Thus, the impacts associated with increased runoff, development in areas subject to flooding, and other hydrological issues would be reduced under the Blueprint Alternative.

Hazardous Materials

Similar to the proposed 2035 General Plan, the Blueprint Alternative would not have significant impacts related to hazardous materials. While new development could involve the transport, use, and storage of hazardous materials and wastes, existing County policies and regulations related to these, as well as State and federal regulations, would reduce potential impacts to less than significant.

Aesthetics

Similar to the proposed 2035 General Plan, the Blueprint Alternative could also have impacts on scenic vistas and could alter the visual quality of areas in a substantial manner. In addition, new light and glare could be created by new development. Impacts on scenic resources, on both a project and cumulative basis, would remain significant under the Blueprint Alternative. Given that higher density development would occur within the infill areas of cities, there could be increased visual impacts associated with such infill.

Public Services and Recreation

The Blueprint Alternative would also result in significant impacts on parks and recreation facilities due to the County's shortage of park facilities for the projected population. Impacts on police, fire, and other services would not be significant.

Utilities and Service Systems

Impacts on wastewater and stormwater capacity would not be significant for the Blueprint Alternative. Impacts on water supply would be significant and unavoidable, and landfill capacity would be significant as for the proposed 2035 General Plan.

Mineral Resources

Similar to the proposed 2035 General Plan, the Blueprint Alternative would have significant impacts on known mineral resources and identification of locally-available mineral resources may be needed.

F.3 Mitigated Alternative

The Mitigated Alternative would have one major distinction from the proposed 2035 General Plan (see Figure 5-3) which is that the proposed acreage at the southwest edge of Stockton which would have a land use designation change from General Agriculture (A/G) to General Industrial (I/G) under the proposed 2035 General Plan, would not be changed from its present agricultural

designation. This approximately 600-acre area is located within the Primary Zone of the Delta and the findings of compatibility with the Land Use and Resource Management Plan (LURMP) would not be able to be made if this land use change were to occur. In other respects, this alternative would be similar to the proposed 2035 General Plan.

Land Use

The Mitigated Alternative would not impact lands in the Primary Zone of the Delta and the Mitigated Alternative would be compatible with the LURMP. Potential impacts of dividing communities would be similar to the proposed 2035 General Plan.

Agricultural Resources

Fewer impacts on prime agricultural lands and lands within Williamson Act contracts would occur under the Mitigated Alternative as the 600-acre land use change would not occur and this area would remain in agricultural use. Fewer applications for cancellation of Williamson Act contracts may be required. However, like the 2035 General Plan, this impact would remain significant and unavoidable as agricultural lands and Williamson Act contract lands would be removed in other parts of the County.

Population and Housing

The overall population and housing impacts would be similar to the proposed 2035 General Plan. This impact would be less than significant, similar to the proposed 2035 General Plan.

Transportation and Circulation

For this analysis, it is assumed that a portion of the jobs would be relocated from the southwest edge of Stockton to other locations in the general vicinity such as eastern Stockton and French Camp; it is assumed that the balance would be located outside the County. Generally, it is assumed that the employees would reside in Stockton or other nearby incorporated city. Given less industrial employment opportunities in the most populated area of the County, people would seek industrial jobs in other more remote locations within San Joaquin County or outside the County thereby increasing home-based work trip lengths - increasing vehicle miles of travel vehicle miles of travel and peak hour volumes on routes of regional significance (CMP System). The approximately 1,000 industrial jobs would generate about 3,340 daily trips, 470 a.m. peak hour trips, and 460 p.m. peak hour trips.² Because those trips would likely have longer commutes, the Mitigated Alternative would have higher VMT as compared to the proposed 2035 General Plan.

Cultural Resources

Impacts on cultural resources would be similar to the proposed 2035 General Plan. Similar impacts would occur related to disturbance to historical or archaeological resources. Potential impacts to historical resources would be significant and unavoidable.

² ITE (2012) *Trip Generation*, 9th Edition. Industrial Park (Code 130).

Biological Resources

Biological impacts would be similar to the proposed 2035 General Plan. The area that would be unchanged (from agricultural to industrial) is in agricultural use and is not expected to have significant biological resources.

Air Quality and Greenhouse Gases

The Mitigated Alternative would have longer commutes compared to the proposed 2035 General Plan which could increase overall air emissions. The impact related to potential exposure to substantial concentrations of toxic air contaminants would be the same as for the proposed 2035 General Plan. Air impacts related to violation of air quality standards would be significant and unavoidable similar to the proposed 2035 General Plan. Obstruction of implementation of the applicable air quality plan would also remain significant and unavoidable.

Noise

The Mitigated Alternative would have longer commutes compared to the proposed 2035 General Plan as the industrial land use related employment opportunities would be lost. Noise impacts related to construction and traffic would be similar to the proposed 2035 General Plan. Construction-related and operational noise would be significant as for the proposed 2035 General Plan.

Geology and Seismicity

Slightly less area in the County would be subject to development under the Mitigated Alternative as fewer acres would be designated for land use changes. Thus, fewer areas would be subject to damage from seismic activity and other geologic events. However, overall, geology and seismicity impacts would be similar to the proposed 2035 General Plan.

Hydrology

The Mitigated Alternative would have less area of the County set aside for new development but overall, the impacts associated with increased runoff, development in areas subject to flooding, and other hydrological issues would be similar to the proposed 2035 General Plan.

Hazardous Materials

Similar to the proposed 2035 General Plan, the Mitigated Alternative would not have significant impacts related to hazardous materials. While new development could involve the transport, use, and storage of hazardous materials and wastes, existing County policies and regulations related to these, as well as State and federal regulations, would reduce potential impacts to less than significant.

Aesthetics

Similar to the proposed 2035 General Plan, the Mitigated Alternative would also have impacts on scenic vistas and could alter the visual quality of areas in a substantial manner. In addition, new light and glare would be created by new development. Impacts on scenic resources, on both a project and cumulative basis, would remain significant. With retention of the 600 acres in agricultural use, views from Highway 4 would be protected in this portion of the County.

Public Services and Recreation

The Mitigated Alternative would also result in significant impacts on parks and recreation facilities due to the County's shortage of park facilities for the projected population. Impacts on police, fire, and other services would not be significant.

Utilities and Service Systems

Impacts on wastewater and stormwater capacity would not be significant for the Mitigated Alternative. Impacts on water supply would be significant unavoidable, and landfill capacity would be significant like the proposed 2035 General Plan.

Mineral Resources

Like the proposed 2035 General Plan, the Mitigated Alternative would have significant impacts on known mineral resources and identification of locally-available mineral resources may be needed.

G. Environmentally Superior Alternative

Based on the evaluations above and the thresholds of significance used for each environmental topic in Chapter 4, although it could generate longer commutes, the environmentally superior alternative would be the Mitigated Alternative. This alternative would be consistent with the LURMP and the Primary Zone of the Delta would remain protected in agricultural use. This alternative would also protect views of agricultural uses as seen from Highway 4, a heavily-travelled east-west corridor in the County. Geological impacts associated with seismic activity would be reduced by the retention of 600 acres in agricultural use.

The No Project Alternative would avoid some of the environmental impacts associated with the implementation of the proposed 2035 General Plan, but would not include many of the updated policies of the proposed 2035 General Plan, including new regulatory requirements. The Blueprint Alternative would serve to protect lands within the County and would concentrate development in the urban centers. However, the County does not have control over the City's land use decisions and for this reason, it was not considered the environmentally-superior alternative. In addition, the Blueprint Alternative could result in more congested vehicle miles and associated air/noise impacts. Higher density development within infill areas could result in visual impacts within the cities.

References – Alternatives

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CHAPTER 6

Additional Statutory Considerations

A. Introduction

CEQA requires analysis of the growth inducing impacts, cumulative impacts, and long-term effects of proposed projects. The following sections address these issues as they relate to implementation of the proposed project.

B. Growth Inducing Effects of the Proposed Project

The CEQA *Guidelines* Section 15126.2(d) requires that an EIR evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the CEQA *Guidelines* as:

[T]he 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 ... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

New employees from commercial and industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. Examples of development that would indirectly facilitate growth are the installation of new roadways and the construction or expansion of water delivery or treatment facilities.

A project could indirectly induce growth by removing barriers to growth, by creating a condition that attracts additional population or new economic activity, or by providing a catalyst for future unrelated growth in the area. While a project may have a potential to induce growth, it does not automatically result in growth. Growth can happen only through capital investment in new economic opportunities by the public or private sectors.

Typically, the growth-inducing potential of a project is considered significant if it fosters growth or a concentration of population in excess of the existing setting or baseline. In order to comply with state general plan law, the proposed project must provide sufficient opportunities for projected residential and employment growth. Based on the definition of growth inducement, a general plan is inherently growth-inducing because it must accommodate at least projected housing and employment demand. Accordingly, the County's proposed 2035 General Plan is premised on a certain amount of growth taking place as more fully described in Chapter 3, Project

Description of this Draft EIR. The focus of the 2035 General Plan is on providing a clear framework in which the growth can be managed and that best suits the needs of the County. A large emphasis has been placed on compact growth patterns, development within and near existing urban centers, and protection of the County's valuable agricultural lands. The growth accounted for by the General Plan would not be likely to result in indirect growth impacts for areas outside of San Joaquin County as the growth would be largely accommodated within incorporated cities of the County.

C. Cumulative Impacts

This section discusses the cumulative impacts of the proposed project, and summarizes the cumulative impact analyses included for each resource topic in Chapter 4. CEQA *Guidelines* Section 15355 defines a cumulative impact as one in which two or more individual effects, when considered together, are considerable or that compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

A regionally significant probable future project that was considered in this EIR analysis under Cumulative Conditions is the Bay Delta Conservation Plan (BDCP). The BDCP is a 50-year plan for the Sacramento-San Joaquin Delta ecosystem that includes new water delivery infrastructure and operating systems and approximately 150,000 acres of habitat restoration. The BDCP EIR/EIS considers the potential impacts of the Plan's 22 conservation measures across 15 project alternatives. The EIR/EIS concluded that construction and operation of the BDCP could result in the cumulative impacts to multiple resources areas. These impacts are discussed in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*.

Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA *Guidelines* Section 15355). CEQA *Guidelines* Section 15130 describes the requirements for the discussion of cumulative impacts in an EIR. It states that an EIR will discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. The discussion will reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as much detail as is provided for the impacts attributable to the project alone. In addition, the CEQA *Guidelines* allow for a project's contribution to be rendered less than cumulatively considerable with implementation of appropriate mitigation.

The analysis of each environmental topic included in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR considers possible cumulative impacts and identifies circumstances in which the project would contribute to significant cumulative impacts.

Cumulative agricultural, population and housing, transportation and circulation, noise, air quality, aesthetics, public services and utilities impacts were determined to be significant. The following

specific significant cumulative impacts were identified as cumulatively considerable, significant and unavoidable:

- **Impact 4.B-6:** Implementation of the proposed 2035 General Plan, combined with cumulative development in the Central Valley, including past, present, reasonably foreseeable probable future development, could contribute to significant adverse cumulative impacts on agricultural resources. (Significant and Unavoidable)
- **Impact 4.D-10:** Implementation of proposed 2035 General Plan, combined with cumulative development in the defined geographic area, including past, present, and reasonably foreseeable probable future development, could contribute to significant cumulative transportation and circulation impacts. (Significant and Unavoidable)
- **Impact 4.E-6:** Implementation of proposed 2035 General Plan, in conjunction with, past, present, and reasonably foreseeable probable future projects, could have significant cumulative impacts on historical resources in the County. (Significant and Unavoidable)
- **Impact 4.G-6:** Development facilitated by implementation of the proposed 2035 General Plan, when combined with past, present and other reasonably foreseeable development in the vicinity, could result in cumulative criteria air pollutant air quality impacts. (Significant and Unavoidable)
- **Impact 4.N-7:** Development facilitated by implementation of the proposed 2035 General Plan, in combination with other past, present, and reasonably foreseeable probable future projects, could result in cumulatively considerable impacts to potable water supply and treatment and delivery systems. (Significant and Unavoidable)

D. Significant Unavoidable Impacts

Public Resources Code Section 21100(b) (2) and CEQA *Guidelines* Section 15126.2(b) require that any significant and unavoidable effect on the environment must be identified in an EIR. In addition, CEQA Guidelines Section 15093(a) allows the decision-making agency to determine if the benefits of a project outweigh the unavoidable adverse environmental impacts of implementing the project. The County can approve a project with unavoidable adverse impacts if it prepares and adopts a “Statement of Overriding Considerations” setting forth the specific reasons for making such a judgment. A list of the impacts (by environmental resource topic) which are considered significant, but for which no feasible mitigation measures or alternatives are available that could avoid or substantially lessen the impact, is provided below.

- **Impact 4.B-1:** Implementation of the proposed 2035 General Plan would result in the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to non-agricultural uses. (Significant and Unavoidable)
- **Impact 4.D-1:** Implementation of the proposed 2035 General Plan could result in increased traffic volumes, delay, and a decrease in level of service (LOS) on two SR 88 roadway segments during the peak hours that exceed both the Regional Congestion Management Plan (RCMP) and Caltrans LOS standards. Given that facilities are designated as part of San Joaquin County’s RCMP, this impact is also identified as a congestion management program impact. (Significant and Unavoidable)

- **Impact 4.D-2:** Implementation of the proposed 2035 General Plan could result in increased daily traffic volumes on local County roadways forecast to be deficient under future baseline conditions per the County's average daily traffic (ADT) threshold. (Significant and Unavoidable)
- **Impact 4.E-1:** Implementation of proposed 2035 General Plan could cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5, within San Joaquin County. (Significant and Unavoidable)
- **Impact 4. G-2:** Development under the proposed 2035 General Plan could generate operational emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation. (Significant and Unavoidable)
- **Impact 4.G-5:** Development facilitated by implementation of the proposed 2035 General Plan could conflict with or obstruct implementation of the applicable air quality plan. (Significant and Unavoidable)
- **Impact 4.N-4:** Development facilitated by implementation of the proposed 2035 General Plan could have insufficient water supplies available to serve new development from existing entitlements and new development could require the construction of new water supply or treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Significant and Unavoidable)

E. Significant Irreversible Environmental Changes

Section 15126.2 of the State CEQA *Guidelines* requires that an EIR include a discussion of significant irreversible environmental changes that would result from implementation of a project. Implementation of the proposed project would result in the commitment of nonrenewable natural resources used in construction (such as gravel, petroleum products, and others) and slowly renewable resources (such as wood products for individual project construction). Development and operation of specific projects associated with the 2035 General Plan also would result in a commitment of energy resources in the form of fossil fuels, including fuel oil, natural gas and gasoline for automobiles, and utility services.

References – Additional Statutory Considerations

California Environmental Quality Act (CEQA) Statutes and Guidelines; Public Resources Code 21000-21177) and California Code of Federal Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387. 2010.

California Department of Water Resources, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. 2013. *Draft Environmental Impact Report/Environmental Impact Statement for the Bay Delta Conservation Plan*. November. (ICF 00674.12.) Prepared by ICF International, Sacramento, CA.

CHAPTER 7

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B. Persons and Organizations Consulted

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