SAN JOAQUIN COUNCIL OF GOVERNMENTS

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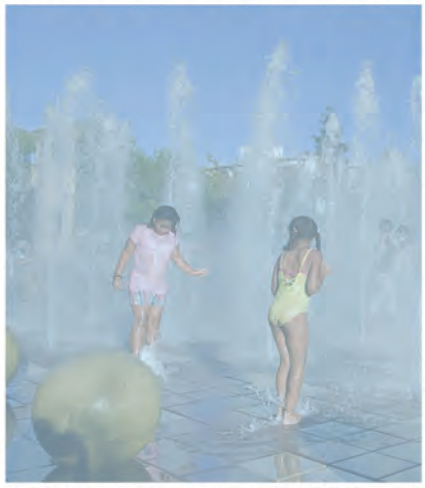
DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

2014

REGIONAL TRANSPORTATION PLAN & SUSTAINABLE COMMUNITIES STRATEGY

FOR SAN JOAQUIN COUNTY



2014-2040

SAN JOAQUIN COUNCIL OF GOVERNMENTS 2014 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

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1.0 INTRODUCTION

1.1 SUMMARY

San Joaquin Council of Governments (SJCOG) prepared this Program Environmental Impact Report (Program EIR), pursuant to the California Environmental Quality Act (CEQA), for the 2014 Regional Transportation Plan/Sustainable Communities Strategy (2014 RTP/SCS, RTP/SCS, Plan, or Project). The 2014 RTP/SCS is a long-range regional transportation plan that provides a blueprint to help achieve a coordinated regional transportation system by creating a vision for transportation investment throughout the region and identifying regional transportation and land use strategies to address mobility needs. The 2014 RTP/SCS includes a policy element that is shaped by goals, policies and performance indicators, a description of planning assumptions for regional growth and future needs for travel and goods movement, a Sustainable Communities Strategy (SCS) that identifies planning strategies and illustrative development patterns that would reduce greenhouse gas emissions and a plan of action for the region to pursue to meet identified transportation needs. The Program EIR for the 2014 RTP/SCS serves as an informational document to inform decision-makers and the public of the potential environmental consequences of approving the proposed Plan. The Program EIR includes mitigation measures designed to help avoid or minimize significant environmental impacts.

Individual transportation projects are preliminarily identified in the 2014 RTP/SCS; however, this Program EIR analyzes potential environmental impacts from a regional perspective and is programmatic in nature. As such, it does not specifically analyze the individual projects. Project-specific analysis and applicable environmental review must be performed by the appropriate implementing agency prior to approval of these individual projects. Project-specific planning and implementation undertaken by each implementing agency will depend on a number of issues, including: policies, programs and projects adopted at the local level; restrictions on federal, state, and local transportation funds; the results of feasibility studies for particular corridors; and any further applicable environmental review of proposed projects.

For purposes of analysis, SJCOG has developed a land use distribution pattern and land use scenarios to address actions and strategies included in the SCS portion of the 2014 RTP/SCS. This Program EIR programmatically analyzes this land use distribution pattern (as part of the project analysis) as well as alternative land use distribution patterns (in the **Alternatives** section).

Although not required to do so, local jurisdictions are encouraged by SJCOG to consider the proposed actions and strategies provided in the 2014 RTP/SCS, including strategies addressing land use, the

transportation network, Transportation Demand Management (TDM), Transportation Systems Management (TSM) and clean vehicle technology.

1.2 PURPOSE AND LEGAL AUTHORITY

This Draft Program EIR evaluates the 2014 RTP/SCS which for the first time includes a SCS pursuant to California's SB 375, the Sustainable Communities and Climate Protection Act of 2008 (as will be discussed in more detail below). Pursuant to the federal Moving Ahead for Progress in the 21st Century (MAP-21) authorization, SJCOG must prepare and update a transportation plan for its metropolitan planning area every four years to ensure that the plan adequately addresses future travel needs and is consistent with the federal Clean Air Act.[1] The 2014 RTP/SCS is the culmination of a multi-year effort with the intent to improve the balance between land use and transportation systems and address not only MAP-21 but also California's SB 375.

1.2.1 2014 RTP

The 2014 RTP/SCS defines the region's mobility needs and issues through 2040, sets forth an action plan of projects and programs to address the needs consistent with the adopted policies, and documents the financial resources needed to implement the plan. The 2014 RTP/SCS is a 27-year plan that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in San Joaquin County. It has been developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. Regional transportation improvement projects proposed to be funded, in whole or in part, in the state transportation improvement program must be included in an adopted RTP. SJCOG does not implement individual projects included in the 2014 RTP/SCS; individual projects are implemented by local jurisdictions and other agencies (in general throughout this EIR these agencies are referred to collectively as implementing agencies). The 2014 RTP/SCS includes the following key components:

- Transportation Planning Policies
- Planning Assumptions and Growth Trends
- Sustainable Communities Strategy
- Strategic Investments/Action Element

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1 SJCOG's last RTP was adopted in July 2010, in agreement with the California Air Resources the next RTP must be completed by June 2014.

- Financial Constraints
- Future Transportation Planning (beyond 2040)
- Monitoring progress

1.2.2 SCS

As part of the 2014 RTP/SCS SJCOG prepared an SCS in accordance with the Sustainable Communities and Climate Protection Act of 2008 (SB 375). SB 375 implements AB 32 the California Global Warming Solutions Act with respect to reducing greenhouse gas emissions associated with car and light truck vehicle trips. The requirement of an SCS under SB 375 more closely ties regional transportation planning with land use and regional housing planning under the Regional Housing Needs Analysis (RHNA). The SCS provides regional-scale planning for land use and transportation, with the goal of reducing the amount that people have to drive and thereby reducing associated greenhouse gases (GHGs). The SCS is required to:

- use the most recent planning assumptions considering local general plans and other factors;
- identify the general location of uses, residential densities, and building intensities within the region;
- identify areas within the region sufficient to house all the population of the region;
- identify areas within the region sufficient to house an eight-year projection of the regional housing need;
- identify a transportation network to service the transportation needs for the region;
- gather and consider the best practically available scientific information regarding resource areas and farmland in the region;
- consider the state housing goals;
- set forth a forecasted development pattern for the region;
- comply with Section 176 of the federal Clean Air Act;
- consider spheres of influence that have been adopted by the Local Agency Formation Commission (LAFCO) within the region;
- quantify the reduction in GHG projected to be achieved by the SCS; and
- consider any adopted multiregional goals and policies.

1.3 SCOPE AND METHODOLOGY

This Program EIR fulfills the requirements of CEQA. It is a programmatic document that provides a region-wide assessment of the potential significant environmental effects of implementing the programs, policies, and projects included in the 2014 RTP/SCS. A Program EIR:

> *may be prepared on a series of actions that can be characterized as one large project and are related either: (1) geographically, (2) as logical parts of the chain of contemplated actions, (3) in connection with issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program, or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.*[2]

A Program EIR provides a regional consideration of cumulative effects and includes broad policy alternatives and program mitigation measures that are equally broad in scope. This Program EIR provides a regional scale analysis and a framework of mitigation measures for subsequent, site-specific environmental review documents prepared by lead agencies in the region as individual planning, development and transportation projects are identified, designed and move through the planning, review and decision-making process.

A Program EIR may serve as a first-tier document for later CEQA review of individual projects included in the program. These project-specific CEQA reviews will focus on project-specific impacts and mitigation measures, and need not repeat the broad analyses contained in the EIR. As discussed by the California Supreme Court, "it is proper for a lead agency to use its discretion to focus a first-tier EIR on only the … program, leaving project-specific details to subsequent EIRs when specific projects are considered."[3]

As such, the focus of the environmental analysis in the 2014 RTP/SCS Program EIR is on regional-scale and cumulative impacts of implementation of the 2014 RTP/SCS and the alternatives. The long-range planning horizon of 27 years necessitates that many of the projects included in the Plan (and the alternatives) are identified at the conceptual level. This document addresses environmental impacts to the level that they can be assessed without undue speculation.[4] This Program EIR acknowledges this uncertainty and incorporates these realities into the methodology to evaluate the environmental effects of the Plan, given its long-term planning horizon.

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2 *State CEQA Guidelines* §15168

3 *In re Bay Delta* (2008) 43 Cal. 4th 1143, 1174

4 *State CEQA Guidelines* § 15145

The degree of specificity in an EIR corresponds to the degree of specificity of the underlying activity being evaluated.[5] Also, the adequacy of an EIR is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project.[6] The activity being evaluated in this Program EIR is the long-term (through the year 2040) 2014 RTP/SCS. This Draft Program EIR strives to provide as much quantitative detail as feasible regarding the regional environmental impacts of the Plan. However, not all impacts can be feasibly and/or accurately quantitatively analyzed at a regional level and/or up to the year 2040.

State CEQA Guidelines §15146(b) provides that an EIR prepared for the adoption of a general plan should focus on the secondary environmental effects to be expected following adoption, but that the EIR need not be as detailed as one prepared for the specific construction projects that follow. Further, *State CEQA Guidelines* §15152(c) states that when a lead agency is using the tiering process for a large scale planning approval such as a general plan, the development of detailed site-specific information may not be feasible and can be deferred to project-specific CEQA documents. Since the 2014 RTP/SCS is even broader in scope and has a longer time horizon than many general plans, such detail is not required in this Program EIR.

The geographic scope and complexity of the 2014 RTP/SCS played an important role in determining the appropriate level of detail to include in this Program EIR. San Joaquin County encompasses more than 921,000 acres and, in 2012, had an estimated population of 704,794. San Joaquin County continues to grow in many segments of its economy. Downtown revitalization efforts in Stockton, Big League Dreams in Manteca, and the Lodi area's success producing world-class wines are shaping San Joaquin County into a destination for tourism and entertainment. The region also continues to be an attractive location for new warehousing and distribution centers that serve Northern California, the Bay Area, and the west coast. A centralized and diverse network of highway, rail, air, and seaport facilities support the continued development of San Joaquin County into a major goods movement region. As a result, the 2014 RTP/SCS is very complicated and highly diverse, consisting of many transit, highway, and phased arterial projects, as well as a comprehensive SCS.

Potential significant environmental effects of the 2014 RTP/SCS were identified by employing multiple analytical methods, including spatial analysis; transportation, noise, land use and air quality modeling; and other quantitative, ordinal and qualitative techniques. Spatial analysis using Geographic Information Systems (GIS) was employed to evaluate the potential effects of the major freeway, rail and transit

5 *State CEQA Guidelines* §15146

6 *State CEQA Guidelines* §§15151, 15204(a)

projects on resource categories. Transportation and air quality simulation models were used to estimate the transportation and air quality impacts. Project and policy elements of the 2014 RTP/SCS and alternatives were incorporated into the modeling analyses and the illustrative land use mapping. The specific techniques used to evaluate each potential environmental effect are described in each resource/issue section in **Section 4.0** of this document.

1.4 BASELINE FOR DETERMINING SIGNIFICANCE

The Program EIR must identify significant impacts that would be expected to result from implementation of the 2014 RTP/SCS. A significant impact is defined as a "substantial or potentially substantial, adverse change in the environment."[7] Significant impacts are determined by applying explicit significance criteria to compare the future Plan conditions to the existing environmental setting.[8] The existing setting is described in detail in each resource section of **Section 4.0** of this document, and represents the most recent, reliable, and representative data to describe current regional conditions. The criteria for determining significance are also included in each resource section in **Section 4.0** of this document.

State CEQA Guidelines 15125(a) states

> *An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.*

The NOP for the 2014 RTP/SCS was released in February 2013; however, this Program EIR uses 2012 as the baseline for determining significance.

SJCOG uses a three-county travel demand model composed of San Joaquin County, Stanislaus County, and Merced County. As such, each MPO within the region released an NOP for their respective RTPs, Stanislaus Council of Governments (StanCOG) released its NOP in 2012 with SJCOG and MCAG in 2013. To meet the modeling needs of all agencies, SJCOG and MCAG took a conservative approach to identify 2012 as the baseline year to ensure consistency in modeling. Therefore, both the land use model and transportation model used in preparing the 2014 RTP/SCS use a 2012 baseline year. Further, it is reasonable to assume that conditions on the ground have not changed substantially between 2012 (the EIR baseline) and February 2013 when the NOP was released. A 2012 baseline provides consistency between the RTP/SCS and this Program EIR by encompassing the same 27-year timeframe as the

7 Public Resources Code § 21068

8 *State CEQA Guidelines* § 15126.2(a)

RTP/SCS. Where sufficient data for 2012 is not available, and a different baseline is used, this determination is explained in the text.

1.5 THRESHOLD OF SIGNIFICANCE

CEQA gives the lead agency the responsibility and broad discretion in determining whether an adverse environmental effect identified in an EIR should be classified as "significant" or "less than significant."[9] Under Section 15064(b), "the significance of an activity may vary with the setting" and, as a result, an inflexible definition of what constitutes a significant effect is not always possible. The lead agency has discretion to set its own significance criteria, which requires the lead agency to make a policy judgment about how to distinguish impacts which are adverse, but significant, from impacts which are adverse, but not significant.[10] A lead agency may select a standard of significance based on its judgment.[11] The standards of significance used in an EIR may also rely upon policies adopted and implemented by the lead agency.[12]

1.6 COMPARISON WITH THE NO PROJECT ALTERNATIVE

It is important to emphasize that the population of San Joaquin County will increase by 2040, with or without implementation of the 2014 RTP/SCS. The CEQA required environmental baseline of current conditions means that the impact assessment for many of the resource categories is cumulative in nature. Therefore, the analysis for each resource category also includes a direct comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of significant impacts; however, it provides a meaningful perspective on the effects of implementing the 2014 RTP/SCS. A direct comparison between the Plan and the No Project Alternative (described below) is included in each resource section of **Section 4.0** of this document.

1.7 PROPOSED 2014 RTP/SCS AND ALTERNATIVES

When considering whether or not the range of alternatives to be evaluated in an EIR is adequate, several principles apply. The "discussion of alternatives need not be exhaustive," and the requirement to discuss

9 State CEQA Guidelines § 15064(b)

10 *Eureka Citizens for Responsible Gov't v City of Eureka* (2007) 147 Cal.App.4th 357

11 *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 541

12 *Mira Mar Mobile Community v. City of Oceanside (2004) 119 Cal.App.4th 477*

alternatives is "subject to a construction of reasonableness."[13] "An EIR need not consider every conceivable alternative to a project."[14]

Under CEQA, perfection is not the standard governing a lead agency's proposed range of project alternatives. Rather, in preparing an EIR, a lead agency must make an objective, good faith effort to provide information of a reasonable range of alternatives that would feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening the project's significant adverse environmental impacts.[15]

This Program EIR evaluates a reasonable range of alternatives for the 2014 RTP/SCS that brackets the range of potential impacts that could occur under a spectrum of changes to individual components of the RTP/SCS. These alternatives are briefly described below. More detailed information about each of these alternatives is presented in **Section 6.0**.

1. The Proposed 2014 RTP/SCS provides land use and transportation recommendations to help achieve a coordinated balance of land uses and transportation such that vehicle trips and trip lengths are reduced and land is efficiently and sustainably used, thereby minimizing energy and water consumption. The 2014 RTP/SCS is described in **Section 3.0, Project Description**.

2. The No Project Alternative or "No Build" includes only those transportation projects that are included in the first year of the previously conforming transportation plan and/or Transportation Improvement Plan (TIP), or have completed environmental review by January 2014.

3. The 2011 RTP/Business as Usual Alternative is an update of the adopted 2011 RTP to reflect the most recent growth estimates and transportation planning decisions and assumption.

4. The Compact Development Alternative increases density and transit beyond what is included in the SCS. It includes a higher percentage of new growth as infill/redevelopment, additional transportation investments in the form of additional frequency and a larger percentage of new housing as small lot or multi-family. However, the transit investments include additional dollars that are above and beyond RTP investments.

The Plan and each alternative maintain a constant total for population, households, and jobs in 2040.

State CEQA Guidelines §15126.6(d) requires an EIR to include sufficient information about each alternative in order to allow meaningful evaluation, analysis, and comparison with the proposed project. An EIR must discuss alternatives to a project in its entirety, but is not required to discuss alternatives to each

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13 Residents Ad Hoc Stadium Committee v. Board of Trustees (1979) 89 Cal.App.3d 274, 286.

14 *State CEQA Guidelines* §15126.6(a)

15 California Oak Foundation v. Regents of University of California (2010) 188 Cal.App. 4th 227, 275-276.

particular component of a project.[16] CEQA does not require an EIR to consider multiple variations on the alternatives analyzed.

1.8 GROWTH PATTERNS

The 2014 RTP/SCS includes an SCS that encourages a more compact landform, with growth focused at transit nodes, centers and in areas designed to balance out the ratio of jobs to housing. This growth pattern results in substantially less consumption of vacant, open space/recreation and agricultural land compared to the No Project: 18,123 acres under the Plan compared to up to 35,184 acres under the No Project condition. This Program EIR analyzes the impacts of the RTP/SCS growth forecast in addition to impacts from the RTP transportation projects.

Analysis of the land use distribution pattern, and alternate land use scenarios, necessarily includes analysis of the growth distribution and anticipated land use development necessary to accommodate the growth. However, because locations, densities, orientation, timing, and other site sensitive factors related to development are not specified in the Plan, and cannot be specified by SJCOG as they do not have land use authority; SJCOG cannot reliably quantify the impacts from such anticipated development. SJCOG can nevertheless programmatically analyze these impacts and provide mitigation measures to address them.

1.9 MITIGATION MEASURES

The implementing agencies and local lead agencies are responsible for identifying project specific mitigation measures and ensuring adherence to such mitigation measures. This Program EIR identifies measures that SJCOG will encourage implementing and local agencies to implement on a project specific basis as appropriate. In general, the terms "local agency," and "implementing agency" are used throughout this Program EIR to identify agencies that will act as lead agencies for different types of individual projects. Individual projects that are anticipated to occur pursuant to the 2014 RTP/SCS consist of planning projects (general plans, specific plans, climate action plans, etc.), development projects including Transit Priority Projects (TPPs) and other similar projects, and transportation projects.

In general, "local agency" is used to refer to a public agency that would propose a planning project or a public infrastructure project and/or an agency that would be the lead agency for individual development projects. "Project sponsor" is typically used to refer to an applicant (that could be public or private, an organization or an individual) that proposes a project. "Implementing agency" is used to refer to an

16 See California Oak Foundation v. Regents of University of California (2010) 188 Cal.App. 4th 227, 276-277.

agency responsible for implementing a project. In this document, project-implementing agencies are those that are responsible for carrying out (reviewing, approving, constructing) transportation projects.

This EIR identifies programmatic mitigation measures to be implemented by SJCOG and identifies mitigation measures that SJCOG will encourage implementing and local agencies to implement as appropriate as part of project specific environmental review. SJCOG as part of their Intergovernmental Review process will facilitate and encourage implementing and local agencies to require these measures as applicable. The language of the mitigation measures indicates that implementing and local agencies should implement measures. It is assumed that each agency has the ability to implement and/or impose these measures (i.e., that they can implement them). As such, this Program EIR identifies programmatic mitigation that would be implemented by SJCOG or other agencies with broad-scale planning jurisdiction. Compliance with existing regulations, such as the Uniform Building Code and California Building Code, is not considered mitigation. However, for purposes of the analysis, regulations are included where appropriate, to provide additional information on the methods available to reduce potential impacts.

As noted above, this Program EIR provides a regional scale analysis and a framework of mitigation measures for subsequent, site-specific environmental review documents prepared by lead agencies within the County as individual planning, development and transportation project are identified, design and move through the planning, review and decision-making process. As authorized by *State CEQA Guidelines* and case law, the mitigation measures included in this Draft Program EIR are less detailed than those that would be part of a project-specific EIR and the selection of detailed mitigation measures is properly deferred to future project-specific CEQA reviews. SJCOG's role is to prioritize and facilitate transportation projects consistent with adopted procedures. For regionally significant land use and transportation projects, SJCOG reviews and provides comments on environmental documents to determine consistency with applicable SJCOG planning and policy documents including the RTP/SCS. SJCOG does not dictate land use, directly implement transportation projects, nor does it conduct project specific environmental review. SB 375 specifically addresses the role of metropolitan planning organizations (MPOs), such as SJCOG, and it explicitly does not provide SJCOG with the authority to regulate land use. Therefore, SJCOG has no ability to impose or enforce mitigation measures within the authority of local jurisdictions.

1.9.1 Transportation Project Mitigation

As previously discussed, SJCOG's role is to prioritize and facilitate transportation projects consistent with their adopted procedures. Most individual projects in the RTP/SCS will be implemented by Caltrans, Altamont Corridor Express (ACE), and local governments. These agencies routinely implement the types

of mitigation measures identified in this Draft Program EIR during project design, CEQA review, and/or project construction. This Draft Program EIR has made a preliminary determination that the proposed mitigation measures are generally feasible and effective in certain circumstances based upon a region-wide assessment, and therefore, it is reasonable to expect that the measures will be implemented if applicable and feasible. However, local agencies retain the discretion to determine which mitigations are most applicable to each individual project and whether they are feasible under the location-specific circumstances.

1.9.2 Land Use Mitigation

SJCOG has no authority to adopt local land use plans or approve local land use projects that will implement the SCS. SB 375 specifically provides that nothing in SB 375 supersedes the land use authority of cities and counties. In addition, cities and counties are not required to change their land use plans and policies, including general plans, to be consistent with an SCS.[17] Local governments are the primary agencies responsible for requiring and monitoring mitigation of the impacts of land use plans and projects that implement the RTP/SCS, and SJCOG has no concurrent authority to mitigate the impacts of land use plans and projects. As such, local agencies retain the discretion to consider which mitigation measures are appropriate to each individual project and whether they are feasible under the location-specific circumstances. Only mitigation measures that are fully under the control of SJCOG are considered in the identification of level of significance after mitigation.

1.10 SCOPE AND CONTENT

The SJCOG circulated a Notice of Preparation (NOP) of an EIR for the proposed project on February 5, 2013, to trustee and responsible agencies, the State Clearinghouse (SCH#2013022012), and the public. A scoping meeting was held on February 21, 2013, at 5:00 PM in the City of Stockton. Those present at the scoping meeting included representatives from the following: SJCOG and Impact Sciences Inc. The NOP is provided in **Appendix 1.0**.

The SJCOG received several comment letters on the NOP. A copy of each letter is provided in **Appendix 1.0** of this Draft EIR and the comments are summarized below.

Delta Protection Commission. The Delta Protection Commission noted that the portion of the County's land area that lies within the Delta's Primary Zone is subject to consistency requirements with the Commission's Land Use and Resource Management Plan. The letter also indicated that coordination with

17 Government Code §65080(b)(2)(K)

the Commission's Delta Trail planning process should be made to ensure that pedestrian and bicycle lanes/routes/trails in the RTP are linked or incorporated into the regional trail network.

Central Valley Regional Water Quality Control Board (Central Valley Water Board). The Central Valley Water Board provided comments related to water protection processes. Specifically, the letter provided the requirements for Construction Storm Water General Permits, Phase I and II Municipal Separate Storm Sewer System (MS4) Permits, Industrial Storm Water General Permits, Clean Water Act Section 404 Permits, Clean Water Act Section 401 Permits, and Waste Discharge Requirements.

California Department of Transportation (Caltrans). Caltrans requested that the RTP include projects listed in the Corridor Systems Management Plan (CSMP), Congestion Management Plan (CMP), and the SR-99 Business Plan. Caltrans also requested consultation with SJCOG on Tier 1 and Tier 2 project list and requested SJCOG identify funding for design and construction of facility STAA improvement projects. Caltrans requested that ramp metering projects and park and ride projects are identified and that ramp metering projects include Intelligent Transportation System (ITS) elements.

Delta Stewardship Council (DSC). The DSC indicated their desire to provide input regarding consistency of the RTP/SCS with the Delta Plan. Pursuant to the Water Code Section 85212 the DSC will be required to review the RTP/SCS for consistency with the Delta Plan. The DSC also suggested the RTP/SCS promote coequal goals of the plans by addressing water supply reliability and providing guidance on protecting the Delta as a place.

Topics evaluated in this Draft EIR have been identified based upon a preliminary review of issues, responses to the NOP received during the NOP comment period, and review of the 2014 by SJCOG staff and their consultants. SJCOG determined through this initial review process that impacts related to the following topics are potentially significant and require assessment in this Draft Program EIR:

Aesthetics and Visual Resources	Agricultural Resources
Air Quality	Biological Resources
Cultural Resources	Geology, Soils, and Mineral Resources
Greenhouse Gases	Hazards and Hazardous Materials
Land Use, Planning and Population	Noise
Public Services (including Recreation)	Utilities and Services Systems
Transportation and Traffic	Water Resources

1.11 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The public agency that has the principal responsibility for carrying out or approving a project is designated as the Lead Agency under CEQA. For this proposed project, the SJCOG is the Lead Agency, and is responsible for ensuring that the Program EIR satisfies the procedural and substantive requirements of CEQA. SJCOG is also responsible for considering and certifying the adequacy and completeness of the EIR prior to making any decision regarding the proposed project.

"Responsible Agency" means a public agency, which proposes to carry out or approve a project or portion of a project, for which the Lead Agency is preparing or has prepared an EIR or Negative Declaration. For purposes of CEQA, the term Responsible Agency includes all public agencies other than the Lead Agency having discretionary approval authority over the proposed project or portion thereof.

"Trustee Agency" means a state agency having jurisdiction by law over natural resources affected by a project, which are held in trust for the people of the State of California. During the NOP review period, no public agency identified itself as a Trustee Agency.

While no Responsible Agencies or Trustee Agencies are responsible for approvals associated with adoption of the RTP/SCS, implementation of projects identified in the RTP/SCS will require permits and approvals from Lead, Trustee, and Responsible Agencies, which may include the following:

County of San Joaquin

City of Escalon

City of Lathrop

City of Lodi

City of Manteca

City of Ripon

City of Stockton

City of Tracy

San Joaquin Valley Air Pollution Control District

California Transportation Commission

California Department of Transportation

California Department of Fish and Wildlife

California Department of Conservation

Regional Water Quality Control Board

State Water Resources Control Board

Native American Heritage Commission

US Army Corps of Engineers

US Fish and Wildlife Service

Delta Stewardship Council

1.12 EIR REVIEW PROCESS

This EIR is being circulated for a 45-day public review and comment period. During this period, written comments concerning the adequacy of the Draft EIR may be submitted by any interested person and/or affected agency, to:

Kevin Sheridan, Project Manager
San Joaquin Council of Governments
555 East Weber Avenue
Stockton, California 95202
(209)235-0600
sheridan@sjcog.org

Following the public review period, all written comments and written responses will be incorporated into a Final EIR. At least 10 days prior to a hearing to certify the Final EIR, proposed responses to comments on the Draft EIR by responsible agencies will be sent to those agencies as required by CEQA. The Final EIR will then be considered by the San Joaquin Council of Governments Board, which will determine whether to certify the adequacy and completeness of the document in accordance with CEQA. No aspect of the proposed project would be approved until after the Final EIR is certified.

1.13 CEQA STREAMLINING

SB 375 amends CEQA to add Chapter 4.2, Implementation of the Sustainable Communities Strategy, which allows a CEQA exemption for projects that are consistent with the Sustainable Community Strategy, Sustainable Community Projects, as well as streamlined CEQA analysis for Transit Priority Projects (TPPs) and certain residential or mixed-use projects.

The purpose of the SCS is to develop strategies to meet the GHG emission reduction targets for the region, and qualifying projects that are consistent with the SCS will help meet this goal. Furthermore, because the potential impacts of the SCS are analyzed in this Program EIR, qualifying projects may take advantage of the CEQA streamlining provisions contained in SB 375. The intent of the CEQA streamlining provisions is not to undercut or circumvent CEQA requirements, but rather to reduce documentation and redundancy and to provide an incentive to support residential and transportation projects that are consistent with a larger effort to reduce GHG emissions.

The following is a summary of the CEQA streamlining provisions in SB 375.

1.13.1 Transit Priority Project

A Transit Priority Project (TPP) is eligible for four types of CEQA relief: (1) Sustainable Communities Project CEQA Exemption; (2) Sustainable Communities Environmental Assessment, or (3) a streamlined EIR, or (4) traffic mitigation measures. Different types of CEQA relief are associated with different criteria that are to be met.

As a threshold matter, to qualify as a TPP, a project must be consistent with the general use designation, density, building intensity and applicable policies in a SCS accepted by the State Air Resources Board. The TPP must also:

- Be at least 50 percent residential use based on area;
- Contain at least 20 dwelling units/acre;
- Have a floor area ratio for the commercial portion of the project at 0.75, if the project contains between 26 percent and 50 percent nonresidential uses; and
- Be within 0.5 mile of a major transit stop[18] or high-quality transit corridor[19] included in the RTP.

Sustainable Communities Project Exemption

The Sustainable Communities Project (SCP) is a TPP, which is consistent with the SCS that meets the following criteria:

i. The project and approved projects can be served by utilities, and project will pay applicable in-lieu or development fees;

ii. Does not include wildlife habitat of significant value or protected species;

iii. Is not contaminated (site is not on Cortese list);

iv. Site is subject to preliminary endangerment assessment regarding potential exposure to health hazards from nearby activities. Any hazards are to be mitigated to less than significant;

v. Would not significantly affect an historic resource;

vi. The site is not subject to wildland fire hazard, unusually high risk of fire/explosion from materials on adjacent properties, health hazard, seismic risk, landslide, or flood plain;

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18 Defined as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

19 Defined as a corridor with fixed route bus service with at least 15-minute service intervals during peak commute hours.

vii. The site is not located on developed open space; and

viii. The project would be 15 percent more-efficient than Title 24 and landscaping would use 25 percent less water than the regional average household;

In addition the project must meet the following:

1. The site is not more than 8 acres;

2. The project does not contain more than 200 units;

3. The project does not result in the net loss of affordable housing;

4. No single level building that exceeds 75,000 square feet;

5. Applicable mitigation, performance standards, criteria from prior EIRs will be incorporated in to the TPP;

6. Project would not conflict with nearby operating industrial use; and

7. Project is located within 0.5 mile of rail transit station, ferry terminal included in RTP or 0.25 mile of high quality transit corridor.

The project must meet at least one of the following:

a) At least 20 percent of the housing will be for moderate income or 10 percent rented to low income, or not less than 5 percent rented to very low income, and developer provides commitment to ensure continued availability to these income groups for the period;

b) Developer pays in-lieu fees pursuant to local ordinance to result in an equivalent number of units that would otherwise be required in a) above; and

c) Project provides public open space 5 acres/1,000 residents.

After a public hearing where a legislative body finds that a TPP meets all the requirements, a project can be declared to be an SCP and can be exempted from CEQA.

Sustainable Communities Environmental Assessment

A TPP that does not meet the Sustainable Communities Project Exemption may nevertheless qualify for a Sustainable Communities Environmental Assessment (SCEA) if the project incorporates all feasible mitigation measures, performance standards, or criteria set forth in prior applicable certified environmental impact reports, including the 2014 RTP/SCS Program EIR.[20] An SCEA is comparable to a mitigated negative declaration since the lead agency must find that all potentially significant impacts of a

[20] Pub. Res. Code § 21155.2(b)

project have been identified, adequately analyzed, and mitigated to a level of insignificance. However, unlike a standard mitigated negative declaration, the SCEA need not consider the cumulative effects of the project that have been adequately addressed and mitigated in prior EIRs. Also, growth-inducing impacts are not required to be referenced, described, or addressed. Additionally, project specific or cumulative global warming impacts from cars and light duty truck trips on the regional transportation network need not be referenced, described, or discussed.

An SCEA is to be circulated for 30 days; comments will be considered; and then the SCEA may be approved after a public hearing provided impacts are mitigated. The SCEA will be reviewed under the substantial evidence standard, which means a court will uphold an agency's decision if there is substantial evidence in light of the whole record to support its action. This is different from the normal CEQA fair argument standard, which is less deferential and states that an EIR must be prepared when after examining the entire record, there is substantial evidence to support a fair argument that the project may have a significant effect on the environment. The substantial evidence standard makes it more difficult for a petitioner to challenge an SCEA.

Transit Priority Project Streamlined Environmental Impact Report

Instead of an SCEA, a lead agency may choose to prepare a streamlined EIR. If, after conducting an Initial Study (IS), the lead agency determines that an EIR is required, it only need address potentially significant impacts. Where a cumulative effect has been adequately addressed and mitigated in a previous EIR that cumulative effect shall not be treated as cumulatively considerable.

The EIR is not required to analyze off-site alternatives to the TPP or discuss a reduced residential density alternative to address the effects of car and light duty truck trips generated by the project. Furthermore, the EIR is not required to include an analysis of growth inducing impacts or any project specific or cumulative impacts from cars and light duty trucks trips generated by the project on global warming or the regional transportation network. The IS must identify any cumulative effects that have been adequately addressed and mitigated in prior applicable certified EIRs and these cumulative effects are not to be treated as cumulatively considerable in the EIR.

Traffic Mitigation Measures

After a public hearing, a legislative body or local jurisdiction may adopt traffic mitigation measures that apply to TPPs, including requirements for the installation of traffic control improvements, street or road improvements, contributions to road improvement or transit funds, transit passes for future residents, or other measures that will avoid or mitigate traffic impacts of TPPs. Such measures must be updated as necessary every five years. If such measures are adopted by a local jurisdiction, no additional traffic

mitigation is required for TPPs. Measures addressing public health and bicycle safety may still be imposed.

1.13.2 Other CEQA Streamlining

SB 375 also provides for general CEQA streamlining for residential and mixed-use residential projects as well as TPPs. Pursuant to Section 21159.28 of the Public Resources Code, projects that meet the following requirements can be subject to streamlined CEQA review:

- A residential or mixed-use residential project (or a TPP) consistent with the designation, density, building intensity, and applicable policies specified for the project area in an accepted SCS (a residential or mixed-use residential project is a project where at least 75 percent of the total building square footage of the project consists of residential use or a project that is a transit priority project); and
- Incorporates the mitigation measures required by an applicable prior environmental document.

If a project meets these requirements, any exemptions, negative declarations, mitigated negative declarations, SCEA, EIR or addenda prepared for the projects shall not be required to reference describe, or discuss:

1. growth inducing impacts; and
2. any project specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network.

CEQA Incentive

As previously discussed, SB 375 provides incentives in the form of CEQA streamlining to encourage community design that supports reduction in per capita GHG emissions and are consistent with the SCS. The Development Types used in the SCS do not represent detailed, parcel-level land use designations such as those found within a local jurisdiction's General Plan, but rather represent the aggregation of multiple land uses, densities and intensities that are expected to preponderate or average out within a neighborhood-sized area by 2040. Each Development Type is comprised of various characteristics related to employment and housing density, urban design, mix of land uses, and transportation options. Details describing the characteristics contained within each Development Type are available in the RTP. The local jurisdiction as the lead agency, not SJCOG will be responsible for making the determination of

consistency for CEQA streamlining purposes, pursuant to the provisions of SB 375, for any given proposed project.[21]

The Development Types included in the SCS represent densities and building intensities. However, it is important to note that the designation represents an average across the Region and is not an absolute project-specific requirement that must be met in order to determine consistency with the SCS. In other words, the SCS was not developed with the intent that each project to be located within a certain area must exactly equal the density and relative use designations that are indicated by the SCS Development Type in order for the project to be found consistent with the SCS's use designation, density, building intensity, and applicable policies. Instead, any given project, having satisfied all of the statutory requirements of either a residential/mixed-use project or TPP as described above, may be deemed by the lead agency to be consistent with the SCS.

1.14 REPORT FORMAT

A principal objective of CEQA is that the environmental review process provide information to agencies, interested parties and the public, and that it allow opportunities for public review and comment regarding potential physical environmental impacts of a project. This document has been prepared so as to be as accessible as possible and more understandable for non-technically oriented reviewers, while at the same time providing the technical information necessary to document conclusions and inform more technically oriented reviewers and decision makers.

A description of the organization of this Program EIR and the content of each section is provided below to assist the reader in using this Program EIR as a source of information about the proposed project. Sections of the Draft Program EIR following this introduction are organized as follows:

Section 2.0, Summary, includes a general description of the environmental setting, project description, and alternatives to the proposed project. Environmental impacts and mitigation measures are summarized in a table.

Section 3.0, Project Description, presents a detailed description of the 2014 RTP/SCS as required by the *State CEQA Guidelines*. Topics addressed in this section include the project objectives and the characteristics of the proposed project.

Section 4.0, Environmental Impact Analysis, contains analysis of each of the environmental topics addressed in this Program EIR. Each topic is addressed in separate subsections: environmental setting,

21 Govt. Code § 65080(b)(2)

regulatory framework, environmental impacts, cumulative effects, mitigation measures, and residual impacts after mitigation.

Section 5.0, Other CEQA Considerations evaluates significant irreversible environmental changes, such as whether the 2014 RTP/SCS would result in the irretrievable commitment of resources or would cause irreversible changes in the environment. This section also includes a discussion of growth inducement including the ways in which the proposed project could foster economic or population growth in the area.

Section 6.0, Alternatives, provides analysis of alternatives to the proposed project. As required by the *State CEQA Guidelines*, the reasons for selecting the analyzed alternatives are discussed, in addition to a comparative analysis of each alternative with the proposed project.

Section 7.0, List of EIR Preparers, provides a list of persons involved in the preparation of this EIR.

Section 8.0, References and Persons Consulted, provides a list of all organizations and persons contacted during preparation of the Draft EIR, and a list of all documents used as a basis of information for the Draft EIR.

Appendices to this EIR include the NOP and written responses, as well as selected technical reports and data used or generated during preparation of the Draft EIR.

2.0 EXECUTIVE SUMMARY

The purpose of the executive summary is to provide a clear and simple description of the project and its potential environmental impacts. Section 15123 of the *California Environmental Quality Act (CEQA) Guidelines*[1] requires the executive summary to identify each significant effect with proposed mitigation measure(s) and alternatives that would minimize or avoid that effect. The summary is also required to 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.

2.1 PROJECT LOCATION AND SETTING

San Joaquin County is located in the San Joaquin Valley in what is considered the Central Valley of California. The County covers approximately 1,440 square miles and is predominantly flat land with some gently rolling hills. The County is bordered to the southwest by the Diablo Range and to the east by the Sierra Nevada foothills. The County contains a combination of metropolitan and rural area with a long history of agricultural activities. Incorporated cities within San Joaquin County include the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. San Joaquin County is considered one of the fastest growing regions in the Central Valley, with the population expected to reach 1,070,486 people by the year 2040. **Figure 2.0-1** illustrates the regional location. Regional access is provided by Interstate 580 (IS 580), Interstate 205 (IS 205), State Route 4 (SR 4), State Route 12 (SR 12), State Route 99 (SR 99), State Route 120 (SR 120), State Route 132 (SR 132), and Highways 26 and 88.

While much of the trend in growth in the region continues to be the result of "spillover" from the Bay Area, the County's geographical advantages and quality of life also contribute to the growth. This growth has led to increased urbanization and the persistent challenge to meet state and federal air quality requirements.

2.2 PROJECT OBJECTIVES

In addition, SJCOG revisited adopted Revenue Policies and project Delivery Policies that target specific issues relating to the funding and delivery of transportation projects in the region to ensure they continue to reflect the values of the region. SJCOG staff conducted a comprehensive review that resulted in the following over-arching goals that guide the plan.

- Enhance the Environment for Existing and Future Generations & Conserve Energy

1 California Environmental Quality Act, *CEQA Guidelines*, Section 15123.

- Maximize Mobility & Accessibility
- Increase Safety & Security
- Preserve the Efficiency of the Existing Transportation System
- Support Economic Vitality
- Promote Interagency Coordination & Public Participation for Transportation Decision-Making & Planning Efforts
- Maximize Cost Effectiveness
- Improve the Quality of Life for Residents

The Plan aligns the sustainability goals with transportation investment strategies by focusing on the following building blocks:

- Identifies land uses patterns that encourage infill development and compact development
- Makes provisions for new residential development growth that makes shifts from single-family development to more multi-family development
- More focus on a multimodal strategy of investments that de-emphasizes highway or roadway expansion but still delivers a system to reduce vehicle miles travelled and peak hour traffic congestion
- Specifically, provides a multimodal transportation network of bus and rail transit, freeway/highway/local roadways, bikeways, walkways, and streetscape projects within available financial resources
- Increases transit operational efficiency through investments in bus and rail transit service that includes more frequency of transit service for all income levels as well as expanded transit service
- Promotes transit-oriented development and furthermore, provides for intermodal connections near or within transit-oriented development such as park and ride lots and bicycle lanes/paths
- Invests in high-tech applications or projects that allow motorists to choose travel options and allow local and state agencies to more quickly respond to incidents on the roadway
- Underscores the importance of maintenance through recognition that routine and preventative maintenance is an integral piece towards transportation efficiency
- Increases active transportation project investments to facilitate public health and active communities
- Encourages new housing and jobs in urbanized areas to better integrate housing, land use, and transportation facilities
- Creates and sustains jobs, both directly and indirectly

SOURCE: Impact Sciences, Inc., February 2014

FIGURE **2.0-1**

Regional Location

1173.001•02/14

- Invests in infrastructure that improves access to intermodal facilities, airports, the Port of Stockton, and commercial hubs key to goods movement

2.3 PROJECT CHARACTERISTICS

The 2014 RTP/SCS is comprised of the following elements: (1) a policy element that presents an overview of the challenges facing the region; the RTP goals, policies and performance outcomes; (2) planning assumptions including growth of population; (3) the SCS, which includes land use policies and forecasted future growth and land use for the region; (4) a strategic investment chapter that includes action elements necessary to implement the Plan and performance measures to determine how the Plan performs; (5) the financial element that summarizes the cost of Plan implementation constrained by a realistic projection of available revenues and provides recommendations for the allocation of funds; (6) a future links chapter that addresses trends that could affect the RTP in future cycles; and (7) a monitoring chapter that addresses monitoring the progress of the transportation system. The RTP also addresses environmental justice. Transportation projects included in the 2014 RTP/SCS are listed in **Appendix 3.0, Detailed RTP Project List**. The projects, policies and strategies that have committed, available, or reasonably available funding sources constitute the 2014 RTP/SCS that is also referred to as the "constrained plan" or Plan. In total, the RTP/SCS assumes $11 billion in projected revenues to be available within the 2040 horizon of the Plan.

The following describes the major functional components of the 2014 RTP/SCS. Chapters that are not covered in this summary description (i.e., Financial Plan, Civic Engagement, Forging Ahead) support the projects, policies, and strategies in the sections described here and do not, on their own, contribute to environmental impacts. The chapters of the 2014 RTP/SCS that are relevant to the analysis of potential environmental impacts of the Plan are as follows: Chapter 1: Introduction – Creating a Sustainable Communities Strategy, Chapter 3: Building Blocks – Policies and Supplemental Strategies, Chapter 5: Performance of the Sustainable Communities Strategy, Chapter 5: Economic Vitality and Chapter 7: Challenges and Opportunities.

2.4 ALTERNATIVES TO THE PROJECT

CEQA requires that an environmental impact report (EIR) describe a range of reasonable alternatives to a proposed project that could feasibly avoid or lessen any significant environmental impacts, while attaining the basic objectives of the project. Comparative analysis of the impacts of these alternatives is required. In response to the significant impacts associated with the proposed project, the San Joaquin COG has developed and considered several alternatives to the project. These alternatives include:

Alternative 1 – No Project Alternative

The No Project Alternative assumes that the RTP/SCS would not be implemented, but at the same time would not necessarily impede development on a project site. The No Project Alternative includes "what would 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. For purposes of this document, the No Project Alternative includes only those transportation projects that are included in the first year of the previously conforming transportation plan and/or TIP, or have completed environmental review by January 2014. These reasonably foreseeable projects fulfill the definition of the CEQA mandated "No Project Alternative." The growth scenario included in the No Project Alternative is based on local general plans.

Alternative 2 – 2011 RTP Alternative

The 2011 RTP Alternative is an update of the adopted 2011 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions. This alternative does not include urban form strategies included within the SCS. The growth scenario for the 2011 RTP Alternative is a combination of local input and existing general plan and land use data provided by local jurisdictions.

Alternative 3 – Compact Development Alternative

The Compact Development Alternative builds on the enhanced density and ideas of the SCS as described in the Plan and goes further. It includes more aggressive densities than the Plan, increases mobility through additional transportation investments, reduces emissions, and limits the development of single-family housing that would be built in the region. The Compact Development transportation network is similar to the Plan network with minor changes to transit frequency. The growth network associated with Compact Development Alternative limits single-family housing as a percentage of new growth to 49.9 percent (as opposed to 58.8 percent under the RTP/SCS). In **Section 6.0, Alternatives, Table 6.0-1,** summarizes the housing mix for each of the alternatives.

2.5 AREAS OF KNOWN CONTROVERSY

The *State CEQA Guidelines* require a Draft EIR to identify areas of controversy known to the lead agency, including issues raised by other agencies and the public. Comments were received from public agencies and interested parties in response to the circulated Notice of Preparation (NOP). In compliance with *State CEQA Guidelines*, the County held one scoping meeting on February 21, 2013 at 555 East Weber Avenue Stockton, California 95202 to solicit comments and to inform the public of the proposed EIR.

Comments received in response to the published NOP (provided in **Appendix 1.0**) did not identify any controversial environmental topics.

2.6 ISSUES TO BE RESOLVED

The *State CEQA Guidelines* require an EIR to present issues to be resolved by the lead agency. These issues include the choice between alternatives and whether or how to mitigate potentially significant impacts. The major issues to be resolved San Joaquin County, as the Lead Agency for the project include the following:

- Whether the recommended mitigation measures should be adopted or modified;
- Whether additional mitigation measures need to be applied to the project; and
- Whether the project or an alternative should be approved.

2.7 A SUMMARY OF PROJECT IMPACTS

A summary of the environmental impacts associated with implementation of the proposed RTP/SCS, mitigation measures included to avoid or lessen the severity of potentially significant impacts, and residual impacts, is provided in **Table 2.0-1, Summary of Project Impacts, Mitigation Measures, and Residual Impacts**, below. It is important to note that SJCOG has no authority to adopt local land use plans or approve local land use projects that will implement the SCS. SB 375 specifically provides that nothing in SB 375 supersedes the land use authority of cities and counties. In addition, cities and counties are not required to change their land use plans and policies, including general plans, to be consistent with an SCS. Local governments are the primary agencies responsible for requiring and monitoring mitigation of the impacts of land use plans and projects that implement the RTP/SCS, and SJCOG has no concurrent authority to mitigate the impacts of land use plans and projects. As such, local agencies retain the discretion to consider which mitigation measures are appropriate to each individual project and whether they are feasible under the location-specific circumstances. Only mitigation measures that are fully under the control of SJCOG are considered in the identification of level of significance after mitigation. In many cases mitigation measures are proposed for implementing agencies. SJCOG does cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process.

Table 2.0-1
Summary Table of Project Impacts and Mitigation Measures

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AESTHETICS		
Impact AES-1: Impair views of scenic resources (i.e., mountains, ocean, rivers, or significant man-made structures) as seen from existing transportation facilities and other key public vantage points in San Joaquin County and/or alter the appearance of designated scenic resources along or near a state-designated or county-designated scenic highway or vista point.	**AES-1:** Impacts to aesthetic resources should be minimized through cooperation, information sharing, and SJCOG's ongoing regional planning efforts. **AES-2:** Implementing and local agencies should identify and protect panoramic views and significant landscape features or landforms and implement project-specific mitigation as applicable. If it is determined that a project would significantly obstruct scenic views, implementing and local agencies should consider alternative designs that seek to avoid and/or minimize obstruction of scenic views to the extent feasible. Project-specific design measures may include reduction in height of improvements or width of improvements to reduce obstruction of views, or relocation of improvements to reduce obstruction of views. **AES-3:** Implementing and local agencies should protect panoramic views and views of significant landscape features or landforms and implement project-specific mitigation as applicable. Implementing local agencies should consider taking the following (or equivalent) actions: • require that the scale and massing of new development in higher-density areas provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights; ensure building heights stepped back from sensitive adjoining uses to maintain appropriate transitions in scale and to protect scenic views; • avoid siting electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines along scenic roadways and routes, to the maximum feasible extent; • prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways; and comply with other local general plan policies and local control related to the protection of panoramic or scenic views or views of significant landscape features or landforms.	With implementation of **Mitigation Measure AES-1** through **AES-3** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AESTHETICS (continued)		
Impact AES-2: Create significant contrasts, with the scale, form, line, color, and/or overall visual character of the existing landscape setting	**AES-4:** Implementing and local agencies should design projects to be visually compatible with surrounding areas that possess high aesthetic value. Implementing and local agencies should design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. The design of projects should minimize intrusion into important viewsheds and use contour grading to better match surrounding terrain. To the maximum extent feasible, landscaping should be designed to add significant natural elements and visual interest to soften hard edges. Projects should, to the extent feasible, avoid large cuts and fills when the visual environment (natural or urban) would be substantially disrupted. **AES-5:** Implementing and local agencies should establish development standards for visually sensitive areas, and, prior to approval of individual projects, to apply such development standards to maintain compatibility with surrounding natural areas, including site coverage, building height and massing, building materials and color, landscaping, site grading, etc. **AES-6:** Implementing and local agencies should ensure that sites should be kept in a blight/nuisance-free condition. Any existing blight or nuisance should be abated within 60 to 90 days of approval, unless an earlier date is specified elsewhere.	With implementation of **Mitigation Measure AES-4** through **AES-6** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AESTHETICS (continued)		
Impact AES-3: Create a new source of substantial light or glare, which could affect day or nighttime views and/or causes a public hazard. Potential for shadow-sensitive uses to be shaded by project-related structures for more than 3 hours in the winter or for more than 4 hours during the summer.	**AES-7:** Implementing and local agencies should design measures to reduce glare, light, and shadow. As part of planning, design, and engineering for projects, implementing and local agencies should ensure that projects proposed near light-sensitive uses avoid substantial spillover lighting. Design measures could include the following: • Luminaries will be cutoff-type fixtures that cast low-angle illumination to minimize incidental spillover of light onto adjacent private properties and undeveloped open space. Fixtures that project light upward or horizontally will not be used. • Luminaries will be directed away from habitat and open space areas adjacent to the project site. • Luminaries will provide good color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color corrected will not be used. Intensity will be approximately 10 lux for roadway intersections. • Luminary mountings will be downcast and the height of the poles minimized to reduce potential for backscatter into the nighttime sky and incidental spillover of light onto adjacent private properties and undeveloped open space. Light poles will be 20 feet high or shorter. Luminary mountings will have non-glare finishes. • Exterior lighting features should be directed downward and shielded in order to confine light to the boundaries of the subject project. Where more intense lighting is necessary for safety purposes, the design should include landscaping to block light from sensitive land uses, such as residences.	With implementation of **Mitigation Measure AES-7** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AGRICULTURAL RESOURCES		
Impact AG-1: Convert prime farmland, unique farmland, or farmland of statewide importance (farmland), as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.	**AG-1**: Implementing and local agencies should establish preservation ratios to minimize loss of prime, unique, and statewide importance farmland, such as the preservation of 1 acre of unprotected agricultural land being permanently conserved for each acre of open space developed. **AG-2:** Implementing and local agencies should encourage urban development, in place of development in rural and sensitive areas. Local jurisdictions should seek funding to prepare specific plans and related environmental documents to facilitate mixed-use development, and to allow these areas to serve as receiver sites for transfer of development rights away from environmentally sensitive lands and rural areas outside established urban growth boundaries. **AG-3:** Implementing and local agencies should identify and minimize impacts to agricultural resources through project design. Prior to the design approval of RTP/SCS projects, the implementing agency should assess the project area for agricultural resources and constraints. For federally funded projects, implementing and local agencies are required to follow the rules and regulations of Farmland Protection Policy Act including determining the impact by completing the Farmland Conversion Impact Rating form (AD-1006). For non-federally funded projects, implementing and local agencies should assess projects for the presence of important farmlands (prime farmland, unique farmland, farmland of statewide importance), and if present, perform a Land Assessment and Site Evaluation (LESA). **AG-4:** Implementing and local agencies should minimize and avoid agricultural resources located within the limits of a proposed project. If significant agricultural resources are identified within the limits of a project, implementing and local agencies should consider alternative designs that seek to avoid and/or minimize impacts to the agricultural resources. Design measures could include, but are not limited to, reducing the footprint of a roadway or development or relocating/realigning a project to avoid important and significant farmlands. If a project cannot be designed without complete avoidance of important or significant farmlands, implementing and local agencies should compensate for unavoidable conversion impacts in accordance with the Farmland Protection Policy Act and local and regional standards, which may include enrolling off-site agricultural lands under a Williamson Act contract or other conservation easement, or paying mitigation fees.	With implementation of **Mitigation Measure AG-1** through **AG-4** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AGRICULTURAL RESOURCES (continued)		
Impact AG-2: Conflict with existing zoning or land use designation for agricultural use, or a Williamson Act contract.	Implement **Mitigation Measure AG-1** through **AG-4.**	With implementation of **Mitigation Measure AG-1** through **AG-4** impacts would remain significant and unavoidable.
Impact AG-3: Conflict with existing zoning or land use designation for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220(G)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104(G)); Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) or conversion of Forest Land into non-forest use.	Implement **Mitigation Measure AG-2.** **AG-5:** Implementing and local agencies should establish preservation ratios to minimize loss of forest land, and timberland, such as 1 acre of unprotected forest land and timber land to be permanently conserved for each acre of open space developed as a result of individual projects. **AG-6:** Implementing and local agencies should implement design features in RTP/SCS projects to minimize impacts. Implementing agencies should consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid forest lands and timberlands and to reduce conflicts between transportation uses and forest and timberlands.	With implementation of **Mitigation Measure AG-2, AG-5,** and **AG-6** impacts would remain significant and unavoidable.
Impact AG-4: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use.	Implement **Mitigation Measure AG-1** through **AG-4.**	With implementation of **Mitigation Measure AG-1** through **AG-4** impacts would remain significant and unavoidable.
AIR QUALITY		
Impact AIR-1: Projected long-term emissions of criteria pollutants are considered significant if they are substantially greater than current emission levels.	No mitigation is required.	Less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
Impact AIR-2: Projected short-term emissions of criteria pollutants (construction of transportation projects and anticipated development) are considered to be significant if they would exceed the thresholds established by the local air districts.	**AIR-1:** The SVAPCD will encourage implementing and local agencies to require contractors to assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that could be used an aggregate of 40 or more hours for the construction project and apply the following: • Prepare a plan for approval by the applicable air district demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. A Construction Mitigation Calculator (MS Excel) may be downloaded from the Sacramento Metropolitan Air Quality Management District web site to perform the fleet average evaluation http://www.airquality.org/ceqa/index.shtml. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary off-site mitigation projects, provide funds for air district off-site mitigation projects, and/or other options as they become available. The air district should be contacted to discuss alternative measures. • Ensure that all construction equipment is properly tuned and maintained. • Minimize idling time to 5 minutes – saves fuel and reduces emissions. • Provide an operational water truck on-site at all times. Apply water to control dust as needed to prevent dust impacts off-site. • Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. • Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.	With implementation of **Mitigation Measure AIR-1** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
	AIR-1: (continued) • As appropriate require that portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, obtain California Air Resources Board (ARB) Portable Equipment Registration with the state or a local district permit. Arrange appropriate consultations with the ARB or the District to determine registration and permitting requirements prior to equipment operation at the site.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
Impact AIR-3: Projected long-term emissions of toxic air contaminants (diesel particulate matter from heavy-duty diesel trucks and other emissions from industrial activities) are considered significant if they would be greater than current emission levels.	**AIR-2:** Implementing and local agencies should implement measures adopted by ARB designed to attain federal air quality standards for PM 2.5. CARB's strategy includes the following elements: • Set technology forcing new engine standards; • Reduce emissions from the in-use fleet; • Require clean fuels, and reduce petroleum dependency; • Work with USEPA to reduce emissions from federal and state sources; and • Pursue long-term advanced technology measures. • Proposed new transportation–related SIP measures include: **On-road Sources** • Improvements and Enhancements to California's Smog Check Program • Expanded Passenger Vehicle Retirement • Modifications to Reformulated Gasoline Program • Cleaner In-Use Heavy-Duty Trucks • Ship Auxiliary Engine Cold Ironing and Other Clean Technology • Cleaner Ship Main Engines and Fuel • Port Truck Modernization • Accelerated Introduction of Cleaner Line-Haul Locomotives • Clean Up Existing Commercial Harbor Craft **Off-road Sources** • Cleaner Construction and Other Equipment • Cleaner In-Use Off-Road Equipment • Agricultural Equipment Fleet Modernization • New Emission Standards for Recreational Boats • Off-Road Recreational Vehicle Expanded Emission Standards	With implementation of **Mitigation Measure AIR-2** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
Impact AIR-4: Localized concentrations of toxic air contaminants at sensitive receptors (short-term and/or long-term) are considered significant if they would exceed existing conditions.	**AIR-3:** SJCOG shall pursue the following activities in reducing the impact associated with health risk within 500 feet of freeways and high-traffic volume roadways: • Participate in ongoing statewide deliberations on health risks near freeways and high-traffic volume roadways. This involvement includes inputting to the statewide process by providing available data and information such as the current and projected locations of sensitive receptors relative to transportation infrastructure; • Work with air agencies including ARB and SJVAPCD to support their work in monitoring the progress on reducing exposure to emissions of PM10 and PM2.5 for sensitive receptors, including schools and residents within 500 feet of high-traffic volume roadways; • Work with stakeholders to identify planning and development practices that are effective in reducing health impacts to sensitive receptors; and • Share information on all of the above efforts with stakeholders, member cities, counties and the public. **AIR-4:** Implementing and local agencies should comply with the CARB recommendations to achieve an acceptable interior air quality level for sensitive receptors, project sponsors can and should identify appropriate measures, to be incorporated into project building design for residential, school and other sensitive uses located within 500 feet (or other appropriate distance as may be identified by CARB) of freeways, heavily travelled arterials, railways and other sources of Diesel particulate Matter and other known carcinogens. The appropriate measures should include one or more of the following methods as may be appropriate: a. The project sponsor should retain a qualified air quality consultant to prepare a health risk assessment (HRA) in accordance with the California Air Resources Board and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to stationary air quality polluters prior to issuance of a demolition, grading, or building permit. The HRA should be submitted to the Lead Agency for review and approval. The sponsor should implement the approved HRA recommendations, if any. If the HRA concludes that the air quality risks from nearby sources are at or below acceptable levels, then additional measures are not required.	With implementation of **Mitigation Measure AIR-3** through **AIR-7** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
	AIR-4: (continued) b. The project sponsor should implement the following features that have been found to reduce the air quality risk to sensitive receptors and should be included in the project construction plans. These should be submitted to the appropriate agency for review and approval prior to the issuance of a demolition, grading, or building permit and ongoing. i. Do not locate sensitive receptors near distribution center's entry and exit points. ii. Do not locate sensitive receptors in the same building as a perchloroleythene dry cleaning facility. iii. Maintain a 50-foot buffer from a typical gas dispensing facility (under 3.6 million gallons of gas per year). iv. Install, operate, and maintain in good working order a central heating and ventilation (HV) system or other air take system in the building, or in each individual residential unit, that meets the efficiency standard of the MERV 13. The HV system should include the following features: Installation of a high efficiency filter and/or carbon filter-to-filter particulates and other chemical matter from entering the building. Either HEPA filters or ASHRAE 85 percent supply filters should be used. v. Retain a qualified HV consultant or HERS rater during the design phase of the project to locate the HV system based on exposure modeling from the mobile and/or stationary pollutant sources. vi. Maintain positive pressure within the building. vii. Achieve a performance standard of at least one air exchange per hour of fresh outside filtered air. viii. Achieve a performance standard of at least four air exchanges per hour of recirculation ix. Achieve a performance standard of 0.25 air exchanges per hour of in unfiltered infiltration if the building is not positively pressurized.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
	AIR-4: (continued) c. Project sponsor should maintain, repair and/or replace HV system or prepare an Operation and Maintenance Manual for the HV system and the filter. The manual should include the operating instructions and maintenance and replacement schedule. This manual should be included in the CC&Rs for residential projects and distributed to the building maintenance staff. In addition, the sponsor should prepare a separate Homeowners Manual. The manual should contain the operating instructions and maintenance and replacement schedule for the HV system and the filters. It should also include a disclosure to the buyers of the air quality analysis findings. d. To the maximum extent practicable the Lead Agency can and should ensure that private (individual and common) exterior open space, including playgrounds, patios, and decks, should either be shielded from stationary sources of air pollution by buildings or otherwise buffered to further reduce air pollution exposure for project occupants. **AIR-5:** Implementing and local agencies should, as applicable and feasible, investigate (using for example procedures and guidelines for PM hotspot analysis consistent with USEPA (2010) PM guidance) the relationship between (1) any increases in PM10 and PM2.5 within 500 feet of freeways in their jurisdiction, and (2) existing sensitive receptors in that area that do not have adequate air filtration to reduce such impacts to a less than significant level. To the extent that existing sensitive receptors are identified that do not have adequate air filtration, local jurisdictions may establish a program by which project sponsors can mitigate significant increases in PM10 and PM2.5 (e.g., by providing a retrofit program for older higher emitting vehicles, anti-idling requirements or policies, controlling fugitive dust, routing traffic away from populated zones, replacing older buses with cleaner buses, and paying in to a fund established to retrofit sensitive receptors with HEPA filters when sensitive receptors are located within 500 feet of freeways and high-traffic volume roadways that generate substantial diesel particulate emissions). **AIR-6:** Implementing and local agencies should, as applicable and feasible, plant appropriate vegetation to reduce PM10/PM2.5 when constructing a sensitive receptor within 500 feet of freeways and high-traffic volume roadways generating substantial diesel particulate emissions. **AIR-7:** Implementing and local agencies for major transportation projects (especially those that generate substantial diesel particulate emissions) in the region, if health risks are shown to increase significantly at sensitive receptors within 500 feet of a transportation facility, should consider applicable mitigation. Examples include planting appropriate vegetation and retrofitting existing sensitive uses with air filtration to reduce potential health risk impacts to a less than significant level.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
AIR QUALITY (continued)		
Impact AIR-5: Projected long-term emissions would be considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans.	No mitigation is required.	Less than significant.
BIOLOGICAL RESOURCES		
Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife CDFW or USFWS.	**BIO-1**: Implementing and local agencies should retain a qualified botanist to document the presence or absence of special-status plants before project implementation. Implement the following steps to document special-status plants: • **Review Existing Information.** The botanist shall review the most current existing information to develop a list of special-status plants that have a potential to occur in the specific project area. Sources of information consulted shall include CDFW's CNDDB, previously prepared environmental documents, city and county general plans, HCPs and NCCPs, and the CNPS electronic inventory. • **Coordinate with Agencies.** The botanist shall coordinate with the appropriate agencies (CDFW, USFWS, Caltrans) to discuss botanical resource issues and determine the appropriate level of surveys necessary to document special-status plants. • **Conduct Field Studies.** The botanist shall evaluate existing habitat conditions for each project and determine what level of botanical surveys may be required. The type of botanical survey shall depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required: • **Habitat Assessment.** A habitat assessment will be conducted to determine whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys shall be required.	With implementation of **Mitigation Measure BIO-1,** through **BIO-4** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-1: (continued) • **Species-Focused Surveys.** Species-focused surveys (or target species surveys) shall be conducted if suitable habitat is present for special-status plants. The surveys shall focus on special-status plants that could grow in the region, and would be conducted during a period when the target species are evident and identifiable. • **Floristic Protocol-Level Surveys.** Floristic surveys that follow the CNPS Botanical Survey Guidelines shall be conducted in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The CNPS Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants, or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer months. • Special-status plant populations identified during the field surveys shall be mapped and documented as part of CEQA and NEPA process, as applicable. As part of the processes, the implementing agency should prepare alternative designs that seek to avoid and/or minimize impacts to the special-status plants. If the project cannot be designed without complete avoidance, the implementing agency shall coordinate with the appropriate regulatory agency (*i.e.*, USFWS, NMFS, CDFG, USACE) to obtain regulatory permits and implement project-specific mitigation prior to any construction activities. In addition, the implementing agency can choose to compensate for the loss of area occupied by special-status plants through participation in the SJMSCP.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-2: If special-status plants are identified in their project area, the implementing and local agencies that are the proponents of specific projects included in the proposed RTP/SCS shall implement the following measures to avoid and minimize impacts on special-status plants: • Redesign or modify their project to avoid direct and indirect impacts on special status plants, if feasible. • Protect special-status plants near their project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations. The environmentally sensitive area fencing shall be installed at least 20 feet from the edge of the population. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area. Coordinate with the appropriate resource agencies and local experts to determine whether transplantation is feasible. If the agencies concur that transplantation is a feasible mitigation measure, the botanist shall develop and implement a transplantation plan through coordination with the appropriate agencies. The special-status plant transplantation plan shall involve identifying a suitable transplant site; moving the plant material and seed bank to the transplant site; collecting seed material and propagating it in a nursery; and monitoring the transplant sites to document recruitment and survival rates. **BIO-3:** Implementing and local agencies should retain a qualified wildlife biologist to document the presence or absence of suitable habitat for special-status wildlife in the highway project study area. The following steps shall be implemented to document special-status wildlife and their habitats for each highway project:	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-3: (continued) • **Review Existing Information.** The wildlife biologist shall review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information shall be reviewed as part of this process: the USFWS special-status species list for the project region, CDFW's CNDDB, previously prepared environmental documents, city and county general plans, HCPs and NCCPs (if applicable), and USFWS issued biological opinions for previous projects. • **Coordinate with State and Federal Agencies.** The wildlife biologist shall coordinate with the appropriate agencies (CDFW, USFWS, and Caltrans) to discuss wildlife resource issues in the project region and determine the appropriate level of surveys necessary to document special-status wildlife and their habitats. • **Conduct Field Studies.** The wildlife biologist shall evaluate existing habitat conditions and determine what level of biological surveys may be required. The type of survey required shall depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or a combination of the following levels of survey may be required: • **Habitat Assessment.** A habitat assessment determines whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and to determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys shall be required. • **Species-Focused Surveys.** Species-focused surveys (or target species surveys) shall be conducted if suitable habitat is present for special-status wildlife and if it is necessary to determine the presence or absence of the species in the project area. The surveys shall focus on special-status wildlife species that have the potential to occur in the region. The surveys shall be conducted during a period when the target species are present and/or active.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	• **Protocol-Level Wildlife Surveys.** The project proponent shall comply with protocols and guidelines issued by responsible agencies for certain special-status species. USFWS and CDFW have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) the California red-legged frog, blunt-nosed leopard lizard, desert tortoise and San Joaquin kit fox. The protocols and guidelines may require that surveys be conducted during a particular time of year and/or time of day when the species is present and active. Many survey protocols require that only a USFWS permitted or CDFW-approved biologist perform the surveys. The project proponent shall coordinate with the appropriate state or federal agency biologist before the initiation of protocol-level surveys to ensure that the survey results would be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species. Implementing agencies that chose to participate in the SJMSCP shall conduct surveys in accordance with the guidelines set forth in the SJMSCP. Special-status wildlife or suitable habitat identified during the field surveys shall be mapped and documented as part of the CEQA and NEPA documentation, as applicable. **BIO-4:** Implementing and local agencies should implement the following measures to avoid and minimize impacts on special-status wildlife and their habitats: • Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-4: (continued) • Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking shall be installed at a distance from the edge of the resource determined through coordination with state and federal agency biologists (USFWS and CDFW). Implementing agencies that choose to participate in the SJMSCP shall consult and coordinate with SJCOG. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area. • Restrict construction-related activities to the non-breeding season for special-status wildlife species that could occur in the project area. Timing restrictions may vary depending on the species and could occur during any time of the year. Coordinate with the appropriate resource agencies to determine whether a monitoring plan for special-status wildlife is necessary as part of all highway projects. If a monitoring plan is required, it shall be developed and implemented in coordination with appropriate agencies and shall include – a description of each of the protected wildlife species and any suitable habitat for special-status species that could occur at the project site; – the locations of known occurrences of special-status wildlife species within 1.0 mile of the project site; – the location and size of no-disturbance zones in and adjacent to environmentally sensitive areas for wildlife; – directions on the handling and relocating of special-status wildlife species found on the project site that are in immediate danger of being destroyed; and – notification and reporting requirements for special-status species that are identified on the project site.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.	**BIO-5:** Implementing and local agencies should retain a qualified biologist to document the location, type, extent, and habitat functions and values for riparian communities that occur in the site-specific project area and could be affected by their project. This information shall be mapped and documented as part of CEQA and NEPA documentation, as applicable. **BIO-6:** If riparian communities are present in the project area, implementing and local agencies should avoid or minimize impacts on riparian communities by implementing the following measures: If riparian communities are present in the project area, avoid or minimize impacts on riparian communities by implementing the following measures: • Redesign or modify the project to avoid direct and indirect impacts on riparian communities, if feasible. • Protect riparian communities near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the riparian vegetation. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area. • Minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire shrub. Shrub vegetation shall be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration of the species. Cutting shall be limited to a minimum area necessary within the construction zone. This type of removal shall be allowed only for shrub species (all trees shall be avoided) in areas that do not provide habitat for sensitive species (e.g., willow flycatcher). To protect migratory birds, no woody riparian vegetation shall be allowed beginning March 15 and ending September 15, as required under the Migratory Bird Treaty Act.	With implementation of **Mitigation Measure BIO-5**, through **BIO-7** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-7: If riparian vegetation is removed as part of their project, implementing and local agencies should compensate for the loss of riparian vegetation to ensure no net loss of habitat functions and values. Compensation ratios shall be based on site-specific information and determined through coordination with state and federal agencies (including CDFW, USFWS, USACE, and National Marine Fisheries Service [NMFS]). Compensation shall be provided at a minimum 1:1 ratio (1 acre restored or created for every 1 acre removed) and may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. Develop a restoration and monitoring plan that describes how riparian habitat shall be enhanced or recreated and monitored over a minimum period of time, as determined by the appropriate state and federal agencies. Implement the restoration and monitoring plan. Alternatively, compensation and monitoring requirements can be met through participation in the SJMSCP.	
Impact BIO-3: Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.	**BIO-8:** Implementing and local agencies should identify wetlands using both USACE and USFWS/CDFW definitions of wetlands. USACE jurisdictional wetlands shall be delineated using the methods outlined in the USACE 1987 Wetlands Delineation Manual and the Arid West Manual. The jurisdictional boundary for other waters of the United States shall be identified based on: The shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area (33 CFR 328.3[e]). This information shall be mapped and documented as part of the CEQA and NEPA documentation, as applicable, and in wetland delineation reports.	With implementation of **Mitigation Measure BIO-8**, through **BIO-10** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-9: Implementing and local agencies should avoid and minimize impacts on wetlands and other waters of the United States (creeks, steams, and rivers) by implementing the following measures: • Redesign or modify the project to avoid direct and indirect impacts on wetland habitats. • Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the wetland. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands that are considered special-status shrimp habitat). The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area. • Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, shall be used. • Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation. • Stabilize exposed slopes and stream banks immediately on completion of installation activities. Other waters of the United States shall be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system. • In highly erodible stream systems, stabilize banks using a non-vegetative material that will bind the soil initially and break down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
	BIO-9: (continued) • During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank. These measures shall be incorporated into contract specifications and implemented by the construction contractor. In addition, the project proponent shall ensure that the contractor incorporates all state and federal permit conditions into construction specifications. If the implementing agency chooses to participate in the SJMSCP, all SJMSPC conditions shall also be incorporated into construction specifications. **BIO-10:** If the implementing agency chooses to participate in the SJMSCP, all SJMSPC conditions shall also be incorporated into construction specifications. Compensation ratios shall be based on site-specific information and determined through coordination with state and federal agencies (including CDFW, USFWS, and USACE). The compensation shall be at a minimum 1:1 ratio (1 acre restored or created for every 1 acre filled) and may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. A restoration and monitoring plan shall be developed and implemented if on-site or off-site restoration or creation is chosen. The plan shall describe how wetlands shall be created and monitored over a minimum of five years (or as required by the regulatory agencies). Alternatively, compensation and monitoring requirements can be met through participation in the SJMSCP.	
Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	**BIO-11:** Prior to design approval of RTP/SCS projects that contain movement habitat, the implementing agency should incorporate economically viable design measures, as applicable and necessary, to allow wildlife or fish to move through the transportation corridor, both during construction activities and post construction. Such measures may include appropriately spaced breaks in a center barrier, or other measures that are designed to allow wildlife to move through the transportation corridor. If the project cannot be designed with these design measures due to traffic safety, etc., the implementing agency shall coordinate with the appropriate regulatory agency (i.e., USFWS, NMFS, CDFW) to obtain regulatory permits and implement alternative project-specific mitigation prior to any construction activities.	With implementation of **Mitigation Measure BIO-11,** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
BIOLOGICAL RESOURCES (continued)		
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a preservation policy or ordinance.	Implement **Mitigation Measure BIO-1** through **BIO-11.** **BIO-12:** Implementing agencies should ensure that projects comply with general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements shall be demonstrated in project-level environmental documentation. Ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.	With implementation of **Mitigation Measure BIO-1** through **BIO-12,** impacts would be less than significant.
Impact BIO-6: Conflict with the provisions of an adopted habitat conservation plan (HCP), natural communities conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan.	Implement **Mitigation Measure BIO-1** through **BIO-11.** **BIO-12:** Implementing agencies should ensure that projects comply with general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements shall be demonstrated in project-level environmental documentation. Ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.	With implementation of **Mitigation Measure BIO-1** through **BIO-12,** impacts would be less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
CULTURAL RESOURCES		
Impact CR-1: Cause a substantial adverse change in the significance of a historical structure as defined in CEQA Guidelines Section 15064.5.	**CR-1:** Implementing and local agencies should require historical resource studies and to identify and implement project-specific mitigation. As part of planning, design, and engineering for projects, implementing and local agencies should ensure that historic resources are treated in accordance with applicable federal, state, and local laws and regulations. When a project has been identified as potentially affecting a historical resource, a historical resources inventory should be conducted by a qualified architectural historian. The study should comply with *State CEQA Guidelines* section 15064.5(b), and, if federal funding or permits are required, with section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC Sec. 470 et seq.). As applicable, the study should consist of the following elements: • a records search at the Southern San Joaquin Valley Information Center (California State University, Bakersfield); • contact with local historical societies, museums, or other interested parties as appropriate to help determine locations of known significant historical resources; • necessary background, archival and historic research; • a survey of built environment/architectural resources that are 50 years old or older that may be directly or indirectly impacted by project activities; and • recordation and evaluation of built environment/architectural resources that are 50 years old or older that may be directly or indirectly impacted by project activities; • buildings should be evaluated under CRHR and/or NRHP Criteria as appropriate and recorded on California Department of Parks and Recreation 523 forms. • These elements should be compiled into a Historical Survey Report that should be submitted to the Southern San Joaquin Valley Information Center (California State University, Bakersfield) and should also be used for SHPO consultation if the project is subject to NHPA section 106	With implementation of **Mitigation Measure CR-1** and **CR-2,** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
CULTURAL RESOURCES (continued)		
	CR-1: (continued) If architectural resources are deemed as potentially eligible for the California Register of Historic Resources or the National Register of Historic Places, implementing and local agencies should consider avoidance through project redesign as feasible and appropriate. If avoidance is not feasible, implementing or local agencies should ensure that historic resources are formally documented through the use of large-format photography, measured drawings, written architectural descriptions, and historical narratives. The documentation should be entered into the Library of Congress, and archived in the California Historical Resources Information System. In the event of building relocation, implementing and local agencies should ensure that any alterations to significant buildings or structures conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. **CR-2:** Impacts to cultural resources should be minimized through cooperation, information sharing, and ongoing regional planning efforts. Resource agencies, such as the Office of Historic Preservation, shall be consulted during this process.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
CULTURAL RESOURCES (continued)		
Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	**CR-3:** Implementing and local agencies should require consultation, surveys, and monitoring for archaeological resources During environmental review of projects, implementing and local agencies should: • Consult with the Native American Heritage Commission to determine whether known sacred sites are in the project area, and identify the Native American(s) to contact to obtain information about the project area. • Conduct a records search at the Southern San Joaquin Valley Information Center (California State University, Bakersfield) to determine whether the project area has been previously surveyed and whether resources were identified. In the event the records indicate that no previous survey has been conducted, the Southern San Joaquin Valley Information Center (California State University, Bakersfield) will make a recommendation on whether a survey is warranted based on the archaeological sensitivity of the project area. If recommended, a qualified archaeologist should be retained to conduct archaeological surveys. The significance of any resources that are determined to be in the project area should be assessed according to the applicable local, state, and federal significance criteria. Implementing and local agencies should devise treatment measures to ameliorate "substantial adverse changes" to significant archaeological resources, in consultation with qualified archaeologists and other concerned parties. Such treatment measures may include avoidance through project redesign, data recovery excavation, and public interpretation of the resource. Implementing and local agencies and the contractors performing the improvements should adhere to the following requirements: • If a project is located in an area rich with cultural materials, implementing and local agencies should retain a qualified archaeologist to monitor any subsurface operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property.	With implementation of **Mitigation Measure CR-3** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
CULTURAL RESOURCES (continued)		
	CR-3: (continued) • If, during the course of construction cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) are discovered work should be halted immediately within 50 meters (165 feet) of the discovery, implementing and local agencies should be notified, and a qualified archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology should be retained to determine the significance of the discovery. • Implementing and local agencies should consider mitigation recommendations presented by a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology for any unanticipated discoveries and should carry out the measures deemed feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project proponent should be required to implement any mitigation necessary for the protection of cultural resources.	
Impact CR-3: Directly or indirectly destroy a unique paleontological resource or site.	**CR-4:** Implementing and local agencies should identify, survey, and evaluate paleontological resources to avoid potential impacts. During environmental review implementing and local agencies should retain a qualified paleontologist to identify, survey, and evaluate paleontological resources where potential impacts are considered high. All construction activities should avoid known paleontological resources, if feasible, especially if the resources in a particular lithologic unit formation have been determined to be unique or likely to contain paleontological resources. If avoidance is not feasible, paleontological resources should be excavated by a qualified paleontologist and given to a local agency, State University, or other applicable institution, where they could be curated and displayed for public education purposes.	With implementation of **Mitigation Measure CR-4** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
CULTURAL RESOURCES (continued)		
Impact CR-4: Disturb any human remains, including those interred outside of formal cemeteries.	Implement **Mitigation Measure CR-2** and **CR-4.** **CR-5**: Implementing and local agencies should implement Stop-Work and Consultation Procedures Mandated by Public Resources Code 5097. In the event of discovery or recognition of any human remains during construction or excavation activities implementing and local agencies should cease further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the following steps are taken: • The San Joaquin County Coroner has been informed and has determined that no investigation of the cause of death is required. • If the remains are of Native American origin, either of the following steps will be taken: – The coroner should contact the Native American Heritage Commission in order to ascertain the proper descendants from the deceased individual. The coroner should make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods, which may include obtaining a qualified archaeologist or team of archaeologists to properly excavate the human remains. – Implementing or local agencies or authorized representatives should retain a Native American monitor, and an archaeologist, if recommended by the Native American monitor, and rebury the Native American human remains and any associated grave goods, with appropriate dignity, on the property and in a location that is not subject to further subsurface disturbance when any of the following conditions occurs: – The Native American Heritage Commission is unable to identify a descendent. – The descendant identified fails to make a recommendation. – The implementing agency or its authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.	With implementation of **Mitigation Measure CR-2, CR-4,** and **CR-5** impacts would be less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
GEOLOGY, SOILS, AND MINERAL RESOURCES		
Impact GEO-1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving: (a) a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issues 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; (d) Landslides.	No mitigation is required.	Less than significant.
Impact GEO-2: Result in substantial soil erosion or the loss of topsoil.	**GEO-1:** Implementing and local agencies should require the development and implementation of detailed erosion control measures, consistent with the CBC and UBC regulations and guidelines and/or local NPDES, to address erosion control specific to the project site; revegetate sites to minimize soil loss and prevent significant soil erosion; avoid construction on unstable slopes and other areas subject to soil erosion where possible; require management techniques that minimize soil loss and erosion; manage grading to maximize the capture and retention of water runoff through ditches, trenches, siltation ponds, or similar measures; and minimize erosion through adopted protocols and standards in the industry. The implementing local agencies should also require land use and transportation projects to comply with locally adopted grading, erosion, and/or sediment control ordinances beginning when any preconstruction or construction-related grading or soil storage first occurs, until all final improvements are completed.	With implementation of **Mitigation Measure GEO-1** impacts would remain significant and unavoidable.
Impact GEO-3: Locate projects on a geologic unit 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	No mitigation is required.	Less than significant.
Impact GEO-4: Locate projects on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	No mitigation is required.	Less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
GEOLOGY, SOILS, AND MINERAL RESOURCES (continued)		
Impact GEO-5: Result in the loss of availability of known aggregate and mineral resources that would be of value to the region and residents of the state.	**GEO-2:** Implementing and local agencies should coordinate with the Department of Conservation, California Geological Survey to maintain a database of (1) available resources in the region including permitted and un-permitted and (2) the anticipated 50-year demand. Based on the results of this survey Local agencies should implement strategies to address anticipated demand, including identifying future sites that may seek permitting and working with industry experts to identify ways to encourage and increase recycling to reduce the demand for aggregate. **GEO-3:** Local jurisdictions should review availability of aggregate and mineral resources in their jurisdiction and should develop a long-range plan to meet demand.	With implementation of **Mitigation Measure GEO-2** and **GEO-3** impacts would remain significant and unavoidable.
GREENHOUSE GASES		
Impact GHG-1: Increase GHG emissions compared to existing conditions (2012).	**GHG-1:** SJCOG shall update future Regional Transportation Plans (including Sustainable Community Strategies) to incorporate policies and measures that build upon successful GHG reduction strategies form the 2014 RTP/SCS and lead to further reduced greenhouse gas (GHG) emissions. Such policies and measures may be derived from the General Plans, local jurisdictions' Climate Action Plans (CAPs), and other adopted policies and plans of its member agencies that include GHG mitigation and adaptation measures or other sources. **GHG-2:** Local governments should adopt policies and develop practices that lead to GHG emission reductions. These activities will include, but are not limited to, providing technical assistance and information sharing on developing local Climate Action Plans.	With implementation of **Mitigation Measure GHG-1** through **GHG-3** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
GREENHOUSE GASES (continued)		
	GHG-3: Implementing and local agencies should adopt and implement Climate Action Plans (CAPs, also known as Plans for the Reduction of Greenhouse Gas Emissions as described in *State CEQA Guidelines* Section 15183.5 Tiering and Streamlining the Analysis of Greenhouse Gas Emissions) that do the following: a) Quantify GHG emissions, both existing and projected over a specified period, resulting from activities within each agency's jurisdiction; b) Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable; c) Identify and analyze the GHG emissions resulting for specific actions or categories of actions anticipated within their respective jurisdictions; d) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level; e) Establish a mechanism to monitor the plan's progress toward achieving that level and to require amendment if the plan is not achieving specified levels; and f) Be adopted in a public process following environmental review. CAPs should, when appropriate, incorporate planning and land use measures from the California Attorney General's latest list of example policies to address climate change at both the plan and project level. Specifically, at the plan level, land use plans can and should, when appropriate, incorporate planning and land use measures from the California Attorney General's latest list of example policies to address climate change (http://ag.ca.gov/globalwarming/pdf/GP_policies.pdf), including, but not limited to policies from that web page such as: • Smart growth, jobs/housing balance, transit-oriented development, and infill development through land use designations, incentives and fees, zoning, and public private partnerships • Create transit, bicycle, and pedestrian connections through planning, funding, development requirements, incentives and regional cooperation, and create disincentives for auto use • Energy and water-efficient buildings and landscaping through ordinances, development fees, incentives, project timing, prioritization, and other implementing tools.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
GREENHOUSE GASES (continued)		
	GHG-3: (continued) In addition, implementing and local agencies should incorporate, as appropriate, policies to encourage implementation of the Attorney General's list of project-specific mitigation measures available at the following web site: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf, including, but not limited to measures from the web page, such as: • Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation • Build or fund a major transit stop within or near development • Provide public transit incentives such as free or low-cost monthly transit passes to employees, or free ride areas to residents and customers • Incorporate bicycle lanes, routes and facilities into street systems, new subdivisions, and large developments • Require amenities for non-motorized transportation, such as secure and convenient bicycle parking. They should also incorporate, when appropriate, planning and land use measures from additional resources listed by the California Attorney General at the following webpage: http://ag.ca.gov/globalwarming/ceqa/resources.php. In addition, CAPs should also incorporate analysis of climate change adaptation, in recognition of the likely and potential effects of climate change in the future regardless of the level of mitigation and in conjunction with Executive Order S-13-08, which seeks to enhance the state's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of state's first climate adaptation strategy.	
Impact GHG-2: Conflict with AB 32 or other applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases.	Implement **Mitigation Measure GHG-1** through **GHG-3.**	With implementation of **Mitigation Measure GHG-1** through **GHG-3** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
GREENHOUSE GASES (continued)		
Impact GHG-3: Conflict with SB 375 GHG emission reduction targets.	No mitigation is required.	Less than significant.
HAZARDS AND HAZARDOUS MATERIALS		
Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	No mitigation is required.	Less than significant.
Impact HAZ-2: 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.	No mitigation is required.	Less than significant.
Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	No mitigation is required.	Less than significant.
Impact HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.	**HAZ-1**: Implementing and local agencies should determine whether specific project sites are listed on government lists of hazardous materials and/or waste sites compiled pursuant to Government Code Section 65962.5. Implementing and local agencies should require preparation of a Phase I Environmental Site assessment (ESA) for any listed sites or sites with the potential for residual hazardous materials and/or waste as a result of location and/or prior uses. Implementing and local agencies should require that recommendations of the Phase I ESA be fully implemented. If a Phase I ESA indicates the presence or likely presence of contamination, the implementing agency should require a Phase II ESA, and recommendations of the Phase II ESA should be fully implemented.	With implementation of **Mitigation Measure HAZ-1** impacts would remain significant and unavoidable.
Impact HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, or a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.	No mitigation is required.	Less than significant.
Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	No mitigation is required.	Less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
LAND USE AND POPULATION		
LU-1: 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 plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	**LU-1:** SJCOG will work with its member cities and counties to encourage that transportation projects and growth are consistent with the RTP/SCS and general plans. **LU-2:** Local jurisdictions should reflect RTP policies and strategies in their general plan updates. San Joaquin COG will work to build consensus on how to address inconsistencies between general plans and RTP policies. **LU-3:** SJCOG will provide technical assistance and regional leadership to implement the RTP/SCS goals and strategies, integrate growth and land use planning with the existing and planned transportation network, determine and upon request help local jurisdictions/project sponsors in determining consistency with the SCS included within the 2014 RTP.	With implementation of **Mitigation Measure LU-1** and **LU-3** impacts would remain significant and unavoidable.
LU-2: Physically divide an established community.	Implement **Mitigation Measure LU-1** through **LU-3.**	With implementation of **Mitigation Measure LU-1** and **LU-3** impacts would remain significant and unavoidable.
LU-3: Incompatibility with adjacent land uses, including impacts to sensitive receptors.	**LU-4:** SJCOG will use a continuing SCS or a Greenprint process (to prioritize maintenance of open space areas) and other ongoing regional planning efforts to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region. **LU-5:** SJCOG will continue to encourage patterns of development that are consistent with RTP/SCS policies.	With implementation of **Mitigation Measure LU-4** and **LU-5** impacts would remain significant and unavoidable.
LU-4: Induce substantial population growth to areas of the region.	**LU-6:** San Joaquin SJCOG, will work with its member agencies to implement growth strategies to create an urban form designed to focus development in urban areas in accordance with the policies, strategies and investments contained in the 2014 RTP/SCS, enhancing mobility and reducing land consumption, providing urban infrastructure to support growth and ensuring a jobs-housing balance that supports decreases in greenhouse gas emissions.	With implementation of **Mitigation Measure LU-6** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
LAND USE AND POPULATION (continued)		
LU-5: Require the acquisition of right-of-ways that would displace a substantial number of existing businesses or homes.	**LU-7:** Implementing and local agencies should evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. An iterative design and impact analysis would help where impacts to homes or businesses are involved. Potential impacts should be minimized to the extent feasible. If possible, existing rights-of-way should be used. **LU-8:** Implementing and local agencies to mitigate impacts to affordable housing as feasible through construction of affordable units (deed restricted to remain affordable for an appropriate period of time) or payment of any fee established to address loss of affordable housing.	With implementation of **Mitigation Measure LU-7** and **LU-8** impacts would remain significant and unavoidable.
NOISE		
Impact NOISE-1: Expose persons or generate noise in levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; and/or result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the project; and/or result in a substantial permanent increase in ambient noise levels above levels existing without the project.	**NOISE-1:** Implementing and local agencies should assess and mitigate to the extent feasible short- and long-term noise impacts in accordance with applicable regulations and to implement site-specific noise reduction measures, including the following as applicable: • Equipment and trucks used for project construction can and should utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible). • Except as may be exempted by the Lead Agency (or other appropriate government agency), impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction can and should be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dB(A). External jackets on the tools themselves should be used, if such jackets are commercially available and this could achieve a reduction of 5 dB(A). Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.	With implementation of **Mitigation Measure NOISE-1** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
NOISE (continued)		
	NOISE-1: (continued) • Stationary noise sources can and should be located as far from adjacent sensitive receptors as possible and they should be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the Lead Agency (or other appropriate government agency) to provide equivalent noise reduction. • A procedure and phone numbers for notifying the Lead Agency staff and local Police Department; (during regular construction hours and off-hours). • A sign posted on-site pertaining with permitted construction days and hours and complaint procedures and who to notify in the event of a problem. The sign should also include a listing of both the Lead Agency and construction contractor's telephone numbers (during regular construction hours and off-hours). • The designation of an on-site construction complaint and enforcement manager for the project. • Notification of neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of extreme noise generating activities about the estimated duration of the activity. • A preconstruction meeting can and should be held with the job inspectors and the general contractor/on-site project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed. • Use of portable barriers in the vicinity of sensitive receptors during construction. • Projects that require pile driving or other construction noise above 90 dB(A) in proximity to sensitive receptors, should reduce potential pier drilling, pile driving and/or other extreme noise generating construction impacts greater than 90 dB(A), a set of site-specific noise attenuation measures should be completed under the supervision of a qualified acoustical consultant. • Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts. • Monitor the effectiveness of noise attenuation measures by taking noise measurements.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
NOISE (continued)		
	NOISE-1: (continued) • Strategically place material stockpiles between the operation and the affected dwelling to minimize noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence. • Retain a structural engineer or other appropriate professional to determine threshold levels of vibration and cracking that could damage any adjacent historic or other structure subject to damage, and design means and construction methods to not exceed the thresholds. • Maximize the distance between noise-sensitive land uses and new roadway lanes, roadways, rail lines, transit centers, park-and-ride lots, and other new noise-generating facilities. • Construct sound reducing barriers between noise sources and noise-sensitive land uses. • Implement, to the extent feasible and practicable, speed limits and limits on hours of operation of rail and transit systems, where such limits may reduce noise impacts. • Maximize the distance of new route alignments from sensitive receptors. • Locate transit-related passenger stations, central maintenance facilities, decentralized maintenance facilities, and electric substations away from sensitive receptors to the maximum extent feasible.	
Impact NOISE-2: Expose people to or generate excessive groundborne vibration.	Implement **Mitigation Measure NOISE-1.**	With implementation of **Mitigation Measure NOISE-1** impacts would remain significant and unavoidable.
Public Services and Utilities		
Fire Services		
Impact FIRE-1: Create a substantial need within the region for construction of additional public facilities, such as fire stations.	**FIRE-1:** Implementing and local agencies should ensure adequate fire protection services will be available to satisfy community needs. The implementing local agency should ensure that the fire department will be available to continue to provide acceptable levels of service with implementation of each project.	With implementation of **Mitigation Measure FIRE-1** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
Fire Services (continued)		
Impact FIRE-2: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including whether wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	**FIRE-2:** Implementing and local agencies should avoid siting new development in wildfire zones. **FIRE-3:** Implementing and local agencies should ensure that in the event that new development occurs in wildfire zones, the projects comply with safety measures as specified by CAL FIRE.	With implementation of **Mitigation Measure FIRE-2** and **FIRE-3** impacts would remain significant and unavoidable.
Police Services		
Impact POLICE-1: Create a substantial need within the region for construction of additional police stations.	**POLICE-1:** Implementing and local agencies to ensure adequate police services will be available to satisfy community service levels as needed. Implementing and Local agencies should ensure that the local police/sheriff's department will be able to continue to provide acceptable levels of service with implementation of each project.	With implementation of **Mitigation Measure POLICE-1** impacts would remain significant and unavoidable.
Schools		
Impact EDU-1: Create a substantial need within the region for construction of additional schools.	**EDU-1:** Implementing and local agencies should undertake project-specific review of the impacts to educational facilities as part of project specific environmental review. For any identified impacts, project sponsors can and should ensure that the appropriate school district fees are paid in accordance with state law.	With implementation of **Mitigation Measure EDU-1** impacts would remain significant and unavoidable.
Recreation		
Impact REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facilities would occur.	**REC-1:** Local jurisdictions should explore multiple use spaces and redevelopment in areas where it will provide more opportunities for recreational uses and access to natural areas close to the urban core. **REC-2:** Local jurisdictions should work as partners to address regional outdoor recreation needs and to acquire the necessary funding for the implementation of their plans and programs. This should be done, in part, by consulting with agencies and organizations that have active open space work plans.	With implementation of **Mitigation Measure REC-1** and **REC-2** impacts would remain significant and unavoidable.
Impact REC-2: Require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.	**REC-3:** Implementing agencies for all park and recreation projects should ensure that all feasible mitigation measures are identified and implemented in order to minimize construction and operation- related impacts to the surrounding environment.	With implementation of **Mitigation Measure REC-3** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
Solid Waste		
Impact SWASTE-1: Generate a substantial increase in the amount of solid waste that exceeds the region's available landfills' capacity to handle and dispose of the waste.	No mitigation is required.	Less than significant.
Energy		
Impact ENERGY-1: Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other nonrenewable energy types between the current conditions and 2040 in a wasteful manner.	**ENERGY-1:** Implementing and local agencies should implement energy saving policies and projects that incorporate renewable and alternative energy to the maximum extent feasible.	With implementation of **Mitigation Measure ENERGY-1** impacts would remain significant and unavoidable.
Impact ENERGY-2: Use substantial amounts of electricity and natural gas, thereby requiring the construction of new facilities and new sources of energy or major improvements to local infrastructure.	**ENERGY-2:** Implementing and local agencies should streamline permitting and provide public information to facilitate accelerated construction of geothermal, solar and wind power generation facilities and transmission line improvements. **ENERGY-3:** Utilities should increase capacity of existing transmission lines to meet forecast demand that supports sustainable growth, where feasible and appropriate in coordination with local planning agencies. **ENERGY-4:** SJCOG should continue to consider energy uncertainty impacts prior to the development of the next RTP/SCS. Topics that should be considered include: • How the price and availability of transportation fuels affects revenues and demand; • How increases in fuel efficiency could affect revenues and emissions; • How the cost of commuting and personal travel affects mode choice and growth patterns; • How the cost of goods movement affects international trade and employment; or • How the escalation of fuel prices affects the cost of infrastructure construction, maintenance and operation.	With implementation of **Mitigation Measure ENERGY-2** through **ENERGY-4** impacts would remain significant and unavoidable.
Impact ENERGY-3: Uncover and potentially sever underground utility lines.	**ENERGY-5:** Implementing and local agencies should coordinate with local utility providers while implementing local projects.	With implementation of **Mitigation Measure ENERGY-5** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
Wastewater		
Impact WW-1: Exceed the capacity of existing or planned wastewater treatment systems.	Implement **Mitigation Measures Mitigation Measure WAT-9** through **WAT-19.** **WW-1:** Implementing and local agencies should coordinate with local wastewater treatment providers while implementing local projects.	With implementation of **Mitigation Measure WAT-9** through **WAT-19,** and **WW-1** impacts would remain significant and unavoidable.
TRANSPORTATION		
Impact TR-1: The Plan could result a substantial increase in VMT or hours of congestion.	**TR-1:** SJCOG should pursue funding for new unidentified projects and programs, beyond the current financially and institutionally feasible measure included in the 2014 RTP, which may improve LOS results on roadway segments projected to be LOS E or F. **TR-2:** In addition to the current Tier 1 RTP projects, SJCOG should continue to explore potential measures to reduce vehicular travel. Such measures as land-use strategies, car-sharing programs, additional car- and vanpool programs, additional bicycle programs. **TR-3:** Implementing and local agencies should evaluate VMT as part of project specific review and identify and implement measures that reduce VMT including mixed use, alternative transportation facilities (bike racks, transit stops, and pedestrian amenities).	With implementation of **Mitigation Measure TR-1** and **TR-3** impacts would remain significant and unavoidable.
Impact TR-2: 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.	**TR-4:** SJCOG should inform jurisdictions with projected LOS E and F roadway segments under the Plan of the potential need to develop a Deficiency Plan under the San Joaquin Congestion Management Program at some point before 2040. SJCOG should work with these agencies to identify and encourage changes that would increase use of alternative transportation and other means to reduce congestion.	With implementation of **Mitigation Measure TR-4** impacts would remain significant and unavoidable.
Impact TR-3: 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.	No mitigation is required.	Less than significant.
Impact TR-4: Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	**TR-5:** Implementing and local agencies should make safety a prime objective in the design of RTP projects, and should plan to avoid, remedy, or mitigate such impacts in the course of project-level environmental review. The implementing agency or local jurisdiction will be responsible for developing and ensuring adherence to necessary mitigation measures.	With implementation of **Mitigation Measure TR-5** impacts would be less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
TRANSPORTATION (continued)		
Impact TR-5: Result in inadequate emergency access.	**TR-6:** Implementing and local agencies should consider emergency access impacts and plan to avoid, remedy, or mitigate such impacts in the course of project-level environmental review. The implementing agency will require and ensure adherence to the necessary mitigation measures.	Less than significant.
Impact TR-6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	**TR-7:** SJCOG, Implementing and local agencies should consider access and mobility needs of transit riders, pedestrians and cyclists and plan to enhance the mobility and access for these modes, and, at minimum, to avoid, remedy, or mitigate impacts to these modes in the course of project-level environmental review and design. Implementing agency and local agencies should require measures that increase alternate modes of transportation.	Less than significant.
WATER RESOURCES		
Impact WAT-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality, or substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.	**WAT-1:** Implementing and local agencies should undergo individual project review and comply with NPDES requirements.	With implementation of **Mitigation Measure WAT-1** impacts would be reduced to less than significant.
Impact WAT-2: Substantially interfere with groundwater recharge.	**WAT-2:** Implementing and local agencies should ensure that projects requiring continual dewatering facilities implement monitoring systems and long-term administrative procedures to ensure proper water management that prevents degrading of surface water and minimizes, to the greatest extent possible, adverse impacts on groundwater for the life of the project. Construction designs can and should comply with appropriate building codes and standard practices including the Uniform Building Code. **WAT-3:** Implementing and local agencies should maximize, where practical and feasible, permeable surface area in existing urbanized areas to protect water quality, reduce flooding, allow for groundwater recharge, and preserve wildlife habitat. New impervious surfaces can and should be minimized to the greatest extent possible, including the use of in-lieu fees and off-site mitigation. **WAT-4:** Implementing and local agencies should avoid development in groundwater recharge areas. Where feasible, transportation facilities should not be sited in groundwater recharge areas, to prevent conversion of those areas to impervious surface. **WAT-5:** Implementing and local agencies to reduce hardscape to the extent feasible to facilitate groundwater recharge as appropriate.	With implementation of **Mitigation Measure WAT-2** through **WAT-5** impacts would remain significant and unavoidable at the regional level, however within TPAs, impacts would be less than significant.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
WATER RESOURCES (continued)		
Impact WAT-3: Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or place within a 100-year flood hazard area structures which would impede or redirect flood flows; or 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; and/or inundation by seiche or mudflow.	**WAT-6:** Implementing and local agencies should conduct or require project-specific hydrology studies for projects proposed to be constructed within floodplains to demonstrate compliance with applicable federal, state, and local agency flood-control regulations. These studies should identify project design features or mitigation measures that reduce impacts to either floodplains or flood flows to a less than significant level. For the purposes of this mitigation, less than significant means consistent with federal, state, and local regulations and laws related to development in the floodplain. **WAT-7:** Implementing and local agencies should comply with local, state, and federal floodplain regulations. Projects requiring federal approval or funding should comply with Executive Order 11988 on Floodplain Management, which requires avoidance of incompatible floodplain development, restoration, and preservation of the natural and beneficial floodplain values, and maintenance of consistency with the standards and criteria of the National Flood Insurance Program. **WAT-8:** Implementing and local agencies should to the extent feasible and appropriate, prevent development in flood hazard areas that do not have appropriate protections.	With implementation of **Mitigation Measure WAT-6** through **WAT-8** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
WATER RESOURCES (continued)		
Impact WAT-4: Substantially increase demand for water such that existing supplies and facilities would not be able to accommodate demand.	**WAT-9:** SJCOG, in coordination with regional water agencies and other stakeholders, should encourage the kind of regional coordination throughout California that develops and supports sustainable policies in accommodating growth. **WAT-10:** Regional water agencies should consider, to the greatest extent feasible, potential climate change hydrology and attendant impacts on available water supplies and reliability in the process of creating or modifying systems to manage water resources for both year round use and ecosystem health. As the methodology and base data for such decisions is still developing, agencies can and should use the best currently available science in decision making. **WAT-11**: Implementing and local agencies should reduce exterior uses of water in public areas, and promote reductions in private homes and businesses by shifting to drought-tolerant native landscape plantings, using weather-based irrigation systems, educating other public agencies about water use, and installing related water pricing incentives. Local jurisdictions should work with local water retailers to promote the availability of drought resistant landscaping options and provide information on where these can be purchased. Use of reclaimed water especially in median landscaping and hillside landscaping can and should be implemented where feasible. **WAT-12:** Future impacts to water supply should be minimized through cooperation, information sharing, and program development as part of the SJCOG's ongoing regional planning efforts, in-coordination with regional water agencies, and other stakeholders. **WAT-13:** Implementing and local agencies should coordinate with the local water provider to ensure that existing and/or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with state law, a water supply assessment can and should be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor will identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider will be required at the time that a water connection permit application is submitted.	With implementation of **Mitigation Measure WAT-9** through **WAT-19** impacts would remain significant and unavoidable.

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
WATER RESOURCES (continued)		
	WAT 14: Implementing and local agencies to implement water conservation measures in new development that should include but not be limited to the following: • High efficiency toilets • Restroom faucets with automatic shut-off • High efficiency clothes washers • High efficiency dishwashers • Use of reclaimed water for appropriate uses • Water saving irrigation measures including: weather-based irrigation controller with rain shut-off. **WAT-15**: Implementing and local agencies should consult with the local water provider to identify feasible and reasonable measures to reduce water consumption, including, but not limited to, systems to use reclaimed water for landscaping, drip irrigation, re-circulating hot water systems, water conserving landscape techniques (such as mulching, installation of drip irrigation systems, landscape design to group plants of similar water demand, soil moisture sensors, automatic irrigation systems, clustered landscaped areas to maximize the efficiency of the irrigation system), water conserving kitchen and bathroom fixtures and appliances, thermostatically controlled mixing valves for baths and showers, and insulated hot water lines. **WAT-16:** Implementing and local agencies should comply with local drought measures as appropriate including prohibiting hose watering of driveways and associated walkways; requiring decorative fountains to use recycled water, and repairing water leaks in a timely manner. **WAT-17:** Implementing and local agencies should adopt and implement a comprehensive strategy to increase water conservation and the use of recycled water that includes similar measure to the following:: • **Water Consumption Reduction Target:** Regional water agencies should work together to set a target for to reduce per capita water consumption by 2020.	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
WATER RESOURCES (continued)		
	WAT-17: (continued) – **Water Conservation Plan:** Regional water agencies should establish a water conservation plan that may include such policies and actions as: – Tiered rate structures for water use; – Restrictions on time of use for landscape watering, and other demand management strategies; – Performance standards for irrigation equipment and water fixtures; – Requirements that increased demand from new construction be offset with reductions so that there is no net increase in water use. – **Recycled Water Use:** Local jurisdictions and regional water agencies should establish programs and policies to increase the use of recycled water, including: – Create an inventory of non-potable water uses within the jurisdiction that could be served with recycled water; – Produce and promote the use of recycled water for agricultural, industrial, and irrigation purposes, including grey water systems for residential irrigation; – Produce and promote the use of treated, recycled water for potable uses where GHG emissions from producing such water are lower than from other potable sources. • **Water Conservation Outreach:** Local jurisdictions and regional water agencies should implement a public education and outreach campaign to promote water conservation, and highlights specific water-wasting activities to discourage, such as the watering of non-vegetated surfaces and using water to clean sidewalks and driveways – Tiered rate structures for water use; – Restrictions on time of use for landscape watering, and other demand management strategies; – Performance standards for irrigation equipment and water fixtures; – Requirements that increased demand from new construction be offset with reductions so that there is no net increase in water use	

Significant Threshold and Project Impacts	Mitigation Measures	Residual Impacts
WATER RESOURCES (continued)		
	WAT-17: (continued) – **Recycled Water Use:** Local jurisdictions and regional water agencies should establish programs and policies to increase the use of recycled water, including: – Create an inventory of non-potable water uses within the jurisdiction that could be served with recycled water; – Produce and promote the use of recycled water for agricultural, industrial, and irrigation purposes, including grey water systems for residential irrigation; – Produce and promote the use of treated, recycled water for potable uses where GHG emissions from producing such water are lower than from other potable sources. • **Water Conservation Outreach:** Local jurisdictions and regional water agencies should implement a public education and outreach campaign to promote water conservation, and highlights specific water-wasting activities to discourage, such as the watering of non-vegetated surfaces and using water to clean sidewalks and driveways. **WAT-18:** Implementing and local agencies should establish building design guidelines and criteria to promote water-efficient building design, including minimizing the amount of non-roof impervious surfaces around the building(s) and menus and check-lists for developers and contractors to ensure water-efficient infrastructure and technology are used in new construction, including low-flow toilets and shower heads, moisture-sensing irrigation, and other such advances. **WAT-19:** Implementing and local agencies should establish criteria and standards to permit the safe and effective use of gray water (on-site water recycling), and review and appropriately revise, without compromising health and safety, other building code requirements that might prevent the use of such systems.	

3.0 PROJECT DESCRIPTION

The proposed project is the 2014 Regional Transportation Plan and Sustainable Communities Strategy (2014 RTP/SCS, RTP/SCS or Plan) for San Joaquin County (County). The project description that follows describes the proposed RTP/SCS for purposes of analyzing the project's potential to create environmental impacts (see **Section 4.0** for environmental analysis). This section provides an overview of the project's regional location, project background, project objectives, and a detailed description of the proposed RTP/SCS.

The full 2014 RTP/SCS is available for review at the San Joaquin Council of Governments (SJCOG) website (http://www.sjcog.org/).

3.1 INTRODUCTION

The proposed project, the 2014 RTP/SCS, is a long-range comprehensive plan for the region's multi-modal transportation system. As a Metropolitan Planning Organization (MPO), preparing an RTP is one of San Joaquin Council of Governments' (SJCOG) primary statutory responsibilities under federal and state law. Implementation of an RTP is the mechanism used in California by both MPOs and Regional Transportation Planning Agencies (RTPAs) to conduct long-range planning (at least 20-years in to the future) in their regions. SJCOG must adopt an updated RTP every four years, or more frequently, if the region is to receive federal and state transportation dollars for public transit, streets/roads, and bicycle and pedestrian improvements. SJCOG adopted the 2011 RTP in July 2010; it provides a long-range plan for transportation in San Joaquin County. In 2008, California enacted the Sustainable Communities and Climate Protection Act, also known as Senate Bill 375 (SB 375), which requires MPOs to include a Sustainable Communities Strategy (SCS) element in their RTP updates (alternatively an MPO can prepare and Alternate Planning Strategy if it is unable to meet applicable greenhouse reduction targets). The 2014 RTP "Valley Visions San Joaquin" is the first SJCOG plan to include the SCS as the California Air Resources Board adopted the greenhouse gas reductions targets for the state in September 2010. In preparation for the 2014 RTP, SJCOG undertook a public outreach effort that provided the Blueprint for the 2014 RTP. The Blueprint effort built upon the Blueprint from the 2011 RTP.

The eight counties of the San Joaquin Valley are coordinating on some aspects of these planning efforts to maximize resources, with each area's Metropolitan Planning Organization (MPO) developing a separate plan. MPOs are responsible for setting transportation policy and priorities for a region and documenting how transportation funds will be spent in a Regional Transportation Plan. Valleywide, this effort is called "Valley Visions."

Specifically, the San Joaquin County SCS will:

- Identify the general location of uses, residential densities, and building intensities within the region
- Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region
- Gather and consider the best practically available scientific information regarding resource areas and farmland in the region
- Set forth a forecasted development pattern for the region
- Identify areas within the region sufficient to house all the population of the region
- Identify a transportation network to service the transportation needs of the region
- Quantify the reduction in greenhouse gas emissions projected to be achieved by the SCS

3.1.1 Project Background

This Program Environmental Impact Report (Program EIR) evaluates the potential environmental impacts associated with the adoption of the 2014 RTP/SCS by SJCOG. This document has been prepared to meet the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.,). SJCOG is the federally designated Metropolitan Planning Organization (MPO) under Title 23, United States Code (USC) 134(d)(1) for San Joaquin County. The County is shown in **Figure 2.0-1.**

San Joaquin County is part of the San Joaquin Valley Air Basin designated non-attainment and maintenance for air quality standards. Federal law requires that for a non-attainment area, conformity determinations on updated transportation plans and programs must be made every four years. All RTPs must conform to air quality requirements, as well as meet a number of other requirements, including specific requirements on the "horizon" year of regional transportation plans (the horizon year must be at least 20 years in to the future).

In compliance with these requirements, the 2014 RTP/SCS includes a horizon year of 2040. Transportation investments in the region that receive state and federal funds or require federal approvals must be consistent with the RTP and must be included in the Federal Transportation Improvement Program (TIP) when funded. The TIP covers four years and is updated biennially on an even year cycle. It represents the immediate, near-term commitments of the RTP. In order to continue receiving federal transportation funds SJCOG must have a conforming RTP/SCS in place by June 2014.

SJCOG is also required to prepare a RTP pursuant to Section 65080 of the California Government Code. The state requirements largely mirror the federal requirements and require each MPO/RTP in urban areas to adopt and submit an updated RTP to the California Transportation Commission (CTC) and the California Department of Transportation (Caltrans) every four years. To ensure a degree of statewide consistency in the development of RTPs, the CTC under Government Code Section 14522 prepared RTP Guidelines. The adopted guidelines include a requirement for program level performance measures, which include objective criteria that reflect the goals and objectives of the RTP. In addition, as noted above, the initial years of the plan must be consistent with the TIP. Pursuant to SB 375, SJCOG is required to submit the Sustainable Communities Strategy to the California Air Resources Board for the purpose of determining whether the greenhouse gas targets can be met.

The 2014 RTP/SCS is a long-range Regional Transportation Plan that includes projects, policies, and strategies to create a plan for the region's growth through 2040. The Plan includes improvements to the transportation system. These improvements include closures to critical gaps in the network that hinder access to certain parts to the region, as well as the strategic expansion of the transportation system. In addition to new projects that are included in the Plan, many projects from the 2011 RTP are included in the 2014 RTP/SCS and are now considered committed or at least reasonably foreseeable (i.e., they are in the TIP and are thus included in the No Project condition).

The 2014 RTP/SCS is intended to meet the changing socioeconomic, transportation infrastructure, financial, technological, and environmental conditions of the region. Individual projects are preliminarily identified in the 2014 RTP/SCS; however, this Program EIR is programmatic in nature and does not specifically analyze individual projects. Project-level analyses will be prepared by implementing agencies on a project-by-project basis as projects proceed through the design, evaluation, and decision-making process. Project specific planning and implementation undertaken by each project sponsor/implementing agency will depend on a number of issues, including: policies, programs and projects adopted at the local level; restrictions on federal, state, and local transportation funds; the results of feasibility studies for particular corridors; and project-specific environmental review.

As noted above, this RTP must also include an SCS pursuant to SB 375 (codified in Section 65080 of the California Government Code). SB 375 will help meet the state goals included in Assembly Bill 32, the Global Warming Solutions Act of 2006. SB 375 addresses greenhouse gas (GHG) emissions from cars and light duty trucks and aims to reduce these emissions through land use strategies. CARB identified preliminary GHG emissions goals for the Valley, including San Joaquin County. CARB indicated that GHG emissions should be reduced compared to 2005 by 5 percent per capita by 2020 and 10 percent per capita by 2035.

According to Section 65080 of the California Government Code, in summary the SCS must:

- identify existing land use;
- identify areas to accommodate long-term housing needs;
- identify areas to accommodate an eight year projection of regional housing needs;
- identify transportation needs and the planned transportation network;
- consider resource areas and farmland;
- consider state housing goals and objectives;
- set forth a forecasted growth and development pattern; and
- comply with federal law for developing and RTP.

SJCOG's SCS demonstrates the region's ability to attain the GHG emissions reduction targets set forth by CARB. The SCS outlines SJCOG's plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, and changing demographics, and transportation demands.

Prior to adopting the 2014 RTP/SCS, SJCOG's Board must certify the Program EIR for the Plan. Local agencies as well as transportation implementation agencies will use the 2014 RTP/SCS and the Program EIR as a reference for their own planning purposes.

SJCOG has no authority to adopt local land use plans or approve local land use projects that will implement the SCS. SB 375 specifically provides that nothing in SB 375 supersedes the land use authority of cities and counties. In addition, cities and counties are not required to change their land use plans and policies, including general plans, to be consistent with an SCS.[1] Local governments are the primary agencies responsible for requiring and monitoring mitigation of the impacts of land use plans and projects that implement the RTP/SCS, and SJCOG has no concurrent authority to mitigate the impacts of land use plans and projects. As such, local agencies retain the discretion to consider which mitigation measures are appropriate to each individual project and whether they are feasible under the location-specific circumstances. Only mitigation measures that are fully under the control of SJCOG are considered in the identification of level of significance after mitigation.

1 Government Code §65080(b)(2)(K)

San Joaquin Valley Regional Blueprint

The San Joaquin Regional Blueprint (2009) laid much of the groundwork for the SJCOG 2014 RTP. The San Joaquin Valley Regional Blueprint stitched together San Joaquin's planning efforts with the seven other county grassroots blueprint efforts, developed by the eight regional planning agencies (RPAs). The RPAs collaborated to develop a long-term strategy for the future of the eight-county region.

Adopted in 2009, the San Joaquin Valley Regional Blueprint effort included the San Joaquin Council of Governments, Kern Council of Governments, Fresno Council of Governments, Kings County Association of Governments, Madera County Association of Governments, Merced County Association of Governments, Stanislaus Council of Governments, and Tulare County Association of Governments to develop voluntary, long-term regional growth principles for the future of the eight-county region.

The valley-wide Blueprint identified 12 voluntary growth principles:

- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Encourage community and stakeholder collaboration
- Foster distinctive, attractive communities with a strong sense of place
- Make development decisions predictable, fair, and cost-effective
- Mix land uses
- Reserve open space, farmland, natural beauty, and critical environmental areas
- Provide a variety of transportation choices
- Strengthen and direct development toward existing communities
- Take advantage of compact building design
- Enhance the economic vitality of the region
- Support actions that encourage environmental resource management

3.2 PURPOSE AND NEED FOR ACTION

The purpose of the 2014 RTP/SCS is to provide a clear, long-term vision of the regional transportation goals, policies, objectives, and strategies for San Joaquin County while at the same time providing strategies to reduce GHG emissions as required by SB 375. The necessity for the RTP/SCS is driven by the

need to plan for improvements to the aging regional transportation system and preserve its long-term viability in light of the projected population growth.

The 2014 RTP/SCS provides strategies to reduce GHG as required by SB 375. The 2014 RTP/SCS identifies infrastructure projects and improvements to reduce traffic and congestion. The 2014 RTP/SCS includes mobility as an important component and also incorporates added emphasis on sustainability and integrated planning. The Plan contains projects, policies, and strategies to achieve a wide range of positive outcomes. It identifies reasonably available sources of funding for transportation. The 2014 RTP/SCS is a plan for improving the quality of life for residents of San Joaquin County by planning for wise transportation investments and informed land use choices. The Plan aims to achieve variety and efficiency in travel choices, as well as a safe, secure, and efficient transportation system that would provide improved mobility and access. The Plan includes strategies to generally improve air quality, improve health, and reduce greenhouse gas emissions consistent with SB 375 requirements. The plan achieves its overall objectives by combining transportation investment and policies with integrated land use strategies that reduce per capita vehicle miles traveled (VMT) and emissions. These land use strategies include:

- Focusing new growth and development in areas well served by transit,
- Promoting a better fit between jobs and housing,
- Redirecting future housing growth toward more compact unit types, and
- Promoting a mix of uses and neighborhood design that enables more walk and bike trips.

Over the lifetime of the 2014 RTP/SCS, SJCOG forecasts that there will be an additional 365,692 people added to this large and diverse area. The 2014 RTP/SCS is based on growth forecasts in the region in 2040 as shown in **Table 3.0-1, 2040 Population, Households, and Employment**.

Table 3.0-1
2040 Population, Households, and Employment

	Population		Households		Employment	
	Existing (2012)	Plan (2040)	Existing (2012)	Plan (2040)	Existing (2012)	Plan (2040)
San Joaquin COG	704,794	1,070,486	219,640	319,756	206,900	299,717

Source: San Joaquin COG 2014, The Planning Center/DC & E 2012, University of the Pacific 2012

Federal guidelines (40 CFR §1502.13) require the preparation of a statement of purpose and need in conjunction with environmental documents prepared to meet the requirements of the National Environmental Policy Act (NEPA). In accordance with these guidelines, these statements are prepared to briefly specify the underlying purpose of a specific project and the need for the project. The Lead Agency must identify how the proposed action and/or alternatives responds to the purpose and need for the project. Although adoption of the 2014 RTP/SCS is not subject to NEPA, SJCOG has chosen to include this statement of purpose and need to enable proponents of specific projects included in the 2014 RTP/SCS to discuss the purpose and need for their individual projects relative to the Plan.

Note that this statement of purpose and need has been prepared to identify the underlying purpose for adopting the 2014 RTP/SCS. It was not prepared to be a comprehensive statement of need for each individual RTP/SCS project. Where appropriate, this statement of need may be incorporated by reference in project-specific NEPA documents as provided in 40 CFR §1502.21.

The transportation planning process for the RTP/SCS is continuous as the region is constantly undergoing change. The RTP presents an assessment of the growth and economic trends in the San Joaquin County for the years 2014 through 2040 and provides strategic direction for investments during this period.[2]

3.3 DELTA REFORM ACT

Enacted in November 2009, this Act created the Delta Stewardship Council charged with developing, adopting, and implementing the Delta Plan. This Plan serves to address strategies of providing reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystems. The Delta Stewardship Council is also responsible for advising local and regional agencies regarding consistency of their planning documents to the Delta Plan. The act requires that "covered actions," as defined by the Act, and which include plans, programs, or projects within the primary or secondary zones of the Delta, be consistent with the Delta Plan. SJCOG is required to ensure consistency of the Plan to the adopted Delta Plan. Local project exemptions from Delta Plan requirements are possible if there a determination that they are consistent with the Plan.

3.4 PROJECT LOCATION

San Joaquin County is located in the San Joaquin Valley in what is considered the Central Valley of California. The County covers approximately 1,440 square miles and is predominantly flat land with some gently rolling hills. The County is bordered to the southwest by the Diablo Range and to the east by

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2 Note the baseline for the transportation and land use models used to develop the RTP is 2012. Therefore, this Program EIR properly uses 2012 as the existing conditions against which impacts are analyzed. See **Section 1.0, Introduction** for further discussion of the baseline for the 2014 RTP/SCS Program EIR.

the Sierra Nevada foothills. The County contains a combination of metropolitan and rural area with a long history of agricultural activities. Incorporated cities within San Joaquin County include the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. San Joaquin County is considered one of the fastest growing regions in the Central Valley, with the population expected to reach 1,070,486 people by the year 2040. **Figure 2.0-1** illustrates the regional location.

San Joaquin County remains one of the fastest growing regions in California. While much of this trend continues to be the result of "spillover" from the Bay Area, the County's geographical advantages and quality of life also contribute to the growth. This growth has led to increased urbanization and the persistent challenge to meet state and federal air quality requirements.

Economically, San Joaquin County continues to grow in many segments of its economy. Downtown revitalization efforts in Stockton, Big League Dreams in Manteca, and the Lodi area's success producing world-class wines are shaping San Joaquin County into a destination for tourism and entertainment. The region also continues to be an attractive location for new warehousing and distribution centers that serve Northern California, the Bay Area, and the west coast. A centralized and diverse network of highway, rail, air, and seaport facilities support the continued development of San Joaquin County into a major goods movement region.

As San Joaquin County is transformed, these growth factors have profound effects on the ability to finance, deliver, and maintain the transportation infrastructure. The 2014 RTP/SCS aims to create both an efficient and effective multimodal transportation system for San Joaquin County that balances the needs for maintenance and preservation with expansion and enhancements. A conscious effort is made to design a system that both promotes mobility as well as preserves the environment. This effort is guided by a set of overarching goals.

Due primarily to the availability of housing at lower costs than surrounding communities to the north and to the west of San Joaquin County, the County is a place where many residents travel long distances for employment outside the County. Of the 233,200 residents representing the employed workforce, approximately 114,610 commute outside of the region to their employment sites. Specifically, State Routes 4 and 12 link the east and west sides of the County. Each operates as a freeway segment for a brief but important segment between State Route 99 and I-5. Both routes also connect with Bay Area counties across the San Joaquin Delta and carry significant commuter and interregional traffic.

3.5 PROJECT DESCRIPTION

The 2014 RTP/SCS is comprised of the following elements: (1) a policy element that presents an overview of the challenges facing the region; the RTP goals, policies and performance outcomes; (2) planning

assumptions including growth of population; (3) the SCS, which includes land use policies and forecasted future growth and land use for the region; (4) a strategic investment chapter that includes action elements necessary to implement the Plan and performance measures to determine how the Plan performs; (5) the financial element that summarizes the cost of Plan implementation constrained by a realistic projection of available revenues and provides recommendations for the allocation of funds; (6) a future links chapter that addresses trends that could affect the RTP in future cycles; and (7) a monitoring chapter that addresses monitoring the progress of the transportation system. The RTP also addresses environmental justice. Transportation projects included in the 2014 RTP/SCS are listed in **Appendix 3.0, Detailed RTP Project List.** The projects, policies and strategies that have committed, available, or reasonably available funding sources constitute the 2014 RTP/SCS that is also referred to as the "constrained plan" or Plan. In total, the RTP/SCS assumes $11 billion in projected revenues to be available within the 2040 horizon of the Plan.

The following describes the major functional components of the 2014 RTP/SCS. Chapters that are not covered in this summary description (i.e., Financial Plan, Civic Engagement, Forging Ahead) support the projects, policies, and strategies in the sections described here and do not, on their own, contribute to environmental impacts. The chapters of the 2014 RTP/SCS that are relevant to the analysis of potential environmental impacts of the Plan are as follows: Chapter 1: Introduction – Creating a Sustainable Communities Strategy, Chapter 3: Building Blocks – Policies and Supplemental Strategies, Chapter 5: Performance of the Sustainable Communities Strategy, Chapter 5: Economic Vitality and Chapter 7: Challenges and Opportunities.

3.5.1 Goals, Policies, and Objectives

The 2014 RTP/SCS can be considered the San Joaquin region's 27-year "statement of priorities" for the future transportation system. Therefore, at the highest level, the goals, policies, objectives, and performance indicators for this document are all designed to articulate: what the region wants the future transportation system to look like, what types of decisions will help the region attain its vision, and measures, or indicators by which the region can assess its progress.

Establishing clear linkages between the broad, value-laden goals and the more specific performance indicators helps to provide a tangible path towards success.

The 2014 RTP/SCS built upon the 2011 RTP goals, policies, objectives, and performance measures foundation in order to provide a simplified and more clearly articulated vision of the future that emphasizes the fundamental values reflected in past RTPs, while at the same time, addresses the current

values and priorities as articulated through public outreach efforts in 2011 and 2012, as well as by the voters in San Joaquin County through both the renewal of the County's Measure K sales tax.

In addition, SJCOG revisited adopted Revenue Policies and project Delivery Policies that target specific issues relating to the funding and delivery of transportation projects in the region to ensure they continue to reflect the values of the region. SJCOG staff conducted a comprehensive review that resulted in the following over-arching goals that guide the plan.

- Enhance the Environment for Existing and Future Generations & Conserve Energy
- Maximize Mobility & Accessibility
- Increase Safety & Security
- Preserve the Efficiency of the Existing Transportation System
- Support Economic Vitality
- Promote Interagency Coordination & Public Participation for Transportation Decision-Making & Planning Efforts
- Maximize Cost Effectiveness
- Improve the Quality of Life for Residents

The Plan aligns the sustainability goals with transportation investment strategies by focusing on the following building blocks:

- Identifies land uses patterns that encourage infill development and compact development
- Makes provisions for new residential development growth that makes shifts from single-family development to more multi-family development
- More focus on a multimodal strategy of investments that de-emphasizes highway or roadway expansion but still delivers a system to reduce vehicle miles travelled and peak hour traffic congestion
- Specifically, provides a multimodal transportation network of bus and rail transit, freeway/highway/local roadways, bikeways, walkways, and streetscape projects within available financial resources
- Increases transit operational efficiency through investments in bus and rail transit service that includes more frequency of transit service for all income levels as well as expanded transit service
- Promotes transit-oriented development and furthermore, provides for intermodal connections near or within transit-oriented development such as park and ride lots and bicycle lanes/paths

- Invests in high-tech applications or projects that allow motorists to choose travel options and allow local and state agencies to more quickly respond to incidents on the roadway
- Underscores the importance of maintenance through recognition that routine and preventative maintenance is an integral piece towards transportation efficiency
- Increases active transportation project investments to facilitate public health and active communities
- Encourages new housing and jobs in urbanized areas to better integrate housing, land use, and transportation facilities
- Creates and sustains jobs, both directly and indirectly
- Invests in infrastructure that improves access to intermodal facilities, airports, the Port of Stockton, and commercial hubs key to goods movement

Performance Measures

Performance indicators are defined as qualitative or quantitative measures of progress towards the RTP/SCS overall goals, objectives, and policies. They contribute to the decision making process by providing a basis for determining whether a decision advances the transportation objectives that are valued and held as priorities by the region. Furthermore, the performance indicators have been used as a tool to help evaluate how this RTP/SCS contributes to the quality of life in the San Joaquin region. **Table 3.0-2 RTP/SCS Performance Indicators**, provides a summary of the performance measures in the RTP/SCS.

One of the most important goals of the 2014 RTP/SCS is to achieve SB 375 targets as established by CARB.

SJCOG has made certain land use assumptions based on the policies and projects contained within the RTP/SCS and market demand (within existing zoning) in order to model anticipated development in the year 2040. However, it will be up to individual jurisdictions to determine consistency of individual projects with the RTP/SCS (including the SB 375 goals). It is not the intent of the RTP/SCS or associated modeling effort to impose land use requirements on local jurisdictions.

Table 3.0-2
RTP/SCS Performance Indicators

Measure of Effectiveness	Description
Travel Related Indicators	
Vehicle Miles Traveled (VMT) per Capita	Vehicle miles traveled per person
Trip Mode Share	Percent of trips by mode of travel (e.g., single occupant auto, bike, walk, transit, carpool 2+)
Congested Travel Time	Proportion of time roadway is at or exceeds capacity. Also indicator for Goods Movement travel.
Average Trip Length	VMT/All Trip Purposes
Total Miles of Bikeways by Class	Miles of Class I, II, and III facilities
Transit Ridership	Number of passenger trips
Bike and Walk Trips	Number of bike and walk trips
Health & Environmental Indicators	
Criteria Pollutants per Capita	Total pollutants from all vehicle (passenger and freight) types
GHG Emissions per Capita	Total CO_2 (GHG precursor) from passenger vehicles and light duty autos only. Targeted reduction of 5 percent by 2020 and 10 percent by 2035 below 2005 levels.
Resource Conservation Indicators	
Acres of Land Consumed	Total acres of land consumed due to new development
Acres of Prime Farmland Consumed	Total acres of prime farmland consumed due to new development
Efficiency	
Energy Usage per Capita	Total energy consumption from new growth
Water Consumption per Capita	Total tons of water usage from new growth
Land Use Mix	Percentage of new development that is infill development, redevelopment, and Greenfield
Housing and Employment	
Housing and Employment near Major Transit Routes and Stations	Percent of new housing and employment located within 0.5 mile of major transit route (15-minute headway) or station
Residential Density	Change in residential density for new housing
Housing Type	Percent of new housing by type (large-lot, small-lot, attached, multi-family)
Equity (Environmental Justice Areas vs. Non-Environmental Justice Areas)	
Health Risk Assessment of Roadway Pollutants	Percentage of households within 500 feet of high-volume roadway (>100,000 average daily traffic)
Transportation Costs	Percentage of household income spent on transportation
Safety	
Collision Rate	Statewide Accident Rate multiplied by VMT
Economic Vitality	
Job Creation	Number of direct and indirect jobs

Source: SJCOG 2014

Planning Assumptions

Over the next 27 years, the San Joaquin region will continue to grow rapidly. SJCOG projects a total employment of 299,717 for San Joaquin County by 2040. This will accompany an increase in population in the County of 365,694 persons between 2012 and 2040, an increase in population of 45 percent over the 26-year period or an approximate annual growth rate of 1.5 percent. In 2040, the estimated total population for the San Joaquin County is estimated to be 1,070,486 persons.

San Joaquin County continues to remain a commuter-oriented county. Of the 233,200 residents representing the employed workforce, approximately 114,610 commute outside of the region to their employment sites. Population growth continues to be due in part but not limited to:

- Bay Area jobholders taking up residence in the County, creating a market demand for interregional commute alternatives
- A shortage of affordable housing in neighboring Bay Area counties
- Significantly less expensive housing costs in the Central Valley
- Job relocations to the Central Valley due to lower cost of doing business
- A decentralization of Stockton's commercial and retail businesses
- An increase in the economic interaction with surrounding counties
- Major growth in cities neighboring bay area counties

Employment Growth

Employment growth within the County will occur within close proximity to major transportation facilities. Much of the new employment located near the I-5, I-205, I-580, and Route-120 component of the regional network in the south County will generate a significant amount of trucking activity, as it will consist largely of warehousing and manufacturing. The greatest concentrations of retail and service employment will expand within City limits. There are approximately 206,900 jobs in San Joaquin County. Job creation is expected to continue at a steady pace where San Joaquin County will be supporting approximately 299,717 jobs by year 2040. With over $2 billion in gross value of production in 2011, agriculture continues to be one of the largest producing industries in San Joaquin County. Additional economic growth is seen through the City of Stockton’s downtown revitalization efforts, stabilization of San Joaquin County Hospital, and the emergence of anchor retailer stores such as Bass Pro Shop in Manteca and Costco in Lodi. The new Amazon Fulfillment Center in the City of Tracy is also representative of the future economic potential in San Joaquin County. Furthermore, the designated Lodi

appellation for growing wine grapes and producing world-class wines has catapulted San Joaquin County into a tourist destination.

Distribution Centers

Millions of square feet of new warehouse constructions are forming in the southern parts of the County, and with new developments at the Port of Stockton, this number could increase dramatically, making San Joaquin County a central hub for goods movement throughout the entire west. A centralized and diverse network of highway, rail, air, and seaport facilities demonstrate that San Joaquin County is serving as a major trucking and rail distributor for Northern California. These facilities are ideally located to take advantage of a diverse transportation network, and the continued expansion and maintenance of these transportation facilities is key to the economic health of the region.

Stockton's Commercial Development

Although the City of Stockton is only one of seven cities in the County, its relative size, economy, population, and land area makes its development trends of regional interest. The past 20 years saw a significant northward migration and expansion of commercial activity in the Stockton Area. Stockton has evolved into a multi-nucleated city with several pockets of intense office or retail development, each serving functionally in some characteristic manner of a traditional central business district. This decentralization of the retail and service economy imposes challenges for transportation planning in the greater Stockton area. Fixed-route transit solutions are more complex and difficult to plan, and impacts to the regional road system throughout the Stockton metropolitan area introduce complex interactions between congested travel patterns.

Revitalization and Tourism

The San Joaquin region has also focused on developing itself into a destination for recreation and tourism. Successful revitalization efforts in downtown Stockton include the Stockton Ballpark, the Stockton Arena, Lexington Plaza Waterfront Hotel, City Centre Cinemas, Stockton Hotel, and the Regional Transit District's Downtown Transit Center.

Goods Movement

The movement of goods and people is the primary function of a highly accessible highway and regional roadway transportation system that links San Joaquin County to major destinations. The region is a major Northern California transition point where two primary North-South highways, Interstate 5 and State Route 99 run through the County. These major highways are joined by the Stockton Crosstown Freeway

(State Route 4) and State Route 120 through Manteca. Interstate 5 is the main north-south route for transportation along the west coast from Canada to Mexico. State Route 99 is the main inland route through California connecting the major cities in the San Joaquin Valley. The highway infrastructure positions San Joaquin County as a cost-effective location for large companies interested in operating west coast distribution centers. Interstates 580 and 205 provide direct access to the Bay Area and connections to I-5 and Highway 99.

The Port of Stockton boasts first class warehouse storage and handling facilities for both dry and liquid bulk materials, facilities and equipment to handle break-bulk and containerized cargoes by land or sea. The Port of Stockton is situated in the hub of four major freeways, two transcontinental railroads, an international waterway and a regional airport, the Port of Stockton is centrally located to provide the optimum service for shipment and storage of product and cargo. All of these components place the Port in an ideal position for domestic and international distribution. Furthering the Port of Stockton's influence as a major point of distribution of imports and exports is its distinction in the M-580 Marine Highway Corridor project.

The Stockton Metropolitan Airport supports passenger, private, military, and air cargo operations. It is located on the Southern boundary of the City of Stockton in the heart of California's central valley. Situated on 1,449 acres of land, the Stockton Metropolitan Airport has an 8,650-foot-long, 150-foot-wide primary ILS runway, with a take-off distance available of 11,037 feet. The Stockton Metropolitan Airport also has a 4,458-foot-long, 75-foot-wide general aviation runway. Six air carrier gates adjoin the 44,355-square-foot terminal building.

Rail is a critical link to the full-service transportation network that is uniquely available in San Joaquin County. Significant rail expansion projects are further distinguishing the County as a premier location for logistics operations. In Stockton, Burlington Northern Santa Fe (BNSF) operates an intermodal rail facility on 425 acres. The facility is a major network hub between Northern California and the Midwest. Union Pacific operates a 109-acre intermodal rail facility in Lathrop and is planning to expand the facility to meet domestic cargo demand. The expansion project will triple the facility's capacity to meet goods movement needs, improve the region's economic competitiveness.

3.5.2 Plan Indicators

SJCOG has developed several indicators to demonstrate the Plan's performance. These indicators are described below.

Land Use Mix

Land-use mix in the context of the Plan refers to the percentage of new development that is considered infill or refill versus "greenfield" development. Infill development occurs on previously developed or otherwise disturbed land areas as opposed to "greenfield" areas such as farm or grazing land. Between 2012 and 2040 the Plan directs more growth into existing urbanized areas, including a variety of sites identified in SJCOG's Regional Smart Growth Transit-Oriented Development Plan.

Acres of Land Consumed

This performance indicator is a reflection of the public input received supporting more compact development as a way to increase the use of transit and encourage active transportation opportunities. It is a measure of locational efficiencies that reflects the increased land-use and transportation coordination required by SB 375. These land-use efficiencies can substantially decrease future infrastructure maintenance costs to municipalities by decreasing required new infrastructure.

Acres of Prime Farmland Consumed

While a similar measure to the total acres of land consumed, this indicator has its basis in SB 375's requirement that the MPO consider the best available scientific data on the impacts to resource and agricultural lands. The Plan's more compact development footprint encroaches less on prime agricultural land vital to the economy in San Joaquin County.

Energy Usage and Water Consumption per Household

Energy and water efficiency, as characterized here, represents a co-benefit of the future resulting from the more compact urban form envisioned and modeled for the household growth in San Joaquin County. Decreases in energy and water use are both an environmental benefit and a financial one through reducing overall housing costs.

GHG Emissions per Capita

The RTP/SCS meets and exceeds the greenhouse gas targets as set by the California Air Resources Board (ARB) of 5 percent in 2020 and 10 percent in 2035. The 5 percent and 10 percent reductions are from cars and light duty trucks and are measured against a 2005 baseline on a per capita basis. This performance indicator was developed in direct response to the requirements of SB 375. A full discussion of the GHG targets and SJCOG's analysis is included in the RTP technical appendix.

Vehicle Miles of Travel per Capita (VMT)

As the name implies, a vehicle mile is one vehicle traveling 1 mile on the roadway network, regardless of how many people are occupying the vehicle. VMT has been a consistent measurement of travel efficiencies by both transportation planners and policy makers over decades. It is an important predictor in SB 375's principal target – greenhouse gas reductions from cars and light duty trucks, as well as other measured vehicle emissions. The total Daily VMT is 28,592,732 for the Plan and 29,065,851 for the 2011 RTP. This means that the Plan reduces over 473,000 Daily VMT compared to past plans. Per capita, that reduction is 0.44 mile per day.

Congested Travel Time

Congested travel time measures how easily and efficiently people are able to travel in the region by vehicle. It is measured by the difference between the time it takes to travel to destinations under optimal conditions and the actual travel time based on projected conditions, expressed as vehicle hours of delay (VHD). This is another often-used indicator that is easily understandable as most readers and data users have experienced stop and go traffic while travelling, causing delays in reaching one's destination. This measure does not consider non-recurrent delays caused by such occurrences as accidents, stranded motorists, or road construction. While these are recognized as contributions to delays experienced by drivers, they are not easily forecast.

Many types of transportation investments can improve congested and delayed conditions, including widening congested roadways, operational improvements such as optimizing traffic signals to improve traffic flow, or increased non-auto trips that reduce the number of cars competing for space on crowded roads.

Transit Ridership

Increases in transit ridership can be attributed to both improvements in service through direct investments in transit related capital and operations and increased ridership attributable to supportive land-use patterns. For example, recent studies indicate, that residential densities of approximately 7.5 to 8 dwelling units per acre are required to support efficient transit operations.

Bike and Walk Trips

Trips made in the active transportation category, either by walking or biking, show a modest increase due to plan investments. Strides are being made both at the local land-use level and with the percentage of Plan investments dedicated to active transportation supportive projects

3.5.3 The Financially Constrained Project

The 2014 RTP/SCS promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transportation system management approaches for new highway capacity. The following are components of the planned sustainable transportation system to serve the needs for San Joaquin County:

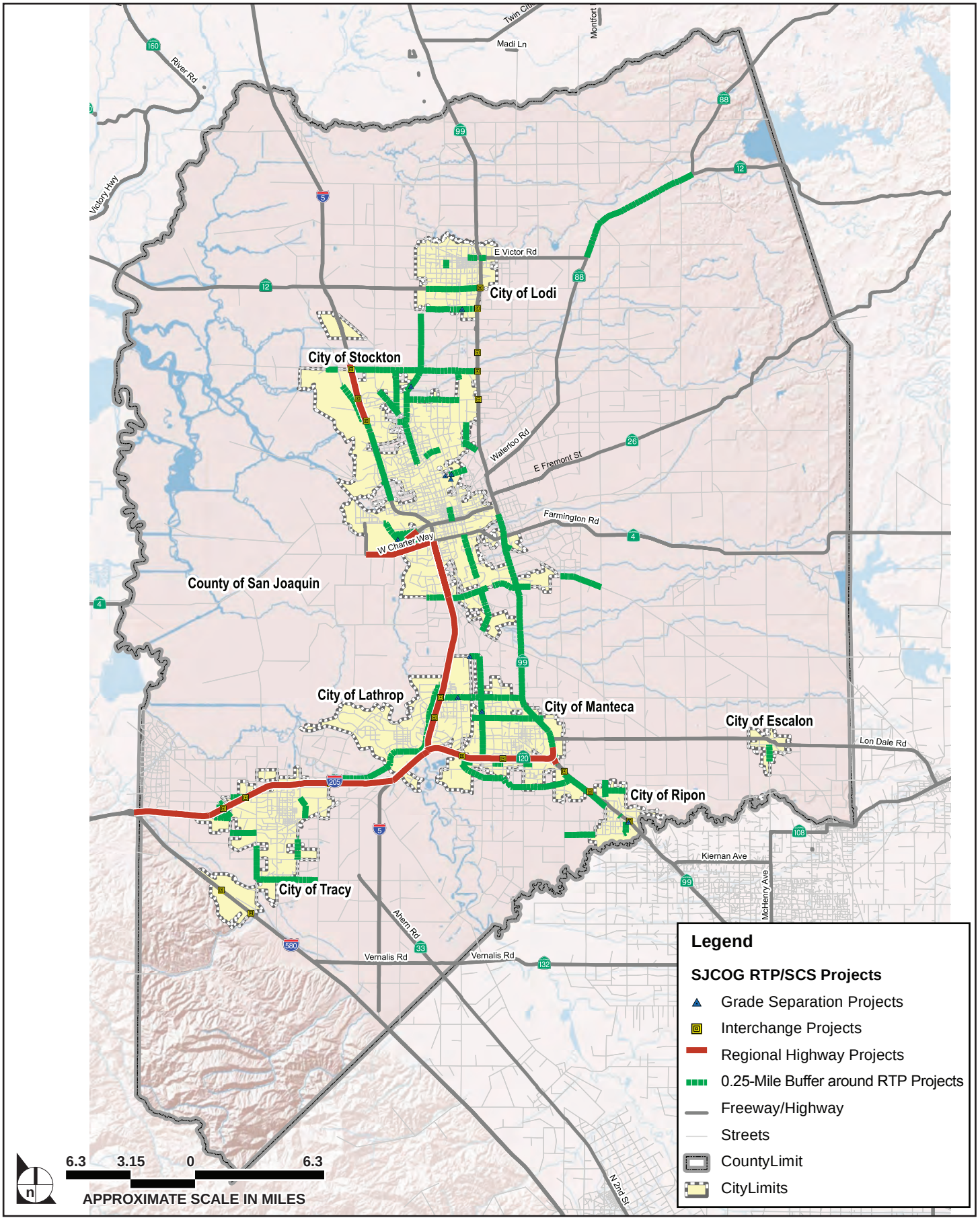
- A revenue-constrained transportation network funded by financial resources expected between now and 2040.
- Transportation demand management (TDM) measures.
- Transportation system management (TSM) measures.

A summary of RTP projects is provided in **Tables 3.0-3** through **3.0-6**. **Figure 3.0-1, San Joaquin County RTP/SCS Projects,** provides a map of the location of the RTP/SCS projects.

Table 3.0-3
Mainline Highway Improvements

Jurisdiction	Name	Scope
Caltrans	SR-99 Widening in Manteca and San Joaquin Phase IV	Mitigation Planting
Caltrans	SR-4	Operational and Intersection Improvements
Caltrans	SR-4 Extension	New alignment from Fresno Ave. to Navy Drive
Caltrans	I-5 HOV	Widen 6 to 8 lanes (inside)
Caltrans	I-5 HOV	Widen from 6 to 8 lanes (inside median) including auxiliary lanes
Caltrans	I-205 HOV	Widen from 6 to 8 lanes (inside/outside)
Caltrans	I-5 HOV	Widen 6 to 8 lanes (inside)
Caltrans	I-205 HOV	Widen from 6 to 8 lanes (inside/outside)
		Full size natural gas buses – Express Service - 10 new buses
		Midsize natural gas buses – 120 replacement buses
		Midsize natural gas buses – 120 new buses
		Minivan/buses – 45 replacement buses
Caltrans	SR-120	Widen 4 to 6 lanes (inside)
Caltrans	SR-12	Widen from 4 to 6 lanes
Caltrans	SR-12/SR-88	Widen from 2 to 4 lanes

Source: SJCOG 2014
HOV = high-occupancy vehicle.



SOURCE: San Joaquin COG, February 2014

FIGURE **3.0-1**

San Joaquin County RTP/SCS Projects

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Table 3.0-4
Transit Project

Jurisdiction	Name	Scope
SJRTD	RTD Bus Rapid Transit Vehicles	Purchase of buses for service expansion (Intercity/Interregional)
SJRTD	RTD Capital Improvement Projects	Capital improvements
SJRTD	RTD Downtown Transit Center	Construction, continuing development and improvements to the Downtown Transit Center
SJRTD	RTD Facility Modernization	
SJRTD	RTD Support Vehicles	Costs to secure support vehicles
SJRTD	SMA	SMA Fixed Route and SMA DAR
SJRTD	SMA	Expansion and replacement buses
SJRTD	SMA Capital	Expansion and replacement buses
SJRTD	SMA Operations	Local Service Operations
SJRTD	BRT Project Phase IV	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancements
SJRTD	BRT Project Phase IV: Hybrid Diesel-Electric Bus Procurement	Costs associated with the purchase of hybrid diesel-electric buses
SJRTD	BRT Project Phase IV	Phase IV Transfer Station
SJRTD	BRT Project Phase V	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancements
SJRTD	BRT Project Phase V: Hybrid Diesel-Electric Bus Procurement	Costs associated with the purchase of hybrid diesel-electric buses
SJRTD	BRT Project Phase V	Phase IV Transfer Station
Various	Local Service	Operations
Various	Miscellaneous Capital Improvement Projects	Facility upgrades, passenger amenities, operating equipment.
SJRTD	RTD Bus Rapid Transit Vehicles	Purchase of buses for service expansion (Intercity/Interregional)
SJRTD	RTD Capital Improvement Projects	Capital improvements

Source: SJCOG 2014

Table 3.0-5
2014 RTP/SCS Rail Projects

Jurisdiction	Name	Scope
Caltrans	Caltrans Intercity Rail	Construct double main track, panelized turnouts, relocate/renew siding turnout, and realign existing track.
Caltrans	Caltrans Intercity Rail Passenger Facility	In Stockton, Construct track connections and a new intercity passenger rail facility
SJRRC	ACE Capital	Acquisition of two rail cars
SJRRC	ACE Capital	Purchase two additional rail cars for ACE service expansion
SJRRC	ACE Capital	SJRRC shared costs for the overall maintenance of vehicles
SJRRC	ACE Capital	Capital lease with UPRR for a 10-year trackage rights
SJRRC	ACE Capital	Signal Upgrade project
SJRRC	ACE Capital	Purchase of Replacement Vehicles (Bus, Van) for ACE Service
SJRRC	ACE Capital	Construction of an ADA compliant pedestrian underpass and Center Platform at the Station to facilitate train movement
SJRRC	ACE Capital	Realignment of tracking
SJRRC	ACE Capital	Construction
SJRRC	ACE Capital	Improvements to the Wireless Security System on the ACE service
SJRRC	ACE Capital	Double Track in Lathrop and Track Extension in Stockton
SJRRC	ACE Capital	Restoration of abandoned Depot building
SJRRC	ACE Equipment Maintenance Facility	Relocation of ACE Maintenance Facility from Union Pacific Railroad facility to permanent facility.
Caltrans	Caltrans Intercity Rail	Construct double main track, panelized turnouts, relocate/renew siding turnout, and realign existing trackage.
Caltrans	Caltrans Intercity Rail Passenger Facility	In Stockton, Construct track connections and a new intercity passenger rail facility
SJRRC	ACE Capital	Acquisition of two rail cars

Source: SJCOG 2014

Table 3.0-6
Summary of Constrained Projects

Program Category	Totals	Percent of Total Expenditure
Mainline	$1,386,905,360	12.6%
Interchanges	$726,416,832	6.6%
Regional Roadways	$1,160,168,079	10.5%
Railroad Crossing Safety	$191,729,653	1.7%
Bus	$2,430,783,336	22.1%
Rail Corridor	$1,089,481,288	9.9%
Airports	$47,000,000	0.4%
Bike and Pedestrian	$281,820,602	2.6%
Roadway Operations and Maintenance	$3,683,622,449	33.5%
Grand Total	**$10,997,927,599**	**100%**

Source: SJCOG 2014

3.5.4 Action Elements

Transit Action Element

Transit systems relevant to this Action Element consists of local, intercity, interregional, and dial-a-ride bus services, as well as intercity and interregional passenger rail systems currently operating in San Joaquin County. The system also includes needed services such as demand response for both those who are in need of transit for medical purposes and those in rural areas (General Public dial-a-ride).

All cities and unincorporated areas in San Joaquin County are served by a public transit system. These systems range in size and complexity. From the 106 buses operated by the San Joaquin Regional Transit District (RTD), to the single bus operated by the City of Ripon.

There are four types of public transit services currently operated by RTD and the cities in San Joaquin County: general public fixed-route, general public dial-a-ride, general public route-deviation, and para-transit dial-a-ride.

Bus Transit Short Range Plan, 2014–2025

- Continue to focus on cost-effectiveness and service efficiencies
- Ensure as a priority the continued provision of lifeline services for the transit dependent and transit assisted population

- Ensure that cross system coordination, such as ADA qualification, for transfer and timed connecting service is effectively developed and implemented
- Continue to expand intra-city fixed route service in Escalon, Manteca, Lodi, Ripon, and Tracy, ensuring transit measures of effectiveness are applied to decisions concerning service expansion
- Incrementally develop older and disabled specialized service responding to the growing older population
- Continue to expand intercity and commuter bus service cost-effectively but with a focus on attracting choice riders and job access
- Develop the Regional Operations Center for RTD and expand service maintenance facilities and yards
- Fully implement BRT on the Martin Luther King Jr, West Lane, and March Lane
- Continue to develop cleaner, more energy efficient passenger and service fleets as part of vehicle and equipment replacement cycles
- Implement safety and security measures as a top priority

Bus Transit Long Range Plan, 2025–2040

- Continue development of intercity and interregional service with the objective of increasing transit modal share of intercity and interregional trips and as a strategy to balance VMT and population growth
- Continue to emphasize cost effective and efficient service development
- Initiate express bus service as the County HOV network is developed as a congestion management strategy
- Ensure specialized service for the older and disable communities keeps pace with population growth in the demographic areas
- Fully implement BRT on the Freemont Street, Arch Road/Sperry, and Eight Mile Road Corridors

Rail Corridor Short Range Plan, 2014–2025

- Participate with other passenger rail operators and service improvements between Niles Junction and downtown San Jose
- Increase passenger rail service between Stockton and San Jose. Service frequencies will be increased if demand warrants, operational funding exists, and the necessary track rights agreements are executed
- Continue to develop governance, funding, trackage rights, and operational strategies to extend passenger rail service to Stanislaus County and Sacramento County

- Continue to develop governance, funding, and operational strategies to implement the mission of the San Joaquin Joint Powers Authority
- Develop and construct a new Amtrak Station in Stockton
- Implement planned safety and security measures as a top priority
- Continue to develop cleaner, more energy efficient locomotives and rolling stock as part of vehicle and equipment replacement cycles

Rail Corridor Long Range Plan, 2025–2040

- Initiate passenger rail commuter service to Stanislaus County and Sacramento County
- Expand and improve existing passenger rail service between Stockton and San Jose.
- Improve connections to BART and other feeder transit services
- Upgrade and expand stations including improved passenger amenities and ITS equipment

Regional Streets and Highways

Several intersecting highways are pivotal to mobility in San Joaquin County. On a north-south axis this includes Highway 99, the "Main Street" of the San Joaquin Valley, and Interstate 5, a corridor of statewide and national significance. Within the last 10 years, each route has experienced dramatic traffic growth and levels of congestion. Each route also carries truck traffic at volumes much higher than the statewide average for the highway system, making them vital to goods movement. Without improvements, both Highway 99 and I-5 within San Joaquin County are projected to operate significantly beyond capacity, resulting in sustained peak period driving conditions and deteriorating levels of service.

State Routes 4 and 12 are primarily two lane conventional highways linking the east and west sides of the county. Each operates as a freeway segment for a brief but important segment between Highway 99 and I-5. Both Routes 4 and 12 connect with Bay Area counties across the San Joaquin Delta. These two lane rural roads now handle significant commuter and interregional traffic.

Highways 26 and 88 in the central and northeast portion of the County are two lane rural highways which link to Calaveras and Amador Counties. Each roadway has also experienced significant traffic volume increases partly due to recreational traffic but also resulting from rapid growth occurring in these neighboring counties to the east.

Short Range Plan, 2014–2025

- Adequately maintain existing roadway infrastructure and improve when fiscally possible

- Safety and operational improvements on SR-12 west of I-5
- Extend the Highway 4 Cross-town Freeway from Fresno Avenue to Navy Drive
- Prepare a Systems-Level Planning analysis of various transportation system alternatives using multimodal performance measures
- Pursue ground access improvements for the Port of Stockton
- Implement the capital improvements for highways, regional roads, and interchanges for this period
- Continue implementation of the congestion management process

Long Range Plan, 2025-2040

- Maintain Existing Roadway Infrastructure at acceptable levels of service
- Implement as appropriate and feasible the recommendations of the completed studies
- Modify crucial freeway-to-freeway connectors at I-5 and Route 4, Highway 99 and Route 4, Route 120 at I-5 and SR-99
- Complete remaining widening and operational improvements to Highway 12
- Develop and implement operational and traffic management strategies on County freeway segments
- Complete identified local access interchange improvements to improve connectivity and link to the extended roadway network in areas of growth
- Continue to enhance access at the Port of Stockton and major industrial areas to support economic development
- Continue to improve the arterial system based on subsequent preliminary engineering and traffic analysis
- Continue implementation of the congestion management process
- I-205 HOV lane between I-580 and I-5
- I-5 HOV lane between I-205 and Charter Way
- I-5 HOV lane between Hammer Lane and North of Eight Mile

Goods Movement

Goods movement throughout the San Joaquin Valley, and particularly within San Joaquin County, is a key component of the economic vitality and growth of the region. San Joaquin County is ideal for the multi-modal movement of goods throughout the region. The San Joaquin Valley region is one of the four

major international trade regions in California, as noted in the 2007 State Goods Movement Action Plan (GMAP).

The goods movement industry and a cohesive transportation infrastructure are directly linked to job creation and the overall improvement of the economy. Improving the goods movement infrastructure also is pivotal to relieving congestion on freeways and increasing mobility regionally and interregional. Furthermore, private and public partnerships are essential for the betterment of the goods movement industry.

Short-Range Plan, 2014–2025

- Work with the Goods Movement Task Force (GMTF) Committee, as well as other goods movement related committees to identify operational and other needed improvements to facilitate goods movement in and outside of San Joaquin County
- Work with Caltrans to implement elements of the Goods Movement Action Plan (GMAP) and other state sponsored projects
- Improve access to the Port of Stockton
- Improve connectivity of goods movement between the Stockton Metropolitan Airport to Interstate 5 and the Port of Stockton
- Support the Stockton Metropolitan Airport's need to establish infrastructure that will support the movement of goods from the group to the air and from the air to the ground
- Design, fund, and deliver Railroad Grade Safety Projects
- Continue implementation of railroad improvements

Long-Range Plan, 2025–2040

- Utilize all strategies to improve the Level of Service of the regional transportation system
- Continue to partner with other public and private sector goods movement stakeholders
- Pursue all strategies to improve the connectivity of the primary goods movement multi-modal system (e.g., Highways, Rail, Port of Stockton, Stockton Metropolitan Airport)
- Ensure that as economic development moves forward, that the transportation infrastructure supporting those industries meets the design standards to support large trucks and access demands
- Improve the availability of long-haul truck parking
- Maximize the use of rail to move goods in order to provide relief to the transportation infrastructure

- Continue to promote and fund alternative modes of public transportation in order to remove as many cars off the transportation system
- Continue to examine and invest in transportation improvements that allows trucks to move as freely as possible on the highway system
- Maintain the integrity and incrementally complete a Regional Expressway System
- Pursue the Goals, Objectives and Policies of this section as opportunities to improve goods movements arise
- As technological advances occur, use Intelligent Transportation System (ITS) methodologies to improve the movement of goods

Aviation

The services provided by San Joaquin County's airports address a variety of local and regional needs through providing viable mobility options for the County's citizens and businesses. The aviation system connects the traveling public and cargo movers to airports in major metropolitan areas of the state and neighboring areas of Nevada. The aviation system serves the US military directly or in an auxiliary fashion as well as supporting local farmers, police, and medical services. Aviation activities also provide recreational opportunities for the citizens of San Joaquin County.

Short Range Plan, 2014–2025

- Work with the Tracy Municipal Airport and Stockton Metropolitan Airport to obtain funding from the state and federal governments for their respective development programs
- Assist San Joaquin RTD and the City of Stockton as needed to implement the Bus Rapid Transit expansion route to the Stockton Metro Airport and surrounding area
- Work with Stockton Metro in the update of the Airport Master Plan
- Update Stockton Metropolitan Airport's ALUCP
- Assist the City of Stockton and San Joaquin County to fund and complete the French Camp Interchange improvement extension project
- Continue to work with the Lodi Lind's Airport to support its operations and to maintain compatible uses within the airport area of influence. Of particular interest to SJCOG is the development of aviation easements and rules for their usage for privately owned and public access airports
- Complete and implement the Action Plan of the Central California Aviation Systems Plan

Long Range Plan, 2025–2040

- Protect and support the expansion of general aviation service at Tracy Municipal, Stockton Metro, and Lodi Lind field
- Continue to work with County airports on land use compatibility issues
- Continue to assist Stockton Metro Airport to develop and improve its capital facilities and to grow both the air passenger and air cargo markets
- Implement the Action Plan of the Central California Aviation Systems Plan
- Continue to work with public access airports to increase their access to State and federal funds

Bicycle and Pedestrian

San Joaquin County has an ideal terrain for using bicycles as an alternative transportation mode. The flat terrain, many rural roads, and relatively mild weather make it particularly conducive to bicycle travel. For short trips, the bicycle can serve as an alternative to the automobile. Because the bicycle is non-polluting and energy efficient, it is an element in the region's multi-modal transportation system that could lead to a more efficient transportation network.

Short Range Plan, 2014–2025

- Encourage SJCOG member jurisdictions to establish and implement adopted local bicycle plans, incorporate bicycle facilities into local transportation projects and consider Complete Streets design concepts
- Continue to seek funding for bicycle projects from local, state and federal sources
- Continue to seek funding to help maintain existing bikeways
- Assist and encourage jurisdictions and employers to promote the use of bicycle facilities and safety
- Develop a Regional Bicycle Plan

Long Range Plan, 2025–2040

- Periodically update the regional bicycle plan
- Continue to educate the public on the benefits of bicycle and pedestrian movement;
- Continue to seek funding for bicycle projects and to maintain existing bike lanes from local, state and federal sources

Transportation Control Measures

Transportation Control Measures (TCM) have received tremendous amounts of attention since the passage of the State and Federal Clean Air Acts and congestion management legislation. As a result, the entire San Joaquin Valley Air basin is currently designated as a "non-attainment area" for ozone and particulate matter less than 2.5 microns in diameter (PM-2.5) and maintenance for particulate matter less than 10 microns in diameter (PM-10). According to State and Federal Clean Air Act requirements, San Joaquin County must ensure that "all feasible measures" be implemented to reduce emissions. This impacts the development and implementation of TCMs in San Joaquin County.

In San Joaquin Valley, the Air District and the Transportation Planning Agencies have jointly prepared a Transportation Control Measure Plan. The joint effort is the result of a memorandum-of-understanding signed by each of the agencies to coordinate air quality and transportation planning activities.

Short Range Plan, 2014–2025

- Continue to support the Commute Connection program
- Support the memorandum-of-understanding between transportation planning agencies and the Air District
- Continue the implementation and expansion of the City of Stockton's Traffic Management Center
- Encourage local jurisdictions to support land use development patterns that are amenable to transit usage, bicycling and pedestrian facilities
- Pursue funding opportunities from the Congestion Mitigation Air Quality program, AB 2766 Motor Vehicle Emissions reductions Program, and other sources that allow allocations to Transportation Control Measures
- Continue implementing all federal Transportation Control Measures
- Continue operating the Freeway Service Patrol program in the I-205/I-580 corridor; expand service hours as demand warrants
- Continue to use a multimodal scoring system that rewards projects with TCM features when evaluating and prioritizing federal funding proposals
- Evaluate and expand, as warranted, the use of automated traveler information systems such as message signs, computer bulletin boards, traffic information broadcasting, and pre-trip routing programs
- Install ramp-metering capabilities on interchange connections as capital modifications are made to the interchange

- Begin negotiations with Caltrans for the expansion of the Freeway Service Patrol program
- Continue to encourage use of transit

Long Range Plan, 2025–2040

- Continue to implement the recommendations of COG studies such as the High Occupancy Vehicle Lane Plan, and the Park-and-Ride Lot Plan
- Continue to uphold the goals, policies and objectives of this Transportation Control Measure action element
- Continue to implement all applicable federal and state Transportation Control Measures

Intelligent Transportation Systems

The ITS Deployment Plan outlines many of the same issues already discussed in previous action elements. Currently there are several projects targeted specifically for San Joaquin County. These projects will fall under the focused urban area ITS. Projects include advanced warning systems, vehicles tracking, signal coordination and synchronization, advanced transit systems, and others.

Short Range Plan, 2014–2025

- Continue to support local in developing their ITS plans
- Continue to support the implementation of the City of Stockton' ITS plan
- Implement projects outlined in the SDP for San Joaquin County
- Continue to search for additional funding

Long Range Plan, 2025–2040

- Continue to develop ITS architecture to the National Standard
- Continue to uphold the goals, policies and objectives of the Regional ITS SDP
- Continue to implement all applicable federal and state ITS projects

3.6 PROPOSED RTP AND ALTERNATIVES

Each of the alternatives evaluated in the 2014 RTP/SCS Program EIR includes a collection of transportation projects and strategies or transportation network and a growth scenario. The alternatives evaluated for the 2014 RTP Program EIR are as follows:

1. The **2014 RTP/SCS** (Plan or Project), which includes all of the elements summarized above, contains transportation/urban form strategies that encourage compact growth, increased jobs/housing balance, and development located in centers with a mix of uses designed to reduce vehicle trips and trip lengths, where feasible, in all parts of the region. The elements described above comprise the Plan network and the Plan growth scenario.

2. The **No Project Alternative** includes only those transportation projects that are included in the first year of the previously conforming transportation plan and/or Transportation Improvement Plan (TIP), or have completed environmental review by January 2014.

3. The **2011 RTP/Business as Usual Alternative** is an update of the adopted 2011 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions.

4. The **Compact Development Alternative** increases density and transit beyond what is included in the SCS. It includes a higher percentage of new growth as infill/redevelopment, additional transportation investments and a larger percentage of new housing as small lot or multi-family.

3.7 RELATIONSHIP TO OTHER EIRS

The 2014 RTP/SCS Program EIR builds on the analysis and mitigation contained in the 2011 RTP Program EIR. The 2014 RTP/SCS project list is similar to the project list for the 2011 RTP, although some of the transportation projects from the 2011 RTP are now considered committed and are included in the No Project Alternative. The 2014 RTP/SCS evaluates the most recent projects and policies and provides more direct comparisons between current conditions and expected future Plan conditions. The 2014 RTP/SCS Program EIR includes additional analysis of cumulative, growth-inducing, and other indirect impacts.

3.8 INTENDED USES OF THE PROGRAM EIR

SJCOG will use this Program EIR as part of its review and approval of the 2014 RTP/SCS. The lead agencies for individual projects may use this Program EIR as the basis of their regional and cumulative impacts analysis. In addition, for projects that may be eligible for CEQA Streamlining, applicable mitigation measures from this EIR shall be incorporated into those projects as appropriate. It is the intent of SJCOG that member agencies and others use the information contained within the Program EIR in order to "tier" subsequent environmental documentation of projects in the region. Information from this document may also be incorporated in future County Congestion Management Programs and associated environmental documents, as applicable.

The 2014 RTP is intended to meet the changing socioeconomic, transportation infrastructure, financial, technological, and environmental conditions of the region. Individual projects are preliminarily identified in the 2014 RTP; however, this Program EIR is programmatic in nature and does not specifically analyze these projects. Project-level analysis will be prepared by implementing agencies on a project-by-project

basis. Project-specific planning and implementation undertaken by each implementing agency will depend on a number of issues, including: policies, programs and projects adopted at the local level; restrictions on federal state and local transportation funds; the results of feasibility studies for particular corridors; and further environmental review of proposed projects.

This Program EIR may also be used as part of CEQA Streamlining for projects that meet specified criteria, See **Section 1.0, Introduction**, for a discussion of CEQA streamlining.

4.0 ENVIRONMENTAL ANALYSIS

This section generally describes the regulatory framework and reviews the environmental setting for each issue area. Based on the regulatory context and existing setting, potentially significant environmental impacts that could result from implementation of the Plan are analyzed and identified. These potential impacts are analyzed for the following environmental issues: aesthetics; agriculture and forestry resources; air quality; biological resources; cultural resources; geology, soils, and mineral resources; greenhouse gas emissions; hazards and hazardous materials; land use and population; noise; public services and utilities; transportation; and water resources. Discussion of potential impacts is focused on the identification of changes that may be considered to be environmentally significant (a substantial, potentially substantial, or adverse change in the environment) relative to the existing environmental conditions.

Analysis of each environmental issue is organized into the following subsections:

Existing Setting: A description of existing conditions that precede implementation of the proposed project.

Regulatory Framework: An identification of applicable federal, state, and local regulations.

Thresholds Of Significance: The criteria by which the project components are measured to determine if the proposed project would cause a substantial or potentially substantial adverse change in the existing environmental conditions. This section also includes a discussion of the methodology used to determine impacts, where appropriate.

Impacts: An analysis of the beneficial and adverse effects of the proposed project, including, where appropriate, assessments of the significance of potential adverse impacts, including cumulative impacts, relative to established thresholds (relative to existing conditions per the California Environmental Quality Act [CEQA]).

Mitigation Measures: Whenever significant impacts relative to existing conditions are identified, mitigation measures are recommended to avoid or minimize impacts to the extent feasible.

Significance of Impacts After Mitigation: A discussion of whether a significant and unavoidable impact would be reduced to a less than significant level after mitigation under CEQA, or remain significant and unavoidable.

Comparison with the No Project Alternative: A comparison of the expected future conditions of the proposed Plan to the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however it provides valuable information on the effects of the 2014 RTP/SCS.

4.1 AESTHETICS

This section describes the existing visual characteristics within the region, identifies the regulatory framework with respect to regulations that address aesthetic resources, and evaluates the significance of the potential changes in the visual character that could result from development of the proposed Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). In addition, mitigation measures are identified as appropriate and feasible to reduce identified impacts.

The RTP/SCS plan area consists of transportation routes, including highways, rail alignments, bicycle trails, roads, and Caltrans right-of-way in San Joaquin County. The aesthetic appearance of San Joaquin County is a function of both the natural landscape and man-made elements that create an urban and rural character and design. Because transportation facilities can have a major influence on human perception of the visual environment, this section addresses the general aesthetic landscape of the region and assesses the potential impacts from region-wide construction of at- and above-grade transportation facilities. The County is centrally located between the San Joaquin and Sacramento Valleys and serves as the transition between the coastal region and Sierra Nevada Mountain Range. Overall the area is relatively flat. The aesthetic quality of the County has been affected by various forms of transportation for some time. As a result, the existing and planned multimodal transportation system is not considered to have a significant impact on the aesthetic quality in San Joaquin County. However, current aesthetic values can be maintained as the planned regional transportation system is implemented.

The SCS component of the RTP would influence urban development in San Joaquin County and therefore patterns of development are assessed.

4.1.1 ENVIRONMENTAL SETTING

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area. Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

Visual Character: Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlements and development, including

roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally, even hourly, as weather, light, shadow, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features. The appearance of the landscape is described in terms of the dominance of each of these components.

Visual Quality: Visual quality is evaluated using the well-established approach to visual analysis adopted by Federal Highway Administration, employing the concepts of vividness, intactness, and unity, which are described below.

- **Vividness** is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- **Intactness** is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, and in natural settings.
- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Various jurisdictions within the County such as cities, the County, and federal or regional agencies, provide guidelines regarding the preservation and enhancement of visual quality in their plans or regulations.[1] An example of such guidance is the *Caltrans Scenic Highway Visual Quality Program Intrusion Examples*, which are presented in **Table 4.1-1, Caltrans Scenic Highways Program: Examples of Visual Quality Intrusions.** As that table illustrates, a given visual element may be considered desirable or undesirable, depending on design, location, use, and other considerations. Because of the size and diversity of San Joaquin County, it is not possible or appropriate to apply uniform standards to all areas within the region.

Scenic resources can include natural open spaces, topographic formations, landscapes, and manmade features. Many people associate natural landforms and landscapes with scenic resources, such as woodlands, lakes, rivers, streams, mountains, habitat, and agricultural lands. Scenic resources can also

[1] California cities and counties are not required to include visual quality elements in their General Plans, although many do. However, the General Plans are required to include a Conservation Element, which includes resources such as waterways and forests that frequently are also scenic resources.

include urban open spaces and the built environment. Examples of these would include urban parks, trails, and nature centers, archaeological and historical resources, and man-made structures like buildings and bridges with unique architectural features. Tall buildings may also provide excellent views of scenic resources beyond the urban core. Typically, jurisdictions identify designated scenic resources, or some similar classification system, to identify priority scenic resources. These designated scenic resources are the focus of this chapter.

Table 4.1-1
Caltrans Scenic Highways Program: Examples of Visual Quality Intrusions

Land Use Type	Minor Intrusion	Moderate Intrusion	Major Intrusion
Buildings: Residential, Commercial, Industrial Development	Widely dispersed buildings. Natural landscape dominates. Wide setbacks and buildings screened from roadway. Exterior colors and materials are compatible with environment. Buildings have cultural or historical significance.	Increased number of buildings, but are complimentary to the landscape. Smaller setbacks and lack of roadway screening. Buildings do not degrade or obstruct scenic view.	Dense and continuous development. Highly reflective surfaces. Buildings poorly maintained. Visible blight. Development along ridgelines. Buildings degrade or obstruct scenic view.
Unsightly Land Uses: Dumps, Quarries, Concrete Plants, Tank Farms, Auto Dismantling	Screened from view so that facility is not visible from the highway.	Not screened from view and visible but programmed/funded for removal and site restoration.	Not screened from view and visible by motorists. Will not be removed or modified. Scenic view is degraded.
Strip Malls		Neat and well landscaped. Blend with surroundings	Not harmonious with surroundings. Poorly maintained or vacant. Blighted, Development degrades or obstructs scenic view.
Parking Lots	Screened from view so that vehicles and pavement are not visible from the highway	Neat and well landscaped. Blend with surroundings	Not screened or landscaped. Scenic view is degraded.
Off-Site Advertising Structures			Billboards degrade or obstruct scenic view
Noise Barriers		Noise barriers are well landscaped and complement the natural landscape. Noise barriers do not degrade or obstruct views.	Noise barriers obstruct scenic view.
Power Lines	Not easily visible from road.	Visible, but compatible with surroundings	Poles and lines dominate view. Scenic view is degraded.
Agriculture: Structures, Equipment, Crops	Blends in and complements scenic view. Indicative of regional culture.	Not in harmony with surroundings. Competes with natural landscape for visual dominance.	Incompatible with and dominates natural landscape. Structures equipment or crops degrade scenic view.
Exotic Vegetation	Used as screening and landscaping. Blends in and complements scenic view.	Competes with native vegetation for visual dominance.	Incompatible with and dominates natural landscape. Structures equipment or crops degrade scenic view.

Land Use Type	Minor Intrusion	Moderate Intrusion	Major Intrusion
Clearcutting		Tress bordering highway remains so that clearcutting is not evident.	Clearcutting or deforestation is evident. Scenic view is degraded.
Erosion	Minor soil erosion.	Slopes beginning to erode. Not stabilized.	Large slope failures and no vegetation. Scenic view is degraded.
Grading	Grading blends with adjacent landforms and topography.	Some changes, but restoration is taking place.	Extensive cut and fill. Scarred hillsides and landscape. Canyons filled in. Scenic view is degraded.
Road Design	Blends in and complements scenic view. Roadway structures are suitable for location and compatible with surroundings.	Cut and fill is visible but has vegetative cover.	

Source: Caltrans. Scenic Highways Program, 1996.

Viewer Exposure and Sensitivity: The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency, and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related, in part, to the position of the viewer to the resource; therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail). To identify the importance of views of a resource, a viewshed must be broken into distance zones of foreground, middle ground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in a viewshed may vary between different geographic region or types of terrain, the standard foreground zone is 0.25 to 0.5 mile from the viewer, the middle ground zone is from the foreground zone to 3 to 5 miles from the viewer, and the background zone is from the middle ground to infinity.

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, biking, or camping, and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work. Commuters and non- recreational travelers have generally

fleeting views and tend to focus on commute traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they are generally considered to have high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

Judgments of visual quality and viewer response must be made based in a regional frame of reference. The same landform or visual resource appearing in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape but have very little significance in mountainous terrain.

Visual Character

San Joaquin County is centrally located in California's vast agricultural heartland, the San Joaquin Valley. Urban communities within the County are surrounded by agricultural and vacant lands. The density and intensity of development varies, with the majority of higher density development located in or near the incorporated cities and unincorporated urban communities. Incorporated cities within San Joaquin County include the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. The proposed projects are located on state highways, regionally significant roads, local streets, railroad rights-of-way, and public lands.

The County contains a combination of metropolitan and rural areas with a long history of agricultural activities. The majority of the 1,440 square miles within the County are relatively level terrain with agriculturally productive lands. The foothills of the Diablo Range define the southwest corner of the County, and the foothills of the Sierra Nevada lie along the County's eastern boundary. With few exceptions, the flat topography is not conducive to views of the Delta region in the western portion of the County. The County itself has a rural character, when compared to the urban centers of the nearby San Francisco Bay or Sacramento metropolitan areas. Most structures are low to medium rise, with residential development consisting primarily of mobile home parks, older single-family detached residences, newer tract homes, and scattered high- density apartments. Vast open areas, orchards, and agricultural land add to the small town image of established communities in the area. Most segments of major highways are located at a higher elevation than surrounding lands for flood protection, providing motorists with views of the adjacent developments, agriculture, and open land.

Scenic Views and Visual Resources

Visual resources are generally classified into two categories: scenic views and scenic resources. Scenic views are elements of the broader viewshed such as mountain ranges, valleys, and ridgelines. They are

usually mid-ground or background elements of a viewshed that can be seen from a range of viewpoints, often along a roadway or other corridor. Scenic resources are specific features of a viewing area (or viewshed) such as trees, rock outcroppings, and historic buildings. They are specific features that act as the focal point of a viewshed and are usually foreground elements.

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

Natural features throughout the County include waterways, riparian habitat, wildlife habitat and wetlands, significant oak groves, and hillsides. Natural features of the County are clustered in the Sacramento-San Joaquin Delta area in the western half of the County. County policies specify that these natural features, as elements of the visual environment, should be protected from unwarranted or premature urban encroachment.

From a regional perspective, views of the Delta and foothills of the Diablo Range and Sierra Nevada are considered valuable visual resources. San Joaquin County General Plan open space policies establish protection of outstanding views of waterways, hilltops, and oak groves from public land and public roadways.

Features of the built environment that may also have visual significance include individual or groups of structures that are distinctive due to their aesthetic, historical, social, or cultural significance or characteristics. Examples of the visually significant built environment may include bridges or overpasses, architecturally appealing buildings or groups of buildings, landscaped freeways, and a location where a historic event occurred.

The following sections provide a description of the scenic resources within the County. The descriptions are included in the County's 2009 General Plan Background Report and are summarized below.

Agricultural Land

Though intensively developed, modified, and manipulated for agricultural purposes, the County's rural area has a high scenic value. The predominant characteristic of San Joaquin County's rural areas is agricultural, and includes pasture, row crops, vineyards, and orchards with limited accessory buildings scattered throughout. Viewers are offered expansive views over row crops and pastures, while orchards

and vineyards create a focused line of sight. Most roadways through non-urbanized San Joaquin County provide some extent of rural agricultural landscape views.

The Delta, Marshes, and Wetlands

Wetland resources are comprised of reservoirs, creeks, rivers, ponds, and marshes in the County. Of these, the Delta is the most significant scenic resource. The Delta and Suisun Marsh form the largest estuary on the west coast of North America. Further, the Suisun Marsh represents 10 percent of California's remaining wetlands. According to the Delta Vision Blue Ribbon Task Force[2], "The Delta is a regional, state, and national treasure. Its unique combination of estuary, water supply, recreation and tourism, aesthetics, lifestyle, and rural character make it a special place that we must recognize and protect." As stated in the Delta Vision Strategic Plan, "The Delta is one of the state's most distinct regions, combining a unique physical geography of islands and river channels with a cultural heritage as enduring as any in California. The Delta possesses natural, historical, and recreational resources of statewide and even national significance."

Marshes are restricted locally primarily to the Delta, although small areas of marsh are located in the southeast portion of the County. Views of the Delta are predominantly from state highways, such as State Route (SR)-4 (and SR-12 west of Stockton and Lodi and locally designated scenic roads, such as Eight Mile Road, Empire Tract Road, Lower Roberts Island Road, and Bacon Island Road.

River Corridors

The Stanislaus River, Mokelumne River, Calaveras River, and Dry Creek corridors, including their tributaries and creeks, provide scenic waterways and areas of riparian forest in the County. In addition, the lower Stanislaus and Mokelumne Rivers are the only areas left in the County with significant riparian woodland vegetation, heightening the importance of these areas. Less significant amounts of riparian vegetation also exist within the Delta and along portions of Old River, Bear Creek, and Dry Creek. Views of river corridors can be seen briefly from state highways and local roads, along bikeways and trails, and by recreationists along the rivers. Major public viewpoints of these resources are limited to road and highway crossings because the wide floodplains have hindered the development of roads and other viewpoints. A locally designated scenic roadway, River Road, provides views of the Stanislaus River

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2 Delta Vision is intended to identify a strategy for managing the Sacramento-San Joaquin Delta as a sustainable ecosystem that would continue to support environmental and economic functions that are critical to the people of California. The Delta Vision Blue Ribbon Task Force is responsible for recommending future actions to achieve a sustainable Delta. Members have demonstrated an expertise in addressing and resolving complex natural resource management issues involving significant economic and government issues.

corridor in the far southeast County. The riparian corridor of the lower Stanislaus River can be viewed from Caswell State Park, as well as local roadways in the vicinity.

Rangelands

Rangelands within the County are the prototypical California landscape in this area of the state. Verdant green from late winter to early summer, these landscapes evolve to the dried grass brown of late summer and fall. Though some areas of rangeland are composed of oak savannah, they are predominantly made up of expansive grasslands interspersed with vernal pools and ephemeral streams. Development within these areas tends to be infrequent and consist of small-scale agricultural improvements. Rangelands are the primary landscape type in the eastern area of the County, and west of I-5, I-205, and I-580. Primary viewpoints of rangelands include I-5, I-205 and I-580 and SR-33 in the western County, and SR-4, SR-12, SR-26, SR-88 and SR-120, Shelton Road, Clements Road, Liberty Road, and Mackville Road in eastern San Joaquin County.

Scenic Panoramas

Views of the Coastal ranges and the Sierra Nevada foothills from the wide valley floor constitute the major scenic vistas in the County. These ranges are most often viewed from roadways in the County. The coastal Diablo Range borders San Joaquin County on the west and is composed of gently to steeply rolling hills. Views of the Diablo Range can be seen along the I-5 and I-580 corridor, from portions of SR-33, and Corral Hollow Road. The foothills of the Sierra Nevada border San Joaquin County on the east, and are composed of gently rolling hills leading to the sharper terrain of the Sierra in the background. The dominant colors of the mountains and hills vary with the season, with golden brown hues through most of the year replaced by the green of vegetation in response to the winter rains. Due to poor air quality within the County, views of these scenic panoramas are often obscured, with views of the Sierra Nevada limited.

Scenic Water Resources and Wild and Scenic Rivers

Water resources are important visual resources that draw tourists to the area for recreational opportunities. The most visually significant water bodies in the area are part of the Sacramento-San Joaquin River Delta.

Scenic Highways and Corridors

Scenic Highways

A scenic highway is generally defined by Caltrans as a public highway that traverses an area of outstanding scenic quality, containing striking views, flora, geology, or other unique natural attributes. 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.

The status of a proposed state scenic highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway. San Joaquin County has also designated scenic routes as valuable in enhancing the recreational experience for County residents and non-residents. The criteria for selection of scenic routes should specify that the route has one or more of the following characteristics:[3]

- It leads to a recreational area
- It provides a representative sampling of the scenic diversity within the County
- It exhibits unusual natural or manmade features of interest
- It provides opportunities to view activities outside the normal routine of most people
- It provides a route for people to view the Delta waterways
- It links two scenic routes or connects with scenic routes of cities or other counties

As presented in **Tables 4.1-2, Officially Designated State Scenic Highway – San Joaquin County**, there are two officially designated scenic highways in San Joaquin County. As shown in Table **4.1-3, San Joaquin County Designated Scenic Routes**, there are 26 San Joaquin County Designated Scenic Routes.

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[3] San Joaquin County General Plan Public Review Public Draft Background Report July 2, 2009, http://www.sjcgpu.com/pdf/backgroundreport/prd_br_12s.pdf, (2013).

Table 4.1-2
Officially Designated State Scenic Highway – San Joaquin County

Highway	Location	Length
Interstate 580	From Interstate 5 to the Alameda County Line	15.4 miles
Interstate 5	From the Stanislaus County Line to Interstate 580	0.70 mile

Source: California Department Of Transportation, 2013.

Table 4.1-3
San Joaquin County Designated Scenic Routes

Road Name	Segment Begin	Segment End	Configuration	Scenic Resources
Liberty Road	SR 88	Amador County Line	east/west two-lane rural road	range/grazing land; Camanche Reservoir
Collier Road	Mackville Rd	SR 88	east/west two-lane rural road	range/grazing land
Mackville Road	SR-12/88	Collier Road	north/south two-lane rural road	community of Clements; cropland; aggregate mine; park; Mokelumne River
Jahant Road	Tully Road	Mackville Road	east/west two-lane rural road	range/grazing land; rural residences
Tully Road	Jahant Road	Peltier Road	north/south two-lane rural road	cropland; rural residences
Peltier Road	Elliott Road	Tully Road	east/west two-lane rural road	cropland; rural residences
Elliott Road	SR-12/88	Peltier Road	north/south two-lane rural road	community of Lockeford; cropland; Mokelumne River; rural residences
Jack Tone Road	Eight Mile Road	SR-12/88	north/south two-lane rural road	community of Lockeford; cropland; orchards; rural residences
Eight Mile Road	SR 88	Jack Tone Road	east/west two-lane rural road	cropland; orchards; rural residences
Clements Road	Comstock Road	SR-12/88	north/south two-lane rural road	cropland; range/grazing land
Comstock Road	Clements Road	Fine Road	east/west two-lane rural road	orchards
Fine Road	SR 26	Comstock Road	north/south two-lane rural road	orchards
SR 26	Fine Road	Calaveras County Line	east/west two-lane rural highway	orchards; Mormon Slough; range/grazing land
Shelton Road	SR 26	Calaveras County Line/Wimer Road	east/west two-lane rural road	Calaveras River; orchards; range/grazing land
	Shelton Road	SR 26	north/south two-lane rural road	orchards and range/grazing land
Interstate 5	SR 4	Sacramento Co. Line	north/south six- to four-lane rural freeway	cropland; Mokelumne River; riparian vegetation

Road Name	Segment Begin	Segment End	Configuration	Scenic Resources
Eight Mile Road	Empire Tract	Thorton Road	east/west two-lane rural road	cropland; riparian vegetation; Delta waterways
Empire Tract Perimeter Roads	Eight Mile Road	Eight Mile Road	two-lane rural road	cropland; riparian vegetation; Delta waterways
Inland Drive	SR 4	McDonald Road	two-lane rural road	cropland
McDonald Road	Inland Drive	Neugebauer Road	two-lane rural road	cropland
Neugebauer Road	McDonald Road	Holt Road	two-lane rural road	cropland; riparian vegetation; Delta waterways
Holt Road	Neugebauer Road	McDonald Road SR 4	two-lane rural road	cropland
SR 4	Contra Costa Co. Line	Trappers Road	east/west two-lane rural highway	cropland; riparian vegetation; Delta waterways
Bacon Island Road	SR 4	Connection Slough	two-lane rural road	cropland; riparian vegetation; Delta waterways
Corral Hollow Road	Alameda Co. Line	Interstate 580	east/west two-lane rural road	range; Diablo Range foothills; Corral Hollow canyon
Austin Road	Stanislaus Co. Line	SR 99	north/south two-lane rural road	cropland
River Road	Ripon Road	Santa Fe Road	east/west two-lane rural road	cropland; orchards; riparian vegetation; Stanislaus River

Source: San Joaquin County General Plan Update, Public Review 2009 Draft Background Report

Figure 4.1-1, San Joaquin County State and Local Scenic Routes, illustrates the scenic highways and routes within the County.

Scenic Corridors

A scenic corridor is the view from the road that may include a distant panorama and/or the immediate roadside area. A scenic corridor encompasses the outstanding natural features and landscapes that are considered scenic. It is the visual quality of the man-made or natural environments within a scenic corridor that are responsible for its scenic value. Commonly, the physical limits of a scenic corridor are broken down into foreground views (0 to 0.25 mile) and distant views (over 0.25 mile). In addition to distinct foreground and distant views, the visual quality of a scenic corridor is defined by special features, which include:

- **Focal points:** prominent natural or man-made features which immediately catch the eye
- **Transition areas:** locations where the visual environment changes dramatically
- **Gateways:** locations which mark the entrance to a community or geographic area

Wild and Scenic Rivers

Federal agencies have jurisdiction, under the Wild and Scenic Rivers Act, to designate rivers or river sections to "be preserved in free-flowing condition and … protected for the benefit and enjoyment of

present and future generations." There are no rivers in San Joaquin County designated under the National Wild and Scenic Rivers System.

4.1.2 REGULATORY SETTING

Federal

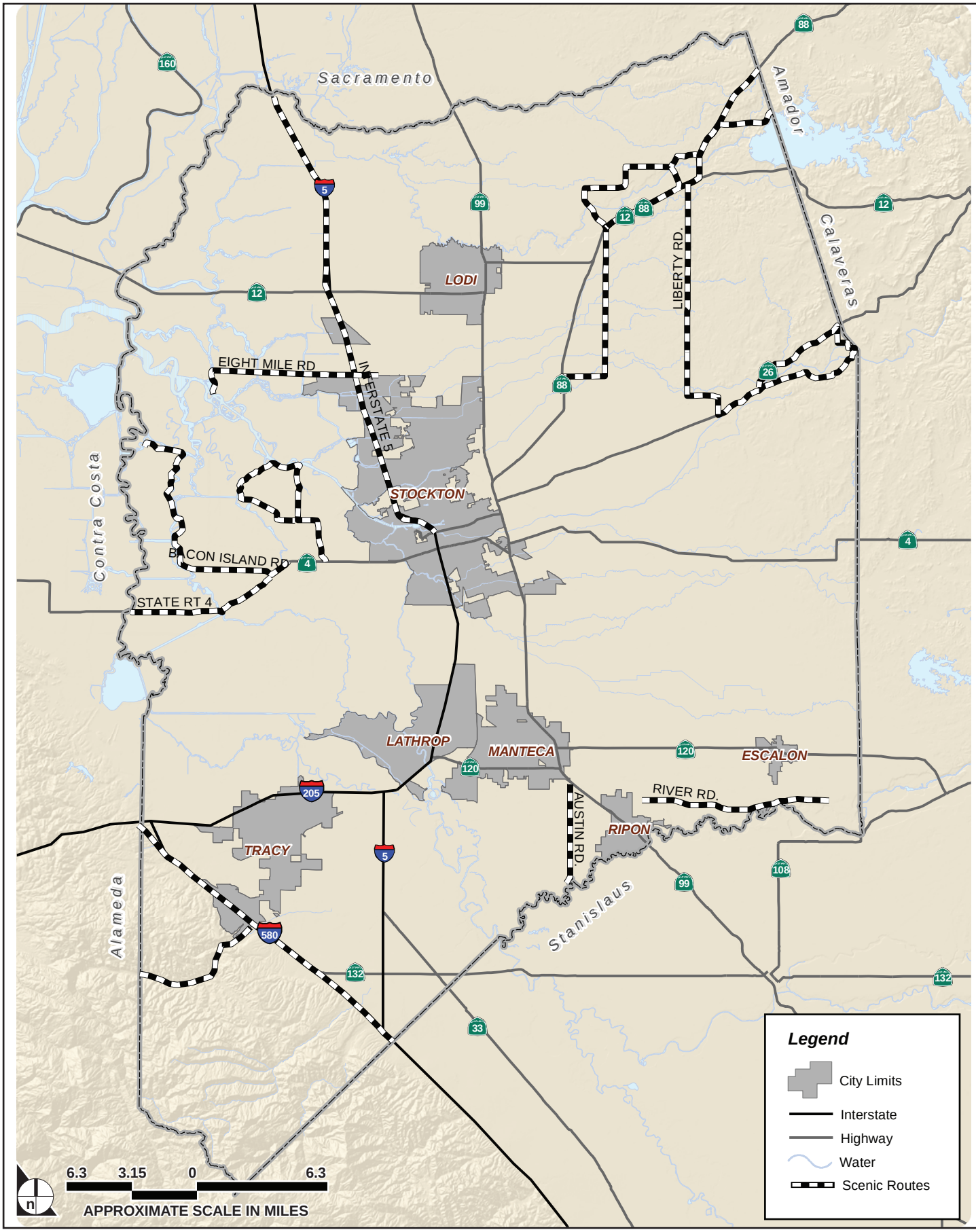
Moving Ahead for Progress in the 21st Century Act (MAP-21)

MAP-21 is the first long-term highway authorization enacted since 2005. MAP-21 provides needed funds and it transforms the policy and programmatic framework for investments to guide the growth and development of the country's transportation infrastructure. MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the US transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery. The legislation will fund surface transportation programs at over $105 billion dollars for fiscal year 2013/2014.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 (16 USC. §§ 1271–1287), as set forth herein, consists of Public Law 90-542 (October 2, 1968) and amendments thereto. The Act established a method for providing federal protection for certain of the country's remaining free-flowing rivers, preserving them and their immediate environments for the use and enjoyment of present and future generations. Eligible rivers can be designated as Wild River Areas, Scenic River Areas, or Recreational River Areas. Recreational River Areas are "those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past." The Wild and Scenic Rivers Act, under Section 10, includes management direction for designated rivers. Section 10(a) states the following:

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



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.1-1**

San Joaquin County State and Local Scenic Routes

1173.001•02/14

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

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

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

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

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

Detailed inventories of the locations and likely impacts on resources that fall into the Section 4(f) category are required in project-level environmental assessments. In August 2005, Section 4(f) was amended to simplify the process for approval of projects that have only minimal impacts on lands affected by Section 4(f). Under the new provisions, the US Secretary of Transportation may find such a minimal impact if consultation with the State Historic Preservation Officer (SHPO) results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In this instance, analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete.

Federal Highway Administration National Scenic Byways Program

The Federal Highway Administration (FHWA) National Scenic Byways Program designates selected highways as "All American Road" (a roadway that is a destination unto itself) or "National Scenic

Byway" (a roadway that possesses outstanding qualities that exemplify regional characteristics). There are currently no National Scenic Byways in San Joaquin County.

United States Bureau of Land Management Scenic Areas

The United States Bureau of Land Management (BLM) designates some of its holdings as Scenic Areas and some roadways in remote areas as "Back Country Byways." There are currently no BLM scenic areas in San Joaquin County.

United States Forest Service National Scenic Byways Program

The United States Forest Service (USFS) also has a National Scenic Byways Program, independent from the BLM program, to indicate roadways of scenic importance that pass through national forests. There are currently no USFS National Scenic Byways in San Joaquin County.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is implemented by regulations included in the Code of Federal Regulations (40 CFR § 1500 *et seq*.), which require careful consideration of the harmful effects of federal actions or plans, including projects that receive federal funds, if they may have a significant adverse effect on the environment. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. NEPA addresses a wide range of environmental issues including the documentation of, and evaluation of potential impacts to aesthetic resources as well as impacts to scenic resources and conflicts with state, regional, or local plans and policies. While NEPA compliance is not required for the project, NEPA compliance will be required for transportation improvement projects that will be financed using federal funds. Some development projects (such as low-income housing) also use federal funds and are subject to NEPA. The regulations also require projects requiring NEPA review to seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

State

California Department of Transportation (Caltrans) Scenic Highway Program

The California Scenic Highway Program was created by the state legislature in 1963 to preserve and protect scenic highway corridors from change that would reduce the aesthetic value of lands adjacent to

highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

State goals for scenic highways include the following:

1. preserve and enhance the unique visual, biological, and ecological resources of the Scenic Highway Corridor;

2. prevent and eliminate (when reasonably possible) conditions that detract from or compromise the quality of the aesthetic resources of the Scenic Highway Corridor;

3. encourage the development and maintenance of park and recreational facilities that contribute to the aesthetic quality of the Scenic Highway Corridor;

4. encourage preservation of historical landmarks adjacent to the Scenic Highway Corridor; and

5. encourage community civic groups to create programs that increase community interest in the visual assets of the Scenic Highway Corridor and facilitate the implementation of such programs.

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

1. regulation of land use and density (i.e., density classifications and types of allowable land uses);

2. detailed land and site planning (i.e., permit or design review authority and regulations for the review of proposed developments);

3. prohibition of off-site outdoor advertising and control of on-site outdoor advertising;

4. careful attention to and control of earthmoving and landscaping (i.e., grading ordinances, grading permit requirements, design review authority, landscaping and vegetation requirement); and

5. the design and appearance of structures and equipment (i.e., placement of utility structures, microwave receptors, etc.).

The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification that the highway has been designated as a scenic highway. **Table 4.1-2,** above, includes the highways in the County which have been designated as a state scenic highway.

Caltrans Adopt-a-Highway Program

To improve and maintain the visual quality of California highways, Caltrans administers the Adopt-a-Highway program, which was established in 1989. The program provides an avenue for individuals, organizations, or businesses to help maintain sections of roadside within California's State Highway System. Groups have the option to participate as volunteers or to hire a maintenance service provider to perform the work on their behalf. Adoptions usually span a 2-mile stretch of roadside, and permits are issued for five-year periods. Since 1989, more than 120,000 California residents have kept 15,000 shoulder miles of state roadways clean by engaging in litter removal, tree and flower planting, graffiti removal, and vegetation removal.

California Code of Regulations Title 24 Part 6

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

California Environmental Quality Act

Similar to NEPA, The California Environmental Quality Act (CEQA) affords protection for the environment, including aesthetic resources. The *State CEQA Guidelines* provide four criteria that may be used to evaluate the significance of visual quality impacts: negative effects on a scenic vista, damage to scenic resources within a state scenic highway, degradation of the visual character or quality of a site and its surroundings, and creation of a new source of substantial light or glare affecting views.

Local

County and City General Plans

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

In addition to federal and state designations, counties and cities have their own scenic highway designations, which are intended to preserve and enhance existing scenic resources. Criteria for designation are commonly included in the conservation/open space element of the city or County General Plan.

Cities and counties can use open space easements as a mechanism to preserve scenic resources, if they have adopted open-space plans, as provided by the Open Space Easement Act of 1974 and codified in California Government Code (Section 51070 et seq.). According to the Act, a city may acquire or approve an open-space easement through a variety of means, including use of public money. The policies related to visual resources from each jurisdiction are included below.

San Joaquin County General Plan

- A Resource Conservation designation shall be used on the General Plan 2010 Map to protect significant resource areas and protect public safety.
- Ridgelines and major hilltops shall remain undeveloped.
- Views of waterways, hilltops, and oak groves from public land and public roadways shall be protected.
- Outstanding scenic vistas shall be preserved and public access provided to them whenever possible.
- Preserve and protect views of the Sierras/foothills from the City's major roadways. Local streets should also be oriented to maximize such views.
- The County should recognize the roads shown in Figure VI-2[4] as scenic routes and as valuable in enhancing the recreational experience for County residents and non-residents. Criteria for selection of additional routes should specify that the route:
  - 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.

4 The roads shown in Figure VI-2 of the County's General Plan are reflected in **Figure 4.1-2 San Joaquin County State and Local Scenic Routes** included in this section of the EIR.

- Development proposals along scenic routes shall not detract from the visual and recreational experience.

City of Escalon General Plan

- Preserve and protect views of the Sierras/foothills from the City's major roadways. Local streets should also be oriented to maximize such views.

- Ensure all signs are compatible with the overall streetscape design including the redesign/removal of signs, which are disruptive elements.

- Develop scenic entryways (gateways) and roadway corridors into the City through special setback and landscape standards, entry signage, open space and park development, and/or land use designations. These corridors shall also have enhanced landscape standards. Gateways and entryways to be considered should include:

  - North: Escalon Avenue/Mahon Avenue

  - East: SR 120/Campbell

  - South: McHenry Avenue/Jones Avenue

  - West: SR 120/Brennan Avenue

City of Lathrop General Plan

- The visual amenities of water and its potential as wildlife habitat are to be reflected where feasible in all developments by the inclusion of bodies of water as components of urban form. Such bodies of water may be in the form of lakes, ponds, lagoons, simulated streams or similar features which can be integrated by design within recreation open space corridors, parks, commercial and residential areas and public sites. The multi-purposes use of water bodies for surface water drainage, flood control, wastewater reclamation, wildlife management, recreation, and visual amenity is encouraged.

City of Lodi General Plan

- The City should designate a continuous open space greenbelt around the urbanized area of Lodi to maintain visual definition and a clearly delineated edge to the City's urbanized area within its agricultural and rural setting, and to protect the scenic resources of the surrounding rural, agricultural, and natural landscape (including the Lodi Lake Park and the Mokelumne River corridor).

City of Manteca General Plan

- Establish City gateway features at intersections where gateway features can be established, such as Lathrop Road/SR-99, Austin Road/SR-99, Main Street/SR-120, Union Road/SR-120, McKinley Road/SR-120, Airport Way/SR-120, and Yosemite Avenue/SR-99.

- Establish a landscape program and design standards that will provide an attractive view of Manteca along SR-99 and SR-120. This would include trees, shrubs, wildflowers, and other landscape appropriate to the Manteca climate along the highway right-of-way and within the interchanges.

- Limit uses that require sound walls adjacent to the highways.

- The City shall adopt light and glare standards that minimize the creation of new light source and the annoyance of direct and indirect glare.

- In order to retain a visual reminder of the agricultural heritage, the City will permit the use of non-fruiting species, such as flowering pear and plum, as secondary accent trees in landscape corridors along major streets. The primary street tree shall provide a shade canopy over the street and sidewalk.

City of Ripon General Plan

- Create both a physical and financial environment that enhances the desirability to locate certain new businesses in the downtown area.

- Ensure that new businesses in the downtown area are carefully integrated into the surrounding area.

- The City will consider visual aesthetics and safety aspects in future developments, including landscaping requirements and setback requirements.

City of Stockton General Plan

- The City shall promote community design that incorporates the open space features of Stockton's waterways, wetlands, and parks into the travel experience. This includes visual access to open space features and private and public investment that visually frames and complements natural landscapes and parks.

- The City shall work with Caltrans and private property owners to improve the visual quality of traveling on Highway 99 in Stockton by improving the maintenance of the highway right of way (ROW) and adjacent properties, code enforcement, reducing the number of billboards, encouraging new investment on visible sites, landscaping, and screening industrial uses.

- Landscaped Corridors - The City shall ensure that the design of major arterials includes landscaped median strips to enhance these street systems as aesthetic open space corridors.

City of Tracy General Plan

- Preserve and enhance Tracy's unique character and "hometown feel" through high-quality urban design.

- Ensure that future development in the I-205 Regional Commercial Area enhances its attractiveness and provides multi-modal access.

4.1.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this EIR San Joaquin Council of Governments (COG) has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) could result in significant adverse impacts to visual resources, if any of the following could occur:

- Impair views of scenic resources (i.e., mountains, ocean, rivers, or significant man-made structures) as seen from existing transportation facilities and other key public vantage points in San Joaquin County and/or alter the appearance of designated scenic resources along or near a state-designated or County-designated scenic highway or vista point.
- Creates significant contrasts, with the scale, form, line, color, and/or overall visual character of the existing landscape setting.
- Creates a new source of substantial light or glare, which would affect day or nighttime views and/or causes a public hazard. If shadow-sensitive uses would be shaded by project-related structures for more than 3 hours in the winter or for more than 4 hours during the summer.

Methodology

The analysis assesses the potential impacts to visual resources that could result from implementation of the proposed RTP/SCS). Impacts to aesthetic resources are assessed in terms of both land use and transportation changes that could occur under the 2014 RTP. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" refers to conditions in the year 2012.

The RTP/SCS plan area consists of transportation routes, including highways, rail alignments, bicycle trails, state routes, roads, and Caltrans right-of-way in San Joaquin County. The aesthetic appearance of San Joaquin County is a function of both the natural landscape and man-made elements that create an urban and rural character and design. Because transportation facilities can have a major influence on human perception of the visual environment, this section addresses the general aesthetic landscape of the region and assesses the potential impacts from region-wide construction of at- and above-grade transportation facilities. Because the SCS component of the RTP may influence urban development in San Joaquin County, patterns of development are assessed with respect to aesthetics.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of visual resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of visual impacts compares the existing conditions to the conditions anticipated to occur in 2040 with the adoption of the RTP/SCS, consistent with *State CEQA Guidelines* Section 15126.2(a). Conditions anticipated to occur in 2040 are generally assessed based on the conceptual level of detail available for transportation projects and development patterns. Because of details of individual transportation projects and development projects are not known, the assessment is necessarily programmatic in detail. As project level details (including for planning projects, individual transportation projects and individual development projects) become available they must be assessed in project-specific environmental documents as applicable.

The known visual resources located within the region were evaluated using the criteria set forth by the California Department of Transportation, the BLM, FHWA, USFS, and the *State CEQA Guidelines*. The analysis addresses visual resources of local significance.

Generally with regard to aesthetic impacts, the greater the change from existing conditions, the more noticeable the change to the aesthetic environment. The construction of a new roadway generally has a greater impact on scenic resources than the widening of an existing one. Road widening, however, can have significant local impacts especially when requiring the removal of trees and other important landscape buffers, or when construction of noise barriers or other visual impediments is necessary.

The development of new transportation facilities may affect visual resources, either through direct effects to buildings or through indirect effects to the area surrounding a resource if it creates a visually incompatible structure or blocks the visual resource completely. The region contains visual and scenic corridors; therefore, the potential for impacts to visual resources is significant. Improvements within existing rights-of-way are less likely to affect existing visual resources; however, new highway segments near visual resources could result in a significant impact. Also, reducing buffer zones between transportation corridors and reduction of visual resources through lane widening and/or construction of noise walls or other features could cause significant impacts.

The following factors were considered in assessing the significance of impacts from the proposed RTP/SCS on scenic resources:

- **Scale**: The size, proportion, and "fit" of transportation improvements and development as compared to the surrounding area; and
- **Degree of visibility**: The extent to which transportation improvements and/or anticipated development can be seen. This depends to a large extent on route alignment and configuration (i.e., elevated, at grade, depressed, or underground) of the transportation improvement and location, height/bulk, construction materials (reflectivity, color) of development. Generally, elevated grade transportation investments have a more substantial impact on aesthetics and views, while the taller a development generally the greater the potential for impact.

Implementation of the RTP/SCS would affect aesthetics and views. Expected significant impacts would be the obstruction of scenic views and resources, altering areas along routes eligible as state designated scenic highways and vista points, creating significant contrasts with the scale, form, line, color, and overall visual character of the existing landscape, and adding visual urban elements to rural areas.

Both short-term construction related impacts and long-term or permanent impacts would occur as a result of implementation of the RTP/SCS. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the RTP/SCS as well as impacts anticipated to result from increased population and development patterns expected to occur under the RTP/SCS.

Generally, proposed RTP/SCS projects are of the following two types:

- New Systems: new facilities, goods movement roadway facilities, rail corridors, connectors, interchanges, and high speed train.
- Modifications to Existing Systems: widening bridges, high-occupancy vehicle (HOV) lanes, grade crossings, interchange improvements, and maintenance operations.

As described in **Section 3.0, Project Description,** approximately one-third of expenditure within the RTP/SCS ($3.6 billion) is allocated to operations and maintenance of the current and future system. Therefore, highway and arterial projects proposed in the RTP/SCS primarily consist of widening existing highways. However, some projects involve constructing new highway segments and new interchanges. Many projects and/or programs proposed in the RTP/SCS would not involve construction activities. These projects would include travel demand management (such as increasing ridesharing and carpooling). However, critical gaps remain in the region's transportation system and the Plan includes highway projects that would complete these gaps. **Table 3.0-3** in the **Project Description** highlights some of these system expansion and completion projects.

The RTP/SCS also calls for expansion of transit facilities and service over the next 27 years. Many of the proposed public transit projects would involve service alterations on existing streets, highways, and rail lines only. **Table 3.0-4** in the **Project Description** shows major transit projects included in the RTP/SCS.

Impacts to scenic resources resulting from these proposed projects would depend on several factors such as the type of project proposed for the given area, scenic resources in the given area, and duration of the proposed construction activities.

In general, scenic resources could be impacted by RTP/SCS projects proposing new systems (i.e., new facilities, goods movement, roadway facilities, rail corridors, connectors, and interchanges). Construction and operation of projects proposed within the RTP/SCS could affect scenic resources located in the vicinities of these new system projects. Modification projects generally would result in short-term construction impacts to scenic resources.

Development can take many different forms. In general high-rise development has more impacts than low or medium-rise, but aesthetic impacts are very site specific and must be addressed on a case-by-case basis as appropriate.

The following discussion presents a programmatic first tier regional evaluation of potential impacts of the RTP/SCS on aesthetic resources. However, it should be noted that the potential for significant impacts and appropriate mitigation measures must be identified and assessed at the project level as appropriate.

Where appropriate mitigation measures are included to reduce significant impacts. SJCOG's role is to prioritize and facilitate transportation projects consistent with adopted procedures. For regionally significant land use and transportation projects, SJCOG reviews and provides comments on environmental documents to determine consistency with applicable SJCOG planning and policy documents including the RTP/SCS. SJCOG does not directly implement transportation projects and does not conduct project specific environmental review. SJCOG does not have land use authority. SB 375 specifically addresses the role of metropolitan planning organizations MPOs, such as SJCOG and does not provide SJCOG with the authority to regulate land use. Therefore, SJCOG has no ability to impose mitigation measures within local jurisdictions.

Impacts and Mitigation Measures

Impact AES-1 **Impair views of scenic resources (i.e., mountains, ocean, rivers, or significant man-made structures) as seen from existing transportation facilities and other key public vantage points in San Joaquin County and/or alter the appearance of designated scenic resources along or near a state-designated or county-designated scenic highway or vista point.**

Implementation of the transportation improvements and changes to land use patterns identified in the proposed 2014 RTP/SCS could result in visual impacts by blocking or impeding views of significant landscape features. In general, the potential to impact panoramic views and landscapes (both natural and man-made) varies by the location of transportation improvement projects. Panoramic views are found both in open space areas and in developed urban areas.

Within the RTP/SCS plan area, views of scenic resources, including the Sierra Nevada foothills, the Diablo Range, and the Sacramento-San Joaquin River Delta can be seen from highways and roadways, including scenic corridors, throughout the County.

Improvements to existing transportation infrastructure, resulting from the implementation of the proposed 2014 RTP/SCS, such as roadway widening, bridge replacements, signal installation, and road rehabilitation, could result in modification of the foreground of the various scenic viewsheds throughout the County. There is also potential for the RTP/SCS transportation projects, such as new roadways and bridges, to affect scenic resources or degrade the visual character of the area. This would include RTP/SCS transportation projects that are located adjacent to a broad viewshed such as the mountain ranges, valleys, ridgelines, or water bodies along roadways, or adjacent to the focal point of the forefront of the broad viewshed, such as visually important trees, rocks, or historic buildings.

While the projected regional increase in the developed area would be small and would occur through the RTP/SCS horizon year of 2040, both changes to land use patterns and individual transportation improvements resulting from implementation of the proposed RTP/SCS have the potential to cause significant impacts to panoramic views. Both changes to land use patterns and transportation improvements have the potential to change the view of the middle ground or background elements of broad viewsheds through the conversion of open space uses to transportation use and/or urban use, or through the removal of visually important resources (such as trees, rocks, or historic buildings). RTP/SCS transportation projects could include features, such as sound walls, substantial grading, or structures (for example bridges, elevated passenger/commercial rail tracks) that could disrupt views.

Changes in land use patterns would introduce a variety of urban uses in to existing open space land and increase density in existing urban areas. Changes in land use patterns and individual RTP/SCS transportation projects could cause intermittent interruption in views to users of the highways, roadways, and rail system. Such changes to views could result in significant impacts. In some cases, impacts to visual resources can be reduced to less than significant levels by avoiding certain high-profile improvements and/or by minimizing alterations, and/or designing new structures so that they do not impede the scenic landscape and/or view.

Portions of I-580 and I-5 are state-designated scenic highways in the County. These state-designated corridors are protected under the Corridor Protection Programs that safeguard scenic corridors from encroaching development. When a city of county nominates a roadway for designation it must also adopt ordinances, zoning and/or planning policies to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. In particular, Corridor Protection Programs must include (1) regulation of land uses and density of development (2) detailed land use and site planning (3) control of outdoor advertising (4) careful attention to and control of earthmoving and landscaping, and (5) the design and appearance of structures and equipment. The 2014 RTP/SCS includes projects transportation and development projects are not located near state-designated scenic highway portions of the I-580 or I-5 in San Joaquin County. **Figure 4.1-2, RTP/SCS Projects and State Designated Scenic Highways in San Joaquin County** shows the location of the RTP/SCS projects in relation to the County's state designated scenic highways. Thus, as development could take place near state-designated scenic highways, existing panoramic views, and views of significant landscape features or landforms could be affected. Further, Urban areas already have substantial existing transportation infrastructure and a variety of development, including the San Joaquin Regional Transit District's (SJRTD) Bus Rapid Transit (BRT) system and the Downtown Transit Center located in Stockton. Thus the additional infrastructure in these areas, associated with implementation of the proposed RTP/SCS will not impede or change the existing panoramic views or landscape features in the County.

While each jurisdiction in which land use and transportation improvements may be located has policies related to the protection of scenic resources and views, the potential remains for removal of scenic features, particularly those that would be in the foreground of scenic viewsheds and vistas. Impacts to panoramic views or views of significant features related to land use changes and/or transportation projects are considered potentially significant for **Impact AES-1.**

Mitigation Measures AES-1 through **AES-3**, described below would reduce but not necessarily eliminate potential significant adverse impacts.

Level of Significance Before Mitigation

Potentially significant.

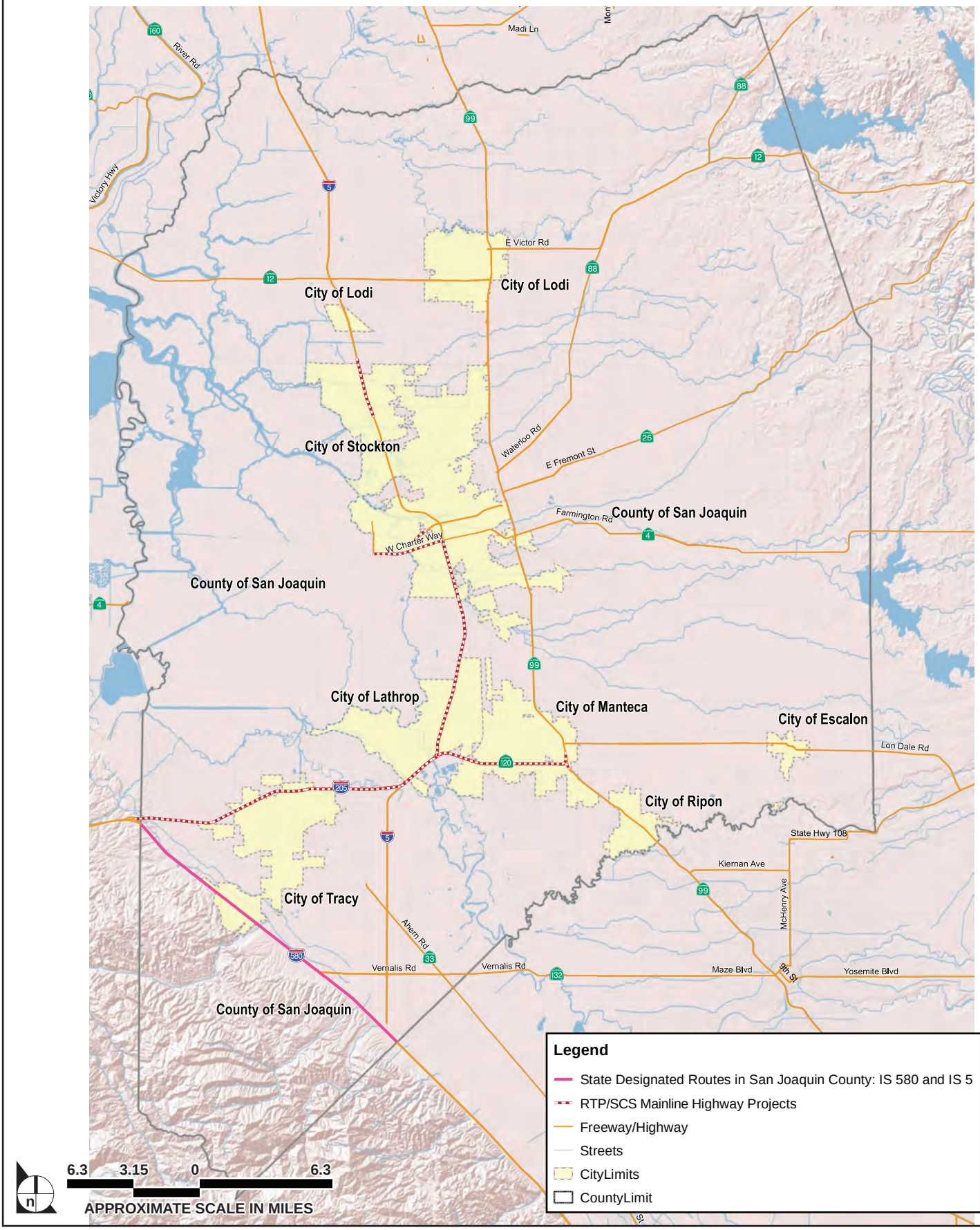
Mitigation Measure

AES-1: Impacts to aesthetic resources should be minimized through cooperation, information sharing, and SJCOG's ongoing regional planning efforts.

AES-2: Implementing and local agencies should identify and protect panoramic views and significant landscape features or landforms and implement project-specific mitigation as applicable. If it is determined that a project would significantly obstruct scenic views, implementing and local agencies should consider alternative designs that seek to avoid and/or minimize obstruction of scenic views to the extent feasible. Project-specific design measures may include reduction in height of improvements or width of improvements to reduce obstruction of views, or relocation of improvements to reduce obstruction of views.

AES-3: Implementing and local agencies should protect panoramic views and views of significant landscape features or landforms and implement project-specific mitigation as applicable. Implementing local agencies should consider taking the following (or equivalent) actions:

- require that the scale and massing of new development in higher-density areas provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights; ensure building heights stepped back from sensitive adjoining uses to maintain appropriate transitions in scale and to protect scenic views;



SOURCE: San Joaquin COG, February 2014

FIGURE **4.1-2**

RTP/SCS Projects and State Designated Scenic Highways in San Joaquin County

- avoid siting electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines along scenic roadways and routes, to the maximum feasible extent;

- prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways; and comply with other local general plan policies and local control related to the protection of panoramic or scenic views or views of significant landscape features or landforms.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts of the 2014 RTP/SCS would be reduced, although not to a less than significant level as RTP/SCS projects are located within State Scenic Highways. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AES-2 **Create significant contrasts, with the scale, form, line, color, and/or overall visual character of the existing landscape setting**

The implementation of the proposed RTP/SCS would result in new and improved transportation infrastructure and generally more compact development patterns. Both the new transportation infrastructure and the densification of urban uses could result in changes to the visual character of the region.

The RTP/SCS promotes infill development and increased density, especially close to transit hubs and corridors. Under the Plan, approximately 3.16 percent of new development would be infill development. Because infill development it occurs in areas already designated for and receiving growth it precludes growth in undeveloped and/or agricultural and rural areas. Infill development, in general does not significantly change the existing visual character or quality at the region, but helps to preserve the undeveloped character and quality in the agricultural and rural areas.

Development in more rural areas in the region could introduce new views to areas that are currently undeveloped. Depending on the design and siting of new transportation infrastructure and new development, these new views could potentially be seen as a degradation of the visual character or quality of the region.

The proposed RTP/SCS would invest approximately $7 billion in roadway operation, maintenance, capacity, and safety capital projects. More than half of the total road and highway investment would pay for improvements to existing facilities such as road widening, intersection or interchange improvements, intelligent transportation system upgrades, bicycle lanes, turn pockets, auxiliary and transition lanes, and other improvements. The remainder will pay for new road and highway facilities such as roads serving new development or high-growth areas, new interchanges and road extensions.

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

Impacts to visual character from implementation of the proposed RTP are considered potentially significant for **Impact AES-2**. Mitigation is required. **Mitigation Measures AES-4** through **AES-6** are described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

AES-4: Implementing and local agencies should design projects to be visually compatible with surrounding areas that possess high aesthetic value. Implementing and local agencies should design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. The design of projects should minimize intrusion into important viewsheds and use contour grading to better match surrounding terrain. To the maximum extent feasible, landscaping should be designed to add significant natural elements and visual interest to soften hard edges. Projects should, to the extent feasible, avoid large cuts and fills when the visual environment (natural or urban) would be substantially disrupted.

AES-5: Implementing and local agencies should establish development standards for visually sensitive areas, and, prior to approval of individual projects, to apply such development standards to maintain compatibility with surrounding natural areas, including site

coverage, building height and massing, building materials and color, landscaping, site grading, etc.

AES-6: Implementing and local agencies should ensure that sites should be kept in a blight/nuisance-free condition. Any existing blight or nuisance should be abated within 60 to 90 days of approval, unless an earlier date is specified elsewhere.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce visual impacts to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures AES-4** through **AES-6**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AES-3 **Create a new source of substantial light or glare, which could affect day or nighttime views and/or causes a public hazard. Potential for shadow-sensitive uses to be shaded by project-related structures for more than three hours in the winter or for more than four hours during the summer.**

In general new and improved transportation projects result in increased lighting as a result of security lighting, landscape and structure lighting and lights on vehicles.

Implementation of the 2014 RTP/SCS would result in higher and more intense levels of development resulting in additional sources of glare, light, and shadow to the region, potentially resulting in a significant impact. In areas of the region that are already built out, such increases would not cause a public hazard or substantially degrade the visual character or quality of the area because existing sources of glare, light, and shadow are already a dominant feature of the urban landscape. Within these areas, the marginal increases in glare, light or shadow, from new infill development would be less than significant.

Because the 2014 RTP/SCS would result in the consumption of approximately 18,123 acres of currently undeveloped areas, implementation of the proposed RTP/SCS will result in development beyond the County's existing urban footprint. In less developed areas of the region, where existing sources of glare, light, and shadow are not as prevalent, new development could create new sources of glare, light, and shadow and significantly impact visual character. However, new sources of light and glare would not

create a public hazard because people are used to light sources from transportation projects and urban uses and although such lights can startle drivers it is not anticipated that they would create a hazard.

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

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

Impacts from glare, light, and shadow related to transportation projects and changes to land use patterns from implementation of the 2014 RTP/SCS are considered potentially significant for **Impact AES-3**. Mitigation is required. **Mitigation Measure AES-7** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

AES-7: Implementing and local agencies should design measures to reduce glare, light, and shadow. As part of planning, design, and engineering for projects, implementing and local agencies should ensure that projects proposed near light-sensitive uses avoid substantial spillover lighting. Design measures could include the following:

- Luminaries will be cutoff-type fixtures that cast low-angle illumination to minimize incidental spillover of light onto adjacent private properties and undeveloped open space. Fixtures that project light upward or horizontally will not be used.
- Luminaries will be directed away from habitat and open space areas adjacent to the project site.

- Luminaries will provide good color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color corrected will not be used. Intensity will be approximately 10 lux for roadway intersections.

- Luminary mountings will be downcast and the height of the poles minimized to reduce potential for backscatter into the nighttime sky and incidental spillover of light onto adjacent private properties and undeveloped open space. Light poles will be 20 feet high or shorter. Luminary mountings will have non-glare finishes.

- Exterior lighting features should be directed downward and shielded in order to confine light to the boundaries of the subject project. Where more intense lighting is necessary for safety purposes, the design should include landscaping to block light from sensitive land uses, such as residences.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts would be reduced to less than significant. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt **Mitigation Measure AES-7**. However, as SJCOG cannot require implementation of this measure, impacts could remain significant and unavoidable.

4.1.4 CUMULATIVE EFFECTS

The 2014 RTP/SCS includes transportation projects and land use strategies that will shape the region over the next 27 years. These changes will include the extension of transportation and related infrastructure that would impact scenic resources. Many of these transportation projects will facilitate access not only within the County (as discussed above) but also to areas outside the region. In addition, RTP/SCS projects will connect with projects outside the region facilitating and potentially inducing construction of transportation infrastructure outside the region. This additional infrastructure outside the County could lead to development outside the region. The combination of urban infrastructure and development would change the character of the County. Some of these changes would be expected to occur on the fringe of the County (especially adjacent to Sacramento County). Urbanization or loss of these visual resources could also affect areas outside the region as many of these scenic areas extend beyond San Joaquin County. As a result the RTP/SCS could indirectly result in changes to the visual character or to scenic areas outside San Joaquin County. Therefore, the 2014 RTP/SCS would contribute to a cumulatively considerable loss of scenic resources. Implementation of **Mitigation Measures AES-1** through **AES-7** would reduce potential impacts to scenic resources. However, because of the

programmatic nature of the RTP/SCS EIR even with the implementation of mitigation measures, impacts aesthetic resources would remain significant.

Under the No Project Alternative similar impacts would also occur and could be expected to be more significant. The No Project Alternative includes a less compact development and would result in more development in non-urban areas further facilitating growth and visual changes outside the region. Therefore, the No Project Alternative would result in greater cumulative impacts than the 2014 RTP/SCS.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures AES-1** through **AES-7,** above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.1.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the San Joaquin COG region would still grow by close to 365,694 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the RTP/SCS's density emphasis, which would result in greater consumption of open space areas (35,184 acres would be consumed under the No Project scenario as compared to 18,123 under the Plan).

Since the No Project Alternative includes fewer transportation projects than the 2014 RTP/SCS, it would have less of an impact in terms of obstructing views and scenic resources, creating contrasting visual elements and adding contrasting visual elements to existing natural, rural, and open space areas. The No Project Alternative would not affect any eligible State Scenic Highways or County designated scenic

highways, while the Plan includes projects located near scenic highways which could result in potential impacts.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the RTP/SCS. However, the 2014 RTP/SCS includes strategies to focus growth in urban areas which would help reduce the consumption and disturbance of natural lands and reduce impacts to views and visual character. Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans.

The RTP/SCS includes transportation improvements that facilitate access to undeveloped lands, making those lands more attractive for development than under the No Project Alternative. However, the Plan includes policies to dissuade such encroachment on open space and vacant lands and is anticipated to result in fewer impacts to open space. It is anticipated that the land use planning strategies included in the 2014 RTP/SCS will minimize consumption of vacant, open space/recreation and agricultural lands compared to the No Project Alternative. The No Project impacts would be greater than the Plan impacts for **Impacts AES-1** through **AES-3.**

4.2 AGRICULTURAL RESOURCES

This section describes the existing agricultural resources within the region and evaluates the significance of the changes in agricultural resources that could result from development of the 2014 RTP/SCS. In addition, as appropriate feasible mitigation measures are identified to reduce these potential impacts.

4.2-1 ENVIRONMENTAL SETTING

Agricultural Lands

Agricultural land uses are a major component of San Joaquin County's resource land base. They are also a major element in defining the quality of life available to the residents of San Joaquin County. The County's total land area in farms was 686,109 acres in 2013. This farmland consists of 310,814 acres of irrigated row crops, 209,800 acres of orchards and vineyards, 18,444 acres of livestock, 146,270 acres of grazing, and 781 acres of agriculture retail/industrial.[1] There are a total of 3,624 farms with an average of 204 acres per farm. The average monthly workforce in the industry is 23,037.[2]

San Joaquin County's gross agricultural production was over $2 billion dollars in 2012. The leading 10 commodities in San Joaquin County were grapes, walnuts, milk, almonds, cherries, tomatoes, hay, silage corn, grain corn, and cattle. Approximately $500 million dollars were also generated from other commodities within the County. **Table 4.2-1, Summary Comparison of Crop Values**, lists San Joaquin's top 10 commodities and the dollar amount each generated in 2012.

Important Farmlands

The Farmland Mapping and Monitoring Program (FMMP) is a farmland classification system administered by the California Department of Conservation. Important farmland maps are based on the Land Inventory and Monitoring criteria, which classify a land's suitability for agricultural production based on both the physical and chemical characteristics of soils, and the actual land use. The system maps five categories of agricultural land, which include important farmlands (prime farmland, farmland of statewide importance, unique farmland, and farmland of local importance) and grazing land, as well as three categories of non-agricultural land, which include urban and built-up land, other land, and water area.

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1 Written communication with San Joaquin Senior Planner, Ray Hoo, January 31, 2014.

2 2012 San Joaquin County Agricultural Report, http://www.co.san-joaquin.ca.us/agcomm/annualrpts.aspx, 2013.

Table 4.2-1
Summary Comparison of Crop Values

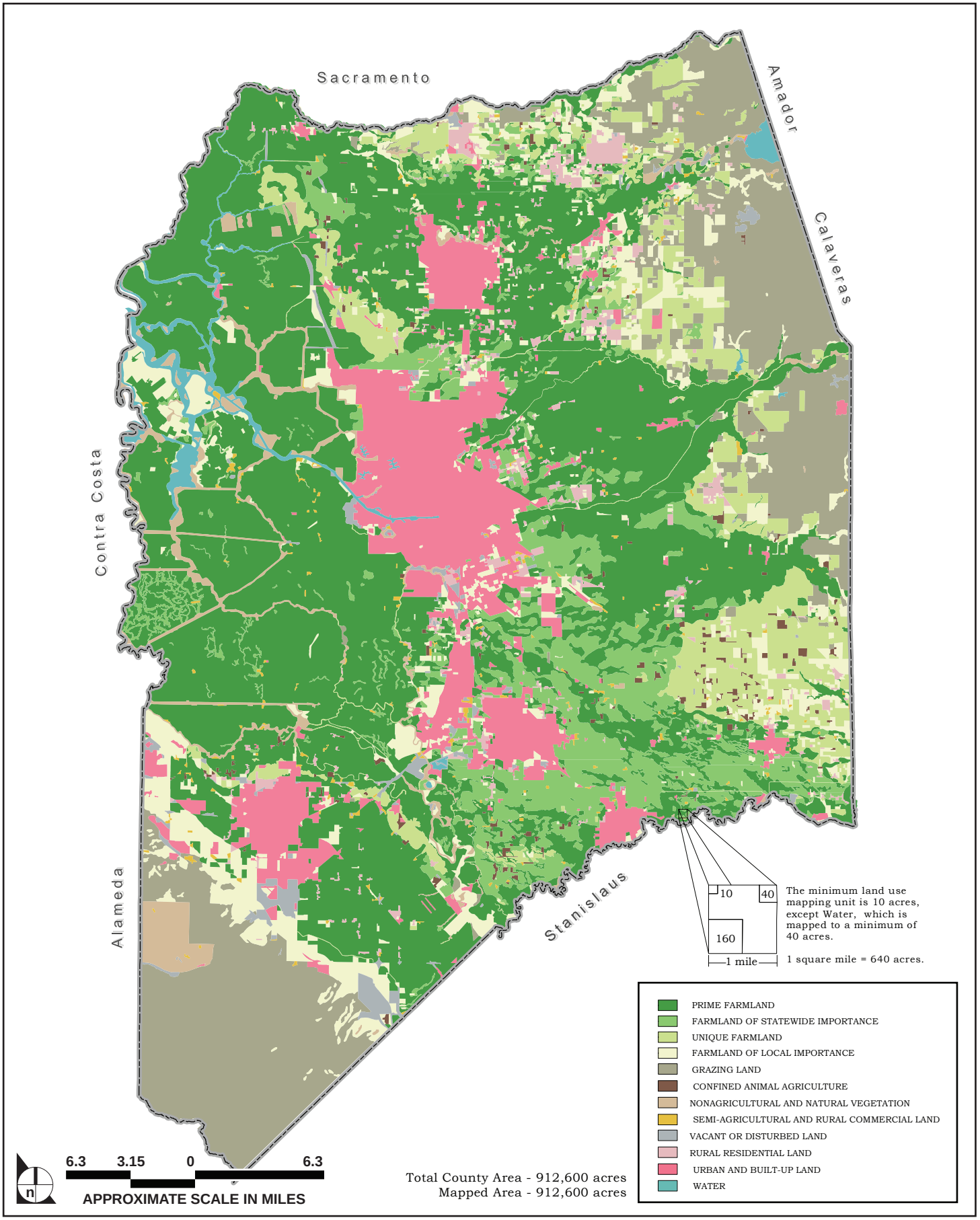
Product	2012
Grapes	$549,054,000
Walnuts	$456,966,000
Milk	$404,000,000
Almond Meats	$300,426,000
Cherries	$225,416,000
Tomatoes	$102,632,000
Hay	$89,602,000
Silage Corn	$72,495,000
Grain Corny	$69,788,000
Cattle	$66,987,000
Other	$532,106,000
Grand Total	**$2,869,472,000**

Source: 2012 San Joaquin County Agricultural Report

Important Farmlands in San Joaquin Valley

Data from Department of Conservation for 2010 indicates that within the county, Prime Farmland encompassed approximately 51 percent of total county agricultural land. The remaining agricultural land comprises Farmland of Statewide Importance (11 percent), Unique Farmland (9 percent), Farmlands of Local Importance (10 percent), and Grazing Land (18 percent).[3] The change in acreage of each land use from 2008 to 2010 are shown below in **Table 4.2-2, San Joaquin County Summary and Change by Land Use Category**. **Figure 4.2-1, San Joaquin County Important Farmlands**, illustrates the Important Farmlands located within the County. Definitions of these types of farmland are provided below:

[3] Department of Conservation, Farmland Mapping and Monitoring Program, http://redirect.conservation.ca.gov/DLRP/fmmp/product_page.asp, 2013.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.2-1**

San Joaquin County Important Farmlands

Prime Farmland

Prime farmland is farmland with the best combination of physical and chemical features able 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

Farmland of statewide importance is farmland with characteristics similar to those of prime farmland but with minor shortcomings, such as greater slopes or less 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.

Table 4.2-2
San Joaquin County Summary and Change by Land Use Category

	Total Acreage Inventoried		2008–2010 Acreage Changes			
Land Use Category	**2008**	**2010**	**Acres Lost**	**Acres Gained**	**Total Acreage Changed**	**Net Acreage Changed**
Prime Farmland	396,984	385,337	12,570	923	13,493	-11,647
Farmland of Statewide Importance	86,297	83,307	3,202	212	3,414	-2,990
Unique Farmland	66,621	69,481	1,590	4,450	6,040	2,860
Farmland of Local Importance	65,788	76,869	3,644	14,725	18,369	11,081
Important Farmland Total	**615,690**	**614,994**	**21,006**	**20,310**	**41,316**	**-696**
Grazing Land	142,460	139,235	3,341	116	3,457	-3,225
Agricultural Farmland Total	758,150	754,229	24,347	20,426	44,773	-3,921
Urban and Built-up Land	90,529	91,929	127	1,527	1,654	1,400
Other Land	52,141	54,662	838	3,359	4,197	2,521
Water Area	11,773	11,773	0	0	0	0
Total Area Inventoried	**912,593**	**912,593**	**25,312**	**25,312**	**50,624**	**0**

Source: California Department of Conservation, Farmland Map and Monitoring Program, 2014.

Unique Farmland

Unique farmland is farmland of 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

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

Grazing Land

Grazing land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Urban and Built-Up Land

Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six 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

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, 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

Water is considered perennial water bodies with an extent of at least 40 acres.

As the table shows, from 2008 to 2010 prime farmland and farmland of statewide importance show a net loss of 11,647 and 2,990 acres while unique farmland increased by 2,860 acres.[4] During the same period urban and built-up land had a net total increase of 1,400 acres; however, grazing land had a net total decrease of 3,225 acres. Conversions from irrigated farmland[5] to urban land[6] were primary due to the construction of new homes, commercial buildings, schools, and similar urban uses.[7] Non-irrigated lands, including grazing lands were converted to urban uses including the City of Stockton 40 acre Soccer Complex, The Red Maple village shopping center in Tracy, and approximately 35 acres of water treatment-related recharge ponds throughout the County. [8]

The FMMP has kept records of land use changes every two years since 1990 for San Joaquin County. Agricultural Lands have shown a steady decrease with an average annual decrease of 1,158 acres and a net acreage loss of 41,789 acres from 1990 to 2006. [9] From 2006 to 2010 the County's agricultural Lands increased further by 10,784 acres. **Table 4.2-3, 1990-2006 San Joaquin County Land Use Summary** shows the decrease in agricultural land within the County, as discussed above. Between 1990 and 2006, there was an average annual increase in Urban and Built-Up Land of approximately 1,408 acres, and between 2006 and 2010 4,097 acres of land were converted to Urban and Built-Up Land.

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4 California Department of Conservation, Farmland Mapping and Monitoring Program, 2014.

5 Irrigated Farmland includes most irrigated crops grown in California. When combined with soil data, these farmed areas become the Important Farmland (IFL) categories of Prime Farmland, Farmland of Statewide Importance & Unique Farmland. Because of the nature of the IFL definitions, some irrigated uses, such as irrigated pastures or nurseries, may not be eligible for all three IFL categories

6 Urban Land includes residential, industrial, recreational, infrastructure and institutional uses.

7 California Department of Conversion, Farmland Mapping and Monitoring Program, San Joaquin County 2010 Field Report.

8 Non-irrigated land uses include grazing areas, land used for dry-land crop farming, and formerly irrigated land that has been left idle for three or more update cycles.

9 Agricultural lands include: Prime, Unique, and Farmland of Statewide Importance, and Grazing Land.

Table 4.2-3
San Joaquin County Land Use Summary

Land Use Category	Acreage By Category									1990–2010 Net Acreage Changed	Annual Average Acreage Change
	1990	1992	1994	1996	1998 (2)	2000 (3)	2002 (4)	2004	2006		
Prime Farmland	437,859	436,146	434,476	433,134	429,168	419,227	416,307	412,548	407,609	-52,522	-2,626
Farmland of Statewide Importance	100,277	99,566	99,148	98,163	96,795	93,739	92,559	91,225	89,274	-16,970	-849
Unique Farmland	46,863	47,086	47,206	48,759	52,715	59,118	61,030	62,534	63,232	22,618	1,131
Farmland of Local Importance	53,145	53,031	54,267	53,479	53,682	58,906	56,506	57,808	59,965	23,724	1,186
Important Farmland Subtotal	638,144	635,829	635,097	633,535	632,360	630,990	626,402	624,115	620,080	-23,150	-1,158
Grazing Land	157,874	157,728	157,409	156,185	152,699	150,341	148,712	147,653	144,933	-18,639	-932
Agricultural Land Subtotal	796,018	793,557	792,506	789,720	785,059	781,331	775,114	771,768	765,013	-41,789	-2,089
Urban and Built-Up Land	63,777	66,315	67,590	69,739	71,596	74,149	80,360	83,407	87,832	28,152	1,408
Other Land	42,618	42,540	42,268	42,905	44,297	45,473	45,480	45,777	47,982	12,044	602
Water Area	10,187	10,187	10,235	10,236	11,648	11,648	11,648	11,648	11,773	1,586	79
Total Area Inventoried	912,600	912,599	912,599	912,600	912,600	912,601	912,602	912,600	912,600	-7	0

Source: California Department of Conservation, Farmland Mapping and Monitoring Program, San Joaquin County, 2014.

(1) Figures are generated from the most current version of the GIS data. Files dating from 1990 through 1992 were reprocessed with a standardized county line in the Albers Equal Area projection, and other boundary improvements.

(2) Acreage for Water changed in 1998 when refinements were made to lake and river boundaries from imagery and 1:24,000 scale quadrangles.

(3) Due to the incorporation of digital soil survey data (SSURGO) in 2000, acreages for farmland, grazing, and other land categories may differ from those published in the 1998-2000 Farmland Conversion Report.

(4) Due to the incorporation of an updated digital soil survey data (SSURGO) in 2002, acreages for farmland, grazing, and other land categories may differ from those published in the 2000-2002 Farmland Conversion Report.

Williamson Act Lands

San Joaquin County currently contains over 400,000 acres of prime and non-prime agricultural land under Williamson Act preserve status. **Table 4.2-**4, **Number of Williamson Act Acres in San Joaquin County in 2010,** illustrates the type and amount of agricultural land within the County.

Table 4.2-4
Number of Williamson Act Acres in San Joaquin County

Category	Acreage	Percentage of County Area*
Williamson Act - Prime	287,418	31.4%
Williamson Act - Non-Prime	131,700	14.4%
Total	**419,118**	**45.8%**

Source: The California Land Conservation (Williamson) Act 2010 Status Report
* *Based on County Total 912,593 acres*

Oak Woodlands

Three native oak species occur in San Joaquin County; valley oak, blue oak, and interior live oak. The topography of the County is predominantly a level valley with broad rivers. Before the arrival of pioneers and homesteaders, large open groves of live oaks, valley oaks, and blue oaks grew along the rivers and on hills, providing shade and acorns for wildlife and native human inhabitants. A more detailed description of these resources is provided in **Section 4.4, Biological Resources**, of this Program EIR.

4.2.2 REGULATORY SETTING

Federal

National Environmental Policy Act

NEPA is implemented by regulations included in the Code of Federal Regulations (40 CFR § 1500 *et seq.*), which require careful consideration of the harmful effects of federal actions or plans, including projects that receive federal funds, if they may have a significant adverse effect on the environment. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. While NEPA

compliance is not required for the Project, NEPA compliance will be required for transportation improvement projects that will be financed using federal funds. Some development projects (such as low-income housing) also use federal funds and are subject to NEPA. The regulations also require projects requiring NEPA review to seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act, as amended (49 USC 303), indicates:

> *Sec. 303. Policy on lands, wildlife and waterfowl refuges, and historic sites*
>
> *a. It is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.*
>
> *b. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the states, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.*
>
> *c. The Secretary may approve a transportation program or project (other than any project for a park road or parkway under Section 204 of Title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if -*
>
> *(1) there is no prudent and feasible alternative to using that land; and*
>
> *(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.*

US Department of Agriculture, Natural Resources Conservation Service

The US Department of Agriculture, Natural Resources Conservation Service (NRCS) maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. The NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses.

United States Bureau of Land Management

San Joaquin County is located within the United States Bureau of Land Management's (BLM's) Mother Lode's field office boundary. This field office manages the Cosumnes River Preserve and other significant habit in the region. The BLM also implements biological resource management policies through its designation of Areas of Critical Environmental Concern.

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) of 1981 (7 USC § 4201, et seq.) is administered by the NRCS. The NRCS maps soils and farmland to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. The NRCS determines impacts to farmland that could occur due to a proposed project. The determination is made through coordination between the federal agency proposing or supporting the project and the NRCS. The NRCS makes a determination, using set thresholds, as to whether additional project-specific mitigation is required. The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Federal Farm and Ranchland Protection Program

The Federal Farm and Ranchland Protection Program (FRPP) is a voluntary easement purchase program that helps farmers and ranchers keep their land in agriculture. Pursuant to the Farmland Protection Policy Act (FPPA) of 1981 Sections 1539–1549, the Secretary of Agriculture is directed to establish and carry out a program to "minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland."[10] The program provides matching funds to state, tribal, or local governments and nongovernmental organizations with existing farmland protection programs to purchase conservation easements or other interests in land.

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10 7 USC 4201-4209 & 7 USC 658

The FRPP is re-authorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill). The NRCS manages the program. Technical Committee, awards funds to qualified entities to conduct their farmland protection programs. Although a minimum of 30 years is required for conservation easements, priority is given to applications with perpetual easements.

Federal Forest Legacy Program

The Forest Legacy Program (FLP) (16 USC § 2103c) was part of the 1990 Federal Farm Bill. The purpose of the FLP is to protect environmentally important forestland under private ownership from conversion to non-forest uses, such as residential or commercial development. The FLP promotes the use of voluntary conservation easements on these properties. Landowners who wish to participate may sell or transfer particular rights, such as the right to develop the property or to allow public access, while retaining ownership of the property and the right to us it in any way consistent with the terms of the easement. The agency or organization holding the easement is responsible for managing the rights it acquires and for monitoring compliance by the landowner. Forest management activities, including timber harvesting, hunting, fishing, and hiking are encouraged, provided they are consistent with the program's purpose.

Federal Environmental Quality Incentives Program

The Federal Environmental Quality Incentives Program (EQIP) is a voluntary program that provides assistance to farmers and ranchers who face threats to soil, water, air, and related natural resources on their land.

National Forest Service

The Forest Service was established in 1905 and is an agency of the US Department of Agriculture. The Forest Service manages public lands in national forests and grasslands.

State

California Department of Conservation

In 1982, the State of California created the Farmland Mapping and Monitoring Program within the California Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The California Department of Conservation administers the California Land Conservation Act of 1965, also known as the Williamson Act, for the conservation of farmland and other resource-oriented laws.

Farmland Mapping and Monitoring Program

In 1982, the State of California created the FMMP within the Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The FMMP is a non-regulatory program that provides consistent and impartial analysis of agricultural land use and land use changes throughout California for use by decision-makers in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources. The FMMP produces Important Farmland Maps, which are a hybrid of resource quality (soils) and land use information. Information from the FMMP was used to identify agricultural resources within San Joaquin County. The FMMP is the primary system by which the extent, distribution, and quality of farmland is evaluated and monitored. Maps of Important Farmland are prepared periodically (approximately every two years) by the FMMP for most of the state's agricultural regions, based on soil survey information and land inventory and monitoring criteria developed by the NRCS. The classification system employed by FMMP consists of eight mapping categories (described above): five categories of agricultural lands and three categories of nonagricultural lands.

California Department of Transportation

Any work within the right-of-way of a federal or state transportation corridor is subject to California Department of Transportation (Caltrans) regulations governing allowable actions and modifications to the right-of-way. Caltrans includes the Division of Aeronautics, which is responsible for airport permitting and establishing a county Airport Land Use Commission (ALUC) for each county with one or more public airports. ALUCs are responsible for the preparation of land use plans for areas near aviation facilities.

The California Land Conservation Act

The California Land Conservation Act (Williamson Act) of 1965 (Gov. Code, § 51200–51207) was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands. The Williamson Act program permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space uses for at least 10 years. Lands covered by Williamson Act contracts are assessed on the basis of their agricultural value instead of their potential market value under nonagricultural uses. In return for the preferential tax rate, the landowner is required to contractually agree to not develop the land for a period of at least 10 years.

Williamson Act contracts are renewed annually for 10 years unless a party to the contract files for non-renewal. The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a nine-year phase-out of the contract. During the phase-out period, the land remains

restricted to agricultural and open-space uses, but property taxes gradually return to levels associated with the market value of the land. At the end of the nine-year non-renewal process, the contract expires and the owner's uses of the land are restricted only by applicable local zoning.

The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the preserve to be compatible with the agricultural, recreational, or open-space use of land within the preserve and subject to contract (Gov. Code, § 51202[e]). However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code section 51231, 51238, or 51238.1. **Table 4.2-3** shows the amount of agricultural lands under Williamson Act contract in San Joaquin County.

As of 2010, the San Joaquin region contained a total of 419,118 acres of land contracted under the Williamson Act. Of those acres, 287,418 acres were prime farmland and 131,700 acres were nonprime.

The program remains an important part of farmland conservation strategies within the region. That said, a landowner may cancel or non-renew a Williamson Act contract at any point. As of 2009, 36,024 acres were in non-renewal[11]

California Forest Legacy

Similar to the Federal Forest Legacy Program, the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) is a program of the California Department of Forestry and Fire Protection (CalFire) to promote conservation easements in environmentally sensitive forest areas. Money to fund the Program is obtained from gifts, donations, federal grants and loans, other appropriate funding sources, and from the sale of bonds pursuant to Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act (The Villaraigosa-Kelley Act) of 2000 (Pub. Resources Code, div. 5, ch. 1.692).

This act defines "forest land" as "land that can support 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."[12]

The Right to Farm Act of 1981

The Right to Farm Act of 1981 (Civ. Code, § 3482.5) is designed to protect commercial agricultural operations from nuisance complaints that may arise when an agricultural operation is conducting

11 2009 California Department of Conservation

12 2011 California Department of Forestry and Fire Protection

business in a "manner consistent with proper and accepted customs." The code specifies that established operations that have been in business for three or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of new land use.

California Farmland Conservancy Program Act

The California Farmland Conservancy Program Act of 2010 (Pub. Resources Code, § 10200 et seq.), also known as Sen. Bill No. 1142 (Stats. 2010, ch. 323) (SB 1142), established the California Farmland Conservancy Program (CFCP), which provides grants for agricultural conservation easements. An agricultural conservation easement aims to maintain agricultural land in active production by removing the development pressures from the land. Such an easement prohibits practices that would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect even when the land changes ownership. Agricultural conservation easements are created specifically to support agriculture and prevent development on the subject parcels. While other benefits may accrue because the land is not developed (scenic and habitat values, for example), the primary use of the land is agricultural. Easements funded by the CFCP must be of a size and nature suitable for viable commercial agriculture.

Open Space Subvention Act

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

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act (Cortese-Knox-Hertzberg Act) of 2000 (Gov. Code, § 56000 et seq.) established procedures for local government changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. This act requires that development or use of land for other than open space shall be guided away from existing prime agricultural lands in open space use toward areas containing nonprime agricultural lands, unless that action would not promote that planned, orderly, efficient development of an area.

Z'berg-Nejedly Forest Practice Act of 1973

The Z'berg-Nejedly Forest Practice Act (Forest Practice Act) of 1973 (Pub. Resource Code, div. 4, ch. 8) established a nine-member Board of Forestry whose mandate is to assure the best economic and environmental practices in timber production in California. The Board requires that a Registered Professional Forester (RPF) prepare a Timber Harvest Plan (THP) before harvesting timber on most non-federal forestland. The goal of the THP is to assure that the continual productivity of timberlands is sustained and enhanced by the timber harvesting that takes place on the site, and that related resources are protected to the extent feasible, including watersheds, fisheries, wildlife, recreation, aesthetics, and employment in the region.

Timberland Production Zones

Under the Z'berg-Warren-Keene-Collier Forest Taxation Reform Act of 1976 (Gov. Code, §§ 51110-51119.5), counties must provide for the zoning of land used for growing and harvesting timber as Timberland Preserve Zones (TPZ). A TPZ is a 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 (Gov. Code, §§ 51100-51104) describes the powers and duties of local government in protecting timberlands. The law is designed to maintain an optimum amount of timberland, ensuring its current and continued availability by establishing Timberland Preserve Zones (TPZ) on all qualifying timberland, which restrict land use to growing and harvesting timber and other compatible uses. The Act discourages premature or unnecessary conversion of timberland to urban or other uses and expansion of urban services into timberland, and encourages investment in timberlands based on reasonable expectation of harvest. The CTPA also provides that timber operations conducted in accordance with California forest practice rules shall not be restricted or prohibited due to land uses in or around the location of the timber operations.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CDF) reviews and approves plans for timber harvesting on private lands. In addition, through its responsibility for fighting wildland fires, the CDF plays a role in planning development in forested areas.

California Department of Parks and Recreation

The California Department of Parks and Recreation (CDPR) manages and provides sites for a variety of recreational and outdoor activities. The CDPR is a trustee agency that owns and operates all state parks and participates in land use planning that affects state parkland.

California Department of Fish and Wildlife

The land use mandate of the California Department of Fish and Wildlife (CDFW) is to protect Rare, Threatened, and Endangered species by managing habitat in legally designated ecological reserves or wildlife areas.

State Park System

The State Park System (SPS) is the most ecologically diverse system of protected lands in the state. The long-term preservation of the state's biological and physical values is a core function of the California Department of Parks and Recreation. Sustaining these values is a high priority of its acquisition (and restoration) program.

Delta Protection Commission

The Delta Protection Act of 1992 (Pub. Resources Code, § 29760 et seq.) recognized the Sacramento-San Joaquin Delta as a natural resource of statewide, national, and international significance, containing irreplaceable resources. It created the policy to recognize, preserve, and protect those resources, and established the Delta Protection Commission. The Delta Protection Commission was charged with creating the Land Use and Resources Management Plan for the Primary Zone, which was adopted in 1995. The management plan provides direction for local jurisdictions in the Delta region on land use decisions. Local jurisdictions with lands in the primary zone have amended their general plans to incorporate the management plan. In 2010, the Delta Protection Commission amended the management plan to reflect changes since adoption, such as newly identified Endangered species, effects of climate change, flood control issues, increased recreational use, water quality changes, habitat loss, road and utility construction, and urbanization. The amendment adds specific overview, goals, and policies subsections and a glossary of terms to address components of the Delta system, such as: natural resources, utilities, infrastructure, land use, agriculture, water, recreation, and levees.

Delta Stewardship Council

In November 2009, the California Legislature enacted the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) of 2009, also known as Sen. Bill No. 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of

several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC). The DSC is made up of seven members that are advised by a 10-member board of scientists. The DSC was charged with developing and adopting a Delta Plan by January 1, 2012.

The DSC is tasked with addressing the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. According to the Delta Reform Act, the coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The DSC regulates covered actions, as statutorily defined, to address the coequal goals.

Local

County and City General Plans

The most comprehensive land use planning for the San Joaquin region is provided by city and county general plans, which local governments are required to prepare as a guide for future development. The general plan contains goals and policies concerning topics that are mandated by state law or which the jurisdiction has chosen to include, such as land use, conservation and open space, natural resources, parks and recreation, and agricultural elements. Agricultural policies from the County's and local jurisdiction's general plans are summarized below;

San Joaquin County General Plan[13]

- Three land use categories for a range of agricultural activities and open space purposes shall be established, as follows.
  - General Agriculture land use designation for large-scale commercial agriculture with productive soils and large parcels, outside areas planned for urban development.
  - Limited Agriculture land use designation for areas of small-scale farming, outside areas planned for urban development.
  - Agriculture-Urban Reserve land use designation in areas expected to become urban beyond current planning period.
- Other uses on farmland shall be compatible with agricultural operations according to several criteria.
- All agricultural land shall be placed in an agricultural preserve for Williamson Act eligibility, with 20 (prime land) and 40 acre (non-prime) minimum parcel sizes for contracts.

13 Policies listed in the table are abbreviated versions of the language in the General Plan.

- There shall be no further fragmentation of agricultural land.
- Other uses allowed in agricultural areas should be clustered and strip or scattered development should be prohibited.
- Agriculture shall be protected from nuisance complaints with regulatory and planning mechanisms.
- Buffers shall be used to prevent conflicts between agriculture and other land uses.
- Opportunities for farm-related housing that facilitate efficient agricultural operations shall be provided.

City of Escalon General Plan

- 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.
- 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;
- 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 Lathrop General Plan

- 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.
- Exclusive agricultural zoning shall be continued on agricultural lands outside the boundaries of the three sub-plan areas.
- 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.

- 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

- Promote preservation and economic viability of agricultural land surrounding Lodi.
- Maintain the quality of the Planning Area's soil resources and reduce erosion to protect agricultural productivity.
- Work with San Joaquin County and the City of Stockton to maintain land surrounding Lodi in agricultural use.
- Work with San Joaquin County, relevant land owners, interested parties, and groups to ensure economic viability of all agricultural businesses and supporting industries.
- Support the continuation of agricultural uses on lands designated for urban uses until urban development is imminent.
- 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.
- Maintain the City's Right-to-Farm Ordinance, and update as necessary, to protect agricultural land from nuisance suits brought by surrounding landowners.
- 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.

City of Manteca General Plan

- The City shall support the continuation of agricultural uses on lands designated for urban use, until urban development is imminent.
- The City shall provide an orderly and phased development pattern so that farmland is not subjected to premature development pressure.
- 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.
- Nonagricultural uses in areas designated for agriculture should be redirected to urban areas.

- Protect designated agricultural lands, without placing an undue burden on agricultural landowners.
- Provide buffers at the interface of urban development and farmland in order to minimize conflicts between these uses.
- 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.
- 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.
- The City shall discourage the cancellation of Williamson Act contracts outside the Primary Urban Service Boundary line.
- The City shall not extend water and sewer lines to premature urban development that would adversely affect agricultural operations.
- The City shall encourage Manteca Unified School District and the Delta Community College District to maintain the school farm facilities and associated education programs in the City.
- 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 Ripon General Plan

- 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.
- 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.
- 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.

City of Stockton General Plan

- The City shall limit the wasteful and inefficient sprawl of urban uses into agricultural lands.
- The City shall discourage the premature conversion of agricultural land to urban uses within the Urban Service Area.
- 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.

City of Tracy General Plan

- The City shall support San Joaquin County's efforts to preserve agricultural uses in the Tracy Planning Area.
- 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.
- The City shall support the preservation of Williamson Act lands and Farmland Security Zone lands within the Tracy Planning Area.
- The City shall encourage the continued agricultural use of land within the Planning Area and outside the Sphere of Influence[14] that is currently being farmed.
- The City shall work cooperatively with non-profit organizations, such as land trusts, to preserve agricultural land in the Planning Area.
- 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.
- The City shall review, maintain, and update, as necessary, its Right-to-Farm Ordinance.

Community and Specific Plans

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with the development standards tailored to the area, as well as systematic implementation of the general plan.

Zoning

City or county zoning codes provide detailed requirements that implement general plan policies at the level of the individual parcel. Zoning codes identify standards for different uses and specify which uses are allowed in the various zoning districts of a given jurisdiction. Since 1971, state law has required city

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14 A "Sphere of Influence" is defined as a 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. Thus, the establishment of the SOI boundary is necessary to determine which governmental agencies can provide services in the most efficient way to the people and property in any given area, promote orderly land use and service, and protect agriculture and open pace.

and county zoning codes to be consistent with the applicable general plan, except in charter cities such as Stockton.

Land Conservation Trust

A land trust is a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements. A land conservation trust is another type of organization devoted to protecting open space, agricultural lands, wildlife habitats, and natural resource lands. There are approximately 80 established trusts in California. Local and regional land trusts, organized as charitable organizations under federal tax laws, are directly involved in conserving land for its natural, recreational, scenic, historical, and productive values. Local governments and special districts, either on their own or working with land trusts and conservancies, can acquire fee title to agricultural and open space lands or purchase development rights to preserve rural and agricultural areas, watersheds, or critical habitat, or to create public parks and recreational areas.

Local Agency Formation Commissions

The Local Agency Formation Commission (LAFCo) is the agency that has the responsibility to create orderly local government boundaries, with the goal of encouraging "planned, well-ordered, efficient urban development patterns," the preservation of open-space lands, and the discouragement of urban sprawl. While LAFCo has no direct land use authority, its actions determine which local government will be responsible for planning new areas. LAFCo addresses a wide range of boundary actions, including creation of spheres of influence for cities, adjustments to boundaries of special districts, annexations, incorporations, detachments of areas from cities, and dissolution of cities.

4.2.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS would result in significant impacts to agricultural and/or forestry resources, if any of the following could occur:

- 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 or land use designation for agricultural use, or a Williamson Act contract.

- Conflict with existing zoning or land use designation for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220(G)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104(G)); and/or result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) or conversion of Forest Land into non-forest use.

- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use.

Methodology

The analysis assesses the potential impacts to agricultural, timber, and forest resources that could result from implementation of RTP/SCS. Impacts are assessed in terms of both land use and transportation impacts. By 2040, implementation of the RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of agricultural, timberland, and forest resources includes a comparison of the expected future conditions with the proposed RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of agricultural, timberland, and forest impacts compares the existing conditions to expected conditions in 2040 with the 2014 RTP/SCS, as required by *State CEQA Guidelines* Section 15126.2(a). The known agricultural, timberland, and forest resources located within the region were evaluated using the criteria set forth by the California Department of Conservation and the *State CEQA Guidelines*. The research analysis was limited to state recognized agricultural, timberland, and forest resources.

Approximately 75 percent of the County is comprised of agricultural land.[15] Implementation of the proposed 2014 RTP/SCS would affect land use patterns including the consumption of agricultural land, timberland, and forest land. In general, the potential to impact agricultural, timber, and forest resources varies by the development area type (or location of transportation improvement). Agricultural, timber, and forest resources are more prevalent in rural than urban areas. Concentrations of agricultural land, timberland, and forest land is thus, more likely to exist in undeveloped areas. However, as approximately three-quarters of San Joaquin County is comprised of agricultural land, and 2 percent is timberland and forest land,[16] these resources can be encountered near the periphery of urban and suburban areas. Significant impacts to vacant natural lands, including agricultural lands, timberlands, and forest lands are expected. The development of new transportation facilities could affect agricultural, timber, and forest resources, either through direct effects to these lands or through indirect effects to areas adjacent to these resources. Improvements within existing urban areas are less likely to affect agricultural, timber, and forest resources. However, reducing buffer zones between transportation corridors and agricultural and forestry resources, and reduction of the resources through lane widening could cause significant impacts.

Impacts and Mitigation Measures

Impact AG-1 **Convert prime farmland, unique farmland, or farmland of statewide importance (farmland), as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.**

As of 2010, San Joaquin County's agricultural land included 385,337 acres of prime farmland, 69,481 acres of unique farmland, and 83,307 acres of farmland of statewide importance[17] (see **Table 4.2-1** and

15 Written communication with San Joaquin Senior Planner, Ray Hoo, January 31, 2014.

16 Written communication with San Joaquin Senior Planner, Ray Hoo, January 09, 2014.

17 California Department of Conservation, Farmland Mapping and Monitoring Program

Figure 4.2-1, above). The potential for RTP/SCS projects to result in impacts to farmland is shown in **Table 4.2-5, 2014 RTP/SCS Land Consumption**.

Table 4.2-5
2014 RTP/SCS Land Consumption

Community Type	Acres of Impact (by 2040)		Percent of New Development	
	No Project	2014 RTP/SCS	No Project	2014 RTP/SCS
Total Land Consumed	35,194	18,123	n/a	n/a
Prime Farmland Consumed	15,352	4,645	43.6	25.6
Statewide Farmland Consumed	7,755	3,405	22.0	18.8
Unique Farmland Consumed	767	90	2.1	0.5
Important Farmland Consumed (Total)	**23,875**	**8,140**	**67.0**	**44.9**

Source: San Joaquin COG, 2014.

As shown in **Table 4.2-5**, the 2014 RTP/SCS has the potential to consume 18,123 acres of land, of that 8,140 would be prime, important farmland or farmland of statewide importance.

The conversion of 8,140 acres over the 27-year planning period for the RTP/SCS represents a conversion rate of approximately 301 acres per year compared to 1,158 acres per year from 1990 to 2006 than has historically occurred. This reduction in the rate of consumption is due largely to local and regional efforts to balance urban expansion with the conservation of economically viable farmland. Although the rate of farmland conversion would decrease, due to the importance of the region's agricultural resources, the impacts related to farmland conversion as a result of the land use changes and transportation improvements from implementation of the proposed 2014 RTP/SCS are considered significant for **Impact AG-1**. Mitigation is required; see **Mitigation Measures AG-1** through **AG-4**, below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

AG-1: Implementing and local agencies should establish preservation ratios to minimize loss of prime, unique, and statewide importance farmland, such as the preservation of 1 acre of unprotected agricultural land being permanently conserved for each acre of open space developed.

AG-2: Implementing and local agencies should encourage urban development, in place of development in rural and sensitive areas. Local jurisdictions should seek funding to prepare specific plans and related environmental documents to facilitate mixed-use development, and to allow these areas to serve as receiver sites for transfer of development rights away from environmentally sensitive lands and rural areas outside established urban growth boundaries.

AG-3: Implementing and local agencies should identify and minimize impacts to agricultural resources through project design.

Prior to the design approval of RTP/SCS projects, the implementing agency should assess the project area for agricultural resources and constraints. For federally funded projects, implementing and local agencies are required to follow the rules and regulations of Farmland Protection Policy Act including determining the impact by completing the Farmland Conversion Impact Rating form (AD-1006). For non-federally funded projects, implementing and local agencies should assess projects for the presence of important farmlands (prime farmland, unique farmland, farmland of statewide importance), and if present, perform a Land Assessment and Site Evaluation (LESA).

AG-4: Implementing and local agencies should minimize and avoid agricultural resources located within the limits of a proposed project.

If significant agricultural resources are identified within the limits of a project, implementing and local agencies should consider alternative designs that seek to avoid and/or minimize impacts to the agricultural resources. Design measures could include, but are not limited to, reducing the footprint of a roadway or development or relocating/realigning a project to avoid important and significant farmlands. If a project cannot be designed without complete avoidance of important or significant farmlands, implementing and local agencies should compensate for unavoidable conversion impacts in accordance with the Farmland Protection Policy Act and local and regional standards, which may include enrolling off-site agricultural lands under a Williamson Act contract or other conservation easement, or paying mitigation fees.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts from the 2014 RTP/SCS would be reduced, although not to a less than significant level the RTP/SCS is projected to consume 8,140 acres of important farmland. Because this document evaluates impacts at the programmatic level, all project

circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures AG-1** through **AG-4**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt **Mitigation Measures AG-1** through **AG-4** through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AG-2 **Conflict with existing zoning or land use designation for agricultural use, or a Williamson Act contract.**

As of 2010, San Joaquin County contained a total of 419,118 acres of land contracted under the Williamson Act. Of those acres, 287,418 acres were prime farmland and 131,700 acres were nonprime. As shown in **Table 4.2-5**, 8,140 acres of total farmland could be consumed due to transportation projects and land use strategies included in the RTP/SCS. Due to the planning horizon of the RTP (27 years), it is likely that some land currently under Williamson Act contracts could expire and be converted to non-agricultural uses. However, as discussed in the RTP/SCS (see Chapter 1, Creating a Sustainable Communities Strategy), all land use changes would be subject to local plans and policies. As such, no specific zoning changes would occur as a direct result of the RTP/SCS, rather each individual jurisdiction would be responsible for approving land use and zoning changes.

However, due to the importance of the County's agricultural resources, the impacts on existing zoning and land use designations for agricultural resources, and Williamson Act agricultural lands related to the land use changes and transportation improvements from implementation of the proposed RTP/SCS, are considered potentially significant for **Impact AG-2**. Mitigation is required; see **Mitigation Measures AG-1** through **AG-4**, above.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

Implement **Mitigation Measures AG-1** through **AG-4**.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts to contracted Williamson Act lands and agricultural zoned land would be reduced, although not to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are

not foreseeable and therefore, even with implementation of **Mitigation Measures AG-1** through **AG-4**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt **Mitigation Measures AG-1** through **AG-4**, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AG-3 **Conflict with existing zoning or land use designation for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220(G)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104(G)); and/or**

Result in the loss of "Forest Land" as defined in the California Forest Legacy Act of 2007 (Pub. Resources Code, § 12220(G)) or conversion of Forest Land into non-forest use.

San Joaquin County has approximately 20,000 acres of existing oak woodland.[18] The groves are located in the southwest and northeast portions of the County. As the oak woodlands and forest lands are generally located in the slow growth areas of the County (mountain areas) the rate of forest land loss has typically been slow.

Due to the planning horizon of the 2014 RTP (27 years), it is likely that some land currently defined and zoned as forest land or timberland could be converted to residential or other uses. However, as discussed in the RTP/SCS (see Chapter 1, Creating a Sustainable Communities Strategy), all land use changes would be subject to local plans and policies. As such, no specific zoning changes would occur as a direct result of the RTP/SCS, rather each individual jurisdiction would be responsible for approving land use and zoning changes. As a result, no direct changes to land use designation or zoning would occur as a result of the RTP/SCS.

The majority of growth anticipated with the RTP/SCS would occur in urbanized areas, not existing forest lands. Land use strategies contained within the RTP/SCS would help to encourage growth in developed areas rather than a more dispersed land use pattern that could result in conversion of forest land as evidenced by the fact that the Plan would consume 49 percent fewer acres of land compared to the No Project (18,123 acres under the Plan compared to 35, 184 under the No Project).

18 Written communication with San Joaquin Senior Planner, Ray Hoo, January 9, 2014.

However, due to the importance of the County's timberland and forest land resources, the impacts on existing zoning and land use designations for forest land resources, related to the land use changes and transportation improvements from implementation of the proposed RTP/SCS are considered potentially significant for **Impact AG-3**. Mitigation is required. **Mitigation Measures AG-2,** describe above, and **AG-5** and **AG-6**, described below, should be implemented to help decrease the level of impact.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

Implement **Mitigation Measure AG-2**.

AG-5: Implementing and local agencies should establish preservation ratios to minimize loss of forest land, and timberland, such as 1 acre of unprotected forest land and timber land to be permanently conserved for each acre of open space developed as a result of individual projects.

AG-6: Implementing and local agencies should implement design features in RTP/SCS projects to minimize impacts. Implementing agencies should consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid forest lands and timberlands and to reduce conflicts between transportation uses and forest and timberlands.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce forest land and timberland impacts to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures AG-2, AG-5,** and **AG-6** impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt **Mitigation Measures AG-5** and **AG-6**, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AG-4 **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use.**

By 2040, San Joaquin County will experience an increase of approximately 365,692 people, 92,817 jobs, and 100,116 households. Implementation of the proposed 2014 RTP/SCS will convert roughly 18,123 acres of undeveloped land to urban uses. Under the Plan, 3.16 percent of new growth would be infill/redevelopment and 72.9 percent of new housing units would be either multi-family or small lot/townhome.[19]

In developing the 2014 RTP/SCS forecasted development pattern and transportation system, SJCOG relied on the policies of local governments to develop urbanization assumptions based on the most recent information available. Local land use policies related to agricultural preservation were of particular importance in this effort. By developing more compactly, the proposed 2014 RTP/SCS would direct more growth to the areas that are already urbanized, thereby avoiding some agricultural lands from being converted to urban uses. However, as discussed in **Impact AG-1** and **AG-2**, implementation of the proposed 2014 RTP/SCS would directly result in the conversion of 8,140 acres farmland. Lands that remain agricultural lands, but are located near to areas that converted to urban uses, may feel increased pressure to redevelop, as nearby land values increase or as nuisances from urban development spread to agricultural lands.

A percentage of the 2014 RTP/SCS transportation projects could require changes in existing land uses which could result in conversion of farmland to nonagricultural use. Over 7 billion dollars of the RTP/SCS's 11 billion dollar budget are for state highway and regional roadway maintenance and expansion to increase the capacity of the County's existing roads; in addition to adding approximately 822 miles of new Class 1, 2, and 3 bicycle lanes.[20] In addition, numerous rehabilitation projects, transit improvements including new bus route miles, transit facilities, and numerous transit operational improvements are included in the 2014 RTP/SCS.

While much of this transportation infrastructure would serve urban uses in urbanized areas of the region, implementation of transportation improvements at the urban edge could increase urban traffic patterns on roads that serve urban development and agricultural lands. The 2014 RTP/SCS would increase the percentage of households in urban areas that have access to some form of transit which could result in the extension of infrastructure into rural areas.

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19 A small lot is defined as 5,000 square feet or less. This designation includes; small lot, multi-family (attached), mixed use, and mobile home units.

20 San Joaquin Council of Governments, 2014 RTP/SCS Draft

Transportation projects included in the 2014 RTP/SCS will increase mobility choices and capacity within urban areas. Pressure to convert agricultural lands located near the periphery of these built-out areas to urban land uses could increase as transportation improvements are made.

Therefore, impacts to agricultural land located near urban areas and/or transportation improvements included in the 2014 RTP/SCS are considered potentially significant for **Impact AG-4**. Mitigation is required; see **Mitigation Measures AG-1** through **AG-4** above.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Implement **Mitigation Measures AG-1** through **AG-4**.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts from the 2014 RTP/SCS would be reduced, although not to a less than significant level the RTP/SCS is projected to consume 8,140 acres of important farmland. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures AG-1** through **AG-4**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt **Mitigation Measures AG-1** through **AG-4**, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.2.4 CUMULATIVE EFFECTS

Under the 2014 RTP/SCS consumption of farmland, timberland, and forest land would occur. These impacts would be the direct result of either transportation improvements or development. Loss of farmland would contribute to statewide impacts. As San Joaquin County is a primary producer of a variety of crops and one of the largest agricultural counties in the state, the loss of farmland could result in cumulative impacts statewide.

Further, the loss of timberland and forest land and or the disturbance of these lands could occur due to transportation projects and development included in the 2014 RTP/SCS. Loss of these resources and

habitat, as well as habitat fragmentation would contribute to statewide cumulative impacts. Therefore, the 2014 RTP/SCS would contribute to a cumulative agricultural impact.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures AG-1** through **AG-6**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt **Mitigation Measures AG-1** through **AG-4**. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.2.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the San Joaquin COG region would still grow by close to 365,694 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the RTP/SCS's emphasis on urban areas.

The No Project Alternative includes fewer transportation projects than the RTP/SCS, but does not include any agricultural land, timberland, or forest land preservation strategies, other than locally approved plans and policies currently in place. Initially this may minimize the potential for creating conflicts with general plans, as the only growth strategies that would occur would be local land use controls, however it also would have less of an influence on the patterns of urbanization in the region. Thus, the No Project Alternative would result in a more dispersed land use pattern, which could have greater impacts related to conversion of agricultural land, timberland, and forest land. The No Project Alternative would result in 35,184 acres of land consumed compared to 18,123 acres consumed under the Plan. As shown in **Table 4.2-5**, above, 67 percent of new development under the No Project scenario would occur on farmland.

Further, the RTP/SCS includes strategies to focus growth in urban areas which would help reduce the consumption and disturbance of natural lands and reduce impacts to agricultural and forestland.

The Plan also includes transportation improvements that could facilitate access to undeveloped lands, potentially making those lands more attractive for development than under the No Project Alternative. However, the RTP/SCS includes policies to reduce the impacts of such encroachment on farmland and is anticipated to result in fewer impacts. It is anticipated that the land use planning strategies included in the proposed RTP/SCS will minimize consumption of agricultural lands, timber and forest lands compared to the No Project Alternative (about 8,140 acres of farmland under the Plan and about 23,875 acres of farmland under the No Project Alternative). The No Project impacts would be greater than the Plan impacts for **Impacts AG-1**, through **AG-4**, because of the increased consumption of agricultural, forest, and timberland land.

The RTP/SCS includes land use measures that would help reduce the consumption and disturbance of agricultural lands, vacant lands, open space, and recreation lands while the No Project Alternative does not. These policies and mitigation strategies are absent in the No Project Alternative. Under the No Project Alternative, up to approximately, 35,184 acres of vacant, open space and agricultural lands would be consumed, compared 18,123 acres under the Plan. The more dispersed land use pattern of the No Project Alternative would consume more vacant land, but also could impact areas outside the region through setting a precedent for the conversion of non-urban lands. This would happen as development spreads out along existing freeways or similar methods of expansion.

Under the No Project Alternative land use changes could affect jurisdictions outside the SJCOG region, by setting a precedent for and/or inducing consumption of agricultural lands; such impacts would be cumulatively considerable. The Plan would decrease congestion potentially making it easier for people to live and work outside the region, thereby inducing land uses changes outside the region, these impacts also could be cumulatively considerable.

4.3 AIR QUALITY

This section describes the ambient air quality of San Joaquin County and provides a comparison of existing air quality to applicable federal, state, and local air pollutant standards. This section identifies the plans and policies developed in efforts to improve air quality, and evaluates potential air quality impacts associated with the 2014 RTP. In addition, this Program EIR provides regional-scale mitigation measures as well as a framework of mitigation measures for subsequent, site-specific environmental review documents prepared by lead agencies to reduce identified impacts as appropriate and feasible. Residual impacts after mitigation are also identified. Sources utilized in this discussion include air quality data from the San Joaquin Valley Air Pollution Control District (SJVAPCD), the California Air Resources Board (CARB), and the US Environmental Protection Agency (USEPA).

4.3.1 ENVIRONMENTAL SETTING

San Joaquin Valley Air Basin

The San Joaquin Valley Air Basin (SJVAB) consists of eight counties, stretching from Kern County in the south to San Joaquin County in the north. The SJVAB is bounded by the Sierra Nevada in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. **Figure 4.3-1, San Joaquin Valley Air Basin: Location of San Joaquin County** illustrates the location the County within the SJVAB.

The surrounding topographic features restrict air movement through and out of the basin and, as a result, impede the dispersion of pollutants from the basin. Inversion layers are formed in the SJVAB throughout the year. (An inversion layer is created when a mass of warm dry air sits over cooler air near the ground, preventing vertical dispersion of pollutants from the air mass below). During the summer, the San Joaquin Valley experiences daytime temperature inversions at elevations from 2,000 to 2,500 feet above the valley floor. During the winter months, inversions occur from 500 to 1,000 feet above the valley floor.[1]

The pollution potential of the San Joaquin Valley is very high. Surrounding elevated terrain in conjunction with temperature inversions frequently restrict lateral and vertical dilution of pollutants. Abundant sunshine and warm temperatures in summer are ideal conditions for the formation of photochemical oxidant, and the Valley is a frequent scene of photochemical pollution.

1 SJVAPCD 2002

Climate

The SJVAB has an inland Mediterranean climate with warm, dry summers and cooler winters. The average daily maximum temperature in the Basin is 65 degrees Fahrenheit (°F), with temperature highs of 95 °F in July. Average daily minimum temperature is 48 °F, with temperature lows of 45 °F in January. Normal rainfall level is approximately 9 inches per year, and occurs mainly in the winter months from November to April. Thunderstorms occur on approximately three to four days in the spring, on average.

San Joaquin County has warm, dry days and relatively cool nights, with clear skies and limited rainfall. Winters are mild with light rains and frequent heavy fog from December to January. The average daily temperature in Stockton is 74 °F. Annual rainfall is 13 inches in Stockton, 8 inches in Tracy and 16 inches in Lodi.

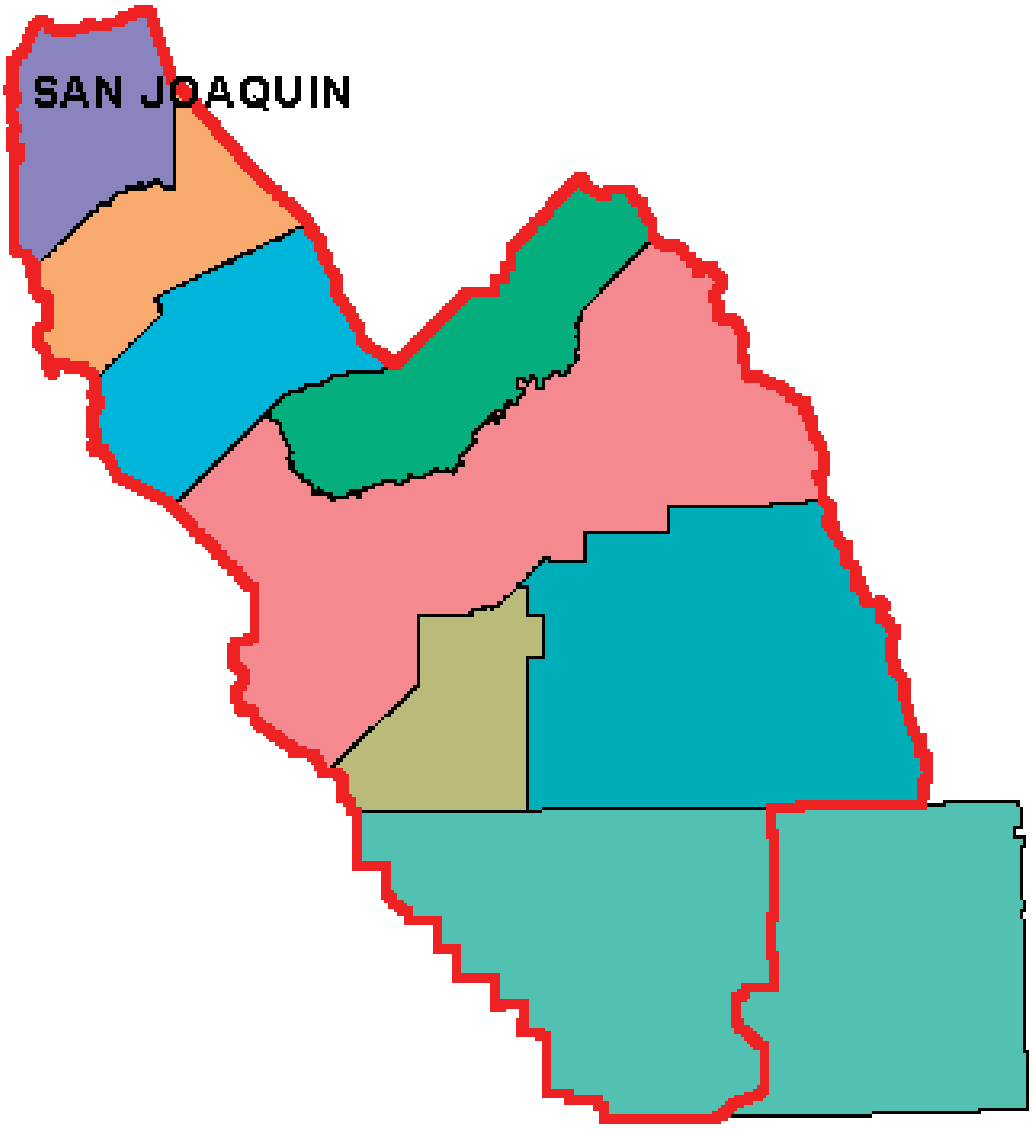
Air Movement

Marine air comes into the basin from the Sacramento River–San Joaquin River Delta, although most air movement is restricted by the surrounding mountains. Winds from the Bay Area flow northeasterly into the Sacramento Valley and southward into San Joaquin County. This results in weak winds from the north and northeast, with an average speed of 7 miles per hour.

Wind speed and direction determine the dispersion of air pollutants. During the summer, wind from the north flows south and southeasterly through the Valley, through the Tehachapi Pass and into the Southeast Desert Air Basin. Thus, emissions from the San Francisco Bay Area and the Broader Sacramento air basins are transported into San Joaquin County and the Valley. Emissions in the San Joaquin Valley are then transported to the Southeast Desert and Great Basin Valley Air Basins. In late fall and winter, cold air from the mountains flows into the Valley. This results in winds from the south that flow north and northwesterly. Some emissions from San Joaquin County are transported to the Broader Sacramento air basin during these times. However, the winds are relatively light, limiting the dispersion of CO and other pollutants.

Seasonal Pollution Variations

Carbon monoxide, oxides of nitrogen, and particulate matter, concentrations in the late fall and winter are highest when there is little interchange of air between the valley and the coast and when humidity is high following winter rains. This type of weather is associated with radiation fog, known as tule fog, when temperature inversions at ground level persist over the entire valley for several weeks and air movement is virtually absent.



NOT TO SCALE

SOURCE: California Air Resources Board, 2014

FIGURE **4.3-1**

San Joaquin Valley Air Basin: Location of San Joaquin County

1173.001•02/14

Pollution potential in the San Joaquin County area is relatively high due to the combination of air pollutant emissions sources, transport of pollutants into the area and meteorological conditions that are conducive to high levels of air pollution. Elevated levels of particulate matter (primarily very small particulates, or "PM10") and ground-level ozone are of most concern to regional air quality officials.

Local carbon monoxide "hot spots" are important to a lesser extent. Ground-level ozone, the principal component of smog, is not directly emitted into the atmosphere but is formed by the reaction of reactive organic gases (ROG) and nitrogen oxides (NOx) (known as ozone precursor pollutants) in the presence of strong sunlight. Ozone levels are highest in San Joaquin County during late spring through early fall, when weather conditions are conducive and emissions of the precursor pollutants are highest.

Surface-based inversions that form during late fall and winter nights cause localized air pollution problems (primarily PM2.5, though also PM10 and carbon monoxide) near the emission sources because of poor dispersion conditions. Emission sources of PM2.5 are primarily from automobiles and other internal combustion sources. Conditions are exacerbated during drought-year winters.

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain original or "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind from the emission sources. Because of the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of the San Joaquin Valley.

Temperature Inversions

A temperature inversion is a reversal in the normal decrease of temperature as altitude increases. In most parts of the country, air near ground level is warmer than the air above it. Semi- permanent systems of high barometric pressure fronts establish themselves over the basin, deflecting low-pressure systems that might otherwise bring cleansing rain and winds. The height of the base of the inversion is known as the "mixing height" and controls the volume of air available for the mixing and dispersion of air pollutants.

The interrelationship of air pollutants and climatic factors are most critical on days of greatly reduced atmospheric ventilation. On days such as these, air pollutants accumulate because of the simultaneous occurrence of three favorable factors: low inversions, low maximum mixing heights, and low wind speeds. Although these conditions may occur throughout the year, the months of July, August, and September generally account for more than 40 percent of these occurrences.

The potential for high contaminant levels varies seasonally for many contaminants. During late spring, summer and early fall, light winds, low mixing heights, and sunshine combine to produce conditions favorable for the maximum production of oxidants, mainly ozone. When strong surface inversions are formed on winter nights, especially during the hours before sunrise, coupled with near-calm winds, carbon monoxide from automobile exhausts becomes highly concentrated. The highest yearly concentrations of carbon monoxide and oxides of nitrogen and measured during November, December and January.

Criteria Pollutants

The United States Environmental Protection Agency (EPA) uses seven "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). Each criteria pollutant is described below.

Ozone (O_3) is a photochemical oxidant and the major component of smog. While O_3 in the upper atmosphere is beneficial to life by shielding the earth from harmful ultraviolet radiation from the sun, high concentrations of O_3 at ground level are a major health and environmental concern. O_3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) in the presence of sunlight. These reactions are stimulated by sunlight and temperature so that peak O_3 levels occur typically during the warmer times of the year. Both VOCs and NOx are emitted by transportation and industrial sources. VOCs are emitted from sources as diverse as autos, chemical manufacturing, dry cleaners, paint shops and other sources using solvents.

The reactivity of O_3 causes health problems because it damages lung tissue, reduces lung function and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to O_3 for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels. When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly

those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks.

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban atmospheres. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides are an important precursor to both ozone (O_3) and acid rain, and may affect both terrestrial and aquatic ecosystems. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NOx). NOx plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NOx forms when fuel is burned at high temperatures. The two major emission sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

Sulfur dioxide (SO_2) affects breathing and may aggravate existing respiratory and cardiovascular disease in high doses. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children and the elderly. SO_2 is also a primary contributor to acid deposition, or acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings, and statues. In addition, sulfur compounds in the air contribute to visibility impairment in large parts of the country. This is especially noticeable in national parks. Ambient SO_2 results largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters.

Particulate matter (PM) includes dust, dirt, soot, smoke and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as SO_2 and VOCs are also considered particulate matter.

Based on studies of human populations exposed to high concentrations of particles (sometimes in the presence of SO_2) and laboratory studies of animals and humans, there are major effects of concern for human health. These include effects on breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogenesis, and premature death.

Respirable particulate matter (PM10) consists of small particles, less than 10 microns in diameter, of dust, smoke, or droplets of liquid which penetrate the human respiratory system and cause irritation by themselves, or in combination with other gases. Particulate matter is caused primarily by dust from grading and excavation activities, from agricultural uses (as created by soil preparation activities, fertilizer and pesticide spraying, weed burning and animal husbandry), and from motor vehicles,

particularly diesel-powered vehicles. PM10 causes a greater health risk than larger particles, since these fine particles can more easily penetrate the defenses of the human respiratory system.

Fine particulate matter (PM2.5) consists of small particles, which are less than 2.5 microns in size. Similar to PM10, these particles are primarily the result of combustion in motor vehicles, particularly diesel engines, as well as from industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. As with PM10, these particulates can increase the chance of respiratory disease, and cause lung damage and cancer. In 1997, the EPA created new federal air quality standards for PM2.5.

The major subgroups of the population that appear to be most sensitive to the effects of particulate matter include individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly and children. Particulate matter also soils and damages materials, and is a major cause of visibility impairment.

Lead (Pb) exposure can occur through multiple pathways, including inhalation of air and ingestion of Pb in food, water, soil, or dust. Excessive Pb exposure can cause seizures, mental retardation, and/or behavioral disorders. Low doses of Pb can lead to central nervous system damage. Recent studies have also shown that Pb may be a factor in high blood pressure and subsequent heart disease.

Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another.

It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Sensitive Receptors

A sensitive receptor is a location where human populations, especially children, seniors, and sick persons, are present and where there is a reasonable expectation of continuous human exposure to pollutants. Examples of sensitive receptors include residences, hospitals, and schools.

Ambient Air Quality

Both the federal government and the State of California have established ambient air quality standards for several different pollutants. The USEPA sets National Ambient Air Quality Standards for the following seven pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), respirable particulate matter (PM10), fine particulate matter (PM2.5), and lead. These seven pollutants are commonly referred to as *criteria pollutants*. California Ambient Air Quality Standards have also been adopted for these pollutants, as well as for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. California standards are generally stricter than national standards. Each of the criteria pollutants that are relevant to the Proposed Action and that are of concern in the Air Basin are briefly described below. While reactive organic gases (ROGs) are not considered to be criteria air pollutants, they are widely emitted from land development projects and undergo photochemical reactions in the atmosphere to form O_3; therefore, ROGs are also relevant to the proposed project and are of concern in the area.[2]

- Ozone (O_3) is a gas that is formed when ROGs and oxides of nitrogen (NO_X), both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when

2 USEPA n.d.c

direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

- **Reactive Organic Gases (ROGs)** are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary air pollutants, including ozone. ROGs are also referred to as reactive organic compounds (ROCs) or volatile organic compounds (VOCs). ROGs themselves are not criteria pollutants; however, they contribute to formation of O_3.

- **Nitrogen Dioxide (NO_2)** is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO_2 is also a byproduct of fuel combustion. The principal form of NO_X produced by combustion is NO, but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_X is only potentially irritating. NO_2 absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility.

- **Carbon Monoxide (CO)** is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings, with little to no wind, when surface-based inversions trap the pollutant at ground levels. CO is emitted directly from internal combustion engines. Motor vehicles operating at slow speeds are the primary source of CO in the basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

- **Sulfur Dioxide (SO_2)** is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4).

- **Respirable Particulate Matter (PM10)** consists of suspended particles or droplets 10 micrometers or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- **Fine Particulate Matter (PM2.5)** is suspended particulate matter that is 2.5 micrometers or smaller in diameter. The sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, NO_X, and ROGs are transformed in the air by chemical reactions.

A summary of state and federal ambient air quality standards and the effects of the exceedance of these standards on health are shown in **Table 4.3-1, Ambient Air Quality Standards**. For some pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values, such as protection of crops, protection of materials, or avoidance of nuisance conditions.

Table 4.3-1
Ambient Air Quality Standards

Air Pollutant	Concentration/Averaging Time: State Standard (California Ambient Air Quality Standards)	Concentration/Averaging Time: Federal Primary Standard (National Ambient Air Quality Standards)	Most Relevant Health Effects
Ozone	0.09 ppm (180 μg/m^3), 1-hr. avg. 0.070 ppm (137 μg/m^3), 8-hr avg.	0.075 ppm (147 μg/m^3), 8-hr avg. (three-year average of annual 4th-highest daily maximum)	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage
Nitrogen Dioxide[1]	0.18 ppm (339 μg/m^3), 1-hr avg. 0.030 ppm (57 μg/m^3), annual arithmetic mean	0.100 ppm (188 μg/m^3), 1-hr avg. (three-year avg. of the 98th percentile of the daily maximum 1-hour avg.) 0.053 ppm (100 μg/m^3), annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extrapulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Carbon Monoxide	20 ppm (23 μg/m^3), 1-hr avg. 9.0 ppm (20 μg/m^3), 8-hr avg.	35 ppm (40 μg/m^3), 1-hr avg. (not to be exceeded more than once per year) 9 ppm (10 μg/m^3), 8-hr avg. (not to be exceeded more than once per year)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Sulfur Dioxide[2]	0.25 ppm (655 μg/m^3), 1-hr. avg. 0.04 ppm (105 μg/m^3), 24-hr avg.	0.075 ppm (196 μg/m^3), 1-hr avg. (three-year avg. of the 99th percentile) No 24-hr avg.	Broncho-constriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	50 μg/m^3, 24-hr avg. 20 μg/m^3, annual arithmetic mean	150 μg/m^3, 24-hr avg. (not to be exceeded more than once per year on average over three years)	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and (b) Excess seasonal declines in pulmonary function, especially in children.
Suspended Particulate Matter (PM2.5)	12 μg/m^3, annual arithmetic mean	35 μg/m^3, 24-hr avg. (three-year average of 98th percentile) 15 μg/m^3, annual arithmetic mean (three-year average)	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and (c) Decreased lung functions and premature death.

Air Pollutant	Concentration/Averaging Time State Standard (California Ambient Air Quality Standards)	Federal Primary Standard (National Ambient Air Quality Standards)	Most Relevant Health Effects
Lead[3]	1.5 μg/m³, 30-day avg.	1.5 μg/m³, calendar quarter 0.15 μg/m³, three-month rolling average	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.	None	The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. This is a visibility based standard not a health based standard. Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent.
Sulfates	25 μg/m³, 24-hr avg.	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Hydrogen Sulfide	0.03 ppm (42 μg/m³), 1-hr avg.	None	Odor annoyance
Vinyl Chloride[3]	0.01 ppm (26 μg/m³), 24-hr avg.	None	Highly toxic and a known carcinogen that causes a rare cancer of the liver.

Source: South Coast Air Quality Management District, Final Program Environmental Impact Report for the 2012 Air Quality Management Plan, (2012) Table 3.2-8, p. 3.2-29
μg/m³ = microgram per cubic meter.
ppm = parts per million by volume.

1 *On January 25, 2010, the USEPA promulgated a new 1-hour NO_2 standard. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter [μg/m³]) and became effective on April 12, 2010.*

2 *On June 3, 2010, the USEPA issued a new 1-hour SO_2 standard. The new 1-hour standard is 0.075 parts per million (196 μg/m³). The USEPA also revoked the existing 24-hour and annual standards citing a lack of evidence of specific health impacts from long-term exposures. The new 1-hour standard became effective 60 days after publication in the Federal Register.*

3 *CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.*

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Nonattainment areas are ranked (marginal, moderate, serious, severe, or extreme) according to the degree of nonattainment. Areas that do not meet the standards shown in **Table 4.3-1** are classified as nonattainment areas. The National Ambient Air Quality Standards (other than O_3, PM10, PM2.5, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The National Ambient Air Quality Standards for O_3, PM10, and PM2.5 are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards are not to be exceeded during a three-year period.

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant.

The San Joaquin Valley Air Basin (SJAB) located within the SJVAPCD is classified by the US EPA as an O_3 8-hour nonattainment area and ranging from attainment/unclassified, nonattainment, and attainment for the other criteria pollutants. The status of San Joaquin County located with respect to attainment with the NAAQS and California Ambient Air Quality Standards (CAAQS) is summarized in **Table 4.3-2, National and California Ambient Air Quality Standard Designations for San Joaquin County**.

Table 4.3-2
National and California Ambient Air Quality Standard Designations for San Joaquin County

Pollutant	National Ambient Air Quality Standard Designations San Joaquin Valley Air Basin	California Ambient Air Quality Standard Designations San Joaquin Valley Air Basin
Ozone (O_3) – 1 hour	None	Nonattainment/Severe
Ozone (O_3) – 8 hour	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment/Unclassified	Attainment
Nitrogen Dioxide (NO_2)	Attainment/Unclassified	Attainment
Sulfur Dioxide (SO_2)	Unclassified	Attainment
Respirable Particulate Matter (PM10)	Attainment	Nonattainment
Fine Particulate Matter (PM2.5)	Nonattainment	Nonattainment
Lead (Pb)	Attainment/Unclassified	Attainment
Sulfates (SO_4)	None	Attainment
Hydrogen Sulfide (H_2S)	None	Unclassified
Visibility-Reducing Particles	None	Attainment

Source: CARB. http://www.arb.ca.gov/desig/adm/adm.htm, 2014.

Air Quality Monitoring

SJVAPCD and CARB maintain four air quality-monitoring sites in San Joaquin County: Stockton - Hazelton Street, Tracy - Airport, Stockton – Wagner – Holt School, and Manteca – 530 Fishback Road. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. Data obtained from the monitoring sites between 2010 and 2012 is shown in **Table 4.3-3**.

Table 4.3-3
Ambient Air Quality in San Joaquin County – California and National Standards

CARB Air Monitoring Station	Number of Days Exceeding CAAQS			Maximum 24-Hour Concentration State (ppm or μg/m³)			Number of Days Exceeding NAAQS			Maximum 24-Hour Concentration National (ppm or μg/m³)		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
1-Hour Ozone												
Stockton-Hazelton Street	2	0	1	0.120	0.089	0.097	NA	NA	NA	NA	NA	NA
Tracy-Airport	1	3	8	0.113	0.107	0.106	0	0	0	0.113	0.107	0.106
8-Hour Ozone												
Stockton-Hazelton Street	3	0	6	0.095	0.068	0.083	2	0	2	0.095	0.068	0.083
Tracy-Airport	8	21	36	0.092	0.088	0.098	3	8	16	0.091	0.087	0.098
CO												
Stockton-Hazelton Street	0	0	0	1.60	2.13	1.78	0	0	0	1.60	2.13	1.78
NOx												
Stockton-Hazelton Street	0	0	0	82	62	78	0	0	0	82.0	62.0	78.0
Tracy-Airport	0	0	0	40	39	40	0	0	0	40.0	39.0	40.0
SOx												
Not available												
PM2.5												
Stockton-Hazelton Street	*	*	*	*	*	*	3	11	6	41.0	60.0	60.4
Tracy-Airport	*	*	*	42.3	35.1	22.7	*	*	*	*	*	*
Manteca – 530 Fishback Road	*	*	*	*	*	*	4	15	4	44.0	57.3	48.3
PM10												
Stockton-Hazelton Street	1	4	3	55.4	24.4	17.9	0	0	0	54.3	66.1	69.4
Tracy-Airport	*	*	*	*	*	*	0	0	0	28.5	110.8	73.4
Stockton-Wagner-Holt School	0	3	1	46.5	65.5	60.2	0	0	0	46.7	61.5	59.5
Manteca – 530 Fishback Road	0	*	*	*	*	*	0	0	0	*	73.7	138.6

** Insufficient data.*
NA Not Applicable
Source: CARB. Top 4 Measurements and Days Above the Standard. http://www.arb.ca.gov/adam/index.html 2014.

4.3.2 REGULATORY SETTING

Air quality in the County is addressed through the efforts of various federal, state, regional, and local government agencies. The agencies primarily responsible for improving the air quality within the County include the USEPA, CARB, SJVAPCD, and the San Joaquin Council of Governments (SJCOG). These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality within San Joaquin County are discussed below, along with their individual responsibilities.

Federal

US Environmental Protection Agency (US EPA)

The US EPA is responsible for enforcing the federal Clean Air Act and the NAAQS. The US EPA regulated emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The US EPA also maintains jurisdiction over emissions sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California. These standards identify levels of air quality for seven criteria pollutants: O_3, CO, NO_2, SO_2, PM10, PM2.5, and lead. The thresholds are considered to be the maximum concentration of ambient (background) air pollutants determined safe to protect the public health and welfare with an adequate margin of safety.

As part of its enforcement responsibilities, the US EPA requires each state with areas that do not meet the federal standards to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the time frame identified in the SIP.

The 1990 Clean Air Act Amendments were enacted to better protect the public's health and create more efficient methods to lowering pollutant emissions. The major areas of improvement addressed in the amendments include NAAQS, air basin designations, automobile/heavy-duty engine emissions, and hazardous air pollutants. The US EPA designated air basins as being in attainment or nonattainment for each of the seven criteria pollutants. Nonattainment air basins for ozone are further ranked (marginal, moderate, serious, severe, or extreme) according to the degree of nonattainment. CARB is required to describe in its SIP how the state will achieve federal standards by specified dates for each air basin that has failed to attain a NAAQS for any criteria pollutant. The extent of a given SIP depends on the severity of the air quality condition within the state or a specific air basin. In response to rapid population growth

and the associated rise in motor vehicle operations, the 1990 Clean Air Act Amendments addressed tailpipe emissions from automobiles, heavy-duty engines, and diesel fuel engines. The amendments established more stringent standards for hydrocarbons, NO_X, and CO emissions in order to reduce the ozone and carbon monoxide levels in heavily populated areas. Under the 1990 Clean Air Act, new fuels were required to be less volatile, contain less sulfur (regarding diesel fuel), and have higher levels of oxygenates (oxygen-containing substances to improve fuel combustion). The US EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. Due to the lack of a substantial reduction in hazardous emissions under the 1977 Clean Air Act, the 1990 Clean Air Act Amendments listed 189 hazardous air pollutants (HAPs), which are carcinogenic, mutagenic, and/or reproductive toxicants, to be reduced. The 1990 Clean Air Act Amendments impacts major stationary sources and area emissions sources requiring use of Maximum Achievable Control Technology (MACT) to reduce HAP emissions and their associated health impacts.

State

California Air Resources Board

The California Air Resources Board (CARB) oversees air quality planning and control throughout California. It is primarily responsible for ensuring the implementation of the California Clean Air Act, responding to the federal Clean Air Act planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. In addition, CARB also sets health based air quality standards and control measures for toxic air contaminants (TACs). Much of CARB's research goes toward automobile emissions, as they are primary contributors to air pollution in California. Under the Clean Air Act, CARB has the authority to establish more stringent standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The California Clean Air Act established a legal mandate for air basins to achieve the CAAQS by the earliest practical date. These standards apply to the same seven criteria pollutants as the federal Clean Air Act and also include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. The state standards are more stringent than the federal standards, and in the case of PM10 and SO_2, far more stringent.

CARB supervises and supports the regulatory activities of local air quality districts as well as monitors air quality itself. Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. These designation criteria provide the basis for CARB to designate areas of the

state as attainment, nonattainment, or unclassified according to state standards. CARB makes area designations for 10 criteria pollutants: O_3, CO, NO_2, SO_2, PM10, PM2.5, sulfates, lead, hydrogen sulfide, and visibility-reducing particles.[3] Air quality of a region is considered to be in attainment of the state standards if the measured ambient air pollutant levels for O_3, CO, NO_2, PM10, PM2.5, SO_2 (1- and 24-hour), and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three year period.

Local

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within San Joaquin County and throughout the SJVAB. The SJVAPCD also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under state law.

The SJVAPCD was formed in mid-1991 and prepared and adopted the San Joaquin Valley Air Quality Attainment Plan (AQAP), dated January 30, 1992, in response to the requirements of the California Clean Air Act (CCAA). The Plan was recently revised in June 2005. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least 5 percent per year until new, more stringent, state air quality standards are met.

The SJVAPCD currently maintains plans for ozone, PM10 and PM2.5. The air district has developed a new plan for EPA's revoked 1-hour ozone standard. Although EPA approved the District's 2004 plan for the 1-hour ozone standard in 2010, EPA withdrew this approval as a result of litigation. The District's 2013 Plan for the Revoked 1-Hour Ozone Standard was approved by the District Governing Board at a public hearing on September 19, 2013. The modeling confirms that the Valley will attain the revoked 1-hour ozone standard by 2017. The most recent 8-hour ozone plan was adopted June 14, 2007, and a new plan is under development. The next plan will address EPA's 2008 8-hour ozone standard of 75 parts per

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[3] California Air Resources Board, "Area Designations Maps (State and National)," http://www.arb.ca.gov/desig/adm/adm.htm. 2013. According to California Health and Safety Code, Section 39608, "state board, in consultation with the districts, shall identify, pursuant to subdivision (e) of Section 39607, and classify each air basin which is in attainment and each air basin which is in nonattainment for any state ambient air quality standard." Section 39607(e) states that the State shall "establish and periodically review criteria for designating an air basin attainment or nonattainment for any state ambient air quality standard set forth in Section 70200 of Title 17 of the California Code of Regulations. California Code of Regulations, Title 17, Section 70200 does not include vinyl chloride; therefore, CARB does not make area designations for vinyl chloride.

billion (ppb). This 8-hour ozone plan is expected to be due to EPA in 2015/2016. The air district has achieved the NAAQS for PM10, but produced a maintenance plan in 2007 which remains in effect. In 2008, the SJVAPCD produced a plan to attain the 1997 federal annual PM2.5 standard of 15 μg/m^3. This standard and plan are still in effect. On January 24, 2013, CARB approved the air district's 2012 PM2.5 Plan. The Plan sets out the strategy to attain the federal 2006 24-hour PM2.5 standard of 35 μg/m^3 by 2019.

Regulation VIII Fugitive PM10 Prohibitions

The SJVAPCD Rules and Regulations include Regulation VIII Fugitive PM10 Prohibitions, which was developed to reduce ambient concentrations of fine particulate matter (PM10) by developing rules to control specified anthropogenic fugitive dust sources. The rules were developed pursuant to the USEPA guidance for Serious PM10 Nonattainment Areas. Regulation VIII has seven rules aimed at controlling fugitive dust from specific sources, which include construction and other earthmoving activities, carryout and trackout, open areas, paved and unpaved roads, and unpaved equipment traffic areas. In most cases, the rules primarily aim to reduce the speed and amount of traffic traveling over unstabilized dirt or otherwise dusty surfaces. This is generally done by either reducing the amount of dusty areas or by restricting traffic in dusty areas.

County and City General Plans

The Air Quality element is required for all jurisdictions in the San Joaquin Air Pollution Control District. The Air Quality Element is intended to protect the public's health and welfare by implementing measures that allow the San Joaquin Valley Air Pollution Control District to attain Federal and State air quality standards, that will move toward a sustainable level of air quality. To achieve this goal, the Element sets forth a number of policies and standards to reduce current pollution emissions and to require new development to include measures to comply with air quality standards. The local and County jurisdictions have adopted the Air Quality Element to help their communities meet ambient air quality standards established by the U.S. Environmental Protection Agency and the California Air Resources Board. The goals, policies, and implementation measures in the San Joaquin County General Plan and the County's local jurisdictions that are applicable to air quality as related to the proposed projects are provided below.

San Joaquin County General Plan

- The protect public health, agricultural crops, scenic resources, and the built and natural environments from air pollution
- San Joaquin County shall meet and maintain all state and national standards for air quality.

- Motor vehicle emissions shall be minimized through land use and transportation strategies, as well as by promotion of alternative fuels.
- Projects shall be designed to minimize concentrations of carbon monoxide (hot sports).
- Air quality hazards from pesticides shall be minimized.
- The elimination of chlorofluorocarbons shall be supported.
- Air Quality Monitoring. The County shall participate in programs to monitor harmful air contaminants and determine their impacts. (Air Pollution Control District)
- The County shall annually evaluate and report on air quality and periodically update air quality projections. (APCD)
- Air Quality Plans. The County shall prepare and enforce plans to attain air quality standards. (APCD)
- Project Review. The County shall develop and maintain a list of thresholds at which projects shall require air quality impact studies. The County shall condition new development to include Transportation Control Measures emphasizing alternative modes of transportation. (APCD)
- Area Source Improvements. The County shall support measures to reduce area source pollution including:
- implementing dust control practices for construction sites;
- requiring efficient combustion controls on fireplaces;
- requiring projects to mitigate potential high levels of air pollutants; and
- protecting residential areas and sensitive receptors such as agriculture from air pollution sources. (APCD)
- Emission Banking. The County shall continue to operate an emission banking program. (APCD)
- Reduction in Pesticide Use.
- The County shall support state studies on pesticides and air quality. (APCD)
- The County shall provide information on options for reducing heavy pesticide use. (Agricultural Commissioner)
- Air Quality Fees. The County shall determine, and institute as necessary, fees to fund air quality planning and programs. (APCD)
- Alternative Fuels. The County shall support programs leading to the use of alternative fuels. (APCD)
- Chlorofluorocarbon Elimination. The County shall support State efforts to eliminate the use and manufacture of chlorofluorocarbons. (APCD)

City of Escalon General Plan

- Coordinate with other local and regional jurisdictions, including the SJVAPCD, San Joaquin Council of Governments (SJCOG), and the California Air Resources Board (ARB), in the development and implementation of regional and county plans, programs, and mitigation measures that address cross-jurisdictional and regional air quality impacts, including transportation and climate change impacts, and incorporate the relevant provisions of those plans into City planning and project review procedures. Also cooperate with the SJVAPCD, SJCOG, and ARB in:
  - Enforcing the provisions of the California and Federal Clean Air Acts, state and regional
  - policies, and established standards for air quality.
  - Identifying baseline air pollutant and greenhouse gas emissions.
  - Encouraging economy clean fuel for city vehicle fleets, when feasible.
  - Developing consistent procedures for evaluating and mitigating project-specific and
  - cumulative air quality impacts of projects.
  - Developing a Sustainable Communities Strategy.
- Require area and stationary source projects that would have a significant air quality impact, either individually or cumulatively, to incorporate adequate air quality mitigation in their design, including:
  - The use of best available and economically feasible control technology for stationary industrial sources;
  - The use of EPA-certified wood stoves in new residential units;
  - The use of new and replacement fuel storage tanks at refueling stations that are clean fuel compatible, if technically and economically feasible;
  - The promotion of energy efficient designs, including provisions for solar access, building siting to maximize natural heating and cooling, and landscaping to aid passive cooling and to protect from winter winds
- Require development projects, infrastructure projects, and land use plans to include strategies to minimize the number and length of vehicle trips, which may include:
  - Promoting commercial/industrial project proponent sponsorship of van pools or club buses;
  - Encouraging commercial/industrial project day care and employee services at the employment site;
  - Encouraging the provision of transit, especially for employment-intensive uses of 200 or more employees;

- Providing incentives for the use of transportation alternatives;
- Providing expansion and improvement of public transportation services and facilities, including bike lanes, pedestrian walkways, and bus stops.

- Encourage transportation alternatives to motor vehicles by developing infrastructure amenable to such alternatives by doing the following:
  - Consider right-of-way requirements for bike usage in the planning of new arterial and
  - collector streets and in street improvement projects;
  - Require that new development be designed to promote pedestrian and bicycle access and
  - circulation;
  - Provide safe and secure bicycle parking facilities at major activity centers, such as public
  - facilities, employment sites, and shopping and office centers.
- Encourage land use development to be located and designed to conserve air quality and minimize direct and indirect emissions of air contaminants by doing the following:
  - Locate air pollution point sources, such as manufacturing and extracting facilities in areas designated for industrial development and separated from residential areas and sensitive receptors (e.g., homes, schools, and hospitals);
  - Establish buffer zones (e.g., setbacks, landscaping) within residential and other sensitive receptor site plans to separate those uses from highways, arterials, hazardous material locations and other sources of air pollution or odor;
  - Consider the jobs/housing/balance relationship (i.e., the proximity of industrial and commercial uses to major residential areas) when making land use decisions; Provide for mixed-use development through land use and zoning to reduce the length and frequency of vehicle trips;
  - Accommodate a portion of the projected population and economic growth of the City in areas having the potential for revitalization;
  - Locate public facilities (libraries, parks, schools, community centers, etc.) with consideration of transit and other transportation opportunities;
  - Encourage small neighborhood-serving commercial uses within or adjacent to resident neighborhoods when such areas are aesthetically compatible with adjacent areas; do not create conflicts with neighborhoods schools, minimize traffic, noise, and lighting impacts; encourage and accommodate pedestrian and bicycle access; and, are occupied by commercial uses that have a neighborhood-scale market area rather than a community-wide market area;
  - Encourage a development pattern that is contiguous with existing developed areas of the City.

- Continue to implement broad-scale General Plan strategies to decrease the generation of air pollution and greenhouse gas emissions through the reduction of vehicle miles traveled, excessive vehicle traffic congestion, and excessive engine idling by providing public transportation options and making land use planning decisions that encourage pedestrian, bicycle, and transit trips rather than private passenger vehicle trips.

- Minimize exposure of the public to toxic air pollutant emissions and noxious odors from industrial, manufacturing, and processing facilities through requiring an adequate distance between sensitive receptors and industrial sites, major arterials, and hazardous material locations.

- Encourage new buildings and development designed to be energy efficient. Reduce energy consumption and greenhouse gas emissions through:

  - Requiring new development to be energy-efficient through passive design concepts (e.g., siting and location) and construction methods;

  - Encourage use of solar and alternative energy systems;

  - Encouraging and accommodating projects that incorporate alternative energy, enhanced energy conservation measures, and other voluntary methods of reducing energy usage and greenhouse gas emissions;

- Review development, land use, transportation, and other projects that are subject to CEQA for potentially significant climate change and air quality impacts, including toxic and hazardous emissions and require that projects provide adequate, appropriate, and cost effective mitigation measures reduce significant and potentially significant impacts. This includes, but is not limited to, the following:

  - Use of the San Joaquin Valley Air Pollution District (SJVAPCD) "Guide for Assessing and Mitigating Air Quality Impacts", as may be amended or replaced from time to time, in identifying thresholds, evaluating potential impacts, and determining appropriate mitigation measures;

  - Contact SJVAPCD for comment regarding potential impacts and mitigation measures as part of the evaluation of air quality effects of discretionary projects that are subject to CEQA;

  - Require projects to participate in regional air quality mitigation strategies, including SJVAPCD-recommended mitigation measures, when applicable and appropriate;

  - Identify sources of toxic air emissions and, if appropriate, require preparation of a health risk assessment in accordance with SJVAPCD-recommended procedures;

  - Circulate the environmental documents for projects with significant air quality impacts to the SJVAPCD for review and comment.

- Maintain adequate data to analyze cumulative land use impacts on air quality and climate change. This includes tracking proposed, planned, and approved General Plan amendments, development, and land use decisions so that projects can be evaluated for cumulative air quality impacts, including impacts associated with transportation and land use decisions.

- Review development and land use projects to ensure that measures are incorporated to reduce air pollutants, including particulate matter emissions, and greenhouse gases associated with project design, site preparation, grading, and construction as conditions of approval for all development projects, subdivision maps, site plans, and grading permits. These measures may include, but are not limited to:
  - All applicable particulate matter control requirements of SJVAPCD Regulation VIII;
  - Reduction in vehicle miles travelled through pedestrian/transit-oriented project design (see related policies and implementation strategies in the Circulation and Land Use Elements);
  - Use of alternative energy sources;
  - Provision of adequate electric or natural gas outlets to encourage use of natural gas or electric barbecues and electric gardening equipment;
  - Access roads, driveways, and parking areas serving new commercial uses, industrial uses, recreational facilities, and other high-traffic uses are constructed with materials that minimize particulate emissions.
- Reduce particulate matter emissions associated with City facilities and public rights-of-way through paving or stabilizing exposed surfaces subject to erosion, silt loading, and heavy runoff, to the extent feasible and appropriate.
- Implement, where feasible, programs to reduce air quality impacts and greenhouse gas emissions associated with employee travel through the following programs, to the extent feasible:
  - Encourage vehicle trip reductions through providing preferred parking locations for carpool and rideshare users;
  - Provide incentives for employees who use alternative means of transportation (e.g., transit, biking, walking, carpooling, etc.);
  - Participate in the San Joaquin Valley Clean Cities Coalition to identify fleet vehicle purchase opportunities and shared infrastructure investment opportunities and, where feasible and appropriate, purchase clean fuel vehicles for the City's fleet;
  - Support teleconferencing in lieu of employee travel to conferences and meetings providing adequate teleconferencing equipment at the City's offices;
  - Identify positions where telecommuting is feasible. Start a pilot program for the most promising positions with employee volunteers.
- Review new development and rehabilitation projects for consistency with policies related to reducing energy consumption and greenhouse gas emissions. Acceptable energy reduction measures include, but are not limited to:
  - Passive design concepts;

  - Construction methods (LEED certification, exceedance of Title 24 energy standards, and green building methods);

  - Use of trees, landscaping, and sun screens to shade west and south exterior building walls, particularly during the warm season;

  - Use of energy-efficient water heating mechanisms for residences, commercial uses, industrial uses, swimming pools, and other uses;

  - Limit installation of fireplaces and woodburning devices to EPA-certified or EPA-qualified devices;

  - Provision of natural gas or electric outlets in outdoor areas to encourage use of energy efficient fireplaces, barbecues, lawnmowers, and other devices;

  - Use of light emitting diodes (LEDs) for traffic, street, and other outdoor lighting;

  - Installation of "cool" roof (e.g., roof materials with a high albedo) and pavement materials; and

  - Installation of solar panels.

- Consider adoption of a "Green Building Program" that would encourage green building practices and materials. The program should include incentives for energy-efficient projects and could be implemented through a green building code.

- Encourage community services agencies and organizations to fund energy efficiency projects, including heating, ventilation, air conditioning, lighting, water heating equipment, insulation, and weatherization for low income residents.

City of Lathrop General Plan

- Mitigation of air quality impacts is to be achieved in part through the design and construction of an efficient system of arterial and collector streets and interchange and freeway improvements that will assure high levels of traffic service and the avoidance of unmanageable levels of traffic congestion.

- Mitigation of air quality impacts is to be achieved in part through the development of a regional rail transit service to be incorporated into early stages of development within both growth centers.

- The City shall adopt standards which require industrial process analysis before the fact of site and building permit approval to assure compliance with State air quality and water quality standards. Standards should provide for periodic monitoring of industrial processes which could have an adverse impact on water or air quality. Industrial process review that may be required should be conducted as part of environmental assessment by an engineer licensed in California having demonstrated experience in the industrial processes involved.

- The City shall require positive control of dust particles during project construction activities, including watering or use of emulsions, parking of heavy equipment on paved surfaces, prohibition of land grading operations during days of high wind (beginning at 10 mph, with gusts exceeding 20 mph), and prohibition of burning on vacant parcels. The City should seek the cooperation of

agricultural operators to refrain from the plowing of fields on windy days, and to keep loose soils under control to the extent reasonable to avoid heavy wind erosion of soils.

- The beneficial effects of open space and vegetation on the air resource are to be reflected in the arrangement of land uses depicted on the General Plan. Heavy plantings of trees are encouraged to assist in maintaining oxygen levels.

- The need to protect and preserve the air resource within the planning area and to reduce levels of vehicle emissions of air pollutants imposes practical limitations on the extent to which the City can depend on the automobile as the principal source of transportation into the next Century.

City of Lodi General Plan

- Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

- Minimize the adverse effects of construction related air quality emissions and Toxic Air Contaminants on human health.

- Prepare and adopt a comprehensive climate action plan (CAP) by 2012, with implementation beginning in 2013. The CAP will be an additional policy document for the City of Lodi, based on polices listed in Appendix A. The CAP should include the following provisions:

  – An inventory of citywide greenhouse gas emissions;

  – Emissions targets that apply at reasonable intervals through the life of the CAP;

  – Enforceable greenhouse gas emissions control measures;

  – A monitoring and reporting program to ensure targets are met; and

  – Mechanisms to allow for revision of the CAP, as necessary.

- Continue to require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction.

- Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements and when new emission control devices or operational modifications are found to be effective, such devices or operational modifications are to be required on construction equipment.

- Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to:

  – Site watering or application of dust suppressants;

  – Phasing or extension of grading operations;

  – Covering of stockpiles;

  - Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and

  - Revegetation of graded areas.

- Cooperate with other local, regional, and State agencies in developing and implementing air quality plans to achieve State and Federal Ambient Air Quality Standards and address cross-jurisdictional and regional transportation and air quality issues.

- Use the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Guide for Assessing and Mitigating Air Quality Impacts for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall consult with the SJVAPCD during CEQA review for projects that require air quality impact analysis and ensure that the SJVAPCD is on the distribution list for all CEQA documents.

- Support recommendations to reduce air pollutants found in the San Joaquin Valley Air Pollution Control District (SJVAPCD) local attainment plans and use its regulatory authority to mitigate "point" sources of air pollution (e.g., factories, power plants, etc.).

- Ensure that air quality impacts identified during the project-level CEQA review process are fairly and consistently mitigated.

- Require projects to comply with the City's adopted air quality impact assessment and mitigation process, and to provide specific mitigation measures as outlined in policies of Chapter 5: Transportation.

- Assess air quality mitigation fees for all new development, with the fees to be used to fund air quality programs.

- Require the use of natural gas or the installation of low-emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes. Promote the use of natural gas over wood products in space heating devices and fireplaces in all existing and new homes.

- Follow the guidelines set forth in San Joaquin Valley Air Pollution Control District's Rule 4901.

- Review, support, and require implementation (as applicable) of San Joaquin Valley Air Pollution Control District guidance and recommendations (including those identified in the Guide for Assessing and Mitigating Air Quality Impacts) in regards to several key issues including:

  - Environmental Assessment;

  - Air Quality Mitigation Agreements;

  - Integrated Planning;

  - Air Quality Education;

  - Congestion Management/Transportation Control Measures;

  - Toxic and Hazardous Pollutant Emissions;
  - Fugitive Dust and PM10 Emissions; and
  - Energy Conservation and Alternative Fuels.

- Require new sensitive uses proposed to be located within 500 feet of high volume traffic routes where daily vehicle counts exceed 100,000, to use an HVAC system with filtration to reduce/mitigate infiltration of vehicle emissions as warranted by exposure analysis.
- Require industrial development adjacent to residential areas to provide buffers and institute setback intended to ensure land use compatibility in regards to potential Toxic Air Contaminant exposure.

City of Manteca General Plan

- Improve air quality by:
  - Achieving and maintaining ambient air quality standards established by the U.S. Environmental Protection Agency, the California Air Resources Board, and the San Joaquin Air
  - Pollution Control District;
  - Minimizing public exposure to toxic or hazardous air pollutants; and
  - Minimizing public exposure to pollutants that create a public nuisance, such as unpleasant odors.
- Integrate air quality planning with land use and transportation planning processes in order to reduce vehicle miles traveled in the City and by commuters.
- Increase opportunities for alternatives to internal combustion automobiles including, but not limited to, public transportation, bicycles, walking and alternative fuel vehicles including hybrid gas electric, electric, and compressed natural gas.
- Reduce air emissions through energy conservation.
- Cooperate with other agencies to develop a consistent and coordinated approach to reduction of air pollution and management of hazardous air pollutants.
  - Work with the San Joaquin Valley Air Pollution Control District (APCD) to implement the Air Quality Management Plan (AQMP).
  - Cooperate with the APCD to develop consistent and accurate procedures for evaluating project-specific and cumulative air quality impacts.
  - Cooperate with the APCD and the California Air Resources Board in their efforts to develop a local airshed model.
  - Cooperate with the APCD in their efforts to develop a cost/benefit analysis of possible control strategies (mitigation measures to minimize short and long-term stationary and area source

emissions as part of the development review process, and monitoring measures to ensure that mitigation measures are implemented.

- In accordance with CEQA, submit development proposals to the APCD for review and comment prior to decision.
- Cooperate with the San Joaquin County Environmental Health Department in identifying hazardous material users and in developing a hazardous materials management plan.
- Develop a land use plan that will help to reduce the need for trips and will facilitate the common use of public transportation, walking, bicycles, and alternative fuel vehicles.
- Segregate and provide buffers between land uses that typically generate hazardous or obnoxious fumes and residential or other sensitive land uses.
- Encourage mixed-use development that is conveniently accessible by pedestrians and public transit.
- Locate employment, school, and daily shopping destinations near residential areas.
- Locate higher intensity development such as multi-family housing, institutional uses, services, employment centers, and retail along existing and proposed transit corridors.
- Locate public facilities in areas easily served by current and planned public transportation.
- Prior to entitlement of a project that may be an air pollution point source, such as a manufacturing and extracting facility, the developer shall provide documentation that the use is located and appropriately separated from residential areas and sensitive receptors (e.g., homes, schools, and hospitals).
- Develop and maintain street systems that provide for efficient traffic flow and thereby minimize air pollution from automobile emissions.
- Develop and maintain circulation systems that provide alternatives to the automobile for transportation, including bicycles routes, pedestrian paths, bus transit, and carpooling.
- Coordinate public transportation networks, including trains, local bus service, regional bus service and rideshare facilities to provide efficient public transit service.
- Maintain acceptable traffic levels of service (LOS) as specified in the Circulation Element.
- In new subdivisions, require the internal street system to include the installation of dedicated pedestrian/bicycle pathways connecting to adjacent residential and commercial areas as well as schools, parks and recreational areas.
- Provide adequate pedestrian and bikeway facilities for present and future transportation needs throughout the City.
- New construction will be managed to minimize fugitive dust and construction vehicle emissions.

- Wood burning devices shall meet current standards for controlling particulate air pollution.
- Burning of any combustible material within the City will be controlled to minimize particulate air pollution.
- Construction activity plans shall include and/or provide for a dust management plan to prevent fugitive dust from leaving the property boundaries and causing a public nuisance or a violation of an ambient air standard.
  - Project development applicants shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manner during all phases of project development and construction.
- All residences built in a new subdivision or housing development shall be equipped with conventional heating devices with sufficient capacity to heat all areas of the building without reliance on wood burning heating devices.
- All wood burning-heating devices installed shall meet EPA standards applicable at the time of project approval.
- Encourage energy efficient building designs.
- Design review criteria shall include the following considerations, at a minimum:
  - The developer of a sensitive air pollution receptor shall submit documentation that the project design includes appropriate buffering (e.g., setbacks, landscaping) to separate the use from highways, arterial streets, hazardous material locations and other sources of air pollution or odor.
  - Promote the use of new and replacement fuel storage tanks at refueling stations that are clean fuel compatible, if technically and economically feasible.
  - The use of energy efficient lighting (including controls) and process systems beyond Title 24 requirements shall be encouraged where practicable (e.g., water heating, furnaces, boiler units, etc.)
  - The use of energy efficient automated controls for air conditioning beyond Title 24 requirements shall be encouraged where practicable.
  - Promote solar access through building siting to maximize natural heating and cooling, and landscaping to aid passive cooling and to protect from winds.

City of Ripon General Plan

- To conserve air quality within the planning area.
- Coordinate air quality efforts with other local, regional, and state agencies.
- Identify and implement measures to reduce emissions associated with future development through the California Environmental Quality Act (CEQA) review process.

- Emphasize alternatives to motorized transportation.

- The Air Quality Attainment Plan prepared by the San Joaquin Valley Unified Air Pollution Control District is incorporated by reference to this Chapter of the General Plan.

City of Stockton General Plan

- Improve air quality through readily available transit services to serve the existing community and developing areas

- Cooperation with Local and Regional Agencies: The City shall cooperate with other local, regional, and state agencies in developing and implementing air quality plans to achieve state and federal Ambient Air Quality Standards.

- Regional Agency Review: The City shall participate with cities, surrounding counties, and regional agencies to address cross-jurisdictional and regional transportation and air quality issues. HS-4.3 Regional Air Quality Project Review The City shall consult with the SJVAPCD during CEQA review for projects that require air quality impact analysis and ensure that the SJVAPCD is on the distribution list for all CEQA documents.

- Support Regional Air Quality Attainment Plans: The City shall support recommendations to reduce air pollutants found in the SJVAPCD local attainment plans and use its regulatory authority to mitigate "point" sources of air pollution (e.g., factories, powerplants, etc.).

- City Review of Development Proposals: The City shall use the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall continue to cooperate with the SJVAPCD in the review of development proposals.

- CEQA Compliance and Air Quality Mitigation: The City shall ensure that air quality impacts identified during the CEQA review process are fairly and consistently mitigated. The City shall require projects to comply with the City's adopted air quality impact assessment and mitigation process, and to provide specific mitigation measures as outlined in policies of Chapter 8 Transportation and Circulation.

- Air Quality Mitigation Fees: The City shall continue the program for assessing air quality mitigation fees for all new development, with the fees to be used to fund air quality programs.

- Dust Suppression Measures: The City shall require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to, the following: a. Site watering or application of dust suppressants,

    b. Phasing or extension of grading operations,

    c. Covering of stockpiles,

    d. Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour), and

e. Revegetation of graded areas.

- Travel Demand Measures: Coordinating with the SJVAPCD, the City shall require large development projects to mitigate air quality impacts. Mitigation measures may include, but are not limited to the following:

  – Providing bicycle access and parking facilities,

  – Providing preferential parking for high occupancy vehicles, car pools, or alternative fuels vehicles, and

  – Establishing telecommuting programs or satellite work centers.

- Wood burning: The City shall require the use of natural gas or the installation of low-emission, EPA-certified fireplace inserts in all open-hearth fireplaces in new homes. The city shall promote the use of natural gas over wood products in space heating devices and fireplaces in all existing and new homes The City shall follow the guidelines set forth in SJVAPCD Rule 4901

- Employment-Intensive Development: The City shall encourage employment-intensive development with a high floor area ratio where adequate transit service is planned, and discourage such development where adequate transit service is not planned.

- Location of Support Services: The City shall support the location of ancillary employee services (including, but not limited to, childcare, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.

- Parking Controls: The City shall provide disincentives for single occupant vehicle trips through parking supply and pricing controls in areas where supply is limited and alternative transportation modes are available.

- Infill Near Employment: The City shall identify and adopt incentives for planning and implementing infill development projects within urbanized areas near job centers and transportation nodes.

- Support SJVAPCD Air Quality Guidance and Recommendations: The City shall continue to review, support, and require implementation (as applicable) of SJVAPCD guidance and recommendations (including those identified in the GAMAQI) in regards to several key issues including:

  – Environmental Assessment;

  – Air Quality Mitigation Agreements;

  – Integrated Planning;

  – Air Quality Education;

  – Congestion Management/Transportation

  – Toxic and Hazardous Pollutant Emissions;

- Fugitive Dust and PM10 Emissions; and
- Energy Conservation and Alternative Fuels.

City of Tracy General Plan

- New industrial or mining uses shall be designed to not adversely impact adjacent uses, particularly residential neighborhoods, with respect to, but not limited to, noise, dust and vibration, water quality, air quality, agricultural resources and biological resources.
- Uses that are compatible with the noise, air quality and traffic impacts associated with freeways, such as auto-oriented commercial and industrial uses, should be located near and along freeway corridors whenever possible.
- New or substantially expanded mining operations in the Planning Area shall adhere to the following standards:
  - Demonstrate no substantial increase in hazards to neighboring uses, water quality, air quality, agricultural resources, or biological resources.
- Improve air quality through land use planning decisions
- The City shall promote land use patterns that reduce the number and length of motor vehicle trips.
- To the extent feasible, the City shall maintain a balance between jobs and housing.
- Higher density residential and mixed-use development shall be encouraged adjacent to commercial centers and transit corridors.
- Employment areas should include a mix of support services to minimize the number of trips.
- Village Centers and other retail and office areas should be located within walking and biking distance of existing and proposed residential developments.
- Promote development that minimizes air pollutant emissions and their impact on sensitive receptors as a result of indirect and stationary sources.
- The City shall assess air quality impacts using the latest version of the CEQA Guidelines and guidelines prepared by the San Joaquin Valley Air Pollution Control District.
- The City shall assess through the CEQA process any air quality impacts of development projects that may be insignificant by themselves, but cumulatively significant.
- Developers shall implement best management practices to reduce air pollutant emissions associated with the construction and operation of development projects.
- New development projects should incorporate energy efficient design features for HVAC, lighting systems and insulation that meet or exceed Title 24.
- Use of solar water and pool heaters is encouraged.

- Trees should be planted on the south- and west-facing sides of new buildings or building undergoing substantial renovation in order to reduce energy usage.
- Wood burning fireplaces should not be installed in new and significantly renovated residential projects.
- New developments shall follow the current requirements of the SJVAPCD with respect to wood burning fireplaces and heaters.
- Natural gas fireplaces and pelletized fuel or natural gas space heating systems are encouraged.
- Stationary air pollutant emission sources (e.g. factories) shall be located an appropriate distance away and downwind from residential areas and other sensitive receptors.
- Residential developments and other projects with sensitive receptors shall be located an adequate distance from air pollution sources such as freeways, arterial roadways and stationary air pollutant sources.
- New sources of toxic air pollutants shall prepare a Health Risk Assessment as required under the Air Toxics "Hot Spots" Act and, based on the results of the Assessment, establish appropriate land use buffer zones around those areas posing substantial health risks.
- Dust control measures consistent with San Joaquin Valley Air Pollution Control District rules shall be required as a condition of approval for subdivision maps, site plans, and all grading permits.
- Developments that significantly impact air quality shall only be approved if all reasonable mitigation measures to avoid, minimize, or offset the impact are implemented.
- Review standards for the design and use of new drive through businesses with the aim of reducing adverse impacts on air quality.
- Research and include where feasible in the Roadway Master Plan update, requirements to use materials that minimize particulate emissions and that are appropriate to the scale and intensity of use.
- Investigate the feasibility of new development fees to be used on coordination with local air pollution reduction efforts, such as clean air transit projects (e.g. ACE, Park & Ride, TRACER, BART, and school buses).
- Provide a diverse and efficient transportation system that minimizes air pollutant emissions.
- The City shall continue to work with the San Joaquin Council of Governments on regional transportation solutions.
- The City shall encourage Caltrans to implement High Occupancy Vehicle (HOV) lanes on regional freeways in and around the Tracy Planning Area.
- The City shall encourage employers to establish in Transportation Demand Management program.

- The City shall support efforts to retain the railroad right-of- way for future public transit and bicycle facilities.
- Direct pedestrian and bicycle linkages from residential areas to parks, schools, retail areas, Downtown, high-frequency transit facilities, and major employment areas shall be planned and implemented.
- The City shall coordinate with regional rideshare and transit incentive programs.
- Pursue funding sources for the planning and development of local and regional transit services.
- Consider measures to increase the capacity of the existing road network prior to constructing additional capacity
- Support local and regional air quality improvement efforts.
- The City shall continue to coordinate air quality planning efforts with other local, regional, and state agencies as well as encourage community participation in air quality planning.
- The City shall be proactive in educating the public about the linkages between land use, transportation, and air quality.
- Notify local and regional jurisdictions of proposed projects that may affect regional air quality.
- Utilize the City's website, billboards, or newsletter to promote information regarding air quality, recycling, use of efficient energy devices and renewable energy. (e.g. additional lanes, etc.).

4.3.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) could result in significant adverse impacts to air quality if any of the following could occur:

- Projected long-term emissions of criteria pollutants are considered significant if they are substantially greater than current emission levels;
- Projected short-term emissions of criteria pollutants (construction of transportation projects and anticipated development) are considered to be significant if they would result in substantial criteria pollutant emissions;
- Projected long-term emissions of toxic air contaminants (diesel particulate matter from heavy-duty diesel trucks and other emissions from industrial activities) are considered significant if they would be greater than current emission levels;

- Localized concentrations of toxic air contaminants at sensitive receptors (short-term and/or long-term) are considered significant if they would exceed existing conditions; and/or
- Projected long-term emissions would be considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans.

California Environmental Quality Act (CEQA) Guidelines (Section 15064.7) that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. The potential air quality impacts of the project are evaluated according to thresholds developed by the South Coast Air Quality Monitoring District (SCAQMD) in their *CEQA Air Quality Handbook*, *Air Quality Analysis Guidance Handbook*, and subsequent guidance. While the SCAQMD has established significance thresholds for lead, construction and operation of the project will not exceed the established thresholds. Therefore, lead emissions from the project will not cause an air quality violation and will not be analyzed further.

Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on air quality.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., Air Quality Management Plans (AQMPs) as well as RTPs and AQMPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with No Project Alternative

The analysis of air quality includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included

in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of air quality impacts compares existing air quality to the expected future air quality with the Plan. The criteria above were applied to compare criteria pollutant emissions generated by the expected future (2040) Plan conditions to the significance criteria.

Implementation of the 2014 RTP/SCS would generate criteria pollutant emissions in San Joaquin. The analysis of these impacts is programmatic at the regional level. The Plan would result in air quality impacts as a result of criteria pollutant emissions generated by construction of transportation projects and development and operation of the regional transportation system. Project-specific impacts vary and appropriate mitigation measures would need to be developed on a project-by-project basis, as appropriate.

Impacts and Mitigation Measures

Each applicable threshold of significance is listed below followed by analysis of the significance of any potential impacts and the identification of mitigation measures that would lessen or avoid potential impacts. Finally, the significance of potential impacts after implementation of all identified mitigation measures is presented.

Impact AIR-1 **Projected long-term emissions of criteria pollutants are considered significant if they are substantially greater than current emission levels.**

Emissions of criteria pollutants from mobile sources would be affected by implementation of the 2014 RTP/SCS. In order to analyze the net impact of implementation, existing year (2012) emissions were compared to buildout year (2040) emissions for both the 2014 RTP/SCS and No Project scenarios. The emissions reported are for all mobile sources in San Joaquin County.

Results of modeling are presented in **Table 4.3-4 Criteria Pollutant Emissions from Mobile Sources**. As shown, there are substantial reductions of ROG, NOx, and CO. These would be considered beneficial impacts. Emissions of PM10 and PM2.5 from mobile sources show a slight decrease for both scenarios.

Table 4.3-4
Criteria Pollutant Emissions from Mobile Sources – No Project (2040) vs. Plan (2040)

	Tons/Day				
	ROG	**NOx**	**CO**	**PM10**	**PM2.5**
Existing 2012	10.2	29.3	61	7.2	1.4
2014 RTP/SCS 2040	4.5	9.5	37	6.2	0.9
2014 RTP/SCS Net	**-5.7**	**-19.8**	**-24**	**-1.0**	**-0.5**
No Project 2040	4.6	9.6	38	6.5	0.9
No Project Net	**-5.6**	**-19.7**	**-23**	**-0.7**	**-0.5**

Source: SJCOG 2014
Note: Existing data (2012) is interpolated from SJCOG conformity years

A conformity analysis was prepared for the 2014 RTP that analyzes emissions of ozone precursors (ROG and NOx), CO, PM10 and PM2.5 compared to the approved emissions budgets for mobile sources in San Joaquin County. The conformity analysis found that emissions of all pollutants passed the applicable conformity tests, and that the County is therefore in conformity with the SIPs. SIPs, as described above under the **Subsection 4.3.2, Regulatory Framework**, are regional plans to attain the federal standards. This indicates that the County is not exceeding state or federal emissions limits designed to achieve ambient air quality standards for any pollutants, including PM10. Therefore, this impact is considered to be less than significant.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less than significant.

Impact AIR-2 **Projected short-term emissions of criteria pollutants (construction of transportation projects and anticipated development) are considered to be significant if they would exceed the thresholds established by the local air districts.**

Implementation of the 2014 RTP/SCS would result in construction of roadways and other transportation projects as well as general construction as part of regional growth. These construction activities would result in short-term emissions of air pollutants including ROG, NOx, PM10, PM2.5 and fugitive dust. The sources associated with these emissions include construction equipment, employee and vendor vehicles, demolition, grading and other ground-disturbing activities, application of paint and other coatings, paving, and others. The level of emissions is generally proportional to the size of the construction project, with larger projects typically resulting in larger emissions during construction. Further, it is likely that more than one project would be under construction at a time, resulting in greater emissions.

The SJVAPCD does not have numerical significance thresholds specific to construction, but does require the implementation of effective and comprehensive PM10 control measures. Consequently, the SJVAPCD indicates that projects complying with district Regulation VIII – Fugitive PM10 Prohibitions would have a less than significant impact on local air quality. The SJVAPCD also indicates that large construction projects may exceed the annual significance threshold for NOx of 10 tons per year, and to contact the district for recommendations for analysis of large construction projects.

Construction projects (both transportation and development) associated with the 2014 RTP/SCS would implement all feasible dust control measures required by the SJVAPCD, and therefore would have a less than significant impact with regard to PM10 emissions. However, given the unknown scale of construction over the period of the 2014 RTP/SCS it is possible that NOx emissions could exceed the annual threshold in the SJVAPCD jurisdiction. Consequently it is conservatively assumed that short-term emissions resulting from construction would have a significant impact.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

AIR-1: The SVAPCD will encourage implementing and local agencies to require contractors to assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that could be used an aggregate of 40 or more hours for the construction project and apply the following:

- Prepare a plan for approval by the applicable air district demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. A Construction Mitigation Calculator (MS Excel) may be downloaded from the Sacramento Metropolitan Air Quality Management District web site to perform the fleet average evaluation http://www.airquality.org/ceqa/index.shtml. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary off-site mitigation projects, provide funds for air district off-site mitigation projects, and/or other options as they become available. The air district should be contacted to discuss alternative measures.

- Ensure that all construction equipment is properly tuned and maintained.

- Minimize idling time to 5 minutes – saves fuel and reduces emissions.

- Provide an operational water truck on-site at all times. Apply water to control dust as needed to prevent dust impacts off-site.

- Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.

- Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.

- As appropriate require that portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, obtain California Air Resources Board (ARB) Portable Equipment Registration with the state or a local district permit. Arrange appropriate consultations with the ARB or the District to determine registration and permitting requirements prior to equipment operation at the site.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, it is not anticipated that it will reduce short term emission impacts to a less than significant level in all cases as emissions of NOx could conceivably exceed the threshold of 10 tons per year. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable As appropriate, SVAPCD will encourage lead agencies to adopt **Mitigation Measure AIR-1** through its Intergovernmental Review process. However, SVAPCD cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AIR-3 **Projected long-term emissions of toxic air contaminants (diesel particulate matter from heavy-duty diesel trucks and other emissions from industrial activities) are considered significant if they would be greater than current emission levels.**

Diesel particulate matter (DPM) is part of diesel exhaust, and is often found in higher concentrations in areas with significant truck traffic such as ports, freeways, and distribution centers. However, other areas such as industrial sites can also result in high local concentrations of DPM. DPM is primarily very fine particles, with more than 90 percent of DPM being less than 1 micron in diameter. Since particles less than 2.5 microns in diameter are categorized as PM2.5, this means that over 90 percent of DPM is in the form of PM2.5, with less than 10 percent existing as PM10. PM10 emissions from mobile sources mainly result from tire wear, brake dust, road dust being re-entrained rather than fuel combustion; therefore, PM2.5 emissions will be used as a proxy for DPM emissions in this analysis. As shown in **Table 4.3-4** above, emissions of PM2.5 for all mobile sources will be slightly higher than existing conditions under the 2014 RTP/SCS.

In order to more closely evaluate DPM emissions, PM2.5 emissions specifically from heavy-duty diesel vehicles were estimated. These emissions under existing conditions as compared to the 2040 RTP/SCS Plan and No Project Alternatives is shown in **Table 4.3-5, PM2.5 Emissions from Heavy Duty Diesel Vehicles.**

Table 4.3-5
PM2.5 Emissions from Heavy Duty Diesel Vehicles (tons/day)

Existing 2012	2040 RTP/SCS Plan	2040 No Project
0.50	0.27	0.27

Source: SJCOG 2014

PM2.5 emissions from heavy-duty diesel vehicles in 2040 would be substantially less than the emissions under existing conditions for both scenarios. Further, CARB has several programs and regulations in place to reduce DPM emissions statewide. This includes enforced retrofit of diesel particulate filters, replacement of older trucks and buses, requirements for lower emissions on new diesel vehicles, inspection programs, idling restrictions, and other programs for marine and off-road diesel vehicles. These programs and regulations would reduce DPM emissions over the period of the 2014 RTP/SCS. Consequently it can be assumed that the reductions in PM10 emissions include reductions in DPM emissions region-wide.

While in general DPM emissions in the future would be substantially reduced, RTP/SCS improvements may bring sources of DPM closer to some sensitive receptors through construction of new facilities or widened roadways, and/or sensitive receptors could be constructed close to DPM sources, all of which could increase exposure of individual sensitive receptors. **Figure 4.3-2, Sensitive Receptors within 0.25 mile of proposed RTP Projects**, shows where the potential for sensitive receptors to be located near roadways. As shown on the map, the 2014 RTP/SCS would result in two hospitals, 113 schools, and 77,799 households would be located near roadways. Under the No Project the same number of schools and hospitals would be located near RTP projects but slightly fewer households (74,693). Therefore, this qualitative measure indicates that an increased heath risk impact could result from implementation of the 2014 RTP as more sensitive receptors would be located relatively close to roadways. However, as noted above PM2.5 would in general decrease substantially, so while there would be more traffic on local highways (as evidenced by VMT), emissions from these vehicles would decrease substantially.

Another substantial source of TACs is stationary sources, such as diesel generators, industrial processes, and dry cleaners. The 2014 RTP/SCS does not have any direct effect on these types of sources, nor is there any available data on possible new stationary sources that would be in operation in 2040. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the 2014 RTP/SCS would influence any such contribution. While it is anticipated that sources of TACs would likely increase it is also anticipated that emission control technology and regulations would increase, and therefore given the lack of data regarding industrial and other stationary

sources of TACs, it is not possible to anticipate whether these sources would result in increased health risks in 2040 compared to existing conditions. Consequently, this impact is considered potentially significant.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

AIR-2: Implementing and local agencies should implement measures adopted by ARB designed to attain federal air quality standards for PM 2.5. CARB's strategy includes the following elements:

- Set technology forcing new engine standards;
- Reduce emissions from the in-use fleet;
- Require clean fuels, and reduce petroleum dependency;
- Work with USEPA to reduce emissions from federal and state sources; and
- Pursue long-term advanced technology measures.
- Proposed new transportation–related SIP measures include:[4]

  On-road Sources

  – Improvements and Enhancements to California's Smog Check Program

  – Expanded Passenger Vehicle Retirement

  – Modifications to Reformulated Gasoline Program

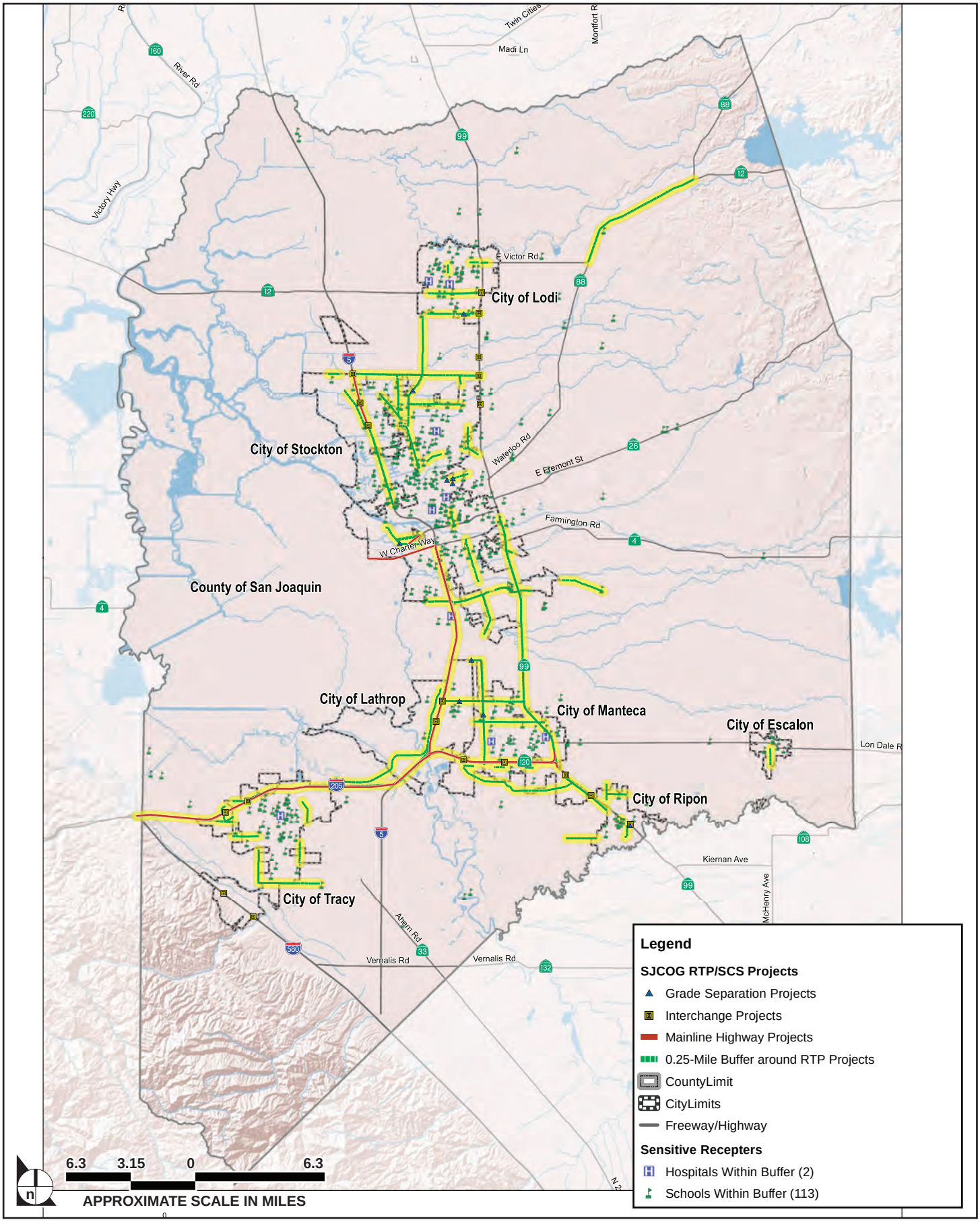
  – Cleaner In-Use Heavy-Duty Trucks

  – Ship Auxiliary Engine Cold Ironing and Other Clean Technology

  – Cleaner Ship Main Engines and Fuel

  – Port Truck Modernization

4 CARB. April 26, 2007. Proposed New SIP Measures – Descriptions. http://www.arb.ca.gov/planning/sip/2007sip/apr07draft/sipmeas.pdf,.



SOURCE: San Joaquin COG, February 2014

FIGURE **4.3-2**

Sensitive Receptors within 0.25 mile of Proposed RTP/SCS Projects

- Accelerated Introduction of Cleaner Line-Haul Locomotives
- Clean Up Existing Commercial Harbor Craft

Off-road Sources

- Cleaner Construction and Other Equipment
- Cleaner In-Use Off-Road Equipment
- Agricultural Equipment Fleet Modernization
- New Emission Standards for Recreational Boats
- Off-Road Recreational Vehicle Expanded Emission Standards

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce impacts from long-term emissions to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure AIR-2**, impacts could remain significant and unavoidable. As appropriate, through its Intergovernmental Review process, SJCOG will encourage implementing agencies to adopt **Mitigation Measure AIR-2**. However, SJCOG cannot require implementing agencies to adopt this measure, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AIR-4 **Localized concentrations of toxic air contaminants at sensitive receptors (short-term and/or long-term) are considered significant if they would exceed existing conditions.**

Localized concentrations of TACs generally depend on two factors: meteorological conditions and TAC emissions. Meteorological conditions can act to either concentrate or disperse pollutants depending on the particulars of airflow in the area. Airflow is affected by temperature, geography, pressure gradients, and other factors. Airflow patterns can change dramatically on a short-term basis, but averaged over the long term they are fairly consistent, with exceptions for large-scale changes such as occur during El Nino events. However, there is a general consensus that climate change will likely have an impact on meteorological patterns. This impact is not well understood, and currently there is no way to account for climate change effects on local or regional meteorology. Consequently, it is assumed that meteorological conditions in San Joaquin County will remain essentially unchanged over the period of the 2014 RTP/SCS.

Emissions of TACs can come from a variety of sources such as truck traffic, stationary combustion sources, industrial processes, dry cleaning, retail service stations, and many others. The 2014 RTP/SCS does not specifically address stationary sources. However, an increase in regional population and commerce can be anticipated to result in increased toxic air contaminant (TAC) emissions; though without specific information on individual sources and locations no further analysis of stationary TAC sources is possible.

The 2014 RTP/SCS addresses vehicle traffic which, as discussed above, can cause increased local TAC concentrations. TACs resulting from vehicle traffic include DPM, benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, polycyclic organic matter (POM), and naphthalene. These TACs are generally components of vehicle exhaust, though a small portion occur as fugitive emissions that are emitted during fueling or fuel transport. Fugitive emissions of TACs are relatively minor in amount, and would not be considered likely to affect the overall rate of TAC emissions. TAC emissions present in vehicle exhaust are typically ROGs, and would be included in the estimates of ROG emissions from mobile sources. As shown in **Table 4.3-4**, emissions of ROG would be substantially reduced under the Plan. This would then reflect a general reduction of TACs in vehicle exhausts as well.

Freeways and other heavily travelled roads are generally considered sources of elevated cancer risk due to high concentrations of TACs along these roadways. CARB recommends that local governments avoid locating new sensitive land uses within 500 feet of freeways.[5] However, CARB based its 500-foot buffer recommendation on a review of several studies and air dispersion modeling. CARB's modeling was based on year 2000 truck and automobile information that included higher DPM emissions rates. New vehicle standards, gasoline and Diesel fuel reformulation, and ARB-adopted Diesel Risk Reduction Measures have resulted in lower potential cancer risks near freeways. These risk reduction measures will continue to reduce toxic emissions from motor vehicles and resulting cancer risks and CARB may change its recommendation with respect to distance.

Sensitive land uses include schools, hospitals, daycare centers, nursing homes, parks and playgrounds, and residences. As discussed under **Impact AIR-3**, above, the RTP/SCS Plan would place more households and potentially places of employment within 500 feet of high volume roadways than under the No Project Alternative, as increased density and access to transit are key parts of the RTP/SCS. Consequently, while the 2014 RTP/SCS would significantly decrease emissions of TACs from vehicles, it would partly do so by encouraging dense development near transportation facilities. This would have the effect of moving more people into areas that could have high concentrations of TACs. However, as discussed above, emission controls are anticipated to substantially reduce emissions of all types which

5 California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective.* April 2005

would reduce health risks. Given the two opposing trends (generally cleaner vehicles, but more people located closer to transportation facilities) while in general the region would have cleaner air, health risks at any given location could increase and therefore the exposure of sensitive receptors to localized concentrations of TACs could increase above desirable levels for some sensitive receptors.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

AIR-3: SJCOG shall pursue the following activities in reducing the impact associated with health risk within 500 feet of freeways and high-traffic volume roadways:

- Participate in ongoing statewide deliberations on health risks near freeways and high-traffic volume roadways. This involvement includes inputting to the statewide process by providing available data and information such as the current and projected locations of sensitive receptors relative to transportation infrastructure;
- Work with air agencies including ARB and SJVAPCD to support their work in monitoring the progress on reducing exposure to emissions of PM10 and PM2.5 for sensitive receptors, including schools and residents within 500 feet of high-traffic volume roadways;
- Work with stakeholders to identify planning and development practices that are effective in reducing health impacts to sensitive receptors; and
- Share information on all of the above efforts with stakeholders, member cities, counties and the public.

AIR-4: Implementing and local agencies should comply with the CARB recommendations to achieve an acceptable interior air quality level for sensitive receptors, project sponsors can and should identify appropriate measures, to be incorporated into project building design for residential, school and other sensitive uses located within 500 feet (or other appropriate distance as may be identified by CARB) of freeways, heavily travelled arterials, railways and other sources of Diesel particulate Matter and other known carcinogens. The appropriate measures should include one or more of the following methods as may be appropriate:

a. The project sponsor should retain a qualified air quality consultant to prepare a health risk assessment (HRA) in accordance with the California Air Resources Board and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to stationary air quality

polluters prior to issuance of a demolition, grading, or building permit. The HRA should be submitted to the Lead Agency for review and approval. The sponsor should implement the approved HRA recommendations, if any. If the HRA concludes that the air quality risks from nearby sources are at or below acceptable levels, then additional measures are not required.

b. The project sponsor should implement the following features that have been found to reduce the air quality risk to sensitive receptors and should be included in the project construction plans. These should be submitted to the appropriate agency for review and approval prior to the issuance of a demolition, grading, or building permit and ongoing.

    i. Do not locate sensitive receptors near distribution center's entry and exit points.

    ii. Do not locate sensitive receptors in the same building as a perchloroleythene dry cleaning facility.

    iii. Maintain a 50-foot buffer from a typical gas dispensing facility (under 3.6 million gallons of gas per year).

    iv. Install, operate, and maintain in good working order a central heating and ventilation (HV) system or other air take system in the building, or in each individual residential unit, that meets the efficiency standard of the MERV 13. The HV system should include the following features: Installation of a high efficiency filter and/or carbon filter-to-filter particulates and other chemical matter from entering the building. Either HEPA filters or ASHRAE 85 percent supply filters should be used.

    v. Retain a qualified HV consultant or HERS rater during the design phase of the project to locate the HV system based on exposure modeling from the mobile and/or stationary pollutant sources.

    vi. Maintain positive pressure within the building.

    vii. Achieve a performance standard of at least one air exchange per hour of fresh outside filtered air.

    viii. Achieve a performance standard of at least four air exchanges per hour of recirculation

    ix. Achieve a performance standard of 0.25 air exchanges per hour of in unfiltered infiltration if the building is not positively pressurized.

c. Project sponsor should maintain, repair and/or replace HV system or prepare an Operation and Maintenance Manual for the HV system and the filter. The manual should include the operating instructions and maintenance and replacement schedule. This manual should be included in the CC&R's for residential projects and distributed to the building maintenance staff. In addition, the sponsor should prepare a separate Homeowners Manual. The manual should contain the operating

instructions and maintenance and replacement schedule for the HV system and the filters. It should also include a disclosure to the buyers of the air quality analysis findings.

d. To the maximum extent practicable the Lead Agency can and should ensure that private (individual and common) exterior open space, including playgrounds, patios, and decks, should either be shielded from stationary sources of air pollution by buildings or otherwise buffered to further reduce air pollution exposure for project occupants.

AIR-5: Implementing and local agencies should, as applicable and feasible, investigate (using for example procedures and guidelines for PM hotspot analysis consistent with USEPA (2010) PM guidance) the relationship between (1) any increases in PM10 and PM2.5 within 500 feet of freeways in their jurisdiction, and (2) existing sensitive receptors in that area that do not have adequate air filtration to reduce such impacts to a less than significant level. To the extent that existing sensitive receptors are identified that do not have adequate air filtration, local jurisdictions may establish a program by which project sponsors can mitigate significant increases in PM10 and PM2.5 (e.g., by providing a retrofit program for older higher emitting vehicles, anti-idling requirements or policies, controlling fugitive dust, routing traffic away from populated zones, replacing older buses with cleaner buses, and paying in to a fund established to retrofit sensitive receptors with HEPA filters when sensitive receptors are located within 500 feet of freeways and high-traffic volume roadways that generate substantial diesel particulate emissions).

AIR-6: Implementing and local agencies should, as applicable and feasible, plant appropriate vegetation to reduce PM10/PM2.5 when constructing a sensitive receptor within 500 feet of freeways and high-traffic volume roadways generating substantial diesel particulate emissions.

AIR-7: Implementing and local agencies for major transportation projects (especially those that generate substantial diesel particulate emissions) in the region, if health risks are shown to increase significantly at sensitive receptors within 500 feet of a transportation facility, should consider applicable mitigation. Examples include planting appropriate vegetation and retrofitting existing sensitive uses with air filtration to reduce potential health risk impacts to a less than significant level.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce impacts to sensitive receptors to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact AIR-5 **Projected long-term emissions would be considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans.**

A SIP provides for the attainment of ambient air quality in a region on a cumulative basis. That is, it includes emissions from both mobile and stationary sources, and determines the maximum allowable quantities for emissions of air pollutants in a region. These maximum allowable quantities are known as emissions budgets. Consistency with a SIP is shown through a conformity analysis, which determines if project emissions are within the approved emissions budget for the region. A conformity analysis was performed for the 2014 RTP/SCS, which found that the plan passed all applicable conformity tests, which included tests for CO, ozone, PM10 and PM2.5. This shows that the 2014 RTP/SCS would not conflict with the SIP.

A SIP is not a single document, but rather a collection of documents including technical reports, district rules, state regulations, programs, and air quality management plans (AQMPs). AQMPs are developed by the local air districts to ensure local compliance with the aims of the SIP, and become part of the SIP once submitted and approved. Consequently, compliance with the applicable SIP ensures compliance with the AQMP as well. Therefore, as the 2014 RTP/SCS is in conformance with the SIP it also complies with the AQMP.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less than significant.

4.3.4 CUMULATIVE EFFECTS

Air quality impacts are not confined to one specific area, but rather cross-jurisdictional boundaries freely. The proposed 2014 RTP/SCS includes all development (both transportation and land use changes) that would occur in the region through 2040. The impacts of development and vehicle emissions are addressed above. All air emissions in San Joaquin County are accounted for within the SIP, and the 2014 RTP/SCS is consistent with the SIP. Emissions from outside San Joaquin County are addressed in RTPs, AQMPs and SIPs applicable to these regions. San Joaquin County is the recipient of emissions from upwind sources, and until all regions attain conformity, cumulative air quality impacts continue to be of concern.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

Refer to **Mitigation Measures AIR-1** through **AIR-7**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.3.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region is still projected to grow to 365,694 people by 2040 but no regional transportation investments would be made above the existing

programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on increased density and smart growth.

Impacts associated with the No Project scenario have been included with discussion of the impacts of implementing the 2014 RTP/SCS throughout. The No Project and 2014 RTP/SCS scenarios both operate under the same assumptions about population and employment trends. The difference is primarily in an improved transportation network and smart growth policies under the 2014 RTP/SCS, which results in lower VMT and emissions of air pollutants.

Emissions of criteria pollutants from mobile sources under both the 2014 RTP/SCS and No Project scenarios are compared to existing conditions in impact AIR-1. Numerical comparisons of these emissions are provided in **Table 4.3-4**. Emissions of all pollutants would be higher under the No Project scenario, so the impacts would be less under the 2014 RTP/SCS than under the No Project scenario.

Short-term emissions of air pollutants associated with construction occurring under the 2014 RTP/SCS are discussed in **Impact AIR-2**. While it is possible that these emissions would be different under the 2014 RTP/SCS than under the No Project scenario, there is insufficient data to make an assessment of the likely difference. Therefore it is unknown if the impacts would be lesser or greater for the 2014 RTP/SCS compared to the No Project scenario.

Emissions of TACs, locations of sensitive receptors relative to TAC sources, and the accompanying potential health risks are discussed under **Impacts AIR-3** and **AIR-4**. **Table 4.3-5** provides emissions of PM2.5 from heavy-duty vehicles in San Joaquin County under the No Project and 2014 RTP/SCS scenarios, showing that emissions are similar under the 2014 RTP/SCS and No Project scenarios. The No Project scenario would place fewer sensitive receptors near high volume roadways as compared to the 2014 RTP/SCS. In all cases, impacts resulting from the 2014 RTP/SCS are similar to impacts occurring under the No Project scenario. Therefore, impacts associated with TACs and sensitive receptors as discussed in **Impacts AIR-3** and **AIR-4** would be the same under the 2014 RTP/SCS as under the No Project scenario.

Finally, **Impact AIR-5** examines the 2014 RTP/SCS's compliance with the applicable air quality plans, which in this case would be the SIP. Consistency with the SIP is shown through a conformity analysis, in which emissions of air pollutants are compared to allowable pollutant emissions budgets. As mentioned, emissions of all pollutants would be lower under the 2014 RTP/SCS than in the No Project scenario. Therefore, impacts analyzed in **AIR-5** would be less under the 2014 RTP/SCS than under the No Project scenario.

4.4 BIOLOGICAL RESOURCES

This section describes the existing biological resources within the region and evaluates the significance of the changes in biological resources that would result from development of the proposed RTP/SCS, and feasible mitigation measures to reduce these potential impacts. Sources utilized in this discussion include data provided by the US Fish and Wildlife Service (USFWS), the California Native Plant Society (CNPS), and the California Department of Fish and Wildlife (CDFW).

4.4.1 ENVIRONMENTAL SETTING

San Joaquin County is located within the San Joaquin Valley between the Sierra Nevada mountain range in the east and the Sacramento River–San Joaquin River Delta in the west. The County has over 900,000 acres and 1,400 square miles. It is characterized by an extensive north-south trending valley floor through the central County with gentle foothills rising along the eastern County, the Delta in the northwest, and the beginning of the coastal foothills to the southwest. Sacramento County borders the County to the north, while Stanislaus County is located to the south. Contra Costa and Alameda Counties are located to the west, and Amador, Calaveras and Stanislaus counties border San Joaquin County on the east.

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, flow through the County, predominantly east to west. 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 the 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 creeks in the northeast and Potter Creek in the mid-east portion of the County. The northwest portion of the County is covered by the extensive sloughs and rivers of the Delta. Approximately 43 percent of the Sacramento/San Joaquin Delta Primary Zone is located in San Joaquin County.

San Joaquin County was formerly dominated by riparian woodland, oak savannah, wetlands, saltbush, and perennial grassland communities that harbored an abundance of endemic wildlife and plant species. The San Joaquin Valley is now a vast agricultural region with a marked reduction of native habitats and the associated populations of plants and wildlife. Urban and industrial development has also contributed

to the major habitat losses, which have occurred since the boom in agricultural development in the late 1800s. Less than 4 percent of the original native habitat remains of that estimated in historic times.

The majority of the County consists of a combination of agricultural and urban environments that have been drastically altered from their native state by human activities. Native terrestrial habitat types that still exist in the County include chaparral, grassland, oak woodland/savannah, and riparian woodland. Aquatic habitat types remaining in the County are represented by lakes, streams, rivers, and wetlands such as sloughs, marshes, and vernal pools and this aquatic environment supports a rich fishery. Climatic and physiographic differences distinguish the various terrestrial and aquatic communities. Unique biological resources are contained within each of these habitats. In addition to providing habitat for resident wildlife and plant species, this region also functions as an important dispersal corridor for wildlife and a vital link in the migratory pathway of the Pacific Flyway.

Local Biological Features Geomorphic Provinces

California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. Earth scientists recognize 11 provinces in California. Each region displays unique, defining features based on geology, faults, topographic relief, and climate. These geomorphic provinces are remarkably diverse. They provide spectacular vistas and unique opportunities to learn about earth's geologic processes and history. San Joaquin County is located in the Great Valley geomorphic province of California.

Great Valley

The Great Valley is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic period (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor.

Bioregions

The County is located within the Bay Area/Delta bioregion and is surrounded by four different bioregions: Sacramento Valley to the north, Sierra to the east, San Joaquin Valley to the South, and the Central Coast to the southwest. A brief description of the Bay Area/Delta bioregion is discussed below.

Bay Area Delta Bioregion

The Bay Area/Delta Bioregion extends from the Pacific Ocean to the Sacramento Valley and San Joaquin Valley bioregions to the northeast and southeast, and a short stretch of the eastern boundary joins the Sierra Bioregion at Amador and Calaveras counties. The bioregion is bounded by the Klamath/North Coast on the north and the Central Coast Bioregion to the south. The Bay Area/Delta Bioregion is one of the most populous areas of the state, encompassing the San Francisco Bay Area and the Sacramento-San Joaquin River Delta. The water that flows through the Delta supplies two-thirds of California's drinking water, irrigating farmland, and sustaining fish and wildlife and their habitat. The bioregion fans out from San Francisco Bay in a jagged semi-circle that takes in all or part of 12 counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, and parts of Sacramento, and Yolo. The habitats and vegetation of the Bay Area/Delta Bioregion are as varied as the geography.

Terrestrial Biota and Habitats

It is important to note that plant communities are not always clearly defined with strictly delineated boundaries. Plant communities are dependent on or affected by factors such as geographical location, soil types, precipitation rates, solar aspect, and orientation of slopes, elevations, microclimates, and successional considerations. Therefore, it is not uncommon to find a particular plant or grouping of plants growing outside an area that would be considered their customary habitats if some of the above factors are advantageous to that growth. The following brief descriptions were taken from the County's 2009 General Plan Background Report and represent the distinct ecological communities in the regions.

Urban/Developed

Urban or developed land is comprised of areas of intensive use with much of the land covered by structures. Included in this category are cities, transportation, power and communications facilities, residences, mills, shopping centers, industrial and commercial complexes, and institutions that may, in some instances, be isolated from urban areas. Agricultural land, forest, wetland, or water areas on the fringe of urban or built-up areas are not included in this category except where they are surrounded and dominated by urban development.

Agriculture

Agricultural land may be defined broadly as land used primarily for production of food and fiber and includes crop fields, orchards, vineyards, and grazing lands. The number of building complexes is smaller and the density of the road and highway network is much lower in agricultural land than in

urban or developed land. Lands producing economic commodities such as wild rice, cattails, or certain forest products commonly associated with wetlands are excluded from the agriculture category and carry a wetlands designation. Similarly, when wetlands are drained for agricultural purposes, then they are included in the agriculture category. Agricultural lands that are no longer in use and where wetland vegetation has reestablished are included in the wetlands category.

Annual Grassland

Annual grassland is one of the most common plant communities in San Joaquin County, particularly in the eastern and southwestern areas. 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, red brome, ripgut brome, foxtail barley, wild oat, and annual fescues, intermixed with herbaceous species such as mustard, lupine, owl's clover, poppy, and various species of filaree. Most annual grasslands in the County have been subjected to grazing or frequent human activities, such as maintenance measures along roadsides. The annual grassland vegetation in these areas is often dominated by introduced weedy and invasive species, such as yellow star thistle. 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, northern harriers, American kestrels, burrowing owls, coyotes, and gray foxes.

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, 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, occur in a grassland matrix in San Joaquin County.

Blue Oak

In San Joaquin County, 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. This includes 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, ceanothus, coffeeberry, and California buckeye. 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, acorn woodpecker, northern flicker,

oak titmouse, western bluebird, mourning dove, and red-tailed hawk. The understory shrub layer provides habitat for other common bird species, such as golden-crowned and white-crowned sparrows, and small mammals, such as dusky- footed woodrat.

Scrub (Black Sage)

Scrub habitat types account for about 5,000 acres and are dominated by shrubs. This habitat occurs in San Joaquin County on the inner Coast Range, south of I-580. The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) termed it Diablan scrub, which occurs on shallow, rocky soils, typically on hot southern exposures. In *A Manual of California Vegetation*, the closest matching description is black sage series, occurring on the southern slopes of the highest hills and ridges. Dominant plants of black sage habitat include black sage, buckwheat, California sage, yucca, coyote brush, chaparral mallow, and coast prickly pear. There is generally very little understory in this habitat type.

A variety of birds use this habitat including Anna's hummingbird, which feeds on sage flowers. Raptors often seen include American kestrel, northern harrier, and red-tailed hawk. Mammals include San Joaquin kit fox, coyote, California ground squirrel, and black-tailed deer. The habitat intermingles with annual grassland series and blue oak series.

Aquatic

Riverine habitats can occur in association with many terrestrial habitats. Riparian habitats are found adjacent to many rivers and streams. Riverine habitats are also found contiguous to lacustrine and fresh emergent wetland habitats. This habitat requires intermittent or continually running water generally originating at some elevated source, such as a spring or lake, and flows downward at a rate relative to slope or gradient and the volume of surface runoff or discharge. Velocity generally declines at progressively lower altitudes, and the volume of water increases until the enlarged stream finally becomes sluggish. Over this transition from a rapid, surging stream to a slow, sluggish river, water temperature and turbidity will tend to increase, dissolved oxygen will decrease, and the bottom will change from rocky to muddy.

Lacustrine habitats are inland depressions or dammed riverine channels containing standing water. These habitats may occur in association with any terrestrial habitats, Riverine or Fresh Emergent Wetlands. They may vary from small ponds less than one hectare to large areas covering several square kilometers. Depth can vary from a few centimeters to hundreds of meters. Typical lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes and ponds (including vernal pools) so shallow that rooted plants can grow over the bottom. Most permanent lacustrine systems support fish life; intermittent types usually do not.

Non-vegetated

Barren habitat is defined by the absence of vegetation. Any habitat with less than 2 percent total vegetation cover by herbaceous, desert, or non-wildland species and less than 10 percent cover by tree or shrub species are included in this category. The physical settings for permanently barren habitat represent extreme environments for vegetation. An extremely hot or cold climate, a near-vertical slope, an impermeable substrate, constant disturbance by either human or natural forces, or a soil either lacking in organic matter or excessively saline can each contribute to a habitat being inhospitable to plants.

Figure 4.4-1, Principal Vegetation Types Found in San Joaquin County, identifies the location of the vegetation types discussed above.

Special Habitats

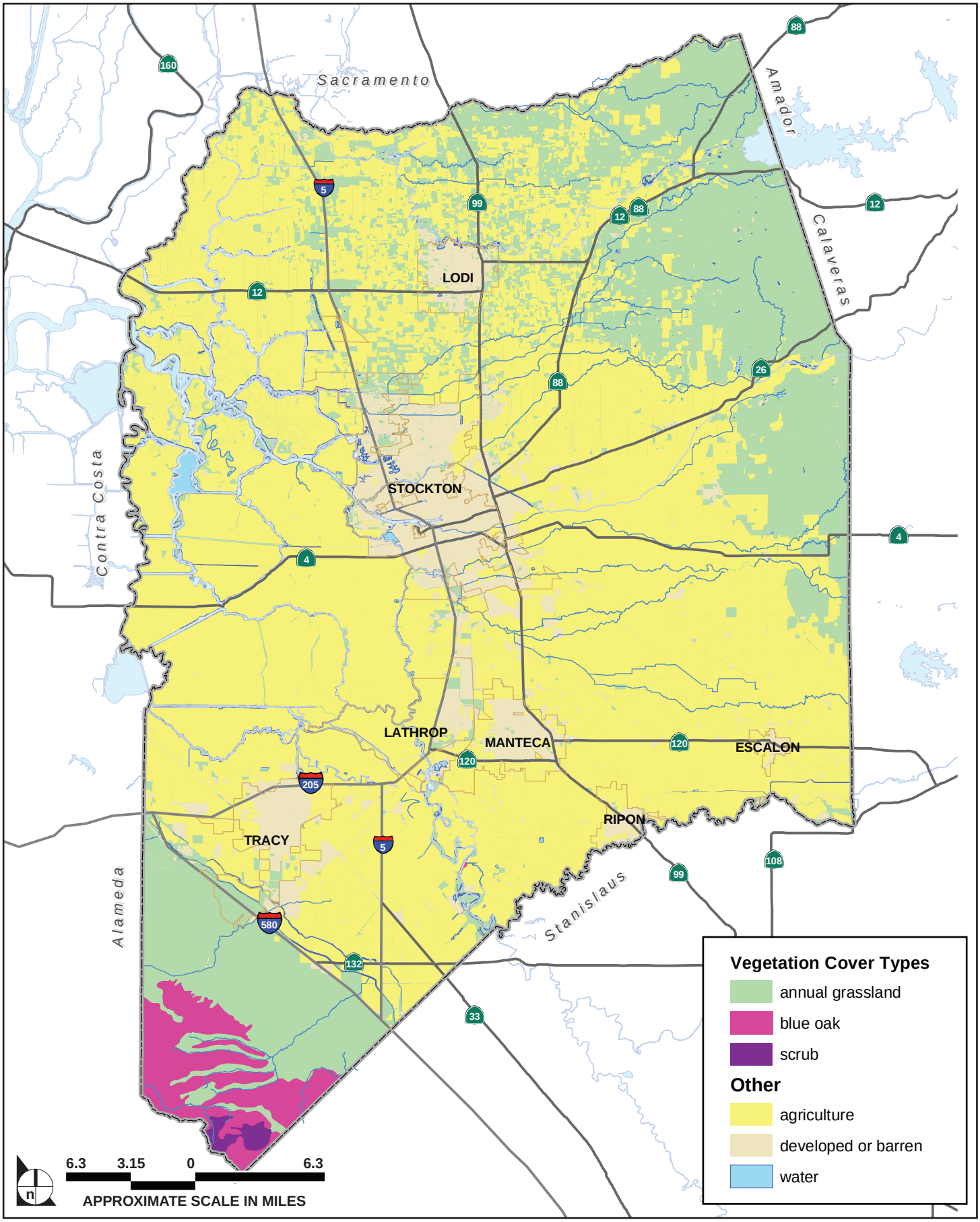
The County has identified several areas and features located in the region as special habitat areas with the greatest ecological value to the County. The following are brief descriptions of the most valued ecological communities in the regions.

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 Tracy and west of Stockton and Lodi. The primary freshwater sources to the Delta within the County include 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 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, because either 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, shad, and striped bass. 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, such as striped bass, are actually exotic species that compete with native species for food and habitat.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.4-1**

Principal Vegetation Types Found in San Joaquin County

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Other fish species spawn and complete their early life in the Delta and then emigrate from the Delta to complete the rest of their life cycles, including the longfin smelt and delta smelt. Consequently, their spawning locations and distribution depend heavily on freshwater flows through the Delta and the local hydrodynamics. High freshwater flows through the Delta are also positively correlated with population size for longfin smelt. Several, mostly non-native, fish species are resident in the Delta throughout the year. These species capitalize on slow moving and warm habitats common to the managed Delta. This group includes several catfish, sunfish/bass, and minnow species. Most of these species are piscivorous and are thus considered detrimental to the native fish fauna of the Delta.

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.

Fish populations in the Delta habitats of San Joaquin County are also heavily impacted by the operation of state and federal water export facilities just west of the County border. The pumps entrain all species of fish found in the Delta, which are then sucked into the pump and filters. When in operation, these pumps alter hydrodynamics in the Delta, thereby adversely affecting fish populations. For example, out-migrating Chinook salmon 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. Proposals to modify the operation of the Delta export facilities and supplement them with other water diversion infrastructure (e.g., the "peripheral canal" or "isolated conveyance facility") are under active consideration by state and federal water managers.

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" of the San Joaquin River. 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.

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. 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, and American shad 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. Resident native species include rainbow trout and minnows such as hardhead, hitch, roach, dace, and pikeminnow. 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.

Flows in each of San Joaquin County's rivers are controlled by operation of dams and diversions that are part of the Central Valley Project, State Water Project (SWP), East Bay Municipal Utilities District water systems, or the South San Joaquin Irrigation District (collectively, "the hydrosystem"). Camanche Dam on the Mokelumne River is the major component of the hydrosystem in the County. Fresh water releases into the Calaveras, Stanislaus, and San Joaquin rivers are controlled by upstream dams, located outside of the County. Flows in Old River and Middle River are determined largely by the rate of export pumping at the federal and State South Delta pumping facilities; these facilities are located just west of the County near its border with Alameda and Contra Costa counties. Under certain conditions, export pumping can reverse the flow in Middle River so that net flow is towards the pumping facilities. As with Delta aquatic habitats, proposals to shift water exports to new diversion facilities would have a dramatic effect on the river habitats of San Joaquin County, particularly those of the lower San Joaquin River. New diversion facilities could result in lower flows in the rivers that can prevent fish migration and result in the death of many freshwater species.

The Stockton Deepwater Ship Channel (DWSC) also modifies the riverine habitat available in the lower San Joaquin River mainstem. The DWSC geometry causes very low flows in this area, which facilitates deposition and retention of biotic and chemical inputs that consume oxygen (eutrophication). As a result, this area is prone to episodes of extremely low dissolved oxygen (DO) that excludes fish and other free-swimming fauna and kills most of the benthic biota in this area. The frequent occurrence of low DO in the Stockton Deepwater Ship Channel eliminates resident fish populations and serves as an impediment for some species as they migrate to and from spawning and rearing habitats upstream.

Lakes and Ponds

Two major types of lakes and ponds exist in San Joaquin County including: 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 can provide habitat for native three-spine stickleback, tule perch, and San Joaquin roach. 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 support habitat for native species such as rainbow trout and Sacramento sucker. 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, American Shad, and Pacific Lamprey.[1] Reservoir management for irrigation, hydropower, and downstream habitat impacts the ability of these water bodies 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.

Riparian

A variety of riparian habitats occur along creeks and rivers in the County, accounting for about 5,000 acres of land. Riparian woodland communities have developed along the County's four main rivers: Mokelumne, San Joaquin, Calaveras, and Stanislaus. The riparian vegetation composition varies along the different County waters, but generally consists of willows, Fremont cottonwood, valley oak, box elder, black walnut, and Oregon ash. Despite widespread disturbances resulting from urbanization, agricultural conversion, and grazing, riparian habitats remain important resources because of their

1 Light and Marchetti, 2007

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, and ringneck snakes, as well as insectivorous birds including warblers, northern flickers, downy woodpeckers, 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, red-tailed hawk, and Swainson's hawk. Cavity-dependent species such as woodpeckers, American kestrel, bats, squirrels, and raccoons require mature stands of trees found in riparian habitats. Striped skunks, gray foxes, and badgers forage in riparian habitats and use them for cover and travel.

A Manual of California Vegetation[2] uses several forest series for riparian habitats of the Central Valley. They include valley oak, California sycamore, Fremont cottonwood, and arroyo willow. All of these riparian types occur in narrow and mixed fragments along the rivers and creeks of San Joaquin County.

Wetlands

Wetlands are valued as open space and for the uniqueness and diversity of their plant and animal communities. In addition to creating waterfowl and shorebird habitat, wetlands of all types provide important water quality functions. Much of their value is derived from the shallow flow or ponding of water across a vegetated or semi-vegetated plain. Wetlands filter out pollutants, including agricultural and urban runoff; increase nutrient production; store floodwaters; recharge groundwater; reduce storm erosion; and provide an opportunity for passive and active human recreation. Wetlands are vital to the existence and health of other natural resources, and they have diminished drastically due to agriculture and urban expansion. In 2005 less than 8 percent of the historic wetlands in the Central Valley remained.

Freshwater Marsh

Freshwater marsh habitat covers about 5,000 acres of land in San Joaquin County. This wetland type is permanently but shallowly flooded by freshwater and is dominated by perennial emergent monocot plant species such as cattail and bulrush (tule). 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. An example of special-status plant and wildlife species utilizing this habitat includes Sanford's arrowhead, tricolored blackbird; western pond

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2 Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation. 2nd Edition.* California Native Plant Society, Sacramento, CA. This document provides the background for the California Native Plant Society's adopted system for describing vegetation found in the State.

turtle and giant garter snake. San Joaquin County supports the following freshwater marsh types: bulrush (tule), bulrush-cattail, cattail, and duckweed. The County's largest areas of these freshwater marsh habitats occur in the Delta.

Vernal Pools

Vernal pools are an uncommon habitat type that most commonly 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 quickly. Vernal pools usually fill and empty several times during the rainy season.

Only uniquely adapted plants and animals can survive the cycle of wetting and drying in vernal pools. 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 and various wetland indicator 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. One example of medicinal values is *Hydrastis canadensis* (goldenseal), a plant in the Ranunculaceae (buttercup) family that was used by Native Americans to treat skin disorders, digestive problems, liver conditions, diarrhea, and eye irritations. Although, goldenseal does not grow in California vernal pools, related plants in the Ranunculaceae family do occur. Another example, meadowfoam (*Limnanthes* spp.) is being investigated as a source of oil to replace animal-based oils in industrial applications.

The Central Valley is part of the Pacific Flyway, a migratory route for numerous avian species, including waterfowl, 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, in areas where alluvial surfaces were exposed after the retreat of the inland sea during the Pleistocene era. 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 the annual grassland and open woodland matrix.

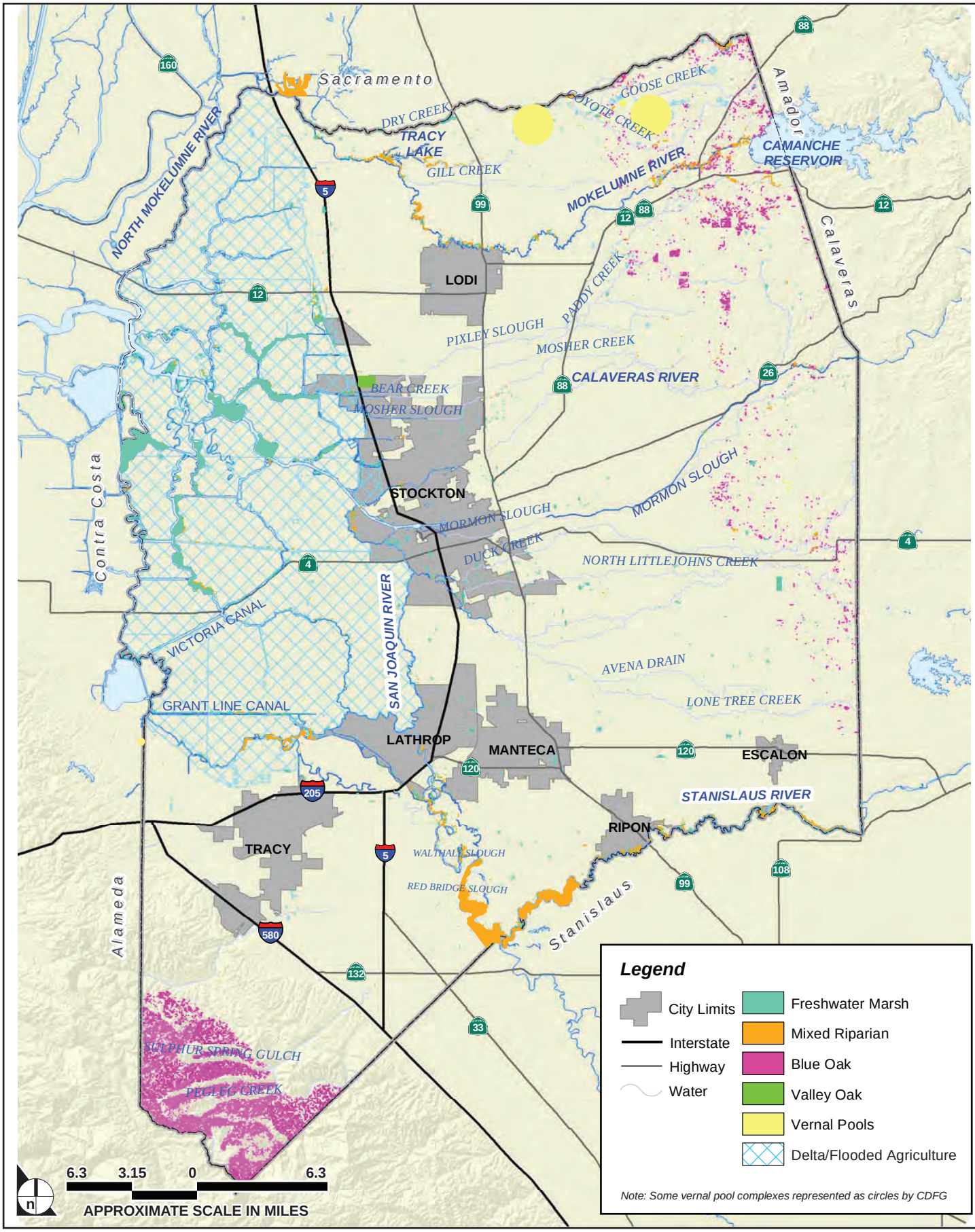
Northern Claypan Vernal Pool. Northern claypan vernal pools occur in silica-cemented hardpan soils which are often saline. Light livestock grazing appears to assist in maintaining plant species diversity in this type of vernal pool. They often persist in areas where livestock has grazed for many decades.

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.

Figure 4.4-2, Special Habitats in San Joaquin County, illustrates where these ecological habitats are located in the County.

Oaks

Three native oak species occur in San Joaquin County; valley oak, blue oak, and interior live oak. The topography of the County is predominantly a level valley with broad rivers. Before the arrival of pioneers and homesteaders, large open groves of live oaks, valley oaks, and blue oaks grew along the rivers and on hills, providing shade and acorns for wildlife and native human inhabitants. **Figure 4.4-3, Significant Oak Groves in San Joaquin County**, shows the location of significant oak groves in San Joaquin County. These remaining groves still face development and conversion pressure.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.4-2**

Special Habitats in San Joaquin County

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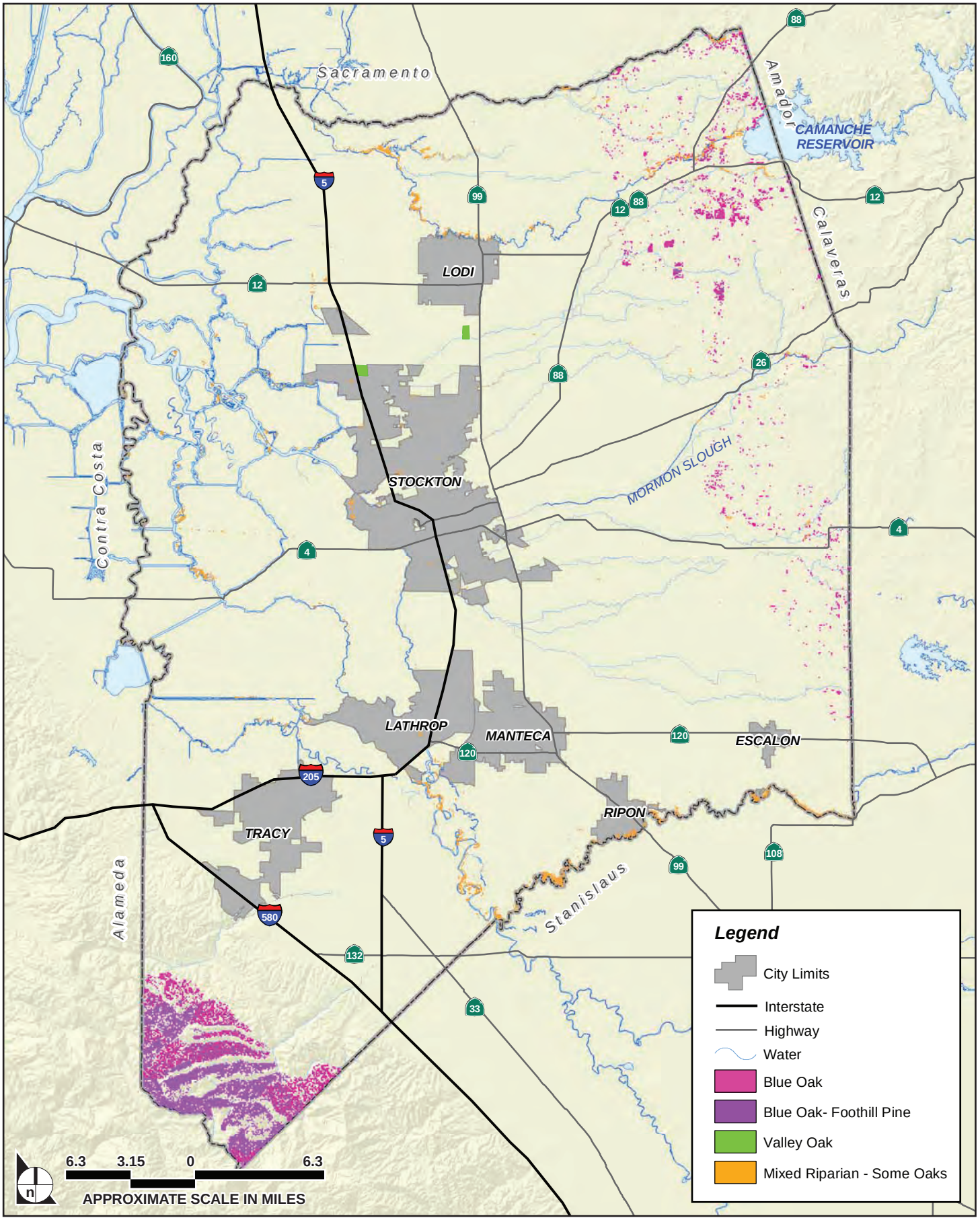


SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.4-3**

Significant Oak Groves in San Joaquin County

Valley Oak (*Quercus lobata*). Only 500 acres of valley oak remain in San Joaquin County. Valley oak is the largest and most majestic of California oaks, with its wide, round crown, huge trunk, and long drooping branchlets sometimes reaching the ground. It can grow to over 100 feet high and live up to 600 years. Valley oak is deciduous and tolerates cool wet winters and hot dry summers, but requires abundant water for its thirsty root system. It is most abundant in rich deep soils of valley floors below 2,000 feet in elevation. The valley oak drops its acorns in October, which are harvested by scrub jays, acorn woodpeckers, grey squirrels, and other animals. Today, only 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 (*Quercus douglasii*). Blue oak is a drought-tolerant deciduous tree endemic to California's Sierra Nevada foothills and Coast Ranges. Blue oak woodland occurs sparsely on the foothills on the eastern side of the County, and in dense stands in the southwestern foothills. Although a common and well-adapted species, blue oak, is regenerating poorly over much of its current range. Because most blue oak woodlands in San Joaquin County are currently used as rangeland, long-term livestock grazing has more potential to adversely affect blue oak regeneration than any other factor. Cattle eat acorns, east seedlings, reduce or eliminate the litter layer beneath trees, and compact the soil, thereby reducing the potential for initial seedling establishment.

Interior Live Oak (*Quercus wislizenii*). Interior live oak is an evergreen oak that grows on hills, in ravines, or near chaparral. The dense dark foliage provides protected roosting places for valley quail and other birds. Insects on the leaves are sought by vireoes, warblers, titmice, and their associates. This species is a component in blue oak woodland and mixed riparian woodland habitat types in San Joaquin County.

Protected Natural Areas

Protected natural areas in San Joaquin County include public conservation lands managed by federal, State and regional agencies, and private lands managed as preserves under the provisions of the SJMSCP. **Figure 4.4-4, Protected Natural Areas in San Joaquin County,** shows the location of protected natural areas in the County. Protected natural areas provide habitat for native plants and animals as well as opportunities for recreation and aesthetic enjoyment, including hiking, bird watching, and camping. Protecting land resources means ensuring that lands meet current needs and support healthy communities and ecosystems. The major protected areas in San Joaquin County are discussed below.

Army Corps Park (aka Ripon River Crossing)

Army Corps Park is a 30.5-acre park managed by the US Army Corps of Engineers (USACE), south of the City of Ripon, which includes restored riparian habitat on both sides of the Stanislaus River.

Cabral Island Preserve

Cabral Island Preserve is a 27-acre natural area SJMSCP preserve managed by San Joaquin Council of Governments (SJCOG) near the San Joaquin River south of Manteca.

Caswell Memorial State Park

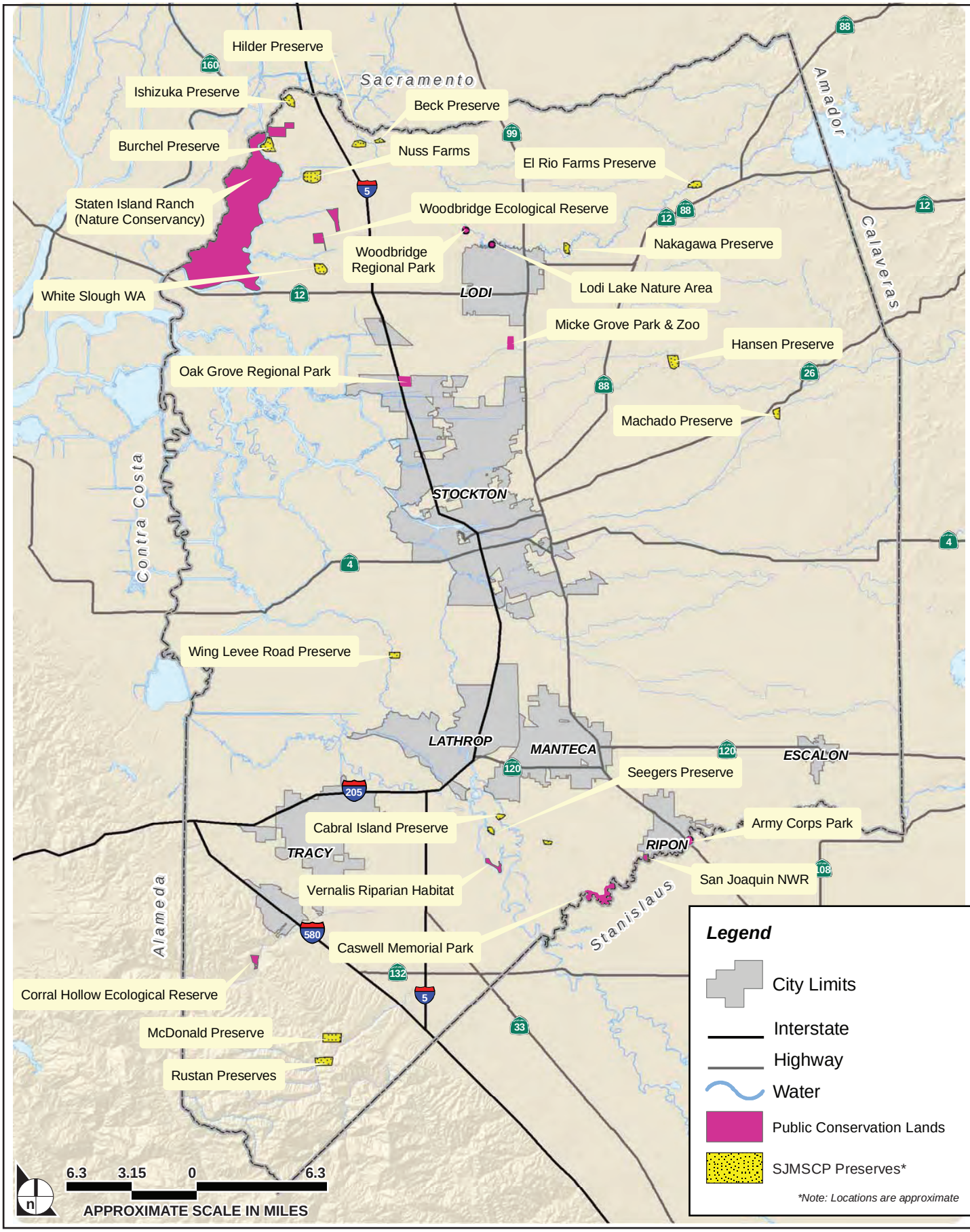
Caswell Memorial State Park is a 258-acre public park managed by the State of California on the banks of the Stanislaus River southwest of the City of Ripon. The park protects an example of the Threatened and still declining riparian oak woodland, which once flourished throughout California's Central Valley. Caswell is home to several Endangered animal species, including the riparian brush rabbit and the riparian woodrat.

Corral Hollow Ecological Reserve

The Corral Hollow Ecological Reserve, southwest of Tracy, is a 99-acre CDFW-managed site composed of 30 percent riparian woodland and 70 percent grassland. It is host to the large flowered fiddleneck, a state and federally listed Endangered plant. It is also home to several special-status amphibians and reptiles including California red-legged frog, foothill yellow-legged frog, and the western pond turtle. Seven species of reptile reach their northern most distribution in this area, once including blunt-nosed leopard lizard. The Corral Hollow Ecological Reserve also has serpentine soil and associated endemic plants.

El Rio Farms Preserve - Valley Elderberry Longhorn Beetle Riparian Restoration Site

El Rio Farms Preserve is a 23.8-acre riparian SJMSCP reserve managed by SJCOG located just north of Lockeford on the Mokelumne River. This property was acquired by SJCOG to convert a once-active vineyard into a lush riparian corridor; and encourage the federally listed Threatened valley elderberry longhorn beetle to inhabit the preserve. Local high school students worked with restoration professionals to restore and enhance the riparian habitat to include blue elderberry bushes, the habitat of the valley elderberry longhorn beetle.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.4-4**

Protected Natural Areas in San Joaquin County

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Lodi Lake Regional Park

Lodi Lake Regional Park is a 58-acre, City-owned regional park along a riparian area of the Mokelumne River with natural trails.

Machado Preserve

The Machado Preserve is a 162-acre San Joaquin County Multi-Species Habitat Conservation Plan (SJMCSP) preserve managed by SJCOG located east of Linden and south of Mormon Slough. The Machado Preserve has a number of habitat types including seasonal vernal pools, grasslands, and field crops that serve a number of species covered by the SJMSCP. In 2006, SJCOG purchased a conservation easement on this property to serve as mitigation for the conversion of land in the Central Zone.

McDonald Kit Fox Preserve

The McDonald-Bogetti Kit Fox Preserve is a 3,200-acre section of a 5,920-acre grassland SJMCSP preserve located in the foothills southwest of the City of Tracy, just north of the Rustan Preserve (see below). SJCOG purchased a conservation easement on this property in 2005 to serve as mitigation for the conversion of land within the southwest portion of the County known as the Southwest or Central/Southwest Transition Zone. The preserve primarily serves as habitat for the federally listed Endangered and California-listed Threatened San Joaquin kit fox. Habitat for California red-legged frog and western burrowing owl is also preserved there.

Oak Grove Regional Park

Oak Grove Regional Park is a 180-acre County-owned park. The park is a living example of valley oak woodlands that once covered much of San Joaquin County. Over 1,500 mature oak trees still tower in this woodland, many centuries old. Included at this park are two nature preserves: Yokuts Trail and Miwok Trail.

Rustan Preserve

The Rustan Preserve is a 985-acre southwest grassland SJMCSP preserve located in the foothills southwest of the City of Tracy and just west of the McDonald Kit Fox Preserve. SJCOG purchased a conservation easement on this property in 2005 and 2010 to serve as mitigation for the conversion of land in the Southwest or Central/Southwest Transition Zone. Similar to the McDonald preserve, the Rustan preserve primarily serves as San Joaquin kit fox habitat. This habitat is also preserved for California red-legged frog and western burrowing owl.

San Joaquin National Wildlife Refuge (NWR)

The San Joaquin NWR is a 6,500-acre protected area managed by USFWS located mostly south of the Stanislaus River in Stanislaus County, but with a small approximately 200-acre overlap into San Joaquin County. This national wildlife refuge was established in 1987 to protect and manage wintering habitat for Aleutian Canada geese (*Branta canadensis leucopareia*), a federally listed Endangered species. Since that time, the Refuge's focus has expanded to include other Threatened and Endangered species, migratory birds; wildlife dependent on wetlands and riparian floodplain habitat; and restoration of habitat and ecological processes. This refuge is habitat for several protected species including the riparian woodrat, riparian brush rabbit, valley elderberry longhorn beetle, and least Bell's vireo. Providing wintering habitat for and protecting Aleutian Canada geese has remained a primary objective of the Refuge since it was established. The Refuge and its management have been important factors in the recovery of the Aleutian Canada goose and its removal in 2001 from the Threatened and Endangered Species List. Vernalis Riparian Habitat, part of the San Joaquin National Wildlife Refuge within San Joaquin County, protects restored riparian habitat along the San Joaquin River.

Staten Island Ranch

Staten Island Ranch is a 9,200-acre grain farm in the northeastern Delta region of the County. The Nature Conservancy cooperatively manages this land along with the farmer-owners. Every winter, after the grain harvest, Staten Island managers flood the fields to provide one of the most important feeding and roosting sites in California for greater and lesser sandhill cranes. Up to 15 percent of the Threatened greater sandhill crane population in the Central Valley winters on Staten Island. Other Pacific Flyway migratory birds also winter in this reserve including tundra swans, Ross's white fronted geese, Canada geese, great blue herons, egrets, pintails, mallards, and white-tailed kites. In the spring and summer, Staten Island and many of the surrounding farms also support breeding habitat for the California Threatened Swainson's hawk. According to the Nature Conservancy, this operation should serve as a model for farmers throughout the Delta who are interested in conserving natural habitats while managing a successful farming operation.

Vernalis Riparian Habitat

The Vernalis Riparian Habitat is a 119-acre state-managed riparian preserve along the San Joaquin River south of Lathrop. This area is located within the San Joaquin National Wildlife Refuge.

White Slough State Wildlife Area

Adjacent to the Woodbridge Ecological Reserve, White Slough Wildlife Area is an 880-acre preserve of man-made ditches, canals, freshwater marshes, grassland/upland, and riparian habitat. White Slough provides habitat for game birds such as pheasant, quail, dove, and waterfowl. CDFW allows fishing, hunting, and hiking in the area.

Iceberg Crane Reserve

This is a CDFW-managed 360-acre ecological reserve near Lodi. In the fall and winter months, sandhill cranes feed and roost here. Other birds include barn owls, herons, pelicans, vultures, hawks, ibis, shrikes, swans, stilts, and ducks.

Woodbridge Regional Park

Woodbridge Regional Park, located north of the City of Lodi is an underdeveloped County park in an established riparian area along 0.25 mile of the Mokelumne River. The park contains valley oak and Fremont cottonwood riparian woodlands.

Salmon and Steelhead Trout Fisheries

Salmon and steelhead trout are anadromous fish species that are present in the Bay Delta and San Joaquin and Sacramento River Basins. Anadromous fish are born in freshwater rivers and streams, and then migrate to the Pacific Ocean to grow and mature before returning to their place of origin to spawn. The San Joaquin and Sacramento River system produces most of the Chinook salmon (*Oncorhynchus tshawytscha*) and a large percentage of the steelhead trout (*Oncorhynchus mykiss*) in California.

Anadromous fish resources once flourished naturally in the San Joaquin and Sacramento River system, but as a result of habitat destruction from water storage/diversion projects, mining, sedimentation, and bank degradation, they are protected species under the Endangered Species Act. The San Joaquin and Sacramento River system has historically supported steelhead trout and four distinct spawning runs of Chinook salmon: fall, late fall, winter, and spring. The salmon runs have declined since the late 1800s and are now characterized as episodic. The Central Valley steelhead was federally listed as Threatened in 2003 and reaffirmed in 2006. The fall/late fall-run salmon is a federal and state species of concern, and a candidate species for federal listing. The spring-run Chinook salmon population is listed as Threatened by both federal and state agencies. Winter-run Chinook salmon population is listed as a federally and state Endangered species. Populations of Central Valley Steelhead and Chinook salmon are supported by hatcheries within the San Joaquin and Sacramento River Basin.

Water remaining behind the dams by the start of the spawning run in October is often warmed by summer heat. Warm water and low water elevation are harmful to most cold-water anadromous fish species. Riparian vegetation is critical for the maintenance of high quality fish habitat. It provides cover, controls temperature, stabilizes stream banks, provides food, and buffers streams from erosion and impacts of adjacent land uses. Riparian vegetation also affects stream depth, current velocity, and substrate composition. The decline of riparian communities in California is a factor contributing to the loss of high quality fish habitat.

Mokelumne River Hatchery

The Mokelumne River Fish Hatchery, located at the base of Camanche Dam, was constructed by the East Bay Municipal Utility District (EBUMD) in 1963 to offset the loss of fish spawning habitat when Camanche Dam was constructed. Low flows and a series of fish kills decimated the steelhead run in the 1980s and a drought between 1987 and 1992 caused a significant decline in the salmon returning to the Mokelumne River. EBUMD responded with a combination of fish hatchery improvements, water flow increases and other measures that have resulted in increasingly large steelhead and salmon returns in the past several years. Over 12,000 salmon returned to the Mokelumne River in 2012. In 2002, the hatchery was improved and now has more rearing space to promote fish health and fish survival rates, while also making hatchery operations more efficient.

Noxious Weeds

For the purpose of this analysis and future Project-specific assessments, a noxious weed is defined as a plant that could displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity. The California Department of Food and Agriculture (CDFA) list weeds and assigns ratings (A–C) to each species on the list. The ratings reflect CDFA's view of the statewide importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The rating system is explained below:

A. an organism of known economic importance subject to state (or commissioner, when acting as a state agent) enforced action involving eradication, quarantine, containment, rejection, or other holding action.

B. an organism of known economic importance subject to eradication, containment, control, or other holding action at the discretion of the individual county agricultural commissioner, or an organism of known economic importance subject to state- endorsed holding action and eradication only when found in a nursery.

C. an organism subject to no state-enforced action outside of nurseries except to retard spread at the discretion of the commissioner, or an organism subject to no state-enforced action except to provide for pest cleanliness in nurseries.

In subsequent environmental review of San Joaquin County transportation projects, a qualified botanist would develop a target list of noxious weeds that present a risk to the specific project area. The target list would include all A-rated weed species. Some B- and C-rated species would be included on project specific target lists if they are identified as target noxious weeds by the County agricultural commission. Weeds would also be included in target lists if they are considered to have great potential for displacing native plants and damaging natural habitats but are not considered too widespread to be controlled effectively. Noxious weeds in San Joaquin County were not inventoried for this program-level analysis because target weeds would differ widely from project to project, depending on the sensitivity of the site to infestation, the nature of the proposed project, and the type of weeds in the immediate area.

Special-Status Species

Special-status species are generally defined as: (1) species listed as a candidate, Threatened, or Endangered under the federal or state Endangered Species Act; (2) species considered Rare or Endangered under the California Environmental Quality Act; (3) species covered by the San Joaquin Multi-species Habitat and Open Space Conservation Plan; plants listed as Rare under California Fish and Game Code; (4) plants considered "Rare, Threatened, or Endangered in California" by the California Native Plant Society (Lists 1B and 2); (5) animal listed as "species of special concern" by the state; and (6) animals fully protected in California by the Fish and Game Code.

The following discussion is based on a February 2014 background search of special-status species whose occurrences are documented in the California Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants, and the USFWS Endangered and Threatened species lists. The background search was regional in scope and focused on the documented occurrences within the boundaries of San Joaquin County.

The search revealed 83 special status species within the region: 33 plants, and 50 wildlife. **Table 4.4-1, Rare and Endangered Plant Species that May Occur in San Joaquin County,** provides a list of special-status plant species that are documented in the region, their habitat, and current protective status. **Table 4.4-2, Special Status Wildlife and Fish Species that May Occur in San Joaquin County**, provides a list of special-status wildlife and fish species that are documented in the region, their habitat, and current protective status. In addition to these special-status species, the search revealed eight sensitive natural communities.

Table 4.4-1
Rare and Endangered Plant Species that May Occur in San Joaquin County

Scientific Name	Common Name	Status		
		Federal	State	CNPS
Amsinckia grandiflora	Large-flowered fiddleneck	Endangered	Endangered	1B.1
Astragalus tener var. *tener*	Alkali milk-vetch	None	None	1B.2
Atriplex cordulata var. *cordulata*	Heartscale	None	None	1B.2
Atriplex Joaquinana	San Joaquin spearscale	None	None	1B.2
Blepharizonia plumosa	Big tarplant	None	None	1B.1
Brasenia schreberi	Watershield	None	None	2B.3
California macrophylla	Round-leaved filaree	None	None	1B.1
Carex comosa	Bristly sedge	None	None	2B.1
Castilleja campestris var. *succulenta*	Succulent owl's-clover	Threatened	Endangered	1B.2
Caulanthus lemmonii	Lemmon's jewelflower	None	None	1B.2
Chloropyron palmatum	Palmate-bracted salty bird's-beak	Endangered	Endangered	1B.1
Cirsium crassicaule	Slough thistle	None	None	1B.1
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	None	None	1B.2
Delphinium recurvatum	Recurved larkspur	None	None	1B.2
Downingia pusilla	Dwarf downingia	None	None	2B.2
Eryngium racemosum	Delta button-celery	None	Endangered	1B.1
Eschscholzia rhombipetala	Diamond-petaled California poppy	None	None	1B.1
Gratiola heterosepala	Boggs Lake hedge-hyssop	None	Endangered	1B.2
Hibiscus lasiocarpos var. *occidentalis*	Woolly rose-mallow	None	None	1B.2
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	None	None	1B.2
Legenere limosa	Legenere	None	None	1B.1
Lilaeopsis masonii	Mason's lilaeopsis	None	Rare	1B.1
Limosella australis	Delta mudwort	None	None	2B.1
Madia radiata	Showy golden madia	None	None	1B.1
Navarretia nigelliformis ssp. *radians*	Shining navarretia	None	None	1B.2
Sagittaria sanfordii	Sanford's arrowhead	None	None	1B.2
Scutellaria galericulata	Marsh skullcap	None	None	2B.2
Scutellaria lateriflora	Side-flowering skullcap	None	None	2B.2
Symphyotrichum lentum	Suisun marsh aster	None	None	1B.2
Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	None	None	2B.1
Trifolium hydrophilum	Saline clover	None	None	1B.2
Tropidocarpum capparideum	Caper-fruited tropidocarpum	None	None	1B.1
Tuctoria greenei	Greene's tuctoria	Endangered	Rare	1B.1

Source: California Department of Fish and Wildlife, 2014.
Notes: CNDDB: California Natural Diversity Database (San Joaquin County)
California Native Plant Society
1B = Rare, Threatened, or Endangered in California and elsewhere.
2 = Rare, Threatened, or Endangered in California, but more common elsewhere.
3 = a review list – plants about which more information is needed.
4 = plants of limited distribution – a watch list
.1 = seriously Endangered in California (over 80% of occurrences Threatened-high degree and immediacy of threat).
.2 = fairly Endangered in California (20-80% occurrences Threatened).
.3 = not very Endangered in California (<20% of occurrences Threatened).

Table 4.4-2
Special Status Wildlife and Fish Species that May Occur in San Joaquin County

Scientific Name	Common Name	Status		
		Federal	State	CDFW
Invertebrates				
Andrena blennospermatis	Blennosperma vernal pool adrenid bee	None	None	sa
Andrena subapasta	Vernal pool adrenid bee	None	None	sa
Anthicus sacramento	Sacramento anthicid beetle	None	None	sa
Branchinecta mesovallensis	Midvalley fairy shrimp	None	None	sa
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	Threatened	None	None
*Hydrochara ricksecker*i	Ricksecker's water scavenger beetle	None	None	sa
Lepidurus packardi	Vernal pool tadpole shrimp	Endangered	None	None
Linderiella occidentalis	California lindiriella	None	None	sa
Lytta moesta	Moestand blister beetle	None	None	sa
Fish				
Hypomesus transpacificus	Delta smelt	Threatened	Endangered	None
Mylopharodon conocephalus	Hardhead	None	None	SSC
Pogonichthys macrolepidotus	Sacramento splittail	None	None	SSC
Spirinchus hhaleichthys	Longfin smelt	Candidate	Threatened	SSC
Amphibians				
Ambystoma californiense	California tiger salamander	Threatened	Threatened	SSC
Rana draytonii	California red-legged frog	Threatened	None	SSC
Rana boylii	Foothill yellow-legged frog	None	None	SSC
Spea hammondii	Western spadefoot	None	None	SSC
Reptiles				
Anniella pulchra pulchra	Silvery legless lizard	None	None	SSC
Emys marmorata	Western pond turtle	None	None	SSC
Masticophis flagellum ruddocki	San Joaquin whipsnake	None	None	SSC
Masticophis lateralis euryxanthus	Alameda whipsnake	Threatened	Threatened	None
Phrynosoma blainvillii	Coast horned lizard	None	None	SSC
Thamnophis gigas	Giant garter snake	Threatened	Threatened	None
Birds				
Agelaius tricolor	Tricolored blackbird	None	None	SSC
Aquila chrysaetos	Golden eagle	None	None	FP | WL
Ardea herodias	Great blue heron	None	None	sa
Athene cunicularia	Burrowing owl	None	None	SSC
Buteo regalis	Ferruginous hawk	None	None	WL
Buteo swainsoni	Swainson's hawk	None	Threatened	None
Circus cyaneus	Northern harrier	None	None	SSC
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	Proposed Threatened	Endangered	None
Dendroica petechia brewsteri	Yellow warbler	None	None	SSC
Elanus leucurus	White-tailed kite	None	None	FP
Eremophila alpestris actia	California horned lark	None	None	WL

Scientific Name	Common Name	Status Federal	State	CDFW
Falco columbarius	Merlin	None	None	WL
Icteria virens	Yellow-breasted chat	None	None	SSC
Lanius ludovicianus	Loggerhead shrike	None	None	SSC
Laterallus jamaicensis Coturniculus	California Black rail	None	Threatened	FP
Melospiza melodia	Song sparrow (Modesto Population)	None	None	SSC
Pandion haliaetus	Osprey	None	None	WL
Riparia riparia	Bank swallow	None	Threatened	None
Xanthocephalus xanthocephalus	Yellow-headed blackbird	None	None	SSC
Mammals				
Antrozous pallidus	Pallid bat	None	None	SSC
Corynorhinus townsendii	Townsend's big-eared bat	None	Candidate Threatened	SSC
Eumops perotis californicus	Western mastiff bat	None	None	SSC
Neotoma fuscipes riparia	Riparian (=San Joaquin Valley) woodrat	Endangered	None	SSC
Perognathus inornatus inornatus	San Joaquin pocket mouse	None	None	None
Sylvilagus bachmani riparius	Riparian brush rabbit	Endangered	Endangered	None
Taxidea taxus	American badger	None	None	SSC
Vulpes macrotis mutica	San Joaquin kit fox	Endangered	Threatened	None

Source: California Department of Fish and Wildlife, California Natural Diversity Database 2014.
Notes: CDFW= Department of Fish and wildlife
Status Abbreviations: SSC= species of special concern in California
FP= Fully Protected
WL = Watch List
sa = Special Animal – Animals for which no specific protection status has been designated by Federal or State regulatory agencies, but for which data indicates declining populations and that CDFW desires more information on. This status also includes protection for active nests of specific avian species.

4.4.2 REGULATORY SETTING

Federal

Federal Endangered Species Act

The USFWS, under the auspices of the Federal Endangered Species Act of 1973 (FESA), manages and protects species listed as endangered or threatened. The USFWS can issue a permit for incidental "take" of listed species as a result of otherwise lawful activities. Take, under the federal definition, means to harass, harm (including habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. The permitting process is used to determine if a project would jeopardize the continued existence of listed species and the mitigation measures that would be required to avoid or minimize impacts to listed species. Procedures for obtaining a permit for incidental take are identified under Section 7 of the FESA for federal properties or where federal actions are involved, and are identified under Section 10 of the FESA for non-federal actions.

Candidate species do not have the full protection of the FESA; however, the USFWS advises applicants that candidate species could be elevated to listed species at any time.

Migratory Bird Treaty Act (16 USC Section 703-711)

The Migratory Bird Treaty Act (MBTA) of 1918, implemented by the USFWS, is an international treaty that makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). The MBTA requires that Project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (1 February to 31 August, annually).

Bald and Golden Eagle Protection Act (16 USC Section 668)

The Bald and Golden Eagle Protection Act provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds. If compatible with the preservation of bald and golden eagles, the Secretary of the Interior may permit the taking, possession and transportation of bald and golden eagles and nests for scientific or religious purposes, or for the protection of wildlife, agricultural or other interests. The Secretary of the Interior may authorize the take of golden eagle nests, which interfere with resource development or recovery operations. Bald eagles may not be taken for any purpose unless the Secretary issues a permit prior to the taking.

Clean Water Act (33 USC 1252-1376)

Section 401 of the Clean Water Act (CWA) requires an applicant to obtain certification for any activity that may result in a discharge of a pollutant into Waters of the United States. As a result, proposed fill in waters and wetlands requires coordination with the appropriate State Regional Water Quality Control Board (RWQCB) that administers Section 401 and provides certification. The RWQCB also plays a role in review of water quality and wetland issues, including avoidance and minimization of impacts. Section 401 certification is required prior to the issuance of a Section 404 permit.

Under Section 404 of the CWA, the USACE has jurisdiction over "Wetlands" and "Waters of the United States." Permitting of activities that could discharge fill or dredge materials or otherwise adversely modify wetlands or other waters of the United States and associated habitat is required. Permits authorized by USACE under the CWA typically involve mitigation to offset unavoidable impacts on wetlands and other waters of the United States in a manner that achieves no net loss of wetland acres or values.

Executive Order 11990, Protection of Wetlands (May 24, 1977)

This Executive Order establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. On projects with federal actions or approvals, impacts on wetlands must be identified in the environmental document. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm to those wetlands must be included. This must be documented in a specific Wetlands Only Practicable Alternative Finding in the final environmental document for a proposed individual improvement project.

Section 10 of the Rivers and Harbors Act (33 USC 401 et seq.)

Section 10 of the Rivers and Harbors Act is administered by the USACE. This Section requires permits in navigable waters of the United States for all structures such as riprap and activities such as dredging. Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as means of interstate transport or foreign commerce. The USACE grants or denies permits based on the effects on navigation. Most activities covered under this act are also covered under Section 404 of the CWA.

Fish and Wildlife Coordination Act (16 USC 661-666)

The Fish and Wildlife Coordination Act (FWCA) applies to federal projects where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the CDFW. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to plant and animal resources. Provisions of the FWCA are implemented through the National Environmental Policy Act (NEPA) and Section 404 permit processes.

National Environmental Policy Act of 1969

NEPA established national policies and goals for the protection of the environment. NEPA directs all federal agencies to give proper consideration of the environment prior to commencing any federal action that may significantly affect the environment.

US Bureau of Land Management

The US Bureau of Land Management (BLM) manages large rural land areas, including land that is environmentally sensitive. The BLM governs uses that are allowed on land that it manages, striving to balance environmental protection and conservation goals with other uses such as recreation, and grazing.

National Forest Service

The Forest Service was established in 1905 and is an agency of the US Department of Agriculture. The Forest Service manages public lands in national forests and grasslands.

Council on Environmental Quality and US Environmental Protection Agency

The Council on Environmental Quality (CEQ) oversees NEPA, and the Environmental Protection Agency (EPA) carries out administrative aspects of the NEPA process. NEPA mandates that the federal government shall give appropriate consideration to potential adverse environmental impacts of their major actions, including impacts to biological resources.

US Fish and Wildlife Service

The USFWS administers the Federal Endangered Species Act (FESA), which designates critical habitat for Endangered species. This enables USFWS to carry out its mission to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of people. Critical habitat areas cannot be disturbed without permission from the USFWS and other federal agencies, depending on land ownership. The USFWS also manages a system of land and waters for the conservation of wildlife and associated ecosystems. These National Wildlife Refuges are primarily managed for the preservation and protection of unique or important resources and ecosystems.

US Army Corps of Engineers

The USACE has regulatory authority over waters of the US under Section 404 of the CWA. The term "waters of the US" includes (1) all waters that are or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide; (2) wetlands; (3) all waters such as interstate lakes, rivers, streams, mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of water mentioned above; (5) all tributaries of waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to the waters mentioned above.

Federal jurisdiction is dependent upon a demonstrated nexus between the subject water feature and navigable waters or interstate commerce. Previously, the USACE had routinely asserted jurisdiction over any isolated waters that could be used by migratory birds, thus establishing an interstate commerce nexus. A recent US Supreme Court decision in the Solid Waste Agency of Northern Cook County vs. US Army Corps of Engineers (SWANCC) case determined that "non-navigable, isolated, and intrastate"

waters whose sole reason for being regulated was their connection to migratory bird usage will not be regulated by the USACE. Therefore, any drainage or surface water features delineated within the project site must exhibit a connection to navigability or commerce to constitute a water of the US federal wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The USACE methods for determining the boundaries of jurisdictional wetlands are described in the 1987 Manual (Environmental Laboratory 1987). The methods set forth in the manual are based on the following three indicators that are normally present in wetlands: (1) hydrology providing permanent or periodic inundation by groundwater or surface water, (2) hydric soils, and (3) hydrophytic vegetation. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within all three parameters.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted in 1970 and intended to inform governmental decision-makers and the public about potential environmental effects of a project; identify ways to reduce adverse impacts; offer alternatives to the project; and disclose to the public why a project was approved. CEQA applies to projects undertaken, funded, or requiring an issuance of a permit by a public agency.

California Endangered Species Act

The California Endangered Species Act (CESA) establishes state policy to conserve, protect, restore, and enhance Threatened or Endangered species and their habitats. CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of Threatened or Endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. CESA definitions of Endangered and Threatened species parallel those defined in the FESA. Take authorizations from CDFW are required for any unavoidable impact to state-listed species resulting from proposed projects.

The CDFW designates a species as a species of special concern prior to considering the species for protected status. Species of special concern are those species for which CDFW has information indicating that the species is declining.

Native Plant Protection Act (Fish and Game Code Sections 1900–1913)

California's Native Plant Protection Act (NPPA) requires all state agencies to establish criteria for determining if a species, subspecies, or variety of native plant is Endangered or Rare. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use, which would adversely impact listed plants. This requirement allows CDFW to salvage listed plant species that would otherwise be destroyed.

Fish and Game Code Sections 1600–1616

The CDFW, through provisions of the Fish and Game Code Sections 1600–1616, is empowered to issue agreements (Streambed Alteration Agreements) for projects that would "divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" (Fish and Game Code Section 1602[a]). Streams and rivers are defined by the presence of a channel bed and banks, and subject to water flow. The limits of CDFW jurisdiction are also based on riparian habitat and may include riparian areas that do not meet USACE criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream away from frequently saturated soils).

State Park System

The State Park System (SPS) is the most ecologically diverse system of protected lands in the state. The long-term preservation of the state's biological and physical values is a core function of the California Department of Parks and Recreation. Sustaining these values is a high priority of its acquisition (and restoration) program.

Natural Community Preservation Act

The Natural Community Preservation Act (NCPA) aims at protecting many species using a regional approach to habitat preservation.

California Department of Fish and Wildlife

CEQA includes the policy of the state to "prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities." CEQA directs agencies to consult with the CDFW on any project the agency initiates that is not statutorily or categorically exempt from CEQA. *State CEQA Guidelines* (Section 15065(a)) declare that impacts to Rare,

Threatened or Endangered plants or animals are significant, and impacts to other species may be considered significant by the lead agency, depending on the applicability of other laws (e.g., Migratory Bird Treaty Act) and the discretion of the agency.

CDFW is required under the California Endangered Species Act (CESA), California Native Plant Protection Act (NPPA), CEQA, and Natural Community Conservation Planning Act (NCPPA) to conserve species through listing, habitat acquisition, and protection. The CDFW is also responsible for review of local land use planning, multi-species conservation planning, stewardship, recovery, research, and education.

CDFW is authorized to enter into Streambed Alteration Agreements with applicants that propose a project that would obstruct the flow or alter the bed, channel, or bank of a river or stream, including intermittent and ephemeral streams, where there is a fish or wildlife resource. Streambed Alteration Agreements usually include measures designed to protect biological resources.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CDF) reviews and approves plans for timber harvesting on private lands. In addition, the CDF plays a role in planning development in forested areas as a part of its responsibility for fighting wildland fires.

California Department of Parks and Recreation

The principal mission of the California Department of Parks and Recreation (CDPR) is to provide sites for a variety of recreational and outdoor activities to California residents and tourists. Natural resource management and protection is also a part of the mission of CDPR. Different park designations dictate the extent to which natural resources are a management priority; natural preserves, state parks, state reserves, and state wilderness designations are terms, which indicate that an area has outstanding natural features. The California Department of Parks and Recreation is a trustee agency that owns and operates all state parks and participates in land use planning affecting state parkland.

Regional Water Quality Control Board

The RWQCB is the primary agency responsible for protecting water quality in California under Section 401 of the Federal CWA and the California Porter-Cologne Water Quality Control Act. The RWQCB defines "waters of the state" as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB's jurisdiction includes waters of the US, which are considered a subset of waters of the state.

Local

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

A Habitat Conservation Plan (HCP) is a federal and/or state planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA) and Section 2081 of the California Endangered Species Act (CESA). An approved HCP within a defined plan area allows for the incidental take of species and habitat that are otherwise protected under FESA and CESA during development activities.

A Natural Community Conservation Plan (NCCP) is another state planning document administered by CDFW. An approved NCCP within a defined plan area allows for the incidental take of species and habitat that are otherwise protected under CESA during growth and development activities.

Background

The key purpose of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (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.

San Joaquin County's past and future (2001–2051) growth has affected and will continue to affect 97 special status plant, fish and wildlife species in 52 vegetative communities scattered throughout San Joaquin County's 1,400+ square miles and 900,000+ acres, which include 43 percent of the Sacramento-San Joaquin Delta's Primary Zone. The SJMSCP, in accordance with ESA Section 10(a)(1)(B) and CESA Section 2081(b) Incidental Take Permits, provides compensation for the conversion of open space to non-open space uses which affect the plant, fish and wildlife species covered by the Plan, hereinafter referred to as "SJMSCP Covered Species." In addition, the SJMSCP provides compensation to offset the impacts of Open Space land Conversions on non-wildlife related resources such as recreation, agriculture, scenic values and other beneficial Open Space uses.

The SJMSCP compensates for Conversions of Open Space for the following activities: 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.

Species coverage will be variable under the SJMSCP and will range from full coverage under federal and state law to CEQA coverage only. The 97 SJMSCP Covered Species include 25 state and/or federally listed species. The SJMSCP Covered Species includes 27 plants (six listed), four fish (two listed), four amphibians (one listed), four reptiles (one listed), 33 birds (seven listed), 15 mammals (three listed), and 10 invertebrates (five listed).

Implementation

SJCOG Inc. administers the SJMSCP, a voluntary mitigation plan, and holds the mitigation land. Project applicants are given the option of participating in the SJMSCP as a way to streamline compliance with required local, state, and federal laws regarding biological resources, and typically avoid having to approach each agency independently. According to the SJMSCP, adoption and implementation by local planning jurisdictions provides adequate compensation and mitigation for impacts to plants, fish, and wildlife. SJMSCP-permitted activities within the boundaries of San Joaquin County fulfill conservation and open space obligations and policies of local general plans, resolution, ordinances, and other regulations as they pertain to plants, fish, and wildlife. Adoption and implementation of the SJMSCP also secures compliance pursuant to the state and federal laws such as CEQA, the National Environmental Policy Act (NEPA), the Planning and Zoning Law, the State Subdivision Map Act, the Porter-Cologne Act, and the Cortese-Knox Act in regards to species covered under the SJMSCP. If an implementing agency chooses not to participate in the SJMSCP, it will be required to provide alternative mitigation in an amount and kind equal to that provided in the SJMSCP.

Applicants pay mitigation fees or provide land *in-lieu* of fees on a per-acre basis, as established by the SJCOG Inc. according to the measures needed to mitigate impacts to the various habitat and biological resources. Different types of land require different levels of mitigation; i.e., one category requires that 1 acre of a similar land type be preserved for each acre developed, while another type requires that 3 acres be preserved for each acre developed. Most of the County is mapped according to these categories

so that landowners, project proponents, and project reviewers are easily aware of the applicable SJMSCP fees for the proposed project.

The appropriate fees are collected or land in lieu is detained and remitted to SJCOG Inc. for administration. SJCOG Inc. uses the funds to preserve open space land of comparable types throughout the County, often coordinating with other private or public land trusts to purchase conservation easements or buy land outright for preservation. Development occurring on land that has been classified under the SJMSCP as "no-pay" would not be required to pay a fee but fulfill the biological requirements of the plan to minimize impacts to species. This category usually refers to already urbanized land and infill development areas. The fees are adjusted on an annual basis, based on qualified agricultural land sales in San Joaquin County which would meet mitigation requirements under the SJMSCP.

County and City General Plans

The County's and cities' General Plans outline the policies by which biological resources are managed and protected throughout the County and local jurisdictions. The plan includes policies for the protection of oak woodlands, large oak trees, and Endangered species. It should be noted that each of the jurisdictions within the County, including all of the Cities, are SJMSCP Participants and permitees under the SJMSCP.

Threatened or Endangered plant and wildlife species shall be protected in accordance with state and federal laws. The biological policies included in each jurisdiction's general plan are listed below:

San Joaquin County General Plan

- Resources of significant biological and ecological importance in San Joaquin County shall be protected. These include wetlands; riparian areas; Rare, Threatened, and Endangered species, and their habitats as well as potentially Rare or commercially important species; vernal pools; significant oak groves and heritage trees.
- No public action shall significantly diminish the wildlife and vegetative resources of the County; cumulatively significant impacts shall be avoided.
- The County shall encourage the protection of those habitat areas that are of size or quality so that they are no more than minimally affected by adjacent development. Connection of habitat areas shall be encouraged.
- Development in the vicinity of significant oak groves shall be designed and sited to maximize the long-term preservation of the trees and the integrity of their natural setting.
- No net loss of riparian or wetland habitat or values shall be caused by development.

- Development projects which have the potential to destroy wetlands shall not be permitted, unless:
  - no suitable alternative site exists for the land uses, 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 superior quantity and superior or comparable quality will be created or restored to compensate for the loss.
- The County shall support feeding areas and winter habitat for migratory waterfowl.
- Strips of land along waterways shall be protected for nesting and foraging habitat and for protection of waterway quality.
- Boater-recreational use in the Delta should not disturb wildlife or vegetation or weaken levees.
- Use of the Delta Channel Islands for levee materials or deposition of dredge spoils shall be strongly discouraged.
- Fisheries shall be protected by; 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.
- The County shall support restoration plans for anadromous fisheries and shall work with the California Department of Fish and Wildlife and other agencies or organizations in developing such plans.
- The County shall encourage the restoration and enhancement of once-productive degraded ecosystems, such as historic salmon runs on the Mokelumne and Calaveras rivers.
- The County shall support the establishment and maintenance of ecological preserves and accessibility to areas for nature study.
- Replacement vegetation generally shall be native vegetation. Landscaping with native trees and shrubs shall be encouraged in urban areas to provide suitable habitat for native wildlife, particularly in proposed open space uses of future development.
- Habitat that is required to be protected, restored, or created as mitigation for a project's impacts shall be monitored and maintained in accord with a County-approved program.

City of Escalon General Plan

- Promote biological diversity and the use of plant species compatible with the bioregion.

- 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 Plan Land Use Diagram.

- The City shall use natural or manmade features to transition from urban to non-urban uses.

City of Lathrop General Plan

- The integration of waterway habitat areas as part of the area wide system of open space.

- The preservation of all stands of vegetation along waterways which provide habitat, and achieving a standard of "no net loss of wetland acreage."

- The careful introduction of public and private recreation activities within habitat areas which will not disturb natural conditions either through intensity of operations, high levels of noise generation, or scarring of the landscape through development activity.

- The retention of hedgerows and other habitat areas within intensively farmed acreage which are compatible with agricultural operations.

- The protection of fisheries by preventing discharge of contaminated surface waters to waterways.

- The improvement of natural habitat along waterways.

- The creation of new habitat within multi-purpose open space areas designated for reuse of treated wastewater for wildlife management and recreation.

- Cooperative approaches among landowners to manage farmlands so as to increase the numbers of desirable species of wildlife.

City of Lodi General Plan

- The City shall protect the river channel, pond, and marsh, and riparian vegetation and wildlife communities and habitats in the Mokelumne River and floodplain areas.

- The City shall regulate the removal of trees that are defined as "heritage trees."

- New development shall be sited to maximize the protection of native tree species and sensitive plants and wildlife habitat.

- The City shall encourage the use of native plant species for landscaping roadsides, parks, and urban developments.

- The City shall require site-specific surveys to identify significant vegetation and wildlife habitat for development projects located in or near sensitive habitat areas.

- The City shall support federal and state laws and policies preserving Rare, Threatened, and Endangered species by ensuring that development does not adversely affect such species or by fully

mitigating adverse effects consistent with the recommendations of the US Fish and Wildlife Service and California Department of Fish and Wildlife.

- The City shall prohibit the development of facilities and trails in Lodi Lake Park that will degrade or destroy riparian habitat values.
- The City shall direct park use away from sensitive habitat areas through careful placement of facilities and trails in Lodi Lake Park.
- The City shall explore the purchase of or establishment of a joint agreement for open space preservation and habitat enhancement in the Woodbridge Irrigation District's (WID) property located north of the Mokelumne River.
- For the City's street tree program, the City shall select native trees based on the following criteria: resistance to pests, microclimate tempering (i.e., shade in summer; sun in winter), water conservation, aesthetics, and maintenance (including impacts on sidewalks and other paving).
- The City shall prohibit any activity that will disturb bottom sediments containing zinc deposits in the Mokelumne River; because such disturbance could cause fish kills.
- The City shall support strong regulatory action by the State Regional Water Quality Control Board to prevent the discharge of substances harmful to fish into the Mokelumne River.
- The City shall prohibit activities that could disturb anadromous fish in the Mokelumne River during periods of migration and spawning.
- The City should work with the California Department of Fish and Wildlife in identifying an area or areas suitable for Swainson's hawk and burrowing owl habitat; this land should be preserved and put into a mitigation land bank to mitigate impacts on existing habitat for these species. A mechanism should be established for developer funding of acquisition and management of lands in the mitigation bank.
- The City shall manage portions of storm drainage detention ponds and drainage ponds and other appropriate areas as wildlife habitat.

City of Manteca General Plan

- Minimize impact of new development on native vegetation and wildlife.
- Condition new development in the vicinity of the San Joaquin River and Walthall Slough to protect riparian habitat, wetlands, and other native vegetation and wildlife communities and habitats.
- Discourage the premature removal of orchard trees in advance of development, and discourage the removal of other existing healthy mature trees, both native and introduced.
- Protect special status species and other species that are sensitive to human activities.
- Allow contiguous habitat areas.

- Consider the development of new drainage channels planted with native vegetation, which would provide habitat as well as drainage.

City of Ripon General Plan

- Planning of projects which involve encroachment into the Stanislaus River riparian, areas shall be designed to minimize potential habitat losses.

- The City of Ripon will continue to participate in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP).

- Project applicants who elect not to participate in the SJMSCP shall be required to prepare biological analyses and provide alternative mitigation sufficient to reduce significant effects to less than significant.

City of Stockton General Plan

- The City shall strive to protect natural resource areas, fish and wildlife habitat, scenic areas, open space areas, agricultural lands, parks, and other cultural/historic resources (including Oak trees) from encroachment or destruction by incompatible development.

- The City shall support preservation, restoration, and enhancement of habitats of state or federally listed Rare, Threatened, Endangered, and/or other sensitive and special status species.

- The City shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats. Where possible and appropriate, such communities shall be restored or expanded.

- The City shall favor sensitive habitat protection and enhancement of contiguous areas over small segmented remainder parcels.

- The City shall consider the loss of sensitive habitats due to development to be a significant environmental impact. All development that is proposed to disturb or remove sensitive habitat shall demonstrate mitigation for this loss.

- The City shall continue to coordinate with the San Joaquin Council of Governments and comply with the terms of the Multi Species Habitat Conservation and Open Space Plan to protect critical habitat areas that support Endangered species and other special status species.

- The City shall require careful planning of new development in areas that are known to have particular value for biological resources to maintain sensitive vegetation and wildlife habitat.

- The City shall review development proposals against the California Natural Diversity Database (CNDDB) to assist in identifying potential conflicts with sensitive habitats or special status species.

- The City shall review development proposals in accordance with applicable federal, state, and local statutes protecting special-status species and jurisdictional wetlands.

- The City, in its lead agency role, shall take into consideration mitigation standards and policies of resource and regulatory agencies with jurisdiction over biological resources (e.g., USFWS, CDFW, etc.).

- The City shall require that a wetland delineation be prepared using the protocol defined by the US Army Corps of Engineers. On development sites with the potential to contain wetland resources, a report on the findings of this survey shall be submitted to the City as part of the application process.

- The City shall maintain a current database of biological resources, including maps that identify the locations of specific environmentally sensitive habitats and lists of special-status species.

- On sites that have the potential to contain critical or sensitive habitats or special-species or are within 100 feet of such areas, the City shall require the project applicant to have the site surveyed by a qualified biologist. A report on the findings of this survey shall be submitted to the City as part of the application process.

- The City shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation, and ensure the a maximum number and variety of well-adapted plants are maintained.

- The City shall approve only those activities in the Delta and related waterways that are consistent with the sensitive environmental characteristics of these areas.

- The City shall require disturbance of levee vegetation be minimized and vegetation replacement be consistent with flood control and reclamation district constraints.

- The City shall protect the fisheries and riparian habitat of the Delta and waterways from damage caused by the operation of marinas or the Port of Stockton.

- The City shall ensure that future changes to the City's General Plan and Development Code for lands in the city located within the Primary Zone of the Delta, as defined by the Delta Protection Act of 1992, be consistent with the goals of, and comply with, the Land Use and Resources Management Plan for the Primary Zone of the Delta adopted pursuant to Section 29763.5 of the Delta Protection Act of 1992.

- The City shall ensure that lighting associated with new development or facilities (including street lighting, recreational facilities, and parking) shall be designed to prevent artificial lighting from illuminating adjacent natural areas at a level greater than 1 foot-candle above ambient conditions.

- Until a Major Amendment to the existing SJMSCP is adopted to incorporate all areas of the City's proposed Sphere of Influence (SOI) into the SJMSCP coverage area, the City shall use the requirements of the SJMSCP to ensure effective protection of natural resources and compliance with applicable federal, state, and City policies and regulations. This process is intended to mirror exactly, the existing SJMSCP requirements for all areas proposed to be included within the City of Stockton SOI, but not currently located in the SJMSCP coverage area. For impacts to biological resources outside the SJMSCP's current coverage area, the City shall require mitigation of these impacts in a manner fully consistent with the current SJMSCP requirements. These requirements would include: (1) the collection of fees (to be used for the acquisition of habitat preserves) equivalent to those

specified in the current SJMSCP; (2) the imposition of SJMSCP Incidental Take Minimization Measures (ITMMs); and (3) consultation with resource agencies regarding incidental take coverage.

City of Tracy General Plan

- New development shall meet all federal, state, and regional regulations for habitat and species protection.
- The City shall continue to participate with the San Joaquin Council of Governments and other agencies to implement and enforce the San Joaquin Multi-Species Habitat Conservation and Open Space Plan.
- New development should incorporate native vegetation into landscape plans and discourage the use of invasive, non-native plant species.

4.4.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this EIR, San Joaquin COG has determined that adoption and/or implementation of the proposed RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts to biological resources, if any of the following would occur:

- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS;
- 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 CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted habitat conservation plan (HCP), natural communities conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan;

When considering each of the Mitigation Measures below, if the implementing agency chooses to participate in the SJMSCP and the proposed project is consistent with the SJMSCP, as amended, then pursuant to the Final EIR/EIS for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, dated November 15, 2000, and certified by SJCOG on December 7, 2000, (SCH #1997012055) implementation of the SJMSCP is expected to reduce impacts to biological resources resulting from the proposed project to a level of less-than-significant. That document is hereby incorporated by reference and is available for review during regular business hours at the SJCOG (555 E. Weber Avenue, Stockton, CA 95202) or online at: www.sjcog.org. As SJCOG has no ability to require local jurisdictions to require that project sponsors or applicants participation in the SJMSCP the impacts defied below, for the most part, remain significant and unavoidable.

Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the RTP/SCS on biological in the San Joaquin COG region. The RTP transportation projects and growth projections are regional, cumulative, and long-term in nature, and provide a conservative estimate of potential environmental impacts.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify population distribution and anticipated land use development to accommodate growth projections. The analysis in the Program EIR covers overall impacts of all transportation projects and growth patterns described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans, which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of biological resources includes a comparison between the expected future conditions with the plan and the expected future conditions if no plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however, it provides a meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The impact assessment for biological resources focuses on the potentially significant effects of the Plan on biological resources contained within the County. The methodology for determining the significance of

these impacts compares a regional-level analysis of the future Plan conditions to existing biological resources.

As noted above, areas within the region contain biological resources. Generally, with regard to biological impacts, the greater the change from existing conditions, the more significant the impact to the biological resources. The construction of a new roadway generally has a greater impact on biological resources than the widening of an existing one. Road widening, however, can have significant local impacts especially when requiring the removal of trees and existing biological habitats, or when construction of noise barriers or is necessary.

The development of new transportation facilities may affect biological resources, either by directly affecting a habitat or through indirect effects to adjacent areas. The region contains a fair number of biological resources; therefore, the potential for impacts to biological resources exists. Improvements within existing rights-of-way are less likely to affect existing biological resources; however, new highway segments near biological resources would constitute a significant impact. Also, reducing buffer zones between transportation corridors and reduction of biological resources through lane widening could cause significant impacts.

Since this document analyzes impacts to biological resources on a program level only, project-level analysis of impacts must be undertaken as appropriate.

Impacts and Mitigation Measures

Impact BIO-1 **Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS.**

The California Natural Diversity Data Base (CNDDB) search identified several documented special-status species within the County. All species are presumed present at any given time throughout their habitat range. Some species require localized microhabitats, while others are highly mobile and may occur throughout the County. Impacts to sensitive species would not be expected to be limited to those mapped by the CNDDB. The CNDDB system relies on reported sightings of sensitive species, and is not a complete inventory of sensitive species habitat. Special-status species may be directly or indirectly affected by RTP projects within the planning area if the improvements are to encroach on the species' habitat, or movement corridors. Below is a brief description of the special-status species that are present in the region and their habitat requirements. **Table 4.4-1** and **4.4-2** provides the species detailed description of the species habitat and listing status.

Wildlife

There are 50 special-status wildlife species that have the potential to occur in the project area. Of these, 12 are listed as Endangered or Threatened, or proposed for listing, under the federal and/or state Endangered Species Acts. These species include, the valley elderberry longhorn beetle (federally listed Threatened [FT]), vernal pool tadpole shrimp (federally listed Endangered [FE]), delta smelt (FT, California-listed Endangered [CE]), longfin smelt (federal Candidate for listing [FC], California-listed Threatened [CT]), California tiger salamander (FT, CT), California red-legged frog (FT), Alameda whipsnake (FT, CT), giant garter snake (FT, CT), Swainson's hawk (CT), western yellow-billed cuckoo (federally proposed Threatened, CE), California black rail (CT), bank swallow (CT), Townsend's big-eared bat (California Candidate for listing as Threatened), the riparian brush rabbit (FE, CE), and the San Joaquin kit fox (FE, CE).

Plants

There are 33 special-status plant species that have the potential to occur in the project area. Six of these species are federally and/or state-listed species. They include large-flowered fiddleneck (FE, CE), succulent owl's clover (FT, CE), palmate-bracted salty-bird's-beak (FE, CE), Delta button-celery (CE), Bogg's Lake hedge-hyssop (CE), and Green's tuctoria (FE, California Rare).

Sensitive Natural Communities

Some of the terrestrial and wetlands resources found within the project area are of global as well as regional significance and are therefore considered sensitive natural communities. Wetlands, including vernal pools scattered throughout San Joaquin County, riparian habitat along the Calaveras, Mokelumne, San Joaquin, and Stanislaus Rivers and other tributaries, and the entire Delta region in western San Joaquin County all provide essential habitat for a host of Endangered and Threatened plant and animal species. Many other organisms, without official status, depend upon wetlands to complete their lifecycles. The sensitive natural communities within the area that are currently Rare enough to be listed in the CNDDB include the following: Coastal and valley freshwater marsh, Elderberry savannah, Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, Great Valley oak riparian forest, Northern claypan vernal pool, Northern hardpan vernal pool, and Valley oak woodland.

Construction and maintenance activities associated with projects included in the RTP/SCS could result in the direct loss or indirect disturbance of special-status plant species that grow or could grow in the planning area. Project-related construction and maintenance could also result in loss or disturbance of special-status animal species or their habitats. Impacts on special-status plant species could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation.

Impacts on special-status wildlife or their habitat could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Significant impacts on special-status wildlife associated with highway projects can include:

- direct mortality from the collapse of underground burrows, resulting from soil compaction;
- direct mortality resulting from the movement of equipment and vehicles through the project area;
- increased mortality caused by higher numbers of automobiles on new or widened roads in migration corridors;
- loss of breeding and foraging habitat resulting from the filling of seasonal or perennial wetlands;
- loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation;
- abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, as a result of construction-related noises;
- loss of suitable foraging habitat for special-status raptor species; and
- loss or adverse constriction of migration corridors resulting from the construction of permanent building structures or features.

Proponents of specific projects in the RTP/SCS cannot guarantee that special-status species can be avoided as part of future projects. The design process for each project will involve field reconnaissance to identify the potential for impacts to special status species and to identify specific design measures that can be employed to avoid or lessen an impact.

Based upon the general planning nature of the RTP/SCS, development of detailed, site-specific information on this impact at the program level is not feasible. The implementing agency will conduct appropriate project-level environmental review and will be responsible for consideration of mitigation measures for significant effects on the environment. Impacts on Threatened or Endangered species related to land use and transportation changes from ongoing operations resulting from implementation of the proposed RTP/SCS are considered potentially significant for **Impact BIO-1.** Mitigation is required. **Mitigation Measures BIO-1** through **BIO-4** are described below

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

BIO-1: Implementing and local agencies should retain a qualified botanist to document the presence or absence of special-status plants before project implementation. Implement the following steps to document special- status plants:

- Review Existing Information. The botanist shall review existing information to develop a list of special-status plants that could grow in the specific project area. Sources of information consulted shall include CDFW's CNDDB, previously prepared environmental documents, city and county general plans, HCPs and NCCPs, and the CNPS electronic inventory.

- Coordinate with Agencies. The botanist shall coordinate with the appropriate agencies (CDFW, USFWS, Caltrans) to discuss botanical resource issues and determine the appropriate level of surveys necessary to document special-status plants.

- Conduct Field Studies. The botanist shall evaluate existing habitat conditions for each project and determine what level of botanical surveys may be required. The type of botanical survey shall depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required:

- Habitat Assessment. A habitat assessment will be conducted to determine whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys shall be required.

- Species-Focused Surveys. Species-focused surveys (or target species surveys) shall be conducted if suitable habitat is present for special-status plants. The surveys shall focus on special-status plants that could grow in the region, and would be conducted during a period when the target species are evident and identifiable.

- Floristic Protocol-Level Surveys. Floristic surveys that follow the CNPS Botanical Survey Guidelines shall be conducted in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The CNPS Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants, or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer months.

- Special-status plant populations identified during the field surveys shall be mapped and documented as part of CEQA and NEPA process, as applicable. As part of the processes, the implementing agency should prepare alternative designs that seek to avoid and/or minimize impacts to the special-status plants. If the project cannot be designed without complete avoidance, the implementing agency shall coordinate with the appropriate regulatory agency (*i.e.*, USFWS, NMFS, CDFG, USACE) to obtain regulatory permits and implement project-specific mitigation prior to any construction activities. In addition, the implementing agency can choose to compensate for the loss of area occupied by special-status plants through participation in the SJMSCP.

BIO-2: If special-status plants are identified in their project area, the implementing and local agencies that are the proponents of specific projects included in the proposed RTP/SCS shall implement the following measures to avoid and minimize impacts on special-status plants:

- Redesign or modify their project to avoid direct and indirect impacts on special status plants, if feasible.

- Protect special-status plants near their project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations. The environmentally sensitive area fencing shall be installed at least 20 feet from the edge of the population. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

Coordinate with the appropriate resource agencies and local experts to determine whether transplantation is feasible. If the agencies concur that transplantation is a feasible mitigation measure, the botanist shall develop and implement a transplantation plan through coordination with the appropriate agencies. The special-status plant transplantation plan shall involve identifying a suitable transplant site; moving the plant material and seed bank to the transplant site; collecting seed material and propagating it in a nursery; and monitoring the transplant sites to document recruitment and survival rates.

BIO-3: Implementing and local agencies should retain a qualified wildlife biologist to document the presence or absence of suitable habitat for special-status wildlife in the highway project study area. The following steps shall be implemented to document special-status wildlife and their habitats for each highway project:

- Review Existing Information. The wildlife biologist shall review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information shall be reviewed as part of this process: the USFWS special-status species list for the project region, CDFW's CNDDB, previously prepared environmental documents, city and county general plans, HCPs and NCCPs (if there are any), and USFWS issued biological opinions for previous projects.

- Coordinate with state and federal agencies. The wildlife biologist shall coordinate with the appropriate agencies (CDFW, USFWS, and Caltrans) to discuss wildlife resource issues in the project region and determine the appropriate level of surveys necessary to document special-status wildlife and their habitats.

- Conduct Field Studies. The wildlife biologist shall evaluate existing habitat conditions and determine what level of biological surveys may be required. The type of survey required shall depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or a combination of the following levels of survey may be required:

- Habitat Assessment. A habitat assessment determines whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and to determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys shall be required.

- Species-Focused Surveys. Species-focused surveys (or target species surveys) shall be conducted if suitable habitat is present for special-status wildlife and if it is necessary to determine the presence or absence of the species in the project area. The surveys shall focus on special-status wildlife species that have the potential to occur in the region. The surveys shall be conducted during a period when the target species are present and/or active.

- Protocol-Level Wildlife Surveys. The project proponent shall comply with protocols and guidelines issued by responsible agencies for certain special-status species. USFWS and CDFW have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) the Delta Smelt and San Joaquin kit fox. The protocols and guidelines may require that surveys be conducted during a particular time of year and/or time of day when the species is present and active. Many survey protocols require that only a USFWS- or CDFW-approved biologist perform the surveys. The project proponent shall coordinate with the appropriate state or federal agency biologist before the initiation of protocol-level surveys to ensure that the survey results shall be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species. Implementing agencies that chose to participate in the SJMSCP shall conduct surveys in accordance with the guidelines set forth in the SJMSCP.

Special-status wildlife or suitable habitat identified during the field surveys shall be mapped and documented as part of the CEQA and NEPA documentation, as applicable.

BIO-4: Implementing and local agencies should implement the following measures to avoid and minimize impacts on special-status wildlife and their habitats:

- Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.

- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking shall be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (USFWS and CDFW). Implementing agencies that choose to participate in the SJMSCP shall consult and coordinate with SJCOG. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- Restrict construction-related activities to the nonbreeding season for special-status wildlife species that could occur in the project area. Timing restrictions may vary depending on the species and could occur during any time of the year. Coordinate with the appropriate resource agencies to determine whether a monitoring plan for special-status wildlife is necessary as part of all highway projects. If a monitoring plan is required, it shall be developed and implemented in coordination with appropriate agencies and shall include:

  - a description of each of the wildlife species and of suitable habitat for species that could occur at the project site;

  - the locations of known occurrences of special-status wildlife species within 1.0 mile of the project site;

  - the location and size of no-disturbance zones in and adjacent to environmentally sensitive areas for wildlife;

  - directions on the handling and relocating of special-status wildlife species found on the project site that are in immediate danger of being destroyed; and

  - notification and reporting requirements for special-status species that are identified on the project site.

Level of Significance After Mitigation

Implementing agencies that choose to participate in the SJMSCP can reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact BIO-2 **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.**

The County contains sensitive and natural communities including a variety of oak woodland habitats, predominately in the southwestern and northeastern portion of the County. California regulations require a lead agency to determine whether a project within its jurisdiction may result in significant effects to oak woodlands. If an agency determines that there may be a significant effect to oak woodlands as a result of a project, the agency must require oak woodlands mitigation alternatives to mitigate the significant effect. Such mitigation alternatives includes: conservation through the use of conservation easements; planting and maintaining an appropriate number of replacement trees; or the contribution of funds for the purpose of purchasing oak woodlands conservation easements.

Streams, rivers, wet meadows, and vernal pools (wetlands and jurisdictional waters) are of high concern because they provide unique aquatic habitat (perennial and ephemeral) for many endemic species, including special-status plants, birds, invertebrates, and amphibians. These aquatic habitats oftentimes qualify as protected wetlands or jurisdictional waters and are protected from disturbance through the CWA.

There are numerous aquatic habitats in the County that qualify as federally protected wetlands and jurisdictional waters. Section 404 of the CWA requires any project that involves disturbance to a wetland or water of the US to obtain a permit that authorizes the disturbance. If a wetland or jurisdictional water is determined to be present, then a permit must be obtained from the USACE to authorize a disturbance to the wetland. Although subsequent improvements may disturb protected wetlands and/or jurisdictional waters, the regulatory process that is established through Section 404 of the CWA ensures that there is "no net loss" of wetlands or jurisdictional waters. If, through the design process, it is

determined that an improvement project cannot avoid a wetland or jurisdictional water, then the USACE would require that there be an equal amount of wetland created elsewhere to mitigate any loss of wetland.

Construction activities associated with RTP/SCS projects, such as congestion relief projects, railroad crossing safety projects consisting of overpasses or overcrossings, and pedestrian/bicycle projects such as bicycle routes along Stanislaus and Calaveras River could result in the disturbance or loss of waters of the United States. This includes perennial and intermittent drainages; unnamed drainages; vernal pools; freshwater marshes; and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), alteration of bed and bank, and other construction-related activities.

The significance of this impact would depend on the amount and kind of habitat removed and the ability of individual projects to mitigate their impact. Removal of large riparian trees, for example, can reduce stream shading and increase temperatures. Removal of riparian shrubs or grasses can increase erosion and cause siltation impacts. Removal of aquatic vegetation such as rushes, cattails, or sedges can remove valuable aquatic food sources, spawning or cover habitat, and decrease the water resource's ability to recycle nutrients. Lane additions achieved through re-striping would have less or no impact compared to lane additions and new roadways.

Development that would occur as a result of implementation of the RTP/SCS would have the potential to result in the loss of riparian habitat. However, the majority of the development under the plan would be in urbanized areas that do not have substantial amounts of valuable habitat. Nonetheless, due to the large number of projects that would be implemented as a result of the RTP/SCS, and the large area affected by development, it is anticipated that the plan would substantially affect riparian and wetland habitat.

Impacts on riparian and other sensitive habitats located in the Plan area related to land use and transportation changes from ongoing operations resulting from implementation of the proposed RTP/SCS are considered potentially significant for **Impact BIO-2**. Mitigation is required. **Mitigation Measures BIO-5** through **BIO-7** are described below.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

BIO-5: Implementing and local agencies should retain a qualified biologist to document the location, type, extent, and habitat functions and values for riparian communities that occur in the site-specific project area and could be affected by their project. This information shall be mapped and documented as part of CEQA and NEPA documentation, as applicable.

BIO-6: If riparian communities are present in the project area, implementing and local agencies should avoid or minimize impacts on riparian communities by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on riparian communities, if feasible.
- Protect riparian communities near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the riparian vegetation. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire shrub. Shrub vegetation shall be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration of the species. Cutting shall be limited to a minimum area necessary within the construction zone. This type of removal shall be allowed only for shrub species (all trees shall be avoided) in areas that do not provide habitat for sensitive species (e.g., willow flycatcher). To protect migratory birds, no woody riparian vegetation shall be allowed beginning March 15 and ending September 15, as required under the Migratory Bird Treaty Act.

BIO-7: If riparian vegetation is removed as part of their project, implementing and local agencies should compensate for the loss of riparian vegetation to ensure no net loss of habitat functions and values. Compensation ratios shall be based on site-specific information and determined through coordination with state and federal agencies (including CDFW, USFWS, the USACE, and NMFS). Compensation shall be provided at a minimum 1:1 ratio (1 acre restored or created for every 1 acre removed) and may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. Develop a restoration and monitoring plan that describes how riparian habitat shall be enhanced or

recreated and monitored over a minimum period of time, as determined by the appropriate state and federal agencies. Implement the restoration and monitoring plan. Alternatively, compensation and monitoring requirements can be met through participation in the SJMSCP.

Level of Significance After Mitigation

Implementing agencies that choose to participate in the SJMSCP can reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact BIO-3 **Have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.**

Construction and maintenance activities associated with projects included in the RTP/SCS could result in the disturbance or loss of waters of the United States, including creeks, rivers, streams, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), alteration of bed and bank, and other construction-related activities, resulting in long-term degradation of a sensitive plant community, fragmentation, or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. Based upon the general planning nature of the RTP/SCS, development of detailed, site-specific information on this impact at the program level is not feasible. The implementing agency will conduct appropriate project-level environmental review and will be responsible for consideration of mitigation measures for significant effects on the environment. However, as the potential exists for RTP/SCS transportation or development projects to impact federally protected wetlands impacts are considered potentially significant for **Impact BIO-3.** Mitigation is required. **Mitigation Measures BIO-8** through **BIO-10** are described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

BIO-8: Implementing and local agencies should identify wetlands using both USACE and USFWS/CDFW definitions of wetlands. USACE jurisdictional wetlands shall be delineated using the methods outlined in the USACE 1987 Wetlands Delineation Manual and the Arid West Manual. The jurisdictional boundary for other waters of the United States shall be identified based on:

- The shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area (33 CFR 328.3[e]).

This information shall be mapped and documented as part of the CEQA and NEPA documentation, as applicable, and in wetland delineation reports.

BIO-9: Implementing and local agencies should avoid and minimize impacts on wetlands and other waters of the United States (creeks, steams, and rivers) by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on wetland habitats.

- Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the wetland. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands that are considered special-status shrimp habitat). The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, shall be used.

- Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation.

- Stabilize exposed slopes and stream banks immediately on completion of installation activities. Other waters of the United States shall be restored in a manner that

encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.

- In highly erodible stream systems, stabilize banks using a non-vegetative material that will bind the soil initially and break down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.

- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.

These measures shall be incorporated into contract specifications and implemented by the construction contractor. In addition, the project proponent shall ensure that the contractor incorporates all state and federal permit conditions into construction specifications. If the implementing agency chooses to participate in the SJMSCP, all SJMSPC conditions shall also be incorporated into construction specifications.

BIO-10: If wetlands are filled or disturbed as part of the highway project, implementing and local agencies should compensate for the loss of wetland habitat to ensure no net loss of habitat functions and values. Compensation ratios shall be based on site-specific information and determined through coordination with state and federal agencies (including CDFW, USFWS, and USACE). The compensation shall be at a minimum 1:1 ratio (1 acre restored or created for every 1 acre filled) and may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. A restoration and monitoring plan shall be developed and implemented if on-site or off-site restoration or creation is chosen. The plan shall describe how wetlands shall be created and monitored over a minimum of five years (or as required by the regulatory agencies). Alternatively, compensation and monitoring requirements can be met through participation in the SJMSCP.

Level of Significance After Mitigation

Implementing agencies that choose to participate in the SJMSCP can reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately

responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact BIO-4 **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.**

There are many native fish and wildlife species within the County that migrate or utilize movement corridors. The most notable for their protection status include the Delta smelt and longfin smelt. The RTP/SCS directs growth and development to urbanized areas, thus minimizing interference with habitat movement of fish and wildlife species.

The individual transportation improvements identified in the RTP/SCS have not been designed or approved. Each project will be designed consistent with the applicable county, city, state, and/or federal requirements to ensure that appropriate design measures, including avoidance, if appropriate, are incorporated into the design of each improvement project. It will be important that each transportation project review the potential for impacts to riparian habitat, which is critical for the maintenance of high quality fish habitat and habitat for the riparian brush rabbit. It provides cover, controls temperature, stabilizes stream banks, provides food, and buffers streams from erosion and impacts of adjacent land uses. Riparian vegetation also affects stream depth, current velocity, and substrate composition.

There is a chance that protected migratory species, including salmon runs, the Delta Smelt, and Longfin Smelt, or emigration of young San Joaquin kit fox to new territories could be impacted throughout the buildout of transportation improvements and land use strategies identified in the RTP/SCS. The following mitigation measure would ensure that all future projects are designed to facilitate the movement of sensitive species to the greatest extent feasible. Where full design mitigation is not feasible, compliance with state and federal permit requirements would offset any potential impacts associated with project implementation. Nevertheless, impacts on native resident or migratory fish or wildlife species related to land use and transportation resulting from implementation of the proposed RTP/SCS at the regional level are considered potentially significant for **Impact BIO-4.** Mitigation is required. **Mitigation Measure BIO-11** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

BIO-11: Prior to design approval of RTP projects that contain movement habitat, the implementing agency should incorporate economically viable design measures, as applicable and necessary, to allow wildlife or fish to move through the transportation corridor, both during construction activities and post construction. Such measures may include appropriately spaced breaks in a center barrier, or other measures that are designed to allow wildlife to move through the transportation corridor. If the project cannot be designed with these measures due to traffic safety, etc., the implementing agency shall coordinate with the appropriate regulatory agency (i.e., USFWS, National Marine Fisheries Service [NMFS], CDFW) to obtain regulatory permits and implement alternative project-specific mitigation prior to any construction activities.

Level of Significance After Mitigation

Implementing agencies that choose to participate in the SJMSCP can reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage implementing agencies to adopt measure BIO-11 through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt this mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact BIO-5 **Conflict with any local policies or ordinances protecting biological resources, such as a preservation policy or ordinance**

Impact BIO-6 **Conflict with the provisions of an adopted habitat conservation plan (HCP), natural communities conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan**

Construction and maintenance activities associated with projects in the RTP/SCS could result in conflicts with local policies or ordinances that protect locally significant biological resources, including heritage or native trees. Based upon the general planning nature of the RTP/SCS, development of detailed, site-specific information this impact at the program level is not feasible. The implementing agency will conduct appropriate project-level environmental review and will be responsible for consideration of mitigation measures for significant effects on the environment.

The individual RTP/SCS projects are subject to the various habitat conservation plans discussed above, including the San Joaquin Multi-Species Habitat Conservation and Open Space Plan. The RTP/SCS projects will be reviewed by the SJCOG Board of Directors Review to ensure that the biological impacts are within the parameters established by the applicable specific plan(s). Further, as discussed in the RTP/SCS (see Chapter 5 Performance of the Sustainable Communities Strategy) all land use changes would be subject to local plans and policies. As such, no specific zoning changes would occur as a direct result of the RTP/SCS, rather each individual jurisdiction would be responsible for approving land use and zoning changes. The RTP/SCS projects will be reviewed by the SJCOG Board of Directors Review for the following:

- Coverage for the proposed project is consistent with the overall habitat plan's biological intent and conservation program.
- Biological impacts and Incidental Take associated with the proposed project are within the scope of the environmental analyses adopted in conjunction with the habitat plan.
- The project does not introduce significant new biological conditions into the Plan Area (i.e., impacts of the proposed project are less than or equal to those described in the habitat plan and its supporting environmental documents).
- The project acres have been analyzed based on habitat type (e.g., Natural Land, Agricultural Habitat Land, or Multi-Purpose Open Space Land) and sufficient take acres remain for each habitat type to allow coverage of the proposed project as permitted under the applicable habitat plans.
- The project is adjacent to existing city limits; or
- The project does not include installation of a linear barrier to species dispersal

Compliance with the requirements of specific habitat plans **and Mitigation Measures BIO-1** through **BIO-12** would ensure that impacts are less than significant.

To the extent possible, SJCOG and local jurisdictions work with federal agencies and regional partners regarding proposed development in areas containing federally or state protected natural resources. SJCOG gathers and considers information on the timing of any applicable permits and their relationship to Habitat Conservation Planning (HCP) and Natural Community Conservation Planning (NCCP) planning efforts to feed into phasing assumptions for the RTP/SCS land use forecast. Given available data, mapping, and HCP and/or NCCP status, SJCOG recognizes the constraints imposed by the federal and state Endangered Species Laws. The ultimate resolution of the many ongoing natural resources planning efforts will have a major influence on future growth patterns in the region. The forecasted development pattern in this RTP/SCS considered the uncertainties associated with these ongoing efforts throughout the region. The progress of these planning initiatives will be carefully monitored, and it is

expected that once the HCPs/NCCPs are adopted and being implemented, their provisions will influence land use forecasts in future RTPs/SCSs.

However, impacts on protected biological resources related to land use and transportation changes resulting from implementation of the proposed RTP/SCS are considered potentially significant for **Impact BIO-5** and **Impact BIO-6.** Mitigation is required. **Mitigation Measure BIO-12** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

BIO-12: Implementing agencies should ensure that projects comply with general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements shall be demonstrated in project-level environmental documentation. Ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.

Level of Significance After Mitigation

Implementing agencies that choose to participate in the SJMSCP can reduce impacts to biological resources resulting from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP. With implementation of **Mitigation Measures BIO-1** through **BIO-12** and continued coordination among SJCOG in the HCP/NCCP process, impacts would be less than significant.

4.4.4 CUMULATIVE IMPACTS

Under the 2014 RTP/SCS habitat fragmentation and loss as well as disturbance would occur. Many of these impacts would be the direct result of either transportation improvements or development. Loss of habitat as well as habitat fragmentation would contribute to statewide impacts to protected species. Many important habitat corridors cross San Joaquin's boundaries. As a result, the loss of an important corridor, or fragmentation of habitat could limit the movement of wildlife species resulting in additional cumulative impacts. Similarly, fragmentation could reduce the viability of a species beyond the plan area. Therefore, the 2014 RTP/SCS would contribute to a cumulative biological resources impact. Implementing agencies that choose to participate in the SJMSCP can reduce impacts to biological resources resulting

from a proposed project to a level of less-than-significant if the proposed project is consistent with the SJMSCP.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures BIO-1 through BIO-11**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.4.5 COMPARISON WITH THE NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365.960 people by 2040, however, no regional transportation investments would be made beyond the existing programmed projects. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments and growth policies contained within the RTP/SCS.

Under the No Project Alternative, fewer areas would be impacted by excavation and construction activities related to transportation projects. However, the No Project Alternative is expected to result in a less concentrated growth pattern, which would affect an increased amount of currently undisturbed land. While the No Project Alternative would reduce the number of transportation projects built in the San Joaquin COG region, it would result in greater vacant land consumption that could, in turn, increase the chance to affect significant biological resources. On balance, it is anticipated that the RTP/SCS's impacts to biological resources would be less than the No Project Alternative because it would result in 18,123 acres of land consumed compared to 35,184 acres of land consumed under the No Project Alternative.

As discussed above, implementation of the RTP/SCS would result in cumulative impacts to biological resources throughout the State of California as new development occurs and land is disturbed, thereby impacting biological resources. The No Project Alternative would consume greater amounts of vacant land and result in a more diffuse growth pattern. Therefore, the No Project Alternative's cumulative impacts to biological resources would be greater than those of the RTP/SCS.

4.5 CULTURAL RESOURCES

This section addresses the existing cultural resources within the region and evaluates the significance of the changes in cultural resources that could result from development of the 2014 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). In addition, as appropriate and feasible, mitigation measures are identified to reduce potentially significant adverse impacts.

4.5.1 ENVIRONMENTAL SETTING

The environmental setting is summarized from a combination of sources. These include: the 2011 RTP EIR, the California Historical Resources Office of Historic Preservation, and the 2009 San Joaquin County General Plan Update Chapter 13, Recreation and Cultural Resources.

Paleontological Resources

Paleontology is a branch of geology that studies prehistoric life forms other than humans, through the study of plant and animal fossils. Paleontological resources are fossilized remains of organisms that lived in the region in the geologic past and therefore preserve an aspect of the County's prehistory which is important in understanding the development of the region as a whole, as many of these species are now extinct. Like archaeological sites and objects (which pertain to human occupation), paleontological sites and fossils are non-renewable resources. They are found primarily in sedimentary rock deposits and are most easily found in regions that may have been uplifted and eroded, but they may also be found anywhere that subsurface excavation is being carried out (e.g., streambeds, under roads). Most of the San Joaquin Valley Basin is composed of sedimentary deposits.

The Hollister Field Office (Central California) of the Bureau of Land Management reports that significant fossil bearing deposits in the region occur in the Diablo Range of the Coast Mountain Ranges, primarily along the west side of the San Joaquin Valley. Sixty-five million years ago, the San Joaquin Valley was part of the Pacific Ocean and the Coast Mountain ranges were a series of islands that isolated whole groups of organisms. These island residents included many rare and unique animals of the Cretaceous Period and of the Oligocene and Miocene Epochs of the Tertiary Period. Some of the fossils recovered from and/or documented in the Hollister Field Office include: mollusk, shark, bony fish, turtle, sea lion, coral, deer, oyster, horse, weasel, whale, rhinoceros, sponge, camel, bear, and dinosaur.

The San Joaquin Valley contains exceptionally productive Pliocene-age (approximately 2 to 4.5 million years old) fossil-bearing beds, particularly in the western portions of the region. The rock deposits in this area produce a world famous supply of paleontological treasures, including but not limited to abundant and perfectly preserved sand dollars, Pectens, and various fresh water mollusks. These fossils are

entombed in the sediments deposited within a complex intergrading of fresh water, estuarine and marine paleoconditions directly related to the last great inland sea that periodically inundated the modern Central Valley of California.

Fossils and their Associated Formations

Geologic formations are the matrix in which most fossils are found, occasionally in buried paleosols (ancient soils). These formations are totally different from modern soils and cannot be correlated with soil maps that depict modern surface soils representing only a thin veneer on the surface of the earth. Geologic formations may range in thickness from a few feet to hundreds of thousands of feet, and form complex relationships below the surface. Geologic maps (available through the US Geological Survey [USGS] or California Geological Survey) show the surface expression (in two dimensions) of geologic formations along with other geologic features such as faults, folds, and landslides. Although sedimentary formations were initially deposited one atop the other, much like a layer cake, over time the layers have been squeezed, tilted, folded, cut by faults and vertically and horizontally displaced, so that today, any one rock unit does not usually extend in a simple horizontal layer. If a sensitive formation bearing fossils can be found at the surface in an outcrop, chances are that same formation may extend not only many feet into the ground straight down, it may well extend for miles just below the surface. Consequently, predicting which areas are paleontologically sensitive is a difficult task.

Determining Paleontological Potential

The most general paleontological information can be obtained from geologic maps, but geologic cross sections (slices of the layer cake to view the third dimension) must be reviewed for each area in question. These usually accompany geologic maps or technical reports. Once it can be determined which formations may be present in the subsurface, the question of paleontological resources must be addressed. Even though a formation is known to contain fossils, they are not usually distributed uniformly throughout the many square miles the formation may cover. If the fossils were part of a bay environment when they died, perhaps a scattered layer of shells will be preserved over large areas. If on the other hand, a whale died in this bay, you might expect to find fossil whalebone only in one small area of less than a few hundred square feet. Other resources to be considered in the determination of paleontological potential are regional geologic reports, site records on file with paleontological repositories and site-specific field surveys.

General Location and Significance of Major Finds in San Joaquin County

There are many fossil localities recorded in San Joaquin County. Paleontologists consider all vertebrate fossils to be of significance. Fossils of other types are considered significant if they represent a new

record, new species, an oldest occurring species, the most complete specimen of its kind, a rare species worldwide, or a species helpful in the dating of formations. However, even a previously designated low potential site may yield significant fossils. The exact locations are considered proprietary and therefore not presented (to prevent the removal or destruction of these important, nonrenewable resources).

Prehistoric Setting

Human occupation of the northern San Joaquin Valley is believed to date prior to the terminal Pleistocene Epoch, 12,000 years before present (BP). Although few archaeological sites demonstrate evidence of human occupation of the San Joaquin Valley during the late Pleistocene and early Holocene (12,000–6,500 BP), this is likely a product of the archaeological record itself rather than lack of use of this area. Most Pleistocene- and early Holocene-epoch sites are deeply buried in accumulated gravels and silts or have eroded away.[1] The earliest sites in and around the County are believed to be the Farmington Complex sites in San Joaquin and Stanislaus counties, the Clark Flat sites (CA-Cal-342 and CA-Cal-347), and possibly the Sky Rocket site, CA-Cal-629/630.[2] These sites are on the San Joaquin Valley–Sierra Nevada foothills interface. Artifacts associated with this period are dominated by stemmed points and formed flake tools with diagnostic shapes; plant-processing stone tools are evident at CA-CAL-342 between 6750 and 6500 BP.

Archaeological evidence from the Middle Holocene (6500–4500 BP) for the northern San Joaquin Valley is also limited to the San Joaquin Valley–foothills interface. Three sites (CA-Cal-342, CA-Cal-347, and CA-Cal-286) have produced artifacts that date to the Middle Holocene. Artifacts from CA-Cal-342 include stemmed projectile points and formed flake tools of the Early Holocene with the addition of Pinto Series projectile points.

The Early Period (4500–2500 BP) of the Late Holocene (4500 BP–present), attributed to the Windmiller Pattern, is known from several lower Sacramento Valley sites (CA-SJo-56, CA-SJo-68, SA-SJo-142, CA-Sac-107, and CA-Sac-127) and one Stockton area site (CA-SJo-112). The Windmiller Pattern is characterized by the exploitation of a wide variety of terrestrial mammals, fish, and birds, and by an emphasis on hard-seed procurement. The artifact assemblage includes large spear and projectile points; trident fish spears; at least two types of fishhooks; quartz crystals and a diversity of charmstone styles; and a baked clay net sinkers, pecan-shaped fish-line sinkers, and cooking balls. Groundstone items include both the handstone and millingslab, and the mortar and pestle. The bone tools include awls, needles, and flakers. Utilitarian items were often acquired as finished products through trade with outlying areas. Formal cemeteries

1 Moratto, J. Michael, *California Archaeology (New World archaeological record),* 1984.

2 Dillon 2002

appear to have been located both within and away from the village, and the deceased were often buried with red ochre and rich grave offerings.

The Middle Period extended from approximately 2500–1300 BP in Central California and is commonly identified with the Berkeley Pattern. The primary difference between the Berkeley Pattern and the Windmiller Pattern is the greater emphasis on acorn consumption within the Berkeley Pattern, reflected by more numerous and varied mortars and pestles. The Berkeley Pattern also possessed a well-developed bone industry and such technological innovations as ribbon flaking of chipped stone artifacts. Also, the arrow point replaced the dart point in the later reaches of this period.

The final prehistoric period is the Late Period (450–100 BP) identified with the Augustine Pattern.[3] The Augustine Pattern appears to be related to the Berkeley Pattern, and the differences between the two may be the result of the combination of Berkeley traits with those carried into the central California region by migrating populations from the north, an event that began approximately 1800 BP. The Augustine Pattern exhibited great elaboration of ceremonial and social organization. Exchange became well developed, and acorns were exploited with even greater intensity, as evidenced by shaped mortars and pestles and numerous hopper mortars. Other notable elements of the material culture assemblage included smaller arrow points, flanged tubular smoking pipes (cloud blowers); harpoons; an especially elaborate baked clay industry, including figures and pottery vessels (Cosumnes Brownware); and clamshell disk beads. Other traits included the introduction of preinterment burning of offerings in a grave pit during the mortuary ritual, increased village sedentism, population growth, and an incipient monetary economy in which beads were used as a standard of exchange.

Ethnographic Background

Northern Valley Yokuts

Northern Valley Yokuts territory is bounded roughly by the crest of the Diablo Range on the west and the foothills of the Sierra Nevada on the east. The southern boundary is approximately where the San Joaquin River bends northward, and the northern boundary is roughly halfway between the Calaveras and Mokelumne Rivers.

Population estimates for the Northern Valley Yokuts vary from 11,000 to more than 31,000 individuals. Populations were concentrated along waterways and on the better-watered east side of the San Joaquin River. Clusters of villages made up tribelets that were governed by headmen. The number of tribelets is estimated at 30 to 40; each tribe spoke their own dialect of the Yokuts language.

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3 Moratto, J. Michael, *California Archaeology (New World archaeological record),* 1984.

Principal settlements were located on the tops of low mounds, on or near the banks of the larger watercourses. Settlements were composed of single-family dwellings, sweathouses, and ceremonial assembly chambers. Dwellings were small and lightly constructed, semi-subterranean, and oval. The public structures were large and earth-covered. Sedentism was fostered by the abundance of riverine resources in the area.

Subsistence among the Northern Valley Yokuts revolved around the waterways and marshes of the lower San Joaquin Valley. Fishing with dragnets, harpoons, and hook and line yielded salmon, white sturgeon, river perch, and other species of edible fish. Waterfowl and small game that were attracted to the riverine environment also provided sources of protein. The contribution of big game to the diet was probably minimal. Vegetal staples included acorns, tule roots, and seeds.

Goods not available locally were obtained through trade. Paiute and Shoshone groups on the eastern side of the Sierra were suppliers of obsidian. Shell beads and mussels were obtained from coastal Salinan and Costanoan groups. Trading relations with Miwok groups to the north yielded baskets, and bows and arrows. A network of trails facilitated overland transport, and tule rafts were used for water transport.

Plains Miwok

The Plains Miwok inhabited the lower reaches of the Mokelumne and Cosumnes Rivers and the banks of the Sacramento River, from Rio Vista to Freeport and south nearly to Stockton. The primary sociopolitical unit was the tribelet, comprising the residents of several base settlements and their associated seasonal camps.

The basic subsistence strategy of the Plains Miwok was seasonally mobile hunting and gathering. The only cultivated crop was tobacco and the only domesticated animal was the dog. Plant foods included acorns, buckeyes, laurel nuts, hazelnuts, seeds, roots, greens, and berries. Acorns, the primary staple, were gathered in the fall and stored through the winter. Seeds were gathered from May through August. Intentional, periodic burning in August ensured an ample supply of seed- bearing annuals and forage for game. The Miwok ate more meat in the winter, when the only plant resources available were those that had been stored. Hunting was accomplished with the aid of the bow and arrow, traps, and snares. Animal foods consisted of deer; elk; antelope; rodents; waterfowl; quail, pigeons, flickers, and other birds; freshwater mussels and clams; land snails; fish; and insects. Salt was obtained from springs or through trade with people from the Mono Lake area.

Miwok technology included tools of bone, stone, antler, wood, and textile. Typical basketry items were seed beaters; cradles; sifters; rackets used in ball games; and baskets for storing, winnowing, parching, and carrying burdens. Other textiles included mats and cordage. Plains Miwok constructed several types

of structures, such as conical habitation structures fashioned from tule matting, earth-covered semi-subterranean winter dwellings, acorn granaries, menstrual huts, sweathouses, and conical grinding huts over bedrock mortars. Two assembly structures also were built: large semi-subterranean structures for ritual and social gatherings and circular brush structures used for summer mourning ceremonies.

Historic Period Background

Early History

San Joaquin County, one of California's original 27 counties, took its name from the San Joaquin River, which in turn, was named for Saint Joachim by Gabriel Moraga in 1913. The centrally located City of Stockton has remained the county seat since the County was established.

Early explorers visited the region relatively frequently. Eighteenth-century explorers included Pedro Fages (1772), Juan Bautista de Anza (1776), and Francisco Eliza (1793). Between 1806 and 1817, mission site reconnaissance expeditions were led by Gabriel Moraga (1806, 1808), Father Ramon Abella (1811), Jose Antonio Sanchez (1811), and Father Narciso Duran (1817).[4]

The first Euro-American to traverse the area was likely Jedediah Strong Smith, who opened the Sacramento Trail in the late 1820s. Smith reported to the Hudson's Bay Company about the quantity and quality of furs available in California, and in 1828, the company sent its first trapping expedition. Trappers working for Hudson's Bay Company established the settlement of French Camp south of the modern City of Stockton.[5]

Settlement and Agriculture

San Joaquin County remained largely unsettled during the Spanish and Mexican Periods. Following California's gold rush, settlement of the region gradually increased as former gold seekers realized the potential for crop production (initially wheat and later row/orchard crops) and cattle raising. Many small towns were founded in the County because railroad development throughout the area provided access, goods, and employment; in turn, these small towns further influenced settlement patterns in the San Joaquin Valley. The region has historically been used for agricultural and ranching practices, and these practices continue into the present.

One of the earliest settled communities, Woodbridge, was begun in 1852 as a ferry crossing that provided services to men eager to reach the gold fields further to the east. The town itself was laid out in 1859,

4 Rensch et al. 1990.

5 Rensch et al. 1990.

when a bridge was constructed across the Mokelumne River. Ranches and farmhouses soon dotted the hillsides and valley floor. By the mid-1850s, fenced pastures, corrals, cultivated fields, and structural complexes begin to appear on historic maps of the area.

Another early settlement in San Joaquin County was located on Charles M. Weber's 1840s land grant. By 1850, the City of Stockton had been incorporated, and by 1854 it boasted a population of 7,000 individuals, making it the fourth largest city in the state. Because of its status as a river port, Stockton and its environs became an important focus of activity and was a flourishing center of trade and commerce. Freighting and staging activities developed to enormous proportions, agriculture (primarily wheat and other grains) and the raising of livestock in the vicinity increased, and local commerce grew rapidly. By the 1860s, grains became a major commercial crop in the region, and Stockton became a major shipping point for California's grain trade, much of which went to foreign markets.

Agriculture and Irrigation

The railroad played a significant role in the development of San Joaquin County by influencing a change in the direction of land use from ranching to farming. The Central Pacific Railroad pushed through the San Joaquin Valley in the 1870s and resulted in the formal establishment of several railroad towns, which in turn attracted more settlers to the region. During the Gold Rush, the price of cattle in the state rose drastically and consequently, ranching and raising livestock became central to the County's economy. Migrants who initially came to California in search of gold found they had better luck making a living in cattle ranching. The newly established Central Pacific Railroad provided an efficient and reliable method of shipping freight and farm products throughout the state. By 1874, the United State Geological Survey commenced the partitioning of the nation into 640-acre sections, and subsequently opening the public domain for private ownership.

Stimulated largely by the more arid conditions they faced, settlers in the County were among the first American-era farmers in California to put in irrigation. During the late 1850s and 1860s, their ditches were typically earthen, short, roughly made, and they diverted water by means of temporary brush dams constructed across the lower courses of the streams running west out of the Sierra. Further north in the valley, grain could be dry-farmed so irrigation development was slower. The floods of 1862 and 1868 destroyed most early ditch systems, but San Joaquin Valley farmers continued to experiment with irrigation. Farmers had also begun to irrigate bottomlands on the streams in the southern San Joaquin Valley. Like other Californians, most early San Joaquin settlers in the period from 1850 through the 1870s were not particularly interested in investing time and money in irrigation, focusing instead on cattle raising and dry-farm cultivation of small grains to meet the economic opportunities created by the Gold Rush.

By the early 1900s, irrigated agriculture far surpassed dry-farming as the most profitable method of agriculture. This allowed smaller farms to produce a variety of high-yielding cash crops including cotton, figs, sweet potatoes, tomatoes, and onions. After World War II, the irrigation systems of the region improved structurally when irrigators began the replacement of the old wooden irrigation features with stronger concrete. Over time, immigrants to the region emerged as leaders in the agricultural and dairy industries.

Reclamation

At the time of the Gold Rush the Sacramento-San Joaquin River Delta consisted of a series of rivers, sloughs, marshes, and other flooded lands that were interspersed with islands formed by natural sand levee deposits. The Delta represented a distinct contrast to the uplands of San Joaquin County. Nevertheless, American entrepreneurs viewed the area as potential farmland, recognizing the richness of the upper peat soil deposits. The passing of the Swamp and Overflow Land Act of 1850 transferred ownership of the Delta from the Federal government to the state and opened the land for speculation by private developers. Soon after this period, reclamation districts were established and attempts to reclaim the islands for agricultural purposes began in earnest.

Massive efforts to reclaim land in the Delta did not begin until the late 1860s, when Chinese laborers laid off from railroad construction provided the needed work force. Bouldin Island was one of the first of the Delta islands to be reclaimed for agricultural purposes, but most of the peat soil tracts and other islands situated in the interior Delta region were not successfully reclaimed until the late 1800s, after significant engineering advances were made and powerful dredging machinery was invented.

In the Delta region of San Joaquin County, landings were established as a means to transport grains and other produce grown on the islands to markets in San Francisco, Sacramento, and Stockton. These landings were often located at agricultural camps or adjacent to canneries. Extensive construction of ditch systems and pump stations around the islands as a means of draining water accompanied reclamation efforts. By the late 19th century, the Delta region became prime agricultural land and remains so into the present day.

Transportation

The latter decades of the 19th century saw several important advances in the transportation system, and many local communities were established at that time. For example, construction of the Central Pacific Railroad in the 1860s led directly to the establishment of Lodi, founded along the railroad in 1869 and known as Mokelumne Station until incorporation in 1906. Similarly, the town of Tracy was established by the Southern Pacific Railroad in 1882 around the junction of three previously constructed railroad lines:

the Central Pacific Railroad between San Joaquin County and the Bay Area; a second line to the north to the town of Martinez; and a third rail line extending south from the junction of these two railways. Not surprisingly, the town of Tracy became an important commercial and service center.

Since the onset of the 20th century, San Joaquin County has continued to develop as a prime agricultural area, with communities like Tracy and Stockton taking on increasingly important roles as service centers and industrial hubs. The 1920s and 1930s, however, saw a significant decline in the local manufacturing market of some cities such as Stockton. The war-related business of the early 1940s brought new vigor to the County as thousands of new jobs attracted new residents to the area. More recently, the County has seen an expanding residential housing market related to "bedroom communities" for the San Francisco Bay Area. Nevertheless, the majority of San Joaquin County remains in agricultural use and many of the area's historic roads are still in use today, providing access to farms, ranches, and small rural settlements throughout the region.

Known Cultural Resources

Archaeological Resources

Although only a small portion of the land within San Joaquin County has been surveyed for archaeological resources, numerous prehistoric and historic-era sites have been identified and recorded. The majority of the known sites occur in the vicinity of Stockton and Lodi areas, primarily because the recent growth of these communities has spurred intensive archaeological surveys.

The known archaeological sites consist of prehistoric artifact scatters, bedrock milling stations, midden mounds, internments, rock art locations, and village sites, as well as historic habitation sites and artifactual deposits. Old homes, cabins, adobes, Delta island agricultural camps, and features related to mining, shipping, and other pursuits dominate the recorded historic-era resources. In general, the known sites tend to occur most frequently on the higher ground along the rivers, streams, and sloughs of the area, but changing stream courses and other alterations to the landscape make it difficult to predict where sites may occur. For example, the presence of unrecorded prehistoric resources that are buried by deep alluvial sediments is considered to be a distinct possibility in the area. Because of the sensitive, non-renewable nature of these resources, locational information and other details on the archaeological sites of the area are not provided.

Architectural (Built Environment) Resources

As of 2014, a total of 34 National Register of Historic Places (NRHP)-listed properties were identified in San Joaquin County include including 18 in the city of Stockton, six in the vicinity of Tracy, five in the

vicinity of Lodi, two in the community of Woodbridge, and two in the community of Lockeford, one in the community of Clements. Twenty-five formally designated State Historic Landmarks, three California Register of Historic Places (CRHP) and seven formally recognized Points of Historical Interest are also located within the County. The Stockton Development Center is listed as a NRHP property and a California Historic Landmark property. **Table 4.5-1, Historic Resources in San Joaquin County,** includes the name, date, location, and classification of each recognized historic resources in the County. In addition to the programs maintained at the national and state level, several local governments throughout the County have also established listings, historical societies, or passed ordinances in recognition of important resources to their community.

Table 4.5-1
Historic Resources in San Joaquin County

Name (Landmark/Plaque Number)	National Register	California Historic Landmark	California Register	California Points of Interest	Date Listed	City/Census Designated Place
Bank of Italy/N1364	X				7/18/1985	Tracy
Bank of Tracy/N867	X				6/3/1980	Tracy
Benson's Ferry/149		X			11/11/1935	Thorton
Burial Place of John Brown (John Flaco)/513		X			11/25/1953	Stockton
California Chicory Works/935		X			9/30/1980	French Camp
Carnegie/740		X			7/5/1960	Tracy
Cole's Five Cypress Farm/N1561	X				5/25/1988	Stockton
Commercial and Savings Bank/N931	X				11/25/1980	Stockton
Corral Hollow/755		X			12/22/1960	Tracy
El Dorado Elementary School/N510	X				8/15/1977	Stockton
Eldohn H. Gordon House/P661				X	7/2/1985	Lathrop
Elks Building/N868	X				6/3/1980	Stockton
Elliott Cemetery/P745				X	5/8/1991	Lockeford
Farmer's and Merchant's Bank/N907	X				10/9/1980	Stockton
First Landing Place of Sailing Launch Comet/437		X			6/2/1949	Tracy
First Transcontinental Railroad Site of Completion of Pacific Railroad/780		X			11/20/1962	Tracy
Fox California Theater/N789	X				6/27/1979	Stockton
French Camp/668		X			12/1/1958	French Camp
Wong K. Gew Mansion/N672	X				9/20/1978	Stockton
Harmonty Grove Church Site/P591				X	3/1/1982	Lockeford
Benjamin Holt House/N1052	X				3/2/1982	Stockton
Lodi Hotel/N1921	X				9/29/1955	Lodi
Hotel Stockton/N950	X				4/1/1981	Stockton
I.O.O.F. Hall/N1095	X				4/22/1982	Woodbridge

Name (Landmark/Plaque Number)	National Register	California Historic Landmark	California Register	California Points of Interest	Date Listed	City/Census Designated Place
IOOF Lodge #335/N2357	X				3/1/2007	Clements
Liberty Cemetery/P731				X	8/17/1990	Lockeford
Locke House and Barn/N178	X				6/19/1972	Lockeford
Locke's Meat Market/N1039	X				2/19/1982	Lockeford
Lockeford (Locke's Ford)/365		X			10/9/1939	Lockeford
Lodi Arch/931		X			5/13/1980	Lodi
Lodi Arch/N902	X				9/17/1980	Lodi
Lone Star Mill/155		X			1/11/1935	Clements
Markham Hotel/C25			X		5/12/2005	Ripon
Morse-Skinner Ranch House/N1454	X				8/21/1986	Lodi
New Hope/436		X			6/2/1949	Ripon
Nippon Hospital/N667	X				9/18/1978	Stockton
Oak Lawn/Shippee Home Ranch/C24			X		5/12/2005	Stockton
John Ohm House/N1022	X				2/4/1982	Tracy
Old Lockeford School/P543				X	10/19/1979	Lockeford
Old Weber School/N251	X				7/16/1973	Stockton
Reuel Colt Gridley Monument/801		X			1/7/1965	Stockton
Moses Rodgers House/N594	X				4/26/1978	Stockton
San Joaquin valley College/520		X			7/16/1954	Woodbrige
Site of battle Between Forces under General Vallejo and San Joaquin Valley Indians/214		X			6/20/1935	San Joaquin
Site of First Building in Present City of Stockton/178		X			3/6/1935	Stockton
Site of Mokelumne City/162		X			1/11/1935	Stockton
Site of San Joaquin City/777		X			9/25/1962	Tracy
Site of Wood's Ferry and Wood's Bridge/163		X			1/11/1935	Woodbridge
Sperry Office Building/N1040	X				2/19/1982	Stockton
Sperry Union Flour Mill/N747	X				1/31/1979	Stockton
Stockton Developmental Center/1016	X	X			3/10/1995	Stockton
Stockton Savings and Loan Society Bank/N681	X				10/19/1978	Stockton
Temple Israel Cemetery/765		X			8/10/1961	Stockton
Temporary Detention camps for Japanese Americans- Stockton Assembly center/934		X			5/13/1980	Stockton
Terminous Culling Chute/N1281	X				4/19/1984	Lodi
Theodore H. Beckman Ranch House/P581				X	12/21/1981	Lodi
Town of Woodbridge/358		X			10/9/1939	Woodbridge
Tracy City Hall and Jail/N824	X				10/18/1979	Tracy
Tracy Inn/N919	X				10/31/1980	Tracy

Name (Landmark/Plaque Number)	National Register	California Historic Landmark	California Register	California Points of Interest	Date Listed	City/Census Designated Place
Trail of the John C. Fremont 1844 Expedition/955		X			2/11/1991	San Joaquin
Tretheway Block/N1152	X				10/29/1982	Stockton
US Post Office/N1175	X				2/10/1983	Stockton
Weber Point/165		X			1/11/1935	Stockton
Weber School, Multi-Natl-Mult-Lingual Cent/P536				X	7/31/1979	Stockton
West Side bank/N715	X				12/12/1978	Tracy
Western Pacific Railway Depot/C19			X		11/8/2002	Stockton
Woman's Club of Lodi/N1558	X				5/20/1988	Lodi
Woodbridge Masonic Lodge No. 131/N1593	X				4/20/1989	Woodbridge

Source: California Historical Resources Office of Historic Preservation, 2014
Notes:
[1] *The National Register of Historic Place (National Register) includes buildings, structures, objects, sites, and districts of local, state, or national significance in American history, architecture, archeology, engineering, and culture.*
[2] *California Historical Landmarks (Landmarks) are buildings, sites, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value.*
[3] *California Register includes resources of architectural, historical, archeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state and historic preservation grant funding, and affords certain protections under the California Environmental Quality Act.*
[4] *California Points of Historical Interest (Points) are buildings, sites, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value.*

4.5.2 REGULATORY SETTING

Federal

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is implemented by regulations included in the Code of Federal Regulations (40 CFR § 1500 *et seq*.), which require careful consideration of the harmful effects of federal actions or plans, including projects that receive federal funds, if they may have a significant adverse effect on the environment. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. NEPA addresses a wide range of environmental issues including the documentation of, and evaluation of potential impacts to, cultural and historic properties. Compliance includes an on-site survey by a qualified archaeologist prior to construction. A report of findings may be submitted to the State Historic Preservation Office (SHPO) for further consultation. While NEPA

compliance is not required for the project, NEPA compliance will be required for transportation improvement projects that will be financed using federal funds. Some development projects (such as low-income housing) also use federal funds and are subject to NEPA. The regulations also require projects requiring NEPA review to seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

United States Department of Transportation Act of 1966 (Section 4[f])

Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 affords special protection to public recreational lands and facilities, including local parks and school facilities that are open and available to the general public for recreational purposes, significant cultural resources, historical resources, and natural wildlife refuges. Federally funded transportation improvement projects are prohibited from the encroachment (direct or constructive use, or a take) of Section 4(f) lands unless it can be demonstrated that no feasible and prudent alternative exists.

National Register of Historic Places (National Register)

The National Register recognizes properties that are significant at the national, state, and/or local levels. Although administered by the National Park Service, the federal regulations explicitly provide that National Register listing of private property "does not prohibit under federal law or regulation any actions which may otherwise be taken by the property owner with respect to the property." Listing in the National Register assists in preservation of historic properties through: recognition that a property is of significance to the nation, the state, or the community; consideration in the planning for federal or federally assisted projects; eligibility for federal tax benefits; consideration in the decision to issue a surface coal mining permit; and qualification for federal assistance for historic preservation, when funds are available. In addition, for projects that receive federal funding, a clearance process must be completed in accordance with Section 106 of the National Historic Preservation Act (NHPA). Furthermore, state and local regulations may apply to properties listed in the National Register.

The criteria for listing in the National Register follow the standards for determining if properties, sites, districts, structures, or landscapes of potential significance are eligible for nomination. In addition to meeting any or all of the following criteria, properties nominated must also possess integrity of location, design, setting, feeling, workmanship, association, and materials:

- associated with events that have made a significant contribution to the broad patterns of our history;
- associated with the lives of persons significant in our past;

- that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- that yield, or may be likely to yield, information important in prehistory or history.

Historic integrity is the ability of a property to convey its significance and is defined as "the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic period."

The National Register recognizes seven aspects or qualities that comprise integrity: location, design, setting, materials, workmanship, feeling, and association. These qualities are defined as follows:

- Location is the place where the historic property was constructed or the place where the historic event occurred.
- Design is the combination of elements that create the form, plan, space, structure, and style of a property.
- Setting is the physical environment of a historic property.
- Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
- Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.
- Association is the direct link between an important historic event or person and a historic property.

Historic Sites Act of 1935 (HSA)

The HSA became law on August 21, 1935 and declared that it is national policy to "Preserve for public use historic sites, buildings, and objects of national significance." The NHPA expanded the scope to include important state and local resources. Provisions of NHPA established the National Register maintained by the National Park Service, advisory councils on Historic Preservation, State Historic Preservation Offices, and grants-in-aid programs. Section 106 of the NHPA requires all federal agencies to consult the Advisory Council before continuing any activity affecting a property listed on or eligible for listing on the National Register. The Advisory Council has developed regulations for Section 106 to encourage coordination of agency cultural resource compliance requirements (Executive Order 11593).

Antiquities Act of 1906

The Antiquities Act of 1906, which aimed to protect important historic and archaeological sites, initiated historic preservation legislation. It established a system of permits for conducting archaeological studies on federal land, as well as setting penalties for noncompliance. This permit process controls the disturbances that may be caused to archaeological sites. New permits are currently issued under the Archaeological Resources Protection Act (ARPA) of 1979. The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands.

National Historic Preservation Act of 1966

NHPA supplements the provisions of the Antiquities Act of 1906 and established laws for historic resources 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." The law makes it illegal to destroy, excavate, or remove from federal or Indian lands any archaeological resources without a permit from the land manager. Regulations for the ultimate disposition of materials recovered as a result of permitted activities state that archaeological resources excavated on public lands remain the property of the United States. Archaeological resources excavated from Indian lands remain the property of the Indian or Indian tribe having rights of ownership over such resources.

Archaeological and Historic Preservation Act of 1974

Passed and signed into law in 1974, The Archaeological and Historic Preservation Act of 1974 (AHPA) amended and expanded the Reservoir Salvage Act of 1960. The AHPA requires that federal agencies provide for the preservation of historical and archaeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of any alteration of the terrain caused by any federal construction project or federally licensed activity or program.

Archaeological Resources Protection Act of 1979

The ARPA applies when a project may involve archaeological resources located on federal or tribal land. ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

The American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 (AIRFA) proclaims that the US Government will respect and protect the rights of Indian tribes to the free exercise of their traditional religions; the courts

have interpreted this as requiring agencies to consider the effects of their actions on traditional religious practices.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) also applies if human remains of Native American origin are discovered on federal land. NAGPRA requires federal agencies and federally assisted museums to return "Native American cultural items" to the federally recognized Indian tribes or Native Hawaiian groups with which they are associated. Regulations (43 CFR Part 10) stipulate the following procedures be followed. If Native American human remains are discovered, the following provisions would be followed to comply with regulations:

- Notify, in writing, the responsible federal agency.
- Cease activity in the area of discovery and protect the human remains.
- Certify receipt of the notification.
- Take steps to secure and protect the remains.
- Notify the Native American tribes or tribes likely to be culturally affiliated with the discovered human remains within one working day.
- Initiate consultation with the Native American tribe or tribes in accordance with regulations described in 43 CFR, Part 10, Subpart B, Section 10.5.

Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines (FR 190:44716–44742)

Offers non-regulatory technical advice about the identification, evaluation, documentation, study, and other treatment of cultural resources. Notable in these Guidelines are the "Standards for Archaeological Documentation" (p. 44734) and "Professional Qualifications Standards for Archaeology" (pp. 44740–44741).

State

California Environmental Quality Act

Under the California Environmental Quality Act (CEQA) a "project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the

environment."[6] This statutory standard involves a two-part inquiry. The first involves a determination of whether the project involves a historic resource. If so, then the second part involves determining whether the project may involve a "substantial adverse change in the significance" of the resource. To address these issues, guidelines that implement the 1992 statutory amendments relating to historical resources were adopted in final form on October 26, 1998 with the addition of *State CEQA Guidelines* Section 15064.5. The *State CEQA Guidelines* provide that for the purposes of CEQA compliance, the term "historical resources" shall include the following:[7]

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register;

- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements in Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat such resources as significant for purposes of CEQA unless the preponderance of evidence demonstrates that it is not historically or culturally significant;

- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets one of the criteria for listing on the California Register; and

- The fact that a resource is not listed in, or determined to be eligible for listing in the California Register, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g)of the Public Resources Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Section 15064.5 of the *State CEQA Guidelines* also provides that "[s]ubstantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."[8] Material impairment occurs when a project alters or demolishes in an adverse

6 Public Resources Code Section 21084.1

7 *State CEQA Guidelines* Section 15064.f (e).

8 *State CEQA Guidelines* Section 15064.5 (b)(1)

manner "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" in a state or local historic registry.[9]

Office of Historic Preservation

As an office of the California Department of Parks and Recreation, the Office of Historic Preservation (OHP) implements the policies of the NHPA on a statewide level. The OHP also carries out the duties set forth in the Public Resources Code and maintains the California Historic Resources Inventory.

The SHPO is an appointed official who implements historic preservation programs within the state's jurisdiction. Also implemented at the state level, CEQA requires projects to identify any substantial adverse impacts which may affect the significance of identified historical resources.

California Register of Historic Resources

The California Register of Historical Resources (CRHR) was established in 1992 and codified in the Public Resource Code §5020, 5024 and 21085. The law creates several categories of properties that may be eligible for the CRHR. Certain properties are included in the program automatically, including: properties listed in the NRHP; properties eligible for listing in the NRHP; and certain classes of State Historical Landmarks. Determining the CRHR eligibility of historic and prehistoric properties is guided by CCR §15064.5(b) and Public Resources Code (PRC) §21083.2 and 21084.1. NRHP eligibility is based on similar criteria outlined in Section 106 of the NHPA (16 US Code [USC] 470).

Cultural resources, under CRHR and NRHP guidelines, are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. A cultural resource may be eligible for listing on the CRHR and/or NRHP if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

If a prehistoric or historic period cultural resource does not meet any of the four CRHR criteria, but does meet the definition of a "unique" site as outlined in PRC §21083.2, it may still be treated as a significant

9 *State CEQA Guidelines* Section 15064.5 (b)(2)(A-C)

resource if it is: an archaeological artifact, object or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- it contains information needed to answer important scientific research questions and that,
- there is a demonstrable public interest in that information,
- it has a special and particular quality such as being the oldest of its type or the best available example of its type, or
- it is directly associated with a scientifically recognized important prehistoric or historic event.

California Public Resources Code, Sections 5097.5, 5097.9, and 5097.98-99

Section 5097.5 of the Public Resources Code defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands. This Section also prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. In 1987, it was amended to require consultation with the California Native American Heritage Commission whenever Native American graves are found. It also established that violations for taking or possessing remains or artifacts are felonies.

Public Resources Code Section 5097.9 establishes the California Native American Heritage Commission to make recommendations to encourage private property owners to protect and preserve sacred places in a natural state and to allow appropriate access to Native Americans for ceremonial or spiritual activities. The Commission is authorized to assist Native Americans in obtaining appropriate access to sacred places on public lands, and to aid state agencies in any negotiations with federal agencies for the protection of Native American sacred places on federally administered lands in California.

Public Resources Code Sections 5097.98 through 5097.99 require that the Governor's California Native American Heritage Commission be consulted whenever Native American graves are found. According to these Sections, it is illegal to take or possess remains or artifacts taken from Native American graves; however, it does not apply to materials taken before 1984. Violations occurring after January 1, 1988 are felonies.

Native American Heritage Commission

Section 50907.9 of the Public Resources Code and Section 7050 of the Health and Safety Code authorizes the Native American Heritage Commission (NAHC) to regulate Native American concerns regarding the excavation and disposition of Native American cultural resources. Among its duties, the Commission is

authorized to resolve disputes relating to the treatment and disposition of Native American human remains and items associated with burials. Upon notification of the discovery of human remains by a county coroner, the Commission notifies the Native American group or individual most likely descended from the deceased.

Assembly Bill 978

In 2001, Assembly Bill (AB) 978 expanded the reach of Native American Graves Protection and Repatriation Act of 1990 and established a state commission with statutory powers to assure that federal and state laws regarding the repatriation of Native American human remains and items of patrimony are fully complied with. In addition, AB 978 also included non-federally recognized tribes for repatriation.

Local

County and City General Plans

In addition to federal and state regulations, cities within the County and the County of San Joaquin may also provide regulatory protection and advisement regarding cultural resources. California law requires that a General Plan include seven elements (Land Use, Open Space, Conservation, Housing, Circulation, Noise, and Safety). Many jurisdictions incorporate policies related to cultural and historical resources into the Conservation Element. Other jurisdictions choose to prepare a separate (optional) element dealing with cultural and/or historic preservation issues. Many jurisdictions also prepare ordinances addressing cultural resources and historic preservation. The policies related to cultural resources from each jurisdiction are included below.

San Joaquin County General Plan

- The County shall continue to encourage efforts, both public and private, to preserve its historical and cultural heritage.
- Significant archaeological and historical resources shall be identified and protected from destruction. If evidence of such resources appears after development begins, an assessment shall be made of the appropriate actions to preserve or remove resources.
- No significant architectural, historical, archaeological, or cultural resources shall be knowingly destroyed through County action.
- Reuse of architecturally interesting or historical buildings shall be encouraged.
- The County shall promote public awareness of and support for historic preservation.

City of Escalon General Plan

- Designate an Historic Preservation Conversion zone district to preserve distinctive structures and areas proposed for conversion in the Central Business District where adequate parking can be provided.

City of Lathrop General Plan

- Existing known archaeological and cultural resources are to be protected, beginning with the filing of an application for development in the immediate vicinity of such resources. The City shall follow the procedures set forth in Appendix K of *State CEQA Guidelines*. Confidentiality shall be maintained between the City and developer to avoid vandalism or desecration of such resources. Alternatives for development design intended to protect cultural resources shall be reviewed by a Native American having competence in understanding and interpreting the importance of the resources and of the most desirable methods to assure their preservation.

- The potential loss of as yet unknown archaeological and cultural resources shall be avoided by close monitoring of the development process. The close proximity of properties intended for development to natural watercourses or to known archaeological or cultural resources shall be taken as a signal by the City and developer of a potential for unearthing unknown resources. In such cases, the City shall instruct the developers, construction foremen and City inspectors of the potential for damage to artifacts and sites, and provide written instructions requiring a halt to all excavation work in the event of any find until the significance of the find can be evaluated by competent archaeological and Native American specialists. The costs of such protection work shall be the responsibility of the developer.

City of Lodi General Plan

- For future development projects on previously un-surveyed lands, require a project applicant to have a qualified archeologist conduct the following activities: (1) conduct a record search at the Central California Information Center at the California State University, Stanislaus, and other appropriate historical repositories, (2) conduct field surveys where appropriate and required by law, and (3) prepare technical reports, where appropriate, meeting California Office of Historic Preservation Standards.

- In the event that archaeological/paleontological resources are discovered during site excavation, the City shall require that grading and construction work on the project site be suspended until the significance of the features can be determined by a qualified archaeologist/paleontologist. The City will require that a qualified archeologist/paleontologist make recommendations for measures necessary to protect any site determined to contain or constitute an historical resource, a unique archaeological resource, or a unique paleontological resource or to undertake data recovery, excavation, analysis, and curation of archaeological/paleontologist materials. City staff shall consider such recommendations and implement them where they are feasible in light of project design as previously approved by the City.

- If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The San Joaquin County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and

- If the remains are of Native American origin: (1) the descendants of the deceased Native Americans have made a timely recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or (2) The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

- Encourage the preservation, maintenance, and adaptive reuse of existing historic buildings by developing incentives for owners of historically significant buildings to improve their properties.

- Require that prior to the demolition of a historic structure, developers offer the structure for relocation by interested parties.

- Require that environmental review consistent with the California Environmental Quality Act be conducted on demolition permit applications for buildings designated as, or potentially eligible for designation as, historic structures.

- Conduct a comprehensive survey of historic resources in Lodi, including consideration of potentially eligible historic resources.

- Follow preservation standards outlined in the current Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, for structures listed on the National Register of Historic Places or California Register of Historical Resources.

- Coordinate historic preservation efforts with other agencies and organizations, including the Lodi Historical Society, San Joaquin County Historical Society, and other historical organizations.

City of Manteca General Plan

- The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without consulting the California Archaeological Inventory at Stanislaus State University, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendation of a qualified archaeologist. City implementation of this policy shall be guided by CEQA and the National Historic Preservation Act (NHPA).

- The City shall require that the proponent of any development proposal in an area with potential archaeological resources, and specifically near the San Joaquin River and Walthall Slough, and on the east side of State Highway 99 at the Louise Avenue crossing, shall consult with the California Archaeological Inventory, Stanislaus State University to determine the potential for discovery of cultural resources, conduct a site evaluation as may be indicated, and mitigate any adverse impacts

according to the recommendation of a qualified archaeologist. The survey and mitigation shall be developer funded.

- The City shall set as a priority the protection and enhancement of Manteca's historically and architecturally significant buildings.

- The City shall work with property owners seeking registration of historical structures as Historic Landmarks or listing on the Register of Historic Sites.

- The City shall prepare and adopt a Historical Preservation Ordinance.

- The City and Redevelopment Agency shall support the efforts of property owners to preserve and renovate historic and architecturally significant structures. Where such buildings cannot be preserved intact, the City shall seek to preserve the building facades.

City of Ripon General Plan

- The City will not knowingly approve any public or private project that may adversely affect important archeological sites.

- Development proposals that may adversely impact archeological sites will be referred to the California Archeological Inventory at Stanislaus State University. Archeological site evaluations will be conducted at the expense of development proponents.

- The City will require site-specific archeological surveys for sites determined to be highly sensitive for cultural resources and evaluation of potential historical structures. Surveys and evaluations shall be conducted at the expense of development proponents.

- The City will advise applicants that, in accordance with state law, if any cultural resources are discovered during project-related construction activities, all work is to stop and the City and a qualified professional are to be consulted to determine the importance and appropriate treatment of the find. If Native American remains are found, the County Coroner and the Native American Heritage Commission, Sacramento (916-653-4082), are to be notified immediately for recommended procedures.

- Establish regulations that encourage the preservation of important historic resources, including flexible parking and other associated requirements, which allow historic structures to remain in use in the future.

City of Stockton General Plan

- Evaluation of Historic Resources: The City shall use appropriate state and federal standards in evaluating the significance of historic resources that are identified in the City.

- Historic Structures and Sites: The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures, sites, and districts. Where applicable, preservation efforts shall conform to the current Secretary of the Interior's Standards for the

Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Building.

- Historical/Cultural Resources Inventory: The City shall continue to maintain and update a historical resources inventory. In addition, the City will expand this inventory to include sites of cultural significance.

- State Historic Building Code: The City shall implement the State Historic Building Code for historic properties.

- Archaeological Resource Surveys: Prior to project approval, the City shall require project applicant to have a qualified archeologist conduct the following activities:

  (1) conduct a record search at the Central California Information Center located at California State University Stanislaus and other appropriate historical repositories,

  (2) conduct field surveys where appropriate, and

  (3) prepare technical reports, where appropriate, meeting California Office of Historic Preservation Standards (Archeological Resource Management Reports).

- Discovery of Archaeological Resources: Consistent with Stockton Municipal Code Section 16-310.050, Cultural Resources, in the event that archaeological/paleontological resources are discovered during site excavation, the City shall require that grading and construction work on the project site be suspended until the significance of the features can be determined by a qualified archaeologist/paleontologist. The City will require that a qualified archeologist/paleontologist make recommendations for measures necessary to protect any site determined to contain or constitute an historical resource, a unique archaeological resource, or a unique paleontological resource or to undertake data recovery, excavation, analysis, and curation of archaeological/paleontologist materials. City staff shall consider such recommendations and implement them where they are feasible in light of project design as previously approved by the City.

- Native American Resources: The City shall consult with Native American representatives regarding cultural resources to identify locations of importance to Native Americans, including archeological sites and traditional cultural properties. Coordination with the Native American Heritage Commission should begin at the onset of a particular project.

- Discovery of Human Remains: Consistent with Stockton Municipal Code Section 16-310.050 – Cultural Resources and the *State CEQA Guidelines* (Section 15064.5), if human remains of Native American origin are discovered during project construction, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (Public Resources Code Sec. 5097). If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The San Joaquin County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and,

- If the remains are of Native American origin,
  - The descendants of the deceased Native Americans have made a timely recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98;
  - The Native American Heritage Commission was unable to identify a descendant or
  - the descendant failed to make a recommendation within 24 hours after being notified by the Commission, or
  - The landowner or his or her authorized representative rejects any timely recommendations of the descendent, and mediation conducted by the Native American Heritage Commission has failed to provide measures acceptable to the landowner.

City of Tracy General Plan

- The City shall encourage the preservation, enhancement, and conservation of historic and older neighborhoods, such as Lincoln Park, through its direct actions.
- Identified cultural and historic landmarks and buildings shall be preserved.
- New development, redevelopment, alterations, and remodeling projects should be sensitive to surrounding historic context.
- As part of the development review process, there shall be a standard condition of approval that if any resources are found during construction, all operations within the project area shall halt until an assessment can be made by appropriate professionals regarding the presence of archaeological and paleontological resources and the potential for adverse impacts on these resources.
- Any archaeological or paleontological resources on private property shall be either preserved on their sites or adequately documented and conserved as a condition of removal. If any resources are found unexpectedly during development, then construction must cease immediately until accurate study and conservation measures are implemented.
- If Native American artifacts are discovered on a site, the City shall consult representatives of the Native American community to ensure the respectful treatment of Native American sacred places.

4.5.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this EIR San Joaquin Council of Governments (COG) has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) could result in significant

adverse impacts to archaeological, historical, and/or paleontological resources, if any of the following could occur:

- Cause a substantial adverse change in the significance of a historical structure as defined in *State CEQA Guidelines* Section 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
- Directly or indirectly destroy a unique paleontological resource or site.
- Disturb any human remains, including those interred outside of formal cemeteries.

Methodology

The analysis assesses the potential impacts to cultural and paleontological resources that could result from implementation of the proposed RTP/SCS. Impacts are assessed in terms of both land use and transportation impacts. By 2040, implementation of the proposed 2014 RTP/SCS will result in a land use distribution and transportation network that is different from existing conditions.

Comparison with the No Project Alternative

The analysis of cultural resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and

RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Determination of Significance

The methodology for determining the significance of cultural impacts compares the existing conditions to anticipated conditions in 2040 under the RTP/SCS, as required by *State CEQA Guidelines* Section 15126.2(a). The known historical, archaeological, and paleontological resources located within the region were evaluated using the criteria set forth by the OHP, the California Register of Historic Resources, and the *State CEQA Guidelines*. The research analysis was limited to state and federally recognized historic resources and landmarks, and does not include landmarks of local significance.

As noted above, areas within the region contain archaeological localities and are rich with fossil bearing sedimentary formations. All areas within the region have the potential for yielding, as yet undiscovered, archaeological resources, paleontological resources, and human remains. Each of these sites is documented at the Central California Information Center, California State University, Stanislaus, which is the repository for records produced during cultural resource investigations conducted in San Joaquin and adjacent counties. Paleontological sites are also numerous. The development of new transportation facilities as well as the development consistent with the SCS could affect archaeological and paleontological resources, primarily through the disturbance of buried resources. Frequently, these resources are previously unidentified. Therefore, any excavation in previously undisturbed soil or geologic formation has the potential to impact archaeological and paleontological resources.

The construction of new transportation facilities as well as new development consistent with the SCS could affect historic architectural resources (structures 50 years or older), either through direct effects to buildings or through indirect effects to the area surrounding a resource through the creation of one or more visually incompatible structures adjacent to a historic structure.

Impacts to cultural resources fall into three categories: (1) direct disturbance of buried resources, (2) direct impact or alteration of structures, and (3) indirect impacts to structures, such as vibration and corrosive air contaminants, and creation of a visually incompatible environment. The County contains a large number of cultural resources; therefore, the potential for impacts to these resources is significant. Improvements within existing rights-of-way that only affect previously disturbed soils are less likely to affect resources. New structures in historic districts are more likely to result in a significant impact. Similarly excavation in previously undisturbed soils has a higher potential to impact resources, depending on the location and sensitivity. Also, reducing buffer zones between transportation corridors

and historic resources through lane widening or construction of associated structures (such as noise walls) could cause significant impacts.

This document analyzes impacts to cultural resources on a programmatic level; as details of project design and alternatives become available, project-level analysis of impacts must be undertaken as appropriate.

Where appropriate mitigation measures are included to reduce significant impacts. San Joaquin COG's role is to prioritize and facilitate transportation projects consistent with adopted procedures. For regionally significant land use and transportation projects, San Joaquin COG reviews and provides comments on environmental documents to determine consistency with applicable San Joaquin COG planning and policy documents including the RTP/SCS. San Joaquin COG does not directly implement transportation projects and does not conduct project specific environmental review. San Joaquin COG does not have land use authority. SB 375 specifically addresses the role of metropolitan planning organizations (MPOs), such as San Joaquin COG and does not provide San Joaquin COG with the authority to regulate land use. Therefore, San Joaquin COG has no ability to impose mitigation measures within local jurisdictions.

Impacts and Mitigation Measures

Impact CR-1 **Cause a substantial adverse change in the significance of a historical structure as defined in CEQA Guidelines Section 15064.5.**

The bulk of potential impacts to historic structures would occur during the construction of new land uses and new transportation improvements.

In general, the potential to impact historic resources varies by location and type of project. Historical resources are most prevalent in areas that were initially developed more than 50 years ago, including historic downtown areas such as downtown Stockton as well as other communities settled in the late 1800s including Clements, Woodbridge, and Lockerford. Concentrations of historic structures and the presence of historic districts are thus more likely in developed areas. However, historic structures can still be encountered in isolated areas of older development. Historical resources can also be encountered outside of urban areas in the form of historic mines, mining camps, farms, rural residences, and other historic features.

Within San Joaquin County, numerous historic structures are listed in and eligible for the NRHP or the CRHR, as well as recognized as locally significant under local governments. However, many buildings and structures 50 years old or older have not been formally recorded or evaluated for the NRHP or

CRHR. Consequently, it is likely that there are additional historic structures located in the study area eligible for listing in the NRHP, CRHR, or eligible as locally designated historical resources. Therefore, it is known that the 2014 RTP/SCS plan area contains significant historical structures for the purposes of CEQA.

Construction due to land use and transportation changes may result in construction impacts to historic structures. Ground-disturbing and other activities associated with construction can result in damage, physical demolition, destruction, relocation, or alteration of historical buildings or structures. Such alterations could result in a substantial adverse changes to historically significant resources. If historical resources cannot be completely avoided by project design, impacts could be significant.

While the projected regional increase in developed area would be relatively small compared to the total area of San Joaquin County, and would occur over the lifespan of the RTP/SCS (through 2040), land use changes and transportation improvements resulting from implementation of the 2014 RTP/SCS have the potential to cause significant impacts to historical resources from construction and ongoing operations.

Improvements proposed in existing "rights of way," such as Bus Rapid Transit (BRT) and goods movement capacity enhancement projects, mixed flow lanes, and "right of way" maintenance (such as pot-hole repair) would have limited potential to impact historic resources (through increased vibration).

When land use or transportation improvements require modification or removal of a historic structure, significant impacts will likely occur. In many cases, these impacts can be reduced to a less than significant level by avoiding the resource, minimizing alterations, and designing building use that retains its character-defining features. In cases involving entire removal of the historic structure and/or loss of the character-defining features, this impact would be significant and unavoidable.

Impacts to historic resources due to operations can result from increased vibration. Some historic resources are more susceptible to damage from vibration than modern buildings depending on their materials and structure. Commercial, residential, and light industrial uses do not routinely involve large vibration sources that would affect neighboring building. Traffic on roadways is rarely the source of groundborne vibration because vehicles are supported on spring suspension and pneumatic tires. Rail operations however can be a source of groundborne vibration. New or expanded rail operations have the potential to result in vibration and could expose historic structures to excessive groundborne vibrations. Operations, land use and transportation changes could result in new vibration sources that could significantly affect historic buildings. Rail projects are summarized in **Table 3.0-5** in the **Project Description**. The majority of rail projects include service expansions along commuter rail facilities and

new rail facilities. These types of projects have limited potential to result in groundborne vibration impacts to historic structures.

Together, impacts on historic resources related to land use and transportation changes from concurrent construction projects and ongoing operations resulting from implementation of the proposed 2014 RTP/SCS are considered potentially significant for **Impact CR-1**. Mitigation is required. **Mitigation Measure CR-1** and **CR-2** are described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

CR-1: Implementing and local agencies should require historical resource studies and to identify and implement project-specific mitigation.

As part of planning, design, and engineering for projects implementing and local agencies should ensure that historic resources are treated in accordance with applicable federal, state, and local laws and regulations. When a project has been identified as potentially affecting a historical resource, a historical resources inventory should be conducted by a qualified architectural historian. The study should comply with *State CEQA Guidelines* section 15064.5(b), and, if federal funding or permits are required, with section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC Sec. 470 et seq.). As applicable, the study should consist of the following elements:

- a records search at the Central California Information Center, California State University, Stanislaus;
- contact with local historical societies, museums, or other interested parties as appropriate to help determine locations of known significant historical resources;
- necessary background, archival and historic research;
- a survey of built environment/architectural resources that are 50 years old or older that may be directly or indirectly impacted by project activities;
- recordation and evaluation of built environment/architectural resources that are 50 years old or older that may be directly or indirectly impacted by project activities; and
- buildings should be evaluated under CRHR and/or NRHP Criteria as appropriate and recorded on California Department of Parks and Recreation 523 forms.

These elements should be compiled into a Historical Survey Report that should be submitted to the Central California Information Center, (California State University Stanislaus) and should also be used for SHPO consultation if the project is subject to NHPA section 106.

If architectural resources are deemed as potentially eligible for the California Register of Historic Resources or the National Register of Historic Places, implementing and local agencies should consider avoidance through project redesign as feasible. If avoidance is not feasible, implementing or local agencies should ensure that historic resources are formally documented through the use of large-format photography, measured drawings, written architectural descriptions, and historical narratives. The documentation should be entered into the Library of Congress, and archived in the California Historical Resources Information System. In the event of building relocation, implementing and local agencies should ensure that any alterations to significant buildings or structures conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.

CR-2: Impacts to cultural resources should be minimized through cooperation, information sharing, and ongoing regional planning efforts. Resource agencies, such as the Office of Historic Preservation, shall be consulted during this process.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce historical impacts to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures CR-1** and **CR-2**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact CR-2 **Cause a substantial adverse change in the significance of an archaeological resource pursuant to *State CEQA Guidelines* Section 15064.5.**

The Office of Historic Preservation (OHP) defines an archaeological "site" as consisting of three or more related resources discovered in one locality. In the event of archaeological discovery, the resources are collected, documented, and curated at an educational institution, such as a school or a museum.

A unique archaeological resource includes artifacts or sites that meet any one or all of the following criteria:

- It has made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
- It is associated with the lives of persons important to California's past;
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and/or
- It has yielded, or may be likely to yield, information important to the prehistory or history of California.

Humans have occupied San Joaquin County for at least 10,000 years, and as a result San Joaquin County contains numerous archaeological resources. The locations of Native American villages, burial grounds, and other archaeological sites are confidential. Archaeologists do not reveal information for these locales in order to preserve the integrity of these sites. Unknown sites run the risk of being impacted, as their locations are unknown and cannot be avoided prior to surveys.

It is likely that there are numerous prehistoric and historic-period archaeological resources in the region that have not been located, recorded, or evaluated. There are large areas of the County that have not been subjected to archaeological survey that may contain archaeological resources. Additionally, there are likely a large number of archaeological resources that have been located and recorded, but have not been evaluated for eligibility for listing in the CRHR or NRHP because that entails further study, including excavation, which is destructive to the resource. Therefore, it is known that RTP/SCS plan area contains significant archaeological resources for the purposes of CEQA.

Prehistoric archaeological resources are likely to be encountered near areas of prior Native American occupation and activity, which includes areas both within and outside of areas of current development. Surficial archaeological deposits are more likely to be heavily disturbed within urban areas and more intact in rural settings; however this does not preclude the presence of buried archaeological resources that may be significant in urban settings.

When land use or transportation improvements require modification or removal of archaeological resources, significant impacts will likely occur. These impacts can (but not always) be reduced to a less than significant level by avoiding the resource, minimizing disturbance and/or investigation and recovering resources and data about the resources when the resource is not avoidable.

Impacts from land use and transportation changes as a result of the 2014 RTP/SCS could result from ground disturbance associated with grading and excavation in previously disturbed soils.

Improvements, and modifications to existing rights-of-way, such as high-occupancy vehicle (HOV) lanes, bus-ways and capacity enhancement facilities, mixed flow lanes, other transportation facilities and right-of-way maintenance, would have less potential to impact archaeological resources because these projects are generally in areas where soils have previously been disturbed. Disturbance of archaeological features or resources can compromise the physical integrity and information potential of any archaeological deposits. Disturbance could result in a significant impact if the resource were eligible for listing in federal or state registers and the physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the CRHR, or in a local register or survey that meets the requirements of PRC Sections 5020.1(k) and 5024.1(g) are demolished or substantially altered. If significant archaeological resources cannot be completely avoided by project design, ground-disturbing and other activities associated with construction of land use and transportation projects as a result of the 2014 RTP/SCS may result in damage, or destruction of significant archaeological resources.

Impacts to archaeological resources are most often a result of construction, but operational impacts can result as well. For instance, installation of facilities that attract the public can result in increased illicit collecting from sites. Sites that had previously been hard to access are now available to larger numbers of people, who may collect artifacts. Potential impacts from construction and ongoing operations associated with land use changes and transportation improvements resulting from implementation of the proposed RTP/SCS have the potential to cause significant impacts on archaeological resources.

Implementation of most of the RTP/SCS improvements would be within the existing rights- of-way. Improvements and modifications within existing rights-of-way would have less potential to encounter previously unknown archaeological resources relative to projects in undisturbed areas since the former right-of-way areas have already been disturbed. Improvements and modifications within existing rights-of-way still have potential to adversely affect archaeological resources, either directly or indirectly. As RTP/SCS projects are designed and reviewed by local jurisdictions, the RTP/SCS projects will undergo technical analysis to evaluate any potential impacts to cultural resources within their area of potential effect. Only a small number of RTP/SCS projects would be constructed in previously undisturbed areas.

Development of detailed, site-specific analysis of archaeological impacts at the programmatic level is not feasible. However, in general damage to or destruction of archaeological resources could occur as a result of RTP/SCS transportation projects or increased development. Over the lifespan of the proposed RTP/SCS, some land use changes and transportation improvements that are located near to one another will be developed concurrently, which may increase the potential for construction of these projects to

impact archaeological resources. Thus impacts on archaeological resources related to land use and transportation changes from implementation of the 2014 RTP/SCS is considered potentially significant for **Impact CR-2**. Mitigation is required. **Mitigation Measure CR-3** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

CR-3: Implementing and local agencies should require consultation, surveys, and monitoring for archaeological resources

During environmental review of projects, implementing and local agencies should:

- Consult with the Native American Heritage Commission to determine whether known sacred sites are in the project area, and identify the Native American(s) to contact to obtain information about the project area.
- Conduct a records search at the Central California Information Center, (California State University Stanislaus) to determine whether the project area has been previously surveyed and whether resources were identified.

In the event the records indicate that no previous survey has been conducted, the Central California Information Center, (California State University Stanislaus) will make a recommendation on whether a survey is warranted based on the archaeological sensitivity of the project area. If recommended, a qualified archaeologist should be retained to conduct archaeological surveys. The significance of any resources that are determined to be in the project area should be assessed according to the applicable local, state, and federal significance criteria. Implementing and local agencies should devise treatment measures to ameliorate "substantial adverse changes" to significant archaeological resources, in consultation with qualified archaeologists and other concerned parties. Such treatment measures may include avoidance through project redesign, data recovery excavation, and public interpretation of the resource.

Implementing and local agencies and the contractors performing the improvements should adhere to the following requirements:

- If a project is located in an area rich with cultural materials, implementing and local agencies should retain a qualified archaeologist to monitor any subsurface

operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property.

- If, during the course of construction cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) are discovered work should be halted immediately within 50 meters (165 feet) of the discovery, implementing and local agencies should be notified, and a qualified archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology should be retained to determine the significance of the discovery.

- Implementing and local agencies should consider mitigation recommendations presented by a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology for any unanticipated discoveries and should carry out the measures deemed feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project proponent should be required to implement any mitigation necessary for the protection of cultural resources.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts could be reduced to less than significant. However, because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure CR-3**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt this mitigation measure through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt this mitigation measure, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact CR-3 Directly or indirectly destroy a unique paleontological resource or site.

Excavation related to construction of projects proposed in the 2014 RTP/SCS as well as development undertaken consistent with the Plan could cause unearthing of buried paleontological resources or other impacts to paleontological resources. Construction occurring in previously undisturbed areas and deep excavation activities would have the greatest likelihood to affect paleontological resources. Excavation and soil removal of any kind, irrespective of depth, has the potential to impact resources of paleontological significance. The extensive distribution of resources makes it difficult to predict where impacts could occur. Construction and excavation activities relating to the RTP/SCS pose a potentially significant impact to paleontological resources.

Most of the RTP/SCS improvements would be constructed within the existing rights-of-way, which is generally considered to have less potential to encounter previously unknown paleontological resources relative to projects in undisturbed/undeveloped areas. In addition, many of the projects proposed in the RTP/SCS would occur in urbanized portions of the County, (approximately 3.16 percent of new development will be infill). However, improvements and modifications within existing rights-of-way still have the potential to damage or destroy undiscovered paleontological resources especially during deeper excavations.

Because urban areas already have a significant amount of existing transportation and commercial infrastructure, and much of the area has been disturbed, the likelihood of disturbing any paleontological resources or a unique geologic feature during construction activities is low. Nevertheless, excavation and soil removal of any kind, irrespective of depth, has the potential to encounter paleontological resources.

Together, impacts on paleontological resources from concurrent construction projects and ongoing operations relating to land use changes and transportation improvements, resulting from implementation of the 2014 RTP/SCS are considered potentially significant for **Impact CR-3**. Mitigation is required; see **Mitigation Measures CR-2** and **CR-3,** (described above), and **Mitigation Measure CR-4,** described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

CR-4: Implementing and local agencies should identify, survey, and evaluate paleontological resources to avoid potential impacts.

During environmental review implementing and local agencies should retain a qualified paleontologist to identify, survey, and evaluate paleontological resources where potential impacts are considered high. All construction activities should avoid known paleontological resources, if feasible, especially if the resources in a particular lithologic unit formation have been determined to be unique or likely to contain paleontological resources. If avoidance is not feasible, paleontological resources should be excavated by a qualified paleontologist and given to a local agency, State University, or other applicable institution, where they could be curated and displayed for public education purposes.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, it is not anticipated that it will reduce paleontological impacts to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure CR-4**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt this mitigation measure through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt this mitigation measure, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact CR-4 **Disturb any human remains, including those interred outside of formal cemeteries.**

As discussed above, humans have occupied San Joaquin County for at least 10,000 years and it is not always possible to predict where human remains may occur outside of formal burials. Therefore, it is possible that excavation and construction activities, regardless of depth, may yield human remains that may not be interred in marked, formal burials. Construction activities for each transportation improvement would generally be within 150 feet on either side of any improvement and could result in a significant impact relative to the discovery of human remains. Similarly, construction of development projects throughout the region has the potential to encounter human remains. Under CEQA, human remains are protected under the definition of archaeological materials as being "any evidence of human activity." Human remains are also protected under the Native American Graves Protection and Repatriation Act (NAGPRA), which was enacted to provide protection to Native American graves, as well as culturally affiliated items, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony.

RTP/SCS transportation projects have the potential to yield previously undiscovered human remains, because some projects would take place in previously undisturbed or areas with only little previous disturbance. Excavation and soil removal of any kind, irrespective of depth, has the potential to encounter human remains. Thus construction impacts from implementation of the proposed RTP are considered potentially significant for **Impact CR-4**. Mitigation is required; see **Mitigation Measures CR-2** and **CR-4,** (described above), and **CR-5** described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Implement Mitigation Measures **CR-2** and **CR-4.**

CR-5: Implementing and local agencies should implement Stop-Work and Consultation Procedures Mandated by Public Resources Code 5097.

In the event of discovery or recognition of any human remains during construction or excavation activities implementing and local agencies should cease further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the following steps are taken:

- The San Joaquin County Coroner has been informed and has determined that no investigation of the cause of death is required.
- If the remains are of Native American origin, either of the following steps will be taken:
  - The coroner should contact the Native American Heritage Commission in order to ascertain the proper descendants from the deceased individual. The coroner should make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods, which may include obtaining a qualified archaeologist or team of archaeologists to properly excavate the human remains.
  - Implementing or local agencies or authorized representatives should retain a Native American monitor, and an archaeologist, if recommended by the Native American monitor, and rebury the Native American human remains and any associated grave goods, with appropriate dignity, on the property and in a location that is not subject to further subsurface disturbance when any of the following conditions occurs:
    - The Native American Heritage Commission is unable to identify a descendent.
    - The descendant identified fails to make a recommendation.
    - The implementing agency or its authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

Level of Significance After Mitigation

Implementation of **Mitigation Measures CR-2, CR-4** and **CR-5** by local agencies would reduce impacts related to the disturbance of human remains to a level less than significant. As all local and regional agencies must enforce and abide by the Public Resources Code 5907's rules and regulations detailed above impacts would be less than significant.

4.5.4 CUMULATIVE EFFECTS

The RTP/SCS includes transportation projects and land use strategies that will shape the region over the next 27 years. These changes will include the extension of transportation and related infrastructure that would impact cultural resources. Many of these transportation projects will facilitate access not only within the County but also to areas outside the region. In addition, Plan projects will connect with projects outside the region facilitating and potentially inducing construction of transportation infrastructure outside the region. This additional infrastructure outside the County could lead to development outside the region. The combination of urban infrastructure and development would change the character of the County. Some of these changes would be expected to occur on the fringe of the County (especially adjacent to Sacramento County).

As discussed above, implementation of the 2014 RTP/SCS would contribute to cumulative impacts to cultural resources throughout the State of California as historic resources are replaced with new development and land is disturbed thereby impacting archeological and paleontological resources. The No Project Alternative would consume greater amounts of vacant land (18,123 acres under the Plan and 35,184 under the No Project) and result in a more spread out growth pattern that could result in the development of a greater amount of land that contains previously undisturbed and undiscovered archaeological, paleontological, or human remains. While the No Project Alternative's cumulative impacts to cultural resources would be greater than those of the RTP/SCS, the 2014 RTP/SCS would result in a cumulatively considerable impacts to cultural resources.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures CR-1** through **CR-5**.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.5.5 COMPARISON WITH THE NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the region would still grow by close to 365,694 people by 2040; however, no regional transportation investments would be made beyond the existing programmed projects. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments and growth policies contained within the RTP/SCS.

Under the No Project Alternative fewer areas would be impacted by excavation and construction activities related to transportation projects. However, the No Project Alternative is expected to result in a less concentrated form of growth, which would affect an increased amount of currently undisturbed land (35,184 acres as compared to 18,123 acres with the Plan). While the No Project Alternative would reduce the number of transportation projects built in San Joaquin County, it would result in greater vacant land consumption that could, in turn, increase the chance to uncover a greater number of previously undisturbed resources.

The 2014 RTP/SCS would result in concentration of development in previously developed urban areas, which could lead to greater impacts to historic buildings. However, many communities have in place regulations to protect historic resources, and even under the No Project Alternative these areas could still redevelop – although possibly not at the same intensity as under the plan. On balance, it is anticipated that the RTP/SCS's impacts to cultural resources would be less than the No Project Alternative because it would result in 35,184 acres of land consumed compared to 18,123 acres of land consumed under the No Project Alternative. Therefore, the No Project impacts would be greater than the Plan impacts for **Impacts CR-2** through **CR-4** because of the increased consumption of open space and vacant land. All projects (including those under the No Project Alternative and Project) would be accountable to the same local, state, and federal regulations in place to protect identified historic resources.

4.6 GEOLOGY, SOILS, AND MINERAL RESOURCES

This section addresses the existing geological and soil resources within the region and evaluates the significance of the changes in geological resources that would result from development of the proposed 2014 Regional Transportation Plan (RTP). In addition, as appropriate and feasible, mitigation measures are identified to reduce potentially significant adverse impacts.

4.6.1 ENVIRONMENTAL SETTING

Regional Geology

Located at the northern end of the San Joaquin Valley, San Joaquin County lies in the region of the confluence of the San Joaquin and Sacramento Rivers. The San Joaquin Valley is bordered by the Coast Ranges on the west and the foothills of the Sierra Nevada to the east.

The San Joaquin Valley basin has been filled over time with up to a 6-mile-thick sequence of interbedded clay, silt, sand, and gravel deposits. The sediments range in age from more than 144 million years old (Jurassic Period) to less than 10,000 years (Holocene). The most recent sediments consist of coarse-grained (sand and gravel) deposits along river courses and fine-grained (clay and silt) deposits located in low-lying areas or flood basins and are referred to as alluvial deposits. These deposits are loose and not well-consolidated soils.

Older alluvial deposits underlie the edges of the Valley. The older alluvial deposits are exposed in the foothill regions in the eastern portion of the County. The alluvial deposits, which slope gradually toward the center of the Valley, contain most of the groundwater supplies in San Joaquin County. The foothills of the Diablo Range in the southwestern part of the County are underlain by alluvial deposits and older marine sediments deposited during the Tertiary Period when an inland sea occupied the Central Valley.

Great Valley Geomorphic Province

The Great Valley is an alluvial plain, about 50 miles wide and 400 miles long, between the Coast Ranges and Sierra Nevada. The Great Valley Province is drained by the Sacramento and San Joaquin rivers, which join and enter San Francisco Bay. The eastern border is the west-sloping Sierran bedrock surface, which continues westward beneath alluvium and older sediments. The western border is underlain by east-dipping Cretaceous and Cenozoic strata that form a deeply buried synclinal trough, lying beneath the Great Valley along its western side. The southern part of the Great Valley Province is the San Joaquin Valley. Its great oil fields follow anticlinal uplifts that mark the southwestern border of San Joaquin

Valley and its southern basin. To the north, the Sacramento Valley plain is interrupted by the Marysville Buttes, an isolated Pliocene volcanic plug about 2,000 feet high.

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.[1]

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.

Currently, almost all mining operations in the County are sand and gravel aggregate operations. Construction aggregate refers to sand and gravel (natural aggregates) and crushed stone (rock) that are used as Portland-cement-concrete aggregate, asphaltic-concrete aggregate, road base, railroad ballast, riprap, and fill for the production of other construction materials. California's construction industry is greatly dependent on readily available aggregate deposits that are within a reasonable distance to market regions. Aggregate is a low unit-value, high bulk-weight commodity; therefore, aggregate for construction must be obtained from nearby sources in order to minimize costs to the consumer. If nearby aggregate sources do not exist, then transportation costs can quickly exceed the value of the aggregate.

Mineral land classification studies for aggregate use either a Production-Consumption (P-C) region or a County as the study area boundary. A P-C region is one or more aggregate production districts (a group of producing aggregate mines) and the market area they serve. P-C Regions sometimes cross county boundaries. Mineral land classification reports include information from one or more P-C regions, or from a county. San Joaquin County is in the Stockton-Lodi P-C region. The 50-year demand for aggregate in this region is 687 million tons (compared to 12,047 million tons in the entire state), of which 277 million tons must be Portland-cement-concrete grade.

1 2009 San Joaquin General Plan Update, Draft Background Report, Natural Resources Element.

There are approximately 232 million tons of permitted reserves in this region (compared to 4,067 million tons in the state).[2] Thus The Stockton-Lodi region has approximately 33 percent of its anticipated 50-year demand under permits. It is estimated that permitted reserves will last 20 years.[3]

The California Geological Survey (CGS) estimates that there are approximately 74 billion tons of non-permitted resources statewide. Non-permitted aggregate resources are deposits that may meet specifications for construction aggregate, are recoverable with existing technology, have no land overlying them that is incompatible with mining, and currently, are not permitted for mining. Resource areas include areas that that are known to contain aggregate resources and have compatible land uses such as agricultural land, open space lands (not designated as parks), and forest lands. Uses that are considered incompatible with mining include urban areas, county and state parks, national parks and golf courses.

While the estimated amount of non-permitted resources is large, it is unlikely that all of these resources will ever be mined because of social, environmental, or economic factors. Aggregate resources located too close to urban or environmentally sensitive areas can limit or stop their development. These resources may also be located too far from a potential market to be economically viable. In spite of such possible constraints, non- permitted aggregate resources are the most likely future sources of construction aggregate potentially available to meet California's continuing demand.

The largest supply of sand and gravel in the County is the Corral Hollow Creek production district near Tracy and Manteca. This district produces an estimated 5 to 10 million tons per year. Several other districts located near Lathrop, Manteca, and in northeast San Joaquin County each produce an estimated 0.5 to 2 million tons of aggregate per year.[4] Unless new resources are permitted for mining, or alternative resources are utilized, existing resources will eventually be depleted. The deposits could last longer than projected if excavators are granted variances permitting excavations below 90 feet. **Figure 4.6-1, Location of the Stockton-Lodi P-C Region,** provides an outline of the P-C Region, and **Figure 4.6-2, San Joaquin County Mineral Zones,** illustrates the known mineral zones in the County.

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2 Department of Conservation, California Geological Survey, 2012 Aggregate Sustainability in California.

3 CGS 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.

4 2009 San Joaquin General Plan Update, Draft Background Report, Natural Resources Element.

Faults and Seismicity

Faults

A fault is a fracture in the crust of the earth along which rocks on one side have moved relative to those on the other side. A fault trace is the line on the earth's surface defining the fault. Displacement of the earth's crust along faults release energy in the form of earthquakes and in some cases in fault creep. Most faults are the result of repeated displacements over a long period of time.

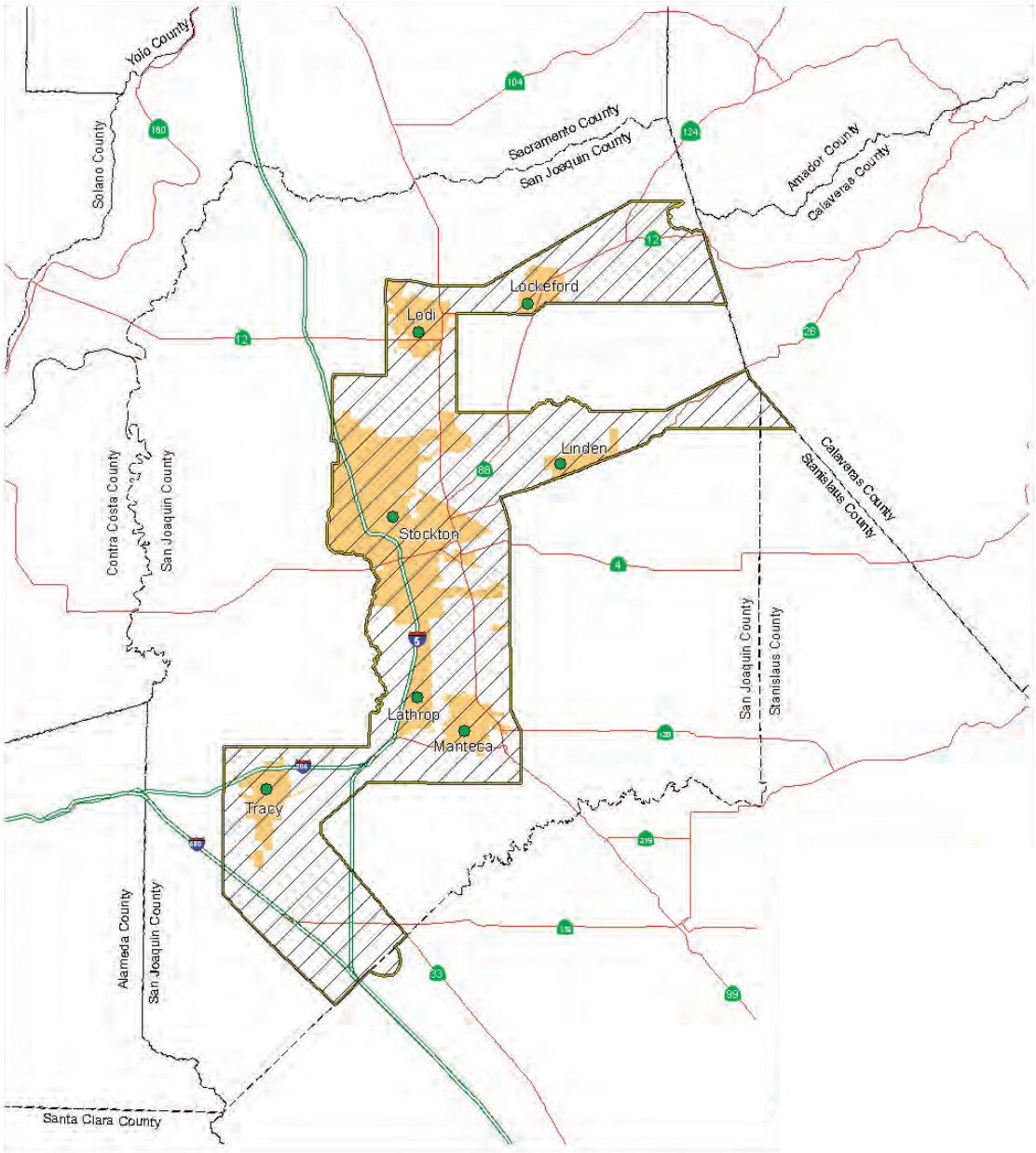
Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Surface ruptures have been known to extend up to 50 miles with displacements of an inch to 20 feet. Fault rupture almost always follows preexisting faults, which are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by shaking.

The State of California designates faults as active, potentially active, and inactive depending on how recent the movement that can be substantiated for a fault. **Table 4.6-1, Fault Activity Rating**, presents the California fault activity rating system.

Table 4.6-1
Fault Activity Rating

Fault Activity Rating	Geologic Period of Last Rupture	Time Interval (Years)
Active (A)	Holocene	Within last 11,000 years
Potentially Active (PA)	Quaternary	11,000–1.6 Million Years
Inactive (I)	Pre-Quaternary	Greater than 1.6 Million

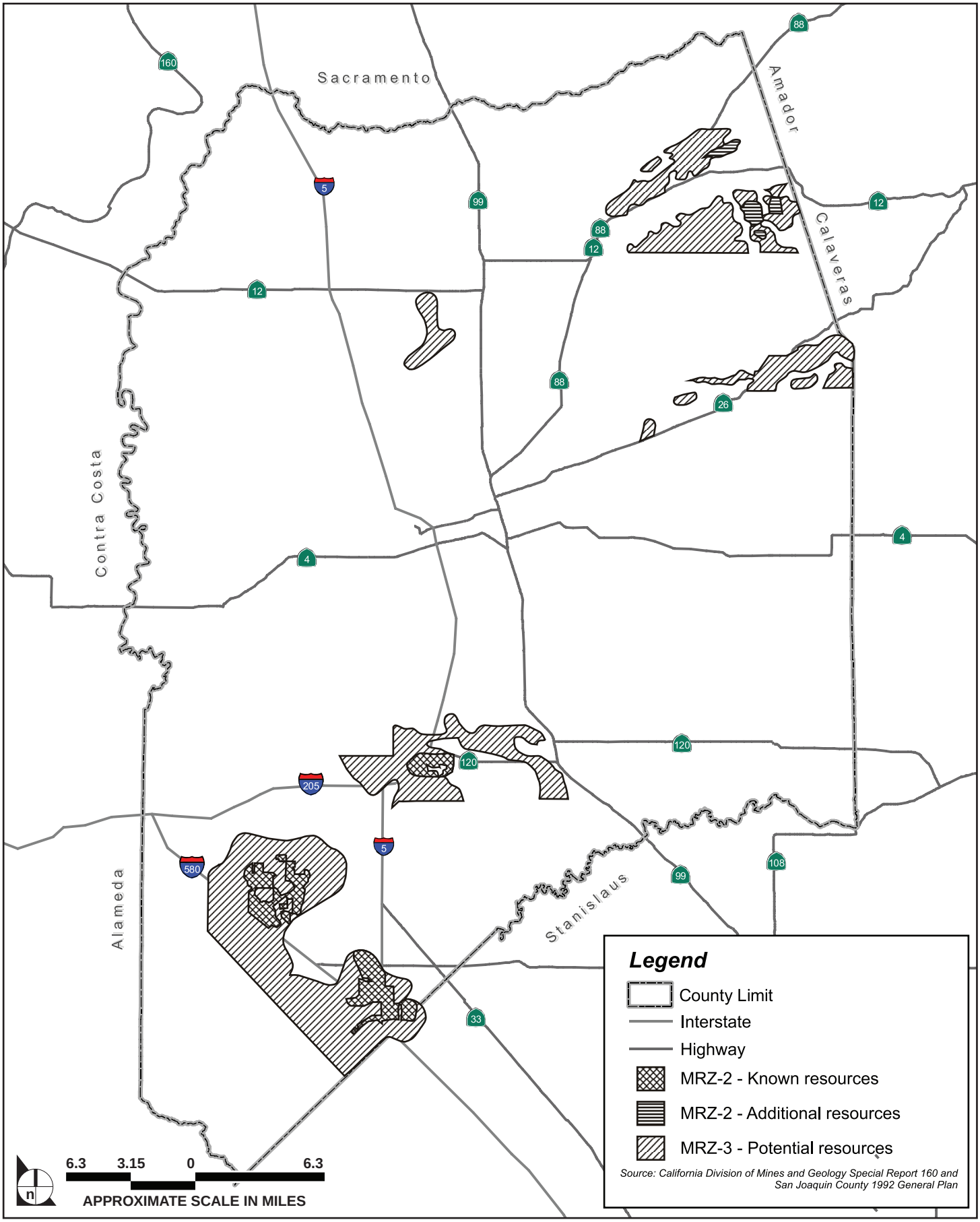
Active faults affecting San Joaquin County include the San Andreas, Hayward, Calaceras, midland, Green Valley-Concord, and Tracy-Stockton Faults. These faults are capable of producing earthquakes of a maximum probable magnitude between 6.3 and 8.25 on the Richter scale. Several potentially active faults that may affect the County are located in the southwest area of the County, in or near the Tracy Planning Area. These include the San Joaquin Fault Zone, Midway-Black Butte Fault, the Tesla Fault, and Tracy-Stockton Fault. The Foothills Fault system, which includes Melones and Bear Mountain fault zones, is located to the east of the County.



SOURCE: California Geological Survey, Special Report 199, 2012

FIGURE **4.6-1**

Location of Stockton-Lodi P-C Region



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.6-2**

San Joaquin County Mineral Zones

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The California legislature passed the Alquist-Priolo Special Studies Zone Act in 1972 to address seismic hazards associated with faults and to establish criteria for developments for areas with identified seismic hazard zones. The California Division of Mines and Geology (CDMG) has not yet surveyed San Joaquin County, although there are a number of known faults within the County.[5] **Figure 4.6-3, Active and Quaternary Faults in San Joaquin County**, illustrates the location of each active and quaternary fault. A brief description of each fault is provided below.

San Andreas Fault. The San Andreas Fault is one of the longest and most active faults in the world. The surface trace of this fault extends from the Northern California coastline to the Gulf of California, a distance of over 600 miles. The last major ground rupture of this fault in the Bay Area occurred in 1906 and induced strong seismic shaking in San Joaquin County. The probability of a large earthquake (magnitude 7.0) within the next 30 years along the San Francisco Bay segment is 0.5 percent.

Hayward Fault. The Hayward Fault is located east of San Francisco Bay and extends southeast to where it most likely merges with the Calaveras Fault north of the City of Hollister. The recent history of this fault shows two major earthquakes (1836 and 1868) each with an estimated Richter scale magnitude of 6.5 to 7.5). In addition, between January 1969 and September 1973 approximately 70 small earthquakes were recorded along the fault. Tectonic creep continues to damage structures that cross the fault zone.

Calaveras Fault. The Calaveras Fault, approximately 100 miles long, borders the eastern flank of the Berkeley-Hayward Hills and extends southeast where it joins the San Andreas Fault south of the City of Hollister. Due to the physiographic and geologic evidence and earthquake epicenters located along the trace of the fault, the Calaveras Fault Zone is considered active.

Green Valley-Concord Faults. This fault zone, extending from Walnut Creek to west of Fairfeld, has experienced displacement throughout most of its length within recent geologic time. An earthquake of 5.4 magnitude occurred in 1955 along part of the fault near Concord. There is currently evidence of some movement along the fault in the City of Concord. The greatest probably earthquake generated by this fault is not expected to exceed a magnitude of 7.0 on the Richter scale.

Melones-Bear Mountain Fault Zones. The Melones and Bear Mountain Fault Zones extend in a wide band along the western edge of the Sierra Nevada Mountains in the higher elevation foothills. Beginning near the southeast corner of Yosemite National Park, the fault zones run through Mother Lode communities ending in the foothills east of Red Bluff.

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5 As of 2014 The State of California Department of Conservation has not surveyed San Joaquin County for earthquakes, liquefaction, and landslide or fault zones, http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm

The Melones and Bear Mountain Fault Zones have exhibited little seismic activity and have been considered to be inactive, since no evidence has been found of Quaternary fault movement. The US Geological Survey has been monitoring activity along the two fault zones in the vicinity of New Melones Dam since 1972 and has found a lack of even micro-seismic activity.

Because of the location of Tulloch, New Melones, New Hogan, Jackson Creek, and Pine Flat Reservoirs within the Melones and Bear Mountain Fault Zones, the question of the activity of these faults is extremely serious for San Joaquin County. Since upstream dam failure could lead to massive flooding in San Joaquin County, it is extremely important to the County that the Melones and Bear Mountain Fault Zones be reanalyzed.

Patterson Pass Fault. This fault runs northwest from the Alameda-San Joaquin County boundary toward the City of Livermore. Its location is imprecise and nature of its movement is uncertain. It is unlikely that this relatively small fault presents a significant seismic threat to San Joaquin County in comparison with other fault systems located in the County.

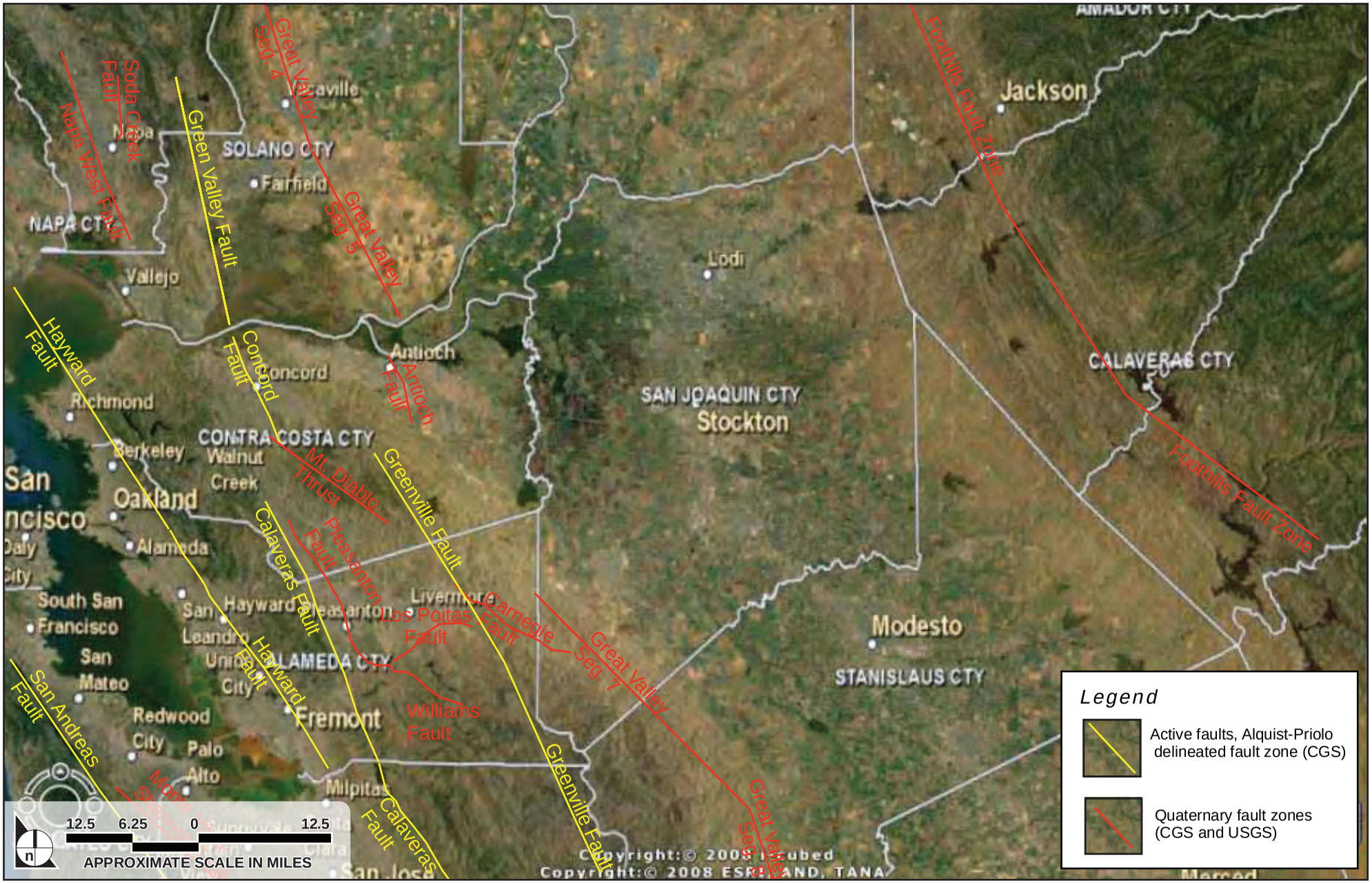
Telsa and Black Butte Faults. Neither of these faults, located in the southwest corner of San Joaquin County, have any recorded evidence of activity.

San Joaquin County is classified as a Seismic Zone 3, which is defined by the Uniform Building Code with special standards and regulations based on the potential impacts from seismic activity.

Seismicity

Seismicity, ground shaking is directly related to the distribution of fault systems within a region. Depending on activity patterns, faults and fault-related geologic features may be classified as active, potentially active, or inactive. The amount of energy available to a fault is determined by considering the slip-rate of the fault, its area (fault length multiplied by down-dip width), maximum magnitude, and the rigidity of the displaced rocks. These factors are combined to calculate the moment (energy) release on a fault.

Ground shaking may affect areas hundreds of miles distant from the earthquake's epicenter. Historic earthquakes have caused strong ground shaking and damage in many areas of San Joaquin County. The composition of underlying soils in areas located relatively distant from faults can intensify ground shaking. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.6-3**

Active and Quaternary Faults in San Joaquin County

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Ground shaking is commonly described in terms of peak ground acceleration as a fraction of the acceleration of gravity (g), or by using the Modified Mercalli (MM) intensity scale, a common metric for characterizing intensity. The MM Intensity Scale is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. As presented in **Table 4.6-2**, MM intensities range from level I (shaking that is not felt) to level XII (total damage). MM intensities ranging from IV to X could cause moderate to significant structural damage. The degree of structural 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 4.6-2
Modified Mercalli Intensity Scale

Intensity	Description
I.	Not felt except by a very few under especially favorable conditions
II.	Felt only by a few persons at rest, especially on upper floor of buildings
III.	Felt quite noticeable by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck
IV.	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V.	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight
VII.	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII.	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI.	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII.	Damage total. Lines of sight and level are distorted. Objects thrown into the air.
XII.	Not felt except by a very few under especially favorable conditions.

Source: US Geology Survey, National Earthquake Information Center website, http://neic.usgs.gov/neis/general/mercalli.html, 2014

Earthquakes on the various and potentially active fault systems are expected to produce a wide range of ground shaking intensities. The estimated maximum moment magnitudes represent characteristic earthquakes on particular faults.[6] While the magnitude is a measure of the energy released in an

6 Moment magnitude is related to the physical size of a fault rupture and movement across a fault. Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event [California Geological Survey (CGS), 1997]. See **Table 4.6-1** for the moment magnitudes associated with particular faults

earthquake, intensity is a measure of the ground shaking effects at a particular location. Shaking intensity can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and characteristics of geologic media. Generally, intensities are highest at the fault and decrease with distance from the fault. However, at any given location, the amount of the resulting shaking motion caused by the sudden movement depends, to a large extent, on local ground conditions (including the degree of water saturation), and may be as severe as 10 miles from the fault or immediately adjacent to it. While the Modified Mercalli scale describes the intensity of an earthquake in terms of its physical effects, the Richter scale is not used to express damage. An earthquake in a densely populated area which results in many deaths and considerable damage may have the same magnitude as a shock in a remote area that does nothing more than frighten the wildlife. Large-magnitude earthquakes that occur beneath the oceans may not even be felt by humans. When using the Richter scale the magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs. Adjustments are included for the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

The County is located in Seismic Zone 3 as defined by the Uniform Building Code. Identified faults must be considered in planning and land use activities, and faults identified as active should be considered when deciding on a project's location. No structure, including roadway bridges, should be built astride an active fault. Similarly, utilities that cross such faults must be designed to remain functional even after fault movement.

Ground Failure

San Joaquin County has diverse microenvironments and activities that have the potential for ground failure. Factors that cause or contribute to ground failure can include, but are not limited to, soil type and condition, bedrock condition, presence of moisture, presence or lack of vegetation, ground slope, seismic activities, and human activities, Specific types of ground failure are presented below.

Landslides

Landslides include slumps, debris flows, and rockfall. Small landslides are common in the County's mountain areas as loose material moves naturally down slope or fires have caused loss of soil-stabilizing

vegetative cover. In addition, many human activities tend to make the earth materials less stable and, thus, increase the chance of ground failure. Some of the natural non-seismic causes of ground instability are steam and lakeshore erosion, heavy rainfall, and poor quality natural materials. Human activities contribute to soil instability through grading of steep slopes (i.e., road cuts) or overloading slopes with artificial fill, by extensive irrigation, construction of impermeable surfaces, excessive groundwater withdrawal, and removal of stabilizing vegetation.

Landslides are usually confined to areas of steep slopes that have an underlying geology that is susceptible to movement and are usually triggered by an event such as an earthquake, large rainfalls, human slope modification/loading activities, gravity, or a combination thereof. The potential for landslides is considered remote in the valley floors due to the lack of significant slopes. Portions of San Joaquin County that are susceptible to this hazard are located in the foothills in the eastern and southwestern portions of the County, the steep banks along the major rivers, and in the Delta. The foothills are most susceptible to unstable slope conditions and specifically include the steep hills of the Diablo Range in the southwest section of the County and the Sierra Nevada Foothills along with the County's eastern edge. **Figure 4.6-4, San Joaquin County Landslide Susceptibility,** shows the approximate locations where landslides are most likely to occur in the County.

Surface Fault Rupture

The surface expression of earthquake fault rupture typically occurs in the immediate vicinity of the originating fault. The magnitude and nature of the rupture may vary across different faults, or even along different segments of the same fault.[7] Rupture of the surface during earthquake events is generally limited to the narrow strip of land immediately adjacent to the fault on which the event is occurring.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972, to mitigate the risk to human habitation of seismically induced ground-surface ruptures. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard, provided regulatory stipulations embedded in this law are met.

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults, and to issue appropriate maps.[8] Detailed maps are distributed to all affected cities, counties, and state agencies for their use in planning new or renewed construction. Local agencies must regulate most development projects within the zones, including all land divisions

7 California Geological Survey (CGS), *Guidelines for evaluating the hazard of surface fault rupture*, CGS Note 49, 2002a.

8 "Earthquake Fault Zones" were called "Special Studies Zones" prior to January 1, 1994.

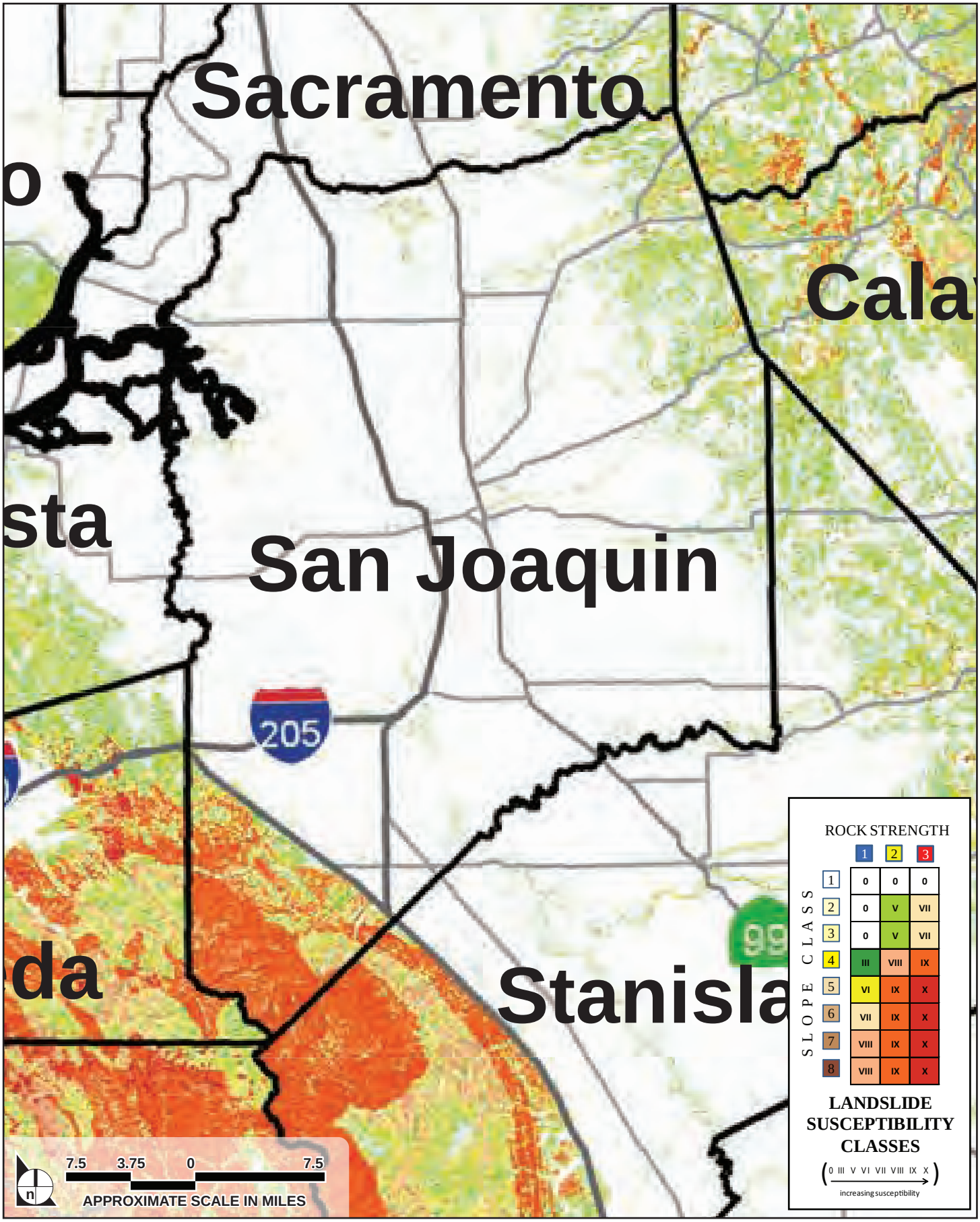
and most structures intended for human habitation. Fault surface rupture almost always follows preexisting faults, which are zones of weakness. Rupture may occur suddenly during an earthquake, or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by ground shaking. Fault creep is the slow rupture of the earth's crust. Not all earthquakes result in surface rupture.

Liquefaction

Liquefaction is the process by which water-saturated sandy soil materials lose strength and become susceptible to failure during strong ground shaking in an earthquake. The shaking causes the pore-water pressure in the soil to increase, thus transforming the soil from a stable solid to a more liquid form. Liquefaction has been responsible for ground failures during almost all of California's large earthquakes. The depth to groundwater can control the potential for liquefaction; the shallower the groundwater, the higher the potential for liquefaction. Earthquake-induced liquefaction most often occurs in low-lying areas with soils or sediments composed of unconsolidated, saturated, clay-free sands and silts, but can also occur in dry, granular soils, or saturated soils with some clay content.

Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. A *lateral spread* is a horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer. Lateral spread 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 degrees 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. Ground fissures can accompany ground oscillation and sand boils and damage underground structures and utilities. 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 potential is a function of the potential level of ground shaking at a given location and depends on the geologic material at that location. Structural failure often occurs as sediments liquefy and cannot support structures that are built on them. Alluvial valleys and coastal regions are particularly susceptible to liquefaction. Unconsolidated alluvial deposits in desert region deposits are rarely saturated because of the depth to the water table and are thus less susceptible to liquefaction than unconsolidated alluvium adjacent to stream channels.



SOURCE: California Geological Survey, 2011

FIGURE **4.6-4**

San Joaquin County Landslide Suceptibility

The California Department of Conservation has not identified any liquefaction zones within the County, although various areas of the County may be subject to liquefaction during seismic events due to high ground water levels. Liquefaction is found near the Manteca-Lathrop area, the area just west of Woodbridge (including a small portion of the town site), and the Delta. The soils in the Tracy area are not considered to be as susceptible to liquefaction, even though the groundwater is high, because the near-surface soils are predominantly clays or sands with high silt and clay content. The east and northeast portions of the County are less susceptible because groundwater is deep. The most serious threat to public health and safety from liquefaction lies in the Delta. Many of the Delta levees are directly underlain by relatively clean water-saturated sands and peats. Strong ground shaking could cause liquefaction under these levees and lead to levee failure and localized flooding.

Land Subsidence

Land subsidence is the gradual, local settling or sinking of the earth's surface with little or no horizontal motion. Land subsidence occurs in San Joaquin County and is generally attributed to the overdrafting of groundwater basins and peat oxidation of the Delta islands. This type of ground failure can be aggravated by ground shaking, and is often caused by the withdrawal of large volumes of fluid from underground reservoirs. Other causes of subsidence include sinking tectonics, oil and gas extraction, and deficient alluvial deposits. Subsidence from any cause accelerates maintenance problems on roads, canals, and underground utilities, and contributes to drainage and flood problems. Seismic activities also aggravate subsidence areas. Maintenance or raising water tables can mitigate effects from subsidence.

Subsidence caused by hydrocompaction of moisture – deficient alluvial deposits. This is a onetime densification from collapse of the soil structure in near-surface strata where the rainfall or other moisture has not penetrated during a long period of time. Parts of the California Aqueduct were constructed through and over hydrocompactable deposit after compaction has occurred through ponding.

Settlement

Loose, soft soil material comprised of sand, silt and clay, if not properly engineered, has the potential to settle after a building is placed on the surface. Settlement of the loose soils generally occurs slowly but over time can amount to more than most structures can tolerate. Building settlement could lead to structural damage such as cracked foundations and misaligned or cracked walls and windows. Settlement problems are site-specific and can generally be remedied through standard engineering applications

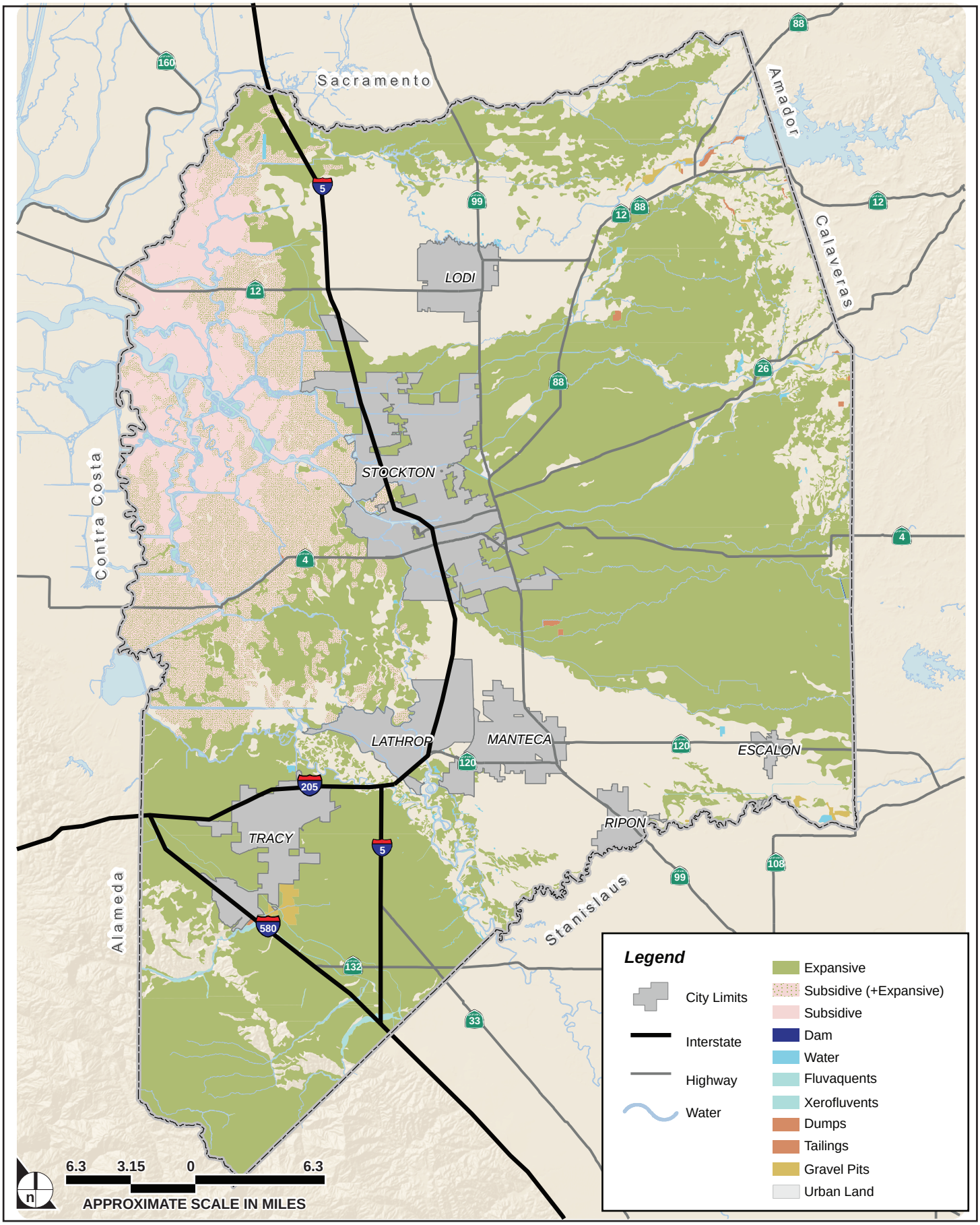
Soils

Expansive Soils

Expansive soils possess a "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may result over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Typically, soils that exhibit expansive characteristics comprise the upper 5 feet of the surface. The effects of expansive soils could damage foundations of aboveground structures, paved roads and streets, and concrete slabs. Expansion and contraction of soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift. Locations of expansive soils are site-specific and can generally be remedied through standard engineering practices. Most of San Joaquin County is characterized by expansive soils. Though expansive soils are not considered to pose a significant hazard within San Joaquin County, they are identifiable through standard soil tests and geotechnical reports. The hazards associated with expansive soils can be mitigated through proper geotechnical engineering, which is a requirement in San Joaquin County. **Figure 4.6-5, Expansive Soils in San Joaquin County,** shows where these soils are located in the County.

Erosion

Erosion naturally occurs on the surface of the earth as surface materials (i.e., rock, soil, debris, etc.) is loosened, dissolved, or worn away, and transported from one place to another by gravity. Two common types of soil erosion include wind erosion and water erosion. The steepness of a slope is an important factor that affects soil erosion. Erosion potential in soils is influenced primarily by loose soil texture and steep slopes. Loose soils can be eroded by water or wind forces, whereas soils with high clay content are generally susceptible only to water erosion. The potential for erosion generally increases as a result of human activity, primarily through the development of facilities and impervious surfaces and the removal of vegetative cover. The Delta and portions of the southeast County are subject to wind erosion, as well as some areas in Stockton, Lathrop, and Tracy. During times of high winds (15 mph or higher), clouds of peat dust are visible in the Delta area, sometimes creating road closures.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.6-5**

Expansive Soils in San Joaquin County

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4.6.2 REGULATORY SETTING

Federal

Uniform Building Code

The Uniform Building Code (UBC) is published by the International Conference of Building Officials and forms the basis for California's building code, as well as approximately half of the state building codes in the United States. It has been adopted by the California Legislature to address the specific building conditions and structural requirements for California, as well as provide guidance on foundation design and structural engineering for different soil types. The UBC defines and ranks the regions of the United States according to their seismic hazard potential. There are four types of regions defined by Seismic Zones 1 through 4, with Zone 1 having the least seismic potential and Zone 4 having the highest.

United States Department of Agriculture, Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving and sustaining the nation's limited soil resources. In addition to many other natural resource conservation programs, the NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses. Working through existing programs, United States Department of Agriculture (USDA) joins with state, tribal, and local governments to acquire conservation easements or other interests from landowners.

Clean Water Act 402/National Pollutant Discharge Elimination System

The Clean Water Act (CWA) of 1972 (33 USC §1251 et seq.) is discussed in detail in **Section 4.13, Water Resources**. However, because CWA section 402 is directly relevant to excavation and grading, additional information is provided below.

Amendments in 1987 to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. The Environmental Protection Agency (EPA) has delegated to the State Water Resources Control Board (SWRCB) the authority for the NPDES program in California, which is implemented by the state's nine Regional Water Quality Control Boards (RWQCBs). Under the NPDES Phase II Rule, construction activity disturbing one or more acres must obtain coverage under the state's General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit). Proponents of specific projects under the proposed Regional Transportation Plan

and. Sustainable Communities Strategy (RTP/SCS) that would disturb 1 acre or more are required to obtain a General Construction Permit, prepare a Notice of Intent and a Storm Water Pollution Prevention Plan (SWPPP), and implement and maintain Best Management Practices (BMPs) to avoid adverse effects on water quality as a result of construction activities, including earthwork.

Earthquake Hazards Reduction Act of 1977

The Earthquake Hazards Reduction Act (EHRA) of 1977 (42 USC § 7701 et. seq.) established the National Earthquake Hazards Reduction Program as a long-term earthquake risk reduction program for the United States which focuses on: developing effective measures to reduce earthquake hazards; promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, building standards and model building code organizations, engineers, architects, building owners, etc.; improving the understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and developing and maintaining the Advanced National Seismic System, the George E. Brown Jr. Network for Earthquake Engineering Simulation, and the Global Seismic Network.

State

California Building Code

Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The *California Building Code* is another name for the body of regulations contained in Title 24, Part 2, of the California Code of Regulations, which is a portion of the California Building Standards Code (CBSC, 1995). Title 24 is assigned to the California Building Standards Commission which, by law, is responsible for coordinating all building standards. Published by the International Conference of Building Officials, the Uniform Building Code (UBC) is a widely adopted model building code in the United States. The California Building Code incorporates by reference the UBC with necessary California amendments. About one-third of the text within the California Building Code has been tailored for California earthquake conditions. Although widely accepted and implemented throughout the United States, local, city and county jurisdictions can adopt the UBC either in whole or in part.

Surface Mining and Reclamation Act of 1975. The California Public Resource Code, Division 2 - Geology, Mines and Mining, Chapter 9.

The California Surface Mining and Reclamation Act (SMARA) of 1975 mandates that the State Mining and Geology Board (SMGB) and the Division of Mines and Geology (DMG) prepare a mineral resource report for each county in California. SMARA also regulates the permitting of mining operations, provides

for inspections during the life of the mine, and ensures that remediation occurs after completion of mining operations. SMARA is also administered by the California Department of Conservation (DOC), Office of Mine Reclamation (OMR). In order to sell sand, gravel, aggregates, or other mined minerals under SMARA each operation must meet provisions set forth under Public Resources Code, Section 2717(b) as required by SMARA. The San Joaquin County 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.

SMARA also requires cooperative efforts between the US Geological Survey (USGS) and the SMGB to identify and classify mineral areas in the state. The SMGB designates mineral deposits of regional or statewide significance. These areas are classified as one of four Mineral Resource Zones (MRZ) or as a Scientific Zone (SZ), as described in **Table 4.6-3, Mineral Resource Zone Definition – San Joaquin County**. After the mineral classification information is updated, mineral resource management policies are incorporated into the General Plans of cities and counties. Policies are created to support mining operations, including dredging and quarrying, and are intended to ensure that mineral resources will be available for development.

Table 4.6-3
Mineral Resource Zone Definition – San Joaquin County

Mineral Resource Zone	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
MRZ-4	Areas with no known mineral occurrences because available information is inadequate for assignment to any other MRZ zone
SZ	Areas containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.*

* *No such area known to exist in San Joaquin*
Source: San Joaquin County General Plan, Public Review Draft Background Report, 2013.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 sets forth the policies and Criteria of the State Mining and Geology Board, which governs the exercise of governments' responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults. The

policies and criteria are limited to potential hazards resulting from surface faulting or fault creep within Earthquake Fault Zones, as delineated on maps officially issued by the State Geologist. Working definitions include:

- **Fault** – a fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side;
- **Fault Zone** – a zone of related faults, which commonly are braided and sub parallel, but may be branching and divergent. A fault zone has a significant width (with respect to the scale at which the fault is being considered, portrayed, or investigated), ranging from a few feet to several miles;
- **Sufficiently Active Fault** – a fault that has evidence of Holocene surface displacement along one or more of its segments or branches (last 11,000 years); and
- **Well-Defined Fault** – a fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The geologist should be able to locate the fault in the field with sufficient precision and confidence to indicate that the required site-specific investigations would meet with some success.

"Sufficiently Active" and "Well Defined" are the two criteria used by the state to determine if a fault should be zoned under the Alquist-Priolo Act.

Seismic Hazards Mapping Act

The program and actions mandated by the Seismic Hazards Mapping Act closely resemble those of the Alquist-Priolo Earthquake Fault Zoning Act. The Seismic Hazards Mapping Act of 1990 addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The purpose of the Act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes.

Caltrans Seismic Design Criteria

The California Department of Transportation (Caltrans) has Seismic Design Criteria (SDC), which is an encyclopedia of new and currently practiced seismic design and analysis methodologies for the design of new bridges in California. The SDC adopts a performance-based approach specifying minimum levels of structural system performance, component performance, analysis, and design practices for ordinary standard bridges. The SDC has been developed with input from the Caltrans Offices of Structure Design, Earthquake Engineering and Design Support, and Materials and Foundations. Memo 20-1 outlines the bridge category and classification, seismic performance criteria, seismic design philosophy and approach, seismic demands and capacities on structural components and seismic design practices that collectively make up Caltrans' seismic design methodology.

Southern California Catastrophic Earthquake Preparedness Plan

The Southern California Catastrophic Earthquake Preparedness Plan, adopted in 2008, examines the initial impacts, inventories resources, provides for the wounded and homeless, and develops a long-term recovery process. The process of Long-Term Regional Recovery (LTRR) provides a mechanism for coordinating federal support to state, tribal, regional, and local governments, nongovernmental organizations (NGOs), and the private sector to enable recovery from long-term consequences of extraordinary disasters. The LTRR process accomplishes this by identifying and facilitating the availability and use of recovery funding sources, and providing technical assistance (such as impact analysis) for recovery and recovery planning support. "Long term" refers to the need to re-establish a healthy, functioning region that will sustain itself over time. Long-term recovery is not debris removal and restoration of utilities, which are considered immediate or short-term recovery actions. The LTRR's three main focus areas are housing, infrastructure (including transportation), and economic development.

Local

Geotechnical Investigations

Each local jurisdiction within the County regulates construction activities through a process that requires the preparation of a site-specific geotechnical investigation in order to assess the design limitations. The purpose of a site-specific geotechnical investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and the previous history of excavation and fill placement. Proponents of the individual RTP/SCS improvement projects may need to prepare geotechnical investigations prior to project design.

County and City General Plans

Local governments may provide policies and develop ordinances to ensure acceptable protection of people and structures from risks associated with these hazards. City and county governments typically develop as part of their General Plans, safety and seismic elements that identify goals, objectives, and implementing actions to minimize the loss of life, property damage, and disruption of goods and services from man-made and natural disasters including floods, fires, non-seismic geologic hazards, and earthquakes. Ordinances may include those addressing unreinforced masonry construction, erosion or grading. Applicable policies from the County and Cities' General Plan are as follows:

San Joaquin County General Plan

- The risk to human safety and property from seismic and geologic hazards shall be considered in determining the location and intensity of development and the conditions under which it may occur.
- 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) shall not be located within one-eighth of a mile of any active fault.
- Regional and local efforts to curb subsidence of the Delta should be promoted.
- Mineral deposits of significant quantity, value, or quality, as identified by the State Division of Mines and Geology reports as MRZ-2 Mineral Resource Zones, shall remain in open space uses until extraction of resources, unless the immediate area has been committed to other uses.
- Mined lands shall be reclaimed as soon as reasonably possible.

City of Escalon General Plan

- All new buildings shall conform to state standards set forth in the Dangerous Building Code contained in the most current edition of the Uniform Building Code.

City of Lathrop General Plan

- All new building construction shall conform to the latest seismic requirements of the Uniform Building Code as a minimum standard.
- The City should adopt an Earthquake Disaster Plan in coordination with San Joaquin County and local special districts. The Plan should identify hazards that may occur as the result of an earthquake of major magnitude. The Plan should be sufficiently broad in scope to include the designation of evacuation routes and means to coordinate all local government agencies in assisting local residents in the event of a major earthquake, large-scale fire or explosion, or hazardous chemical spill or release of hazardous air-borne gas.

City of Lodi General Plan

- Prevent loss of lives, injury, illness, and property damage due to flooding, hazardous materials, seismic and geological hazards, and fire.
- Ensure that all public facilities, such as buildings, water tanks, underground utilities, and berms, are structurally sound and able to withstand seismic activity.
- For buildings identified as seismically unsafe, prohibit a change in use to a higher occupancy or more intensive use until an engineering evaluation of the structure has been conducted and structural deficiencies corrected consistent with City building codes.

- Require soils reports for new projects and use the information to determine appropriate permitting requirements, if deemed necessary.

- Require that geotechnical investigations be prepared for all proposed critical structures (such as police stations, fire stations, emergency equipment, storage buildings, water towers, wastewater lift stations, electrical substations, fuel storage facilities, large public assembly buildings, designated emergency shelters, and buildings three or more stories high) before construction or approval of building permits, if deemed necessary. The investigation shall include estimation of the maximum credible earthquake, maximum ground acceleration, duration, and the potential for ground failure because of liquefaction or differential settling.

- Require new development to include grading and erosion control plans prepared by a qualified engineer or land surveyor.

City of Manteca General Plan

- The City shall require preparation of geological reports and/or geological engineering reports for proposed new development located in areas of potentially significant geological hazards, including potential subsidence (collapsible surface soils) due to groundwater extraction.

- The City shall require new development to mitigate the potential impacts of geologic hazards through Building Plan review.

- The City shall require new development to mitigate the potential impacts of seismic induced settlement of uncompacted fill and liquefaction (water-saturated soil) due to the presence of a high water table.

- The City shall ensure that all public facilities, such as buildings, water tanks, and reservoirs, are structurally sound and able to withstand seismic shaking and the effects of seismically induced ground failure.

- The City shall comply with the California State seismic and building standards in the design and siting of critical facilities, including police and fire stations, school facilities, hospitals, hazardous materials manufacturing and storage facilities, and large public assembly halls.

- The City shall maintain an inventory of pre-1940 unreinforced masonry buildings within the City. No change in use to a higher occupancy or more intensive use shall be approved in such structures until an engineering evaluation of the structure has been conducted and any structural deficiencies corrected. The Redevelopment Agency shall be encouraged to assist property owners in reinforcing buildings.

City of Ripon General Plan

- Require preparation of geological reports or engineering reports for development located in areas of suspected significant geological hazards.

- The Department of Public Works shall maintain maps and records which delineate areas known to be affected by site-specific geologic hazards.

- The Ripon General Plan shall be amended to incorporate data and/or analysis provided by the State Mining and Geology Board pursuant to the Seismic Hazard Mapping Act.

- The City will not approve any change in use to higher occupancy or more intensive use in unreinforced masonry structures constructed before 1940 until an engineering evaluation of the structure has been conducted and all structural deficiencies are corrected.

- Enforce building codes and City ordinances regarding earthquake protection.

- The Seismic, Geological, and Flood Hazard Components of the San Joaquin County General Plan Public Health and Safety Element are incorporated by reference to this Chapter of the General Plan.

City of Stockton General Plan

- The City shall require that new structures intended for human occupancy, public facilities (i.e., treatment plants and pumping stations, major communication lines, evacuation routes, etc.), and emergency/disaster facilities (i.e., police and fire stations, etc.) are designed and constructed to minimize risk to the safety of people due to ground shaking.

- The City shall require all proposed developments, reconstruction, utilities, or public facilities situated within areas subject to geologic-seismic hazards as identified in the soils engineering and geologic seismic analysis to be sited, designed, and constructed to mitigate the risk associated with the hazard (e.g., expansive, liquefaction, etc.).

- The City shall coordinate with appropriate agencies having jurisdiction over Delta levees to assess the danger associated with earthquakes on levee failures.

- The City shall not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones unless the specific provisions of the Act and Title 14 of the California Code of Regulations have been satisfied.

City of Tracy General Plan

- Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces.

- Geotechnical reports shall be required for development in areas where potentially serious geologic risks exist. These reports should address the degree of hazard, design parameters for the project based on the hazard, and appropriate mitigation measures.

- All construction in Tracy shall conform to the California Building Code and the Tracy Municipal Code including provisions addressing unreinforced masonry buildings.

- When reviewing land use proposals, the City shall take into account potentially available mineral resources on the property or in the vicinity of the project site.

- Prior to approval of any new or expanded mining operation, the City shall ensure that the operation will not create significant nuisances, hazards, or adverse environmental effects.

- Mining operations shall comply with all applicable City policies and standards in the Municipal Code and noise standards in the Noise Element of the General Plan.

- New or substantially expanded mining operations in the Planning Area shall adhere to the following standards:

  – Demonstrate no significant adverse impacts from the mining operation on adjoining areas and uses including, but not limited to noise, dust and vibration.

  – Demonstrate no substantial increase in hazards to neighboring uses, water quality, air quality, agricultural resources, or biological resources.

  – Demonstrate that the proposed plan complies with existing applicable County and state waste management plans and standards.

  – Create a landscaped buffer zone between quarrying operations and all adjacent uses other than quarries.

  – Use berms, barriers, sound walls, and other similar measures to assure that noise from quarrying does not exceed ambient noise level standards relevant to noise-sensitive adjacent uses.

  – Demonstrate that the operation can be serviced by existing truck routes.

- Mined property shall be left in a condition suitable for reuse in conformance with the General Plan land use designations and in accordance with the California Surface Mining and Reclamation Act (SMARA).

- Once mining operations are phased out, lands designated as Aggregate may be redeveloped.

4.6.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR San Joaquin COG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts to geological and mineral resources and soils, if any of the following would occur:

- Expose people or structures to potential substantial adverse effects, including the 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 issues 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;

(d) Landslides;

- Result in substantial soil erosion or the loss of topsoil;
- Locate projects on a geologic unit 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;
- Locate projects on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Result in the loss of availability of known aggregate and mineral resources that would be of value to the region and residents of the state.

Methodology

The analysis assesses the potential impacts to geological resources that could result from implementation of the proposed RTP/SCS. Impacts are assessed in terms of both land use and transportation impacts. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the proposed RTP/SCS refer to conditions in the year 2012.

Cumulative Analysis

The RTP addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., Air Quality Management Plans (AQMPs) as well as RTPs and AQMPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of geological resources and hazards includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This

evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under the California Environmental Quality Act [CEQA]); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of geological, soil, and mineral impacts compares the existing conditions to the RTP/SCS conditions, as required by *State CEQA Guidelines* Section 15126.2(a). The known geological resources located within the region were evaluated using the criteria set forth by the California Department of Conservation (CDC) and the *State CEQA Guidelines*.

As noted above, areas within the region contain geological resources. Generally, with regard to geological impacts, the greater the change from existing conditions, the greater the impact to the geological environment. To assess potential impacts to residences and businesses adjacent to transportation corridors and new development, a Geographic Information System (GIS) method was used to assess seismic and geologic impacts by overlaying data in GIS format on the location of areas known to pose seismic or geologic hazards. Specifically, the proposed projects and land use patterns included in the Plan were overlaid on maps that identify potential hazards, such as known faults, high ground acceleration areas, and areas exhibiting landslide potential, in the San Joaquin County. A 300-foot-wide buffer (150 feet on either side) was projected along transportation project segments to identify potential seismic and geologic hazards and to determine whether such hazards could impact an RTP project.

The development of new transportation facilities and new land uses may affect or be affected by existing geological resources, either through direct effects related to soils and minerals (erosion settlement), or through indirect effects to the area surrounding a resource if (it were for example, to preclude future mining of resources. The region contains a number of geological resources; therefore, the potential for impacts to result from specific RTP/SCS projects and development could be substantial. Improvements within existing rights-of-way are less likely to be affected by geological hazards; however, new highway segments near geological hazards could constitute a significant impact because regional connectivity could be affected in the event of seismic activity. As discussed above, construction of new transportation and development is a heavily regulated issue area in California, and most of the potential hazards of developing in a seismically active area are addressed by these detailed regulations that specify geotechnical evaluation and construction methods for a variety of soil conditions. This document analyzes impacts of the proposed RTP/SCS at a programmatic level. Project-level analysis of geologic impacts must be undertaken as appropriate. As noted in the Introduction, this Program EIR provides a regional scale analysis and a framework of mitigation measures for subsequent, site-specific environmental review documents prepared by lead agencies in the region as individual planning,

development and transportation projects are identified, designed and move through the planning, review and decision-making process. Where appropriate mitigation measures are included to reduce significant impacts. SJCOG's role is to prioritize and facilitate transportation projects consistent with adopted procedures. For regionally significant land use and transportation projects, SJCOG reviews and provides comments on environmental documents to determine consistency with applicable SJCOG planning and policy documents including the RTP/SCS. SJCOG does not directly implement transportation projects nor does it conduct project specific environmental review. SB 375 specifically addresses the role of MPOs, such as SJCOG, and it explicitly does not provide SJCOG with the authority to regulate land use. Therefore, SJCOG has no ability to impose or enforce mitigation measures within the authority of local jurisdictions.

Impacts and Mitigation Measures

Impact GEO-1 **Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving: (a) a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issues 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; (d) Landslides.**

Seismic activity can cause damage to existing structures designed with substandard construction. However, new and recently seismically retrofitted structures designed with current engineering knowledge can reduce potential damage and harm to and within these structures. These earthquake-resistant structures can minimize the impact to public safety from seismic events. Nevertheless, new transportation infrastructure and facilities associated with implementation of the RTP/SCS would expose additional people and infrastructure to the effects of seismic activity.

In addition to increased development and changes in land use, a variety of transportation improvements are included in the proposed RTP/SCS such as new high-occupancy vehicle (HOV) lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. The proposed RTP/SCS projects involve the expansion or extension of the transportation system, which may expose people or structures to a seismic activity.

Seismic activity has the potential to compromise the structural integrity of new facilities proposed in the RTP/SCS. Although the California Department of Conservation (CDC) has not yet surveyed San Joaquin

County, **Figure 4.6-3** identifies several visible fault zones throughout the County. Additional fault traces including concealed faults could be present within the boundaries of the proposed RTP/SCS.

Some projects would likely be located near fault traces. Projects would be located in areas known to experience severe ground acceleration during earthquakes making these areas susceptible to severe ground shaking and earth movement.

Based on available knowledge of fault locations and locations of earthquake epicenters, the risk of surface fault rupture in the RTP/SCS plan area is generally low because there are relatively few active faults in San Joaquin County. Further, a majority of these faults are located in predominately agricultural and open space area where no development is planned. RTP projects contained in the RTP/SCS as well as anticipated development would be expected to be exposed to both direct and indirect effects of earthquakes over their lifetimes. Potential direct impacts from surface rupture and severe ground shaking could cause catastrophic damage to transportation infrastructure, particularly overpasses and underground structures. Indirect impacts from seismic events could damage ancillary facilities such as traffic control equipment, and train stations.

Ground rupture usually is restricted to earthquakes of more than 5.5 magnitude on the Richter scale. Although the County has experienced earthquakes of this magnitude in the past, there is no known occurrence of local ground rupture.

The impacts from ground failure, including liquefaction, from development of the proposed land uses and implementation of transportation improvements would be addressed through site-specific geotechnical studies prepared in accordance with standard industry practices and state-provided guidance, such as the California Geological Survey Special Publication 117A, and the County's General Plan which specifically address liquefaction. In addition, development would conform to the current seismic design provisions of the UBC and California Building Code (CBC) to mitigate losses from ground failure as a result of an earthquake. Proposed developments would also adhere to the local general plans, and local building code requirements that contain seismic safety requirements to resist ground failure through modern construction techniques.

Development of the proposed land uses would be required to conform to the current seismic design provisions of the UBC and CBC through Title 24 of the California Code of Regulations (CCR), to provide for the latest in earthquake safety and mitigate losses from an earthquake. The Department of Conservation has not identified any seismic hazard zones in the County.[9] Nevertheless, proposed

[9] Seismic Hazard Zones are regulatory zones that encompass areas prone to liquefaction (failure of water-saturated soil) and earthquake-induced landslides.

developments would adhere to the local building code requirements that contain seismic safety requirements to resist ground shaking through modern construction techniques. In addition, development would comply with local general plans, and in accordance with standard industry practices and state provided guidance, such as the California Geological Survey (CGS) Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, which provides guidance for the evaluation and mitigation of earthquake-related hazards.

The implementation of roadway improvements would be required to follow design provisions through the UBC and CBC, and local building standards, to employ design standards that consider seismically active areas in order to safeguard against major structural failures or loss of life. Similarly, bridge design would be required to comply with Caltrans design criteria. Caltrans provides Seismic Design Criteria (SDC) for the design of new bridges in California, specifying minimum levels of structural system performance, component performance, analysis, and design practices for bridges.

Small landslides may occur in the County's mountain areas, including the Diablo Range, as loose material moves naturally down existing slopes, or fires have caused loss of soil-stabilizing vegetative cover. In addition, many human activities tend to make the earth materials less stable and, thus, increase the chance of ground failure. Some of the natural non-seismic causes of ground instability are steam and lakeshore erosion, heavy rainfall, and poor quality natural materials. Human activities contribute to soil instability through grading of steep slopes or overloading them with artificial fill, by extensive irrigation, construction of impermeable surfaces, excessive groundwater withdrawal, and removal of stabilizing vegetation.

As a result of required compliance with applicable regulations, implementation of the 2014 RTP/SCS would not substantially expose people or structures to seismic hazards. Therefore, the potential for adverse impacts to people and/or structures from rupture(s) of a known earthquake fault related to land use and transportation improvements from the proposed RTP/SCS are considered less than significant for **Impact GEO-1(a)**. No mitigation (beyond compliance with applicable codes) is required.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

As discussed above, transportation and development projects undertaken as part of the RTP/SCS would be required to comply with the most recent UBC and CBC. Compliance with building codes would ensure impacts would remain less than significant.

Level of Significance After Mitigation

Less than significant.

Development sites and transportation projects are subject to local building codes and the UBC, and CBC, to employ design standards that consider seismically active areas in order to safeguard against major structural failures or loss of life. A site-specific geologic investigation and analysis in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, will minimize risk associated with landslides.

Therefore, the potential for adverse landslide impacts related to land use changes and transportation improvements from implementation of the proposed RTP/SCS at the regional level is considered less than significant for **Impact GEO-1**. No mitigation is required.

Impact GEO-2 Result in substantial soil erosion or the loss of topsoil.

New land uses and transportation development included in the RTP/SCS could result in soil erosion or the loss of topsoil because of new exposed graded surfaces, excavation, stock piling, or boring which are necessary during development. Development may disturb previously undisturbed soils, and new development may increase water runoff, causing erosion problems, and potential slope failure.

In San Joaquin County the Delta and southeast County areas are susceptible to wind erosion; this includes an area extending south from Manteca to the County line and east to Escalon, and the area surrounding Lodi. During times of high winds (15 plus mph), clouds of peat dust can be seen in the Delta. At times, roads through the Delta are closed due to poor visibility during a "peat" storm. As a result of loose soils, steep slopes and high rates of runoff, water erosion is also occurring in the Delta. The UBC and CBC regulate slope instability and conditions that can lead to erosion, and requires foundation engineering and investigation of soils on sites proposed for development in geologic hazard areas. The reports from these investigations must demonstrate the hazard from the project will be eliminated or there is no danger for the intended use of the site. All major earthwork requires a grading permit, in order to minimize erosion, and local grading ordinances ensure that development in geologic hazard areas does not pose a threat to human life and property.

In addition, development may be subject to compliance with a National Pollutant Discharge Elimination System (NPDES) permit, including the implementation of Best Management Practices (BMPs) some of which are specifically implemented to reduce soil erosion or loss of topsoil, and the implementation of a Stormwater Pollution Prevention Plan through the local jurisdiction. However, preventing soil erosion or the loss of topsoil through local grading ordinances and other local controls are under the implementing

agency's jurisdiction. In light of the regional nature of the RTP/SCS, it is unknown whether the implementation of state and local controls and measures will eliminate soil erosion or the loss of topsoil to a less than significant level.

Further, transportation improvements in the proposed RTP/SCS include new HOV lanes, auxiliary lanes, roadway widening, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. Soil erosion and loss of topsoil could result from implementation of 2014 RTP/SCS projects that involve the expansion or extension of the transportation system into previously undeveloped land (the RTP is expected to consume 18,123 acres of undeveloped land).

Soil erosion and loss of topsoil could be impacted through transportation network improvements, since these usually involve grading or earthwork, and increased impervious surfaces and removal of vegetative cover. As with land use projects discussed above, the transportation network improvements would be subject to a variety of state and local regulations, including the UBC, CBC, and NPDES requirements and local ordinances and regulations, which are designed to avoid potential hazards associated with soil erosion. However, it is unknown whether the implementation of these regulatory controls will reduce the impacts to a less than significant level. Therefore, the potential for adverse soil impacts related to transportation improvements and land use changes from implementation of the proposed RTP/SCS is considered potentially significant for **Impact GEO-2**. Mitigation is required. **Mitigation Measure GEO-1** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

GEO-1: Implementing and local agencies should require the development and implementation of detailed erosion control measures, consistent with the CBC and UBC regulations and guidelines and/or local NPDES, to address erosion control specific to the project site; revegetate sites to minimize soil loss and prevent significant soil erosion; avoid construction on unstable slopes and other areas subject to soil erosion where possible; require management techniques that minimize soil loss and erosion; manage grading to maximize the capture and retention of water runoff through ditches, trenches, siltation ponds, or similar measures; and minimize erosion through adopted protocols and standards in the industry. The implementing local agencies should also require land use and transportation projects to comply with locally adopted grading, erosion, and/or

sediment control ordinances beginning when any preconstruction or construction-related grading or soil storage first occurs, until all final improvements are completed.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce erosion impacts to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure GEO-1**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact GEO-3 **Locate projects on a geologic unit 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.**

The development forecast in the 2014 RTP/SCS could be located on land that is unstable, or that could become unstable from a project and result in geologic hazards. Structures, including residential units and commercial buildings, and transportation infrastructure could be damaged because of landslide or mudslides from unstable soils or geology. In addition, slope failure can occur naturally through rainfall or seismic activity, or through earthwork and grading related activities.

Excavation related to construction projects or as needed to construct anticipated development could result in unstable soils. Soils with high percentages of clay can expand when wet, causing structural damage to surface improvements. These clay soils occur throughout San Joaquin County, making it necessary to survey project areas extensively prior to construction. A number of projects would have the potential to contain expansive soils, although they are more likely to be encountered in lower drainage basin areas.

Soils with a large percentage of clay, soils that have slow to moderately slow permeability soils, and soils with coarse- to moderately-fine texture, present the greatest constraints to development or construction because of severe shrink-swell potential and the high corrosiveness of associated soils. Very shallow soils, rock and/or very coarse textured soils also tend to result in potential for flooding and erosion. A number of projects included in the 2014 RTP/SCS could be located in areas including these soil groups.

Expansive soils are generally removed during foundation work to avoid structural damage. Expansive soils are addressed through the integration of geotechnical information in the planning and design process for individual projects. Local soil suitability is assessed for specific projects in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, used to minimize the risk associated with unstable soils. Compliance with UBC and CBC requirements, as well as local building codes and ordinances reduces hazards relating to unstable soils and slope failure.

Therefore, the potential for unstable land landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to land use changes and transportation improvements from implementation of the proposed RTP is considered less than significant for **Impact GEO-3**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

As described above, land use and transportation projects would be required to comply with the CBC and UBC and other codes. Compliance with applicable codes would ensure impacts remain less than significant.

Level of Significance After Mitigation

Less than significant.

Impact GEO-4 **Locate projects on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.**

As mentioned above, various soil groups exist within the County, including groups of expansive soils. Expansive soils have the potential to compromise the structural integrity of proposed new structures including foundations and pavement. This type of damage can also occur over an extended period.

As discussed under **Impact GEO-3**, this impact is addressed largely through the integration of geotechnical information in the planning and design process for development projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided guidance, such as CGS Special Publication 117A, used to minimize the risk associated with these hazards. These measures generally are enforced through compliance with the UBC and CBC requirements, and local building codes and ordinances, including the County's General Plan to avoid or reduce hazards relating to unstable soils and slope failure.

Therefore, the potential for expansive soil impacts, as defined in Table 18-1-B of the UBC, related to land use changes and transportation improvements from implementation of the proposed RTP/SCS is considered less than significant for **Impact GEO-4**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

As described above, land use and transportation projects would be required to comply with the CBC and UBC. Compliance with applicable codes would ensure impacts remain less than significant.

Level of Significance After Mitigation

Less than significant.

Impact GEO-5 **Result in the loss of availability of known aggregate and mineral resources that would be of value to the region and residents of the state.**

The state currently has approximately 4,067 million tons of permitted resources and the CGS estimates the state will need approximately 12 billion tons of aggregate in the next 50 years. California's construction industry is greatly dependent on readily available aggregate deposits that are within a reasonable distance to market regions. Aggregate is a low unit-value, high bulk-weight commodity; therefore, aggregate for construction must be obtained from nearby sources in order to minimize costs to the consumer.

Unless new resources are permitted for mining, or alternative resources are utilized, existing resources could be depleted in the next 15 to 20 years. The deposits could last longer than projected if new areas are permitted and/or if excavators are granted variances permitting excavations below 90 feet.

The RTP/SCS includes transportation system improvements, such as new or expanded highway/arterials, goods movement projects and infrastructure associated with these projects. The projects included in the 2014 RTP/SCS as well as anticipated development would result in demand for aggregate resources for construction. As a long-range planning document, the RTP/SCS does not include specific construction information related to individual projects. However, it is anticipated that the projects included in the Plan as well as anticipated development would require substantial amounts of aggregate resources.

In addition, the RTP/SCS includes transportation and development projects that have the potential to impact mineral resources because they could take place in previously undisturbed areas. Improvements and modifications to existing rights-of-way, such as new bus-ways and capacity enhancement facilities, mixed flow lanes, and right-of-way maintenance, would have less potential to impact mineral resources because these project locations have previously been disturbed. Construction of additional lanes, could impact access to mineral resources, if it would entail grading, trenching, excavation, and/or soil removal in an area not previously paved. This document analyzes impacts to mineral resources on a programmatic level; project-level analysis of impacts will be needed as appropriate to project-specific conditions.

Therefore, the potential for impacts to known aggregate and mineral resources that would be of value to the region and the state are potentially significant for **Impact GEO-5**. Mitigation is required. **Mitigation Measures GEO-2** and **GEO-3** are described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

GEO-2: Implementing and local agencies should coordinate with the Department of Conservation, California Geological Survey to maintain a database of (1) available resources in the region including permitted and un-permitted and (2) the anticipated 50-year demand. Based on the results of this survey Local agencies should implement strategies to address anticipated demand, including identifying future sites that may seek permitting and working with industry experts to identify ways to encourage and increase recycling to reduce the demand for aggregate.

GEO-3: Local jurisdictions should review availability of aggregate and mineral resources in their jurisdiction and should develop a long-range plan to meet demand.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce impacts to mineral resources to a less than significant level in all cases. Because this document evaluates impacts at a programmatic level, all project circumstances are not foreseeable and therefore impacts to access to mineral resources remains significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process.

However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, long-term demand for mineral and aggregate resources would result in a significant and unavoidable impact.

4.6.4 CUMULATIVE EFFECTS

The 2014 RTP/SCS includes transportation projects and land use strategies that will shape the region over the next 27 years. These changes will include the extension of transportation and related infrastructure that could be impacted by geologic hazards. The combination of urban infrastructure and development could increase impacts from geologic hazards to County residents.

Potentially hazardous geological and seismic factors are found throughout California and are generally site specific. The 2014 RTP/SCS encompasses all development (both transportation and land use changes) that would occur in the region through 2040. The impacts of anticipated development are discussed fully above; the RTP/SCS would not contribute to a cumulatively considerable increase in risk associated with geologic hazards. Implementation of **Mitigation Measures GEO-1** through **GEO-3** would reduce impacts related to geologic hazards. Given the site-specific nature of geologic impacts and extensive regulatory requirements it is not anticipated that the RTP/SCS would contribute to a cumulatively considerable increase in risk associated with geologic hazards.

Construction of RTP/SCS projects and anticipated development would result in a large demand for aggregate, also RTP projects and development could impede access to mineral resources. Given the potential for permitted resources to not meet demand both inside and outside San Joaquin County the RTP/SCS would contribute to a cumulatively significant statewide impact on aggregate resources. Implementation of **Mitigation Measures GEO-2** and **GEO-3**, discussed above, would reduce impacts, but impacts would remain significant. Thus, cumulative impacts from the proposed RTP/SCS related to aggregate resources would be potentially significant. Mitigation is required. Mitigation measures are described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Implementation of **Mitigation Measures GEO-2** and **GEO-3**.

Level of Significance After Mitigation

There would be no cumulative impacts related to seismic hazards and soil conditions as these are site-specific conditions that are extensively regulated. Long-term demand for mineral and aggregate resources would result in a significant and unavoidable impact. Because this document evaluates impacts at a programmatic level, all project circumstances are not foreseeable and therefore impacts to access to mineral resources remains significant and unavoidable. If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts related to aggregate demand would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, cumulative impacts related to aggregate demand could remain significant and unavoidable.

4.6.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365,694 people by 2040, however no regional transportation investments would be made beyond the existing programmed projects. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments and growth policies contained within the proposed RTP/SCS.

Under the No Project Alternative fewer areas would be impacted by excavation and construction activities associated with transportation projects, as the RTP includes the construction of a greater number of transportation projects than the No Project Alternative. Both the No Project and the 2014 RTP/SCS would expose the same number of people to potential seismic hazards. Under the Plan, development would be more concentrated potentially exposing more people to risk in specific locations, but overall the same population would be exposed to the same risk. Under the No Project Alternative, development would be anticipated to be less dense, which could result in less risk in the event of an earthquake.

The greater amount of transportation projects in the RTP/SCS would increase the amount of transportation infrastructure that would be subject to risk as a result of surface rupture, ground-shaking liquefaction, and landslides and other risks associated with seismic events. Further, the No Project Alternative would result in the construction of 129.52 new lane miles compared with 265.45 the proposed

RTP/SCS. Impacts related to geologic and seismic resources would be similar to the Plan under the No Project Alternative because the population would be the same and entire region is subject to seismic risk.

The reduced number of transportation projects would be expected to occur under the No Project Alternative could result in a decrease in the amount of aggregate and mineral resources demand in the region. However as more land would be consumed under the No Project Alternative (35,184 acres compared to 18,123 acres under the Plan), more local access roads are anticipated to be needed. The more compact development pattern under the Plan could use less aggregate per capita as more compact development is generally more efficient. On balance it is anticipated that the No Project Alternative would result in greater impacts because dispersed development is less efficient in its use of aggregate as compared to a more compact development pattern.

As with the proposed RTP/SCS the No Project Alternative would have site-specific impacts related to geologic risks. As under the proposed RTP/SCS the No Project Alternative would result in a large demand for aggregate resources. As noted above, this demand could be higher than under the Plan because of the increased consumption of land. Therefore cumulative impacts to mineral resources of the No Project Alternative are anticipated to be greater than under the Plan.

4.7 GREENHOUSE GASES

This section discusses the existing conditions related to greenhouse gases (GHG) and global climate change and evaluates the potential impacts from implementation of the 2014 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). The section also provides a discussion of the applicable federal, state, regional, and local agencies that regulate, monitor, and control GHG emissions. Copies of the calculations made to estimate GHG emissions associated with the proposed project and supporting technical data are found in **Appendix 4.7** of this Program EIR.

4.7.1 ENVIRONMENTAL SETTING

Global climate change refers to any significant change in climate measurements, such as temperature, precipitation, or wind, lasting for an extended period (i.e., decades or longer)[1] Climate change may result from:

- natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of greenhouse gases (GHG) and other gases to the atmosphere from volcanic eruptions); and
- human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

According to scientists, human activities have resulted in a change in global climate. The primary manifestation of global climate change has been a rise in the average global tropospheric temperature of 0.2 degree Celsius (°C) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming is likely to occur, which would induce further changes in the global climate system during the current century.[2]

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1 US Environmental Protection Agency, "Glossary of Climate Change Terms," http://www.epa.gov /climatechange/glossary.html#Climate_change. 2010

2 Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf. 2007.

Changes to the global climate system, ecosystems, and to California, could include:[3, 4]

- summer warming projections in the first 30 years of the 21st century ranging from about 0.5 to 2 °C (0.9 to 3.6 °F) and by the last 30 years of the 21st century, from about 1.5 to 5.8 °C (2.7 to 10.5 °F);
- declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;
- rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets (model-based projections of global average sea level rise at the end of the 21st century range from 0.18 meter to 0.59 meter or 0.59 foot to 1.94 feet);
- changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;
- declining Sierra snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;
- increasing the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Southern California area and the San Joaquin Valley by the end of the 21st century;
- increasing the potential for erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Delta and associated levee systems due to the rise in sea level;
- increasing pest infestation, making California more susceptible to forest fires; and
- increasing the demand for electricity by 1 to 3 percent by 2020 due to rising temperatures resulting in hundreds of millions of dollars in extra expenditures.

The natural process through which heat is retained in the troposphere[5] is called the greenhouse effect. The greenhouse effect traps heat in the troposphere through a threefold process as follows: (1) short-wave radiation in the form of visible light emitted by the Sun is absorbed by the Earth as heat; (2) long-wave radiation is re-emitted by the Earth; and (3) GHGs in the upper atmosphere absorb or trap the long-wave radiation and re-emit it back towards the Earth and into space. This third process is the focus of current climate change actions because increased quantities of GHGs in the earth's atmosphere result in more of the long-wave radiation being trapped in the atmosphere.

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3 Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf. 2007.

4 California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

5 The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface from 6 to 7 miles.

While water vapor and carbon dioxide (CO_2) are the most abundant GHGs, other trace GHGs have a greater ability to absorb and re-radiate long-wave radiation. To gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-emit long-wave radiation over a specific period. The GWP of a gas is determined using CO_2 as the reference gas, which has a GWP of 1 over 100 years.[6] For example, a gas with a GWP of 10 is 10 times more potent than CO_2 over 100 years. The use of GWP allows GHG emissions to be reported using CO_2 as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as "carbon dioxide equivalents" (CO_2e). This essentially means that 1 metric ton of a GHG with a GWP of 10 has the same climate change impacts as 10 metric tons of CO_2.

Greenhouse Gases

GHGs of most concern include the following compounds:

- Carbon Dioxide (CO_2). Anthropogenic CO_2 emissions are primarily generated by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of CO_2 in the atmosphere has increased 35 percent.[7] Carbon dioxide is also generated by natural sources such as cellular respiration, volcanic activity, decomposition of organisms, and forest fires. Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWP of other GHGs. In 2004, 82.8 percent of California's GHG emissions were CO_2.[8]

- Methane (CH_4). Methane is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the US, the top three sources of CH_4 are landfills, natural gas systems, and enteric fermentation.[9] Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of CH_4 is 21.

- Nitrous Oxide (N_2O). Nitrous oxide is produced by natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of N_2O is 310.

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6 All GWPs are given as 100-year GWP. Unless noted otherwise, all GWPs were obtained from the Intergovernmental Panel on Climate Change. *Climate Change 1995: The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*. Cambridge (UK): Cambridge University Press, 1996

7 USEPA 2008b

8 California Energy Commission 2007

9 USEPA n.d.[a]

- Hydrofluorocarbons (HFCs). HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing particularly as the continued phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs ranges from 140 for HFC-152a to 6,300 for HFC-236fa.

- Perfluorocarbons (PFCs). Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime of up to 50,000 years.[10] The global warming potentials (GWPs) of PFCs range from 5,700 to 11,900.

- Sulfur Hexafluoride (SF_6). Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to CO_2 (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm] of CO_2).[11]

Global Ambient CO2 Concentrations

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, CH_4, and N_2O from before the start of industrialization, around 1750, to over 650,000 years ago. For that period, CO_2 concentrations ranged from 180 ppm to 300 ppm. For the period from around 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.[12] Global CH_4 and N_2O concentrations show similar increases for the same period (see **Table 4.7-1, Comparison of Global Pre-Industrial and Current GHG Concentrations**).

10 Energy Information Administration 2007

11 US Environmental Protection Agency, "High GWP Gases and Climate Change," http://www.epa.gov/highgwp/scientific.html#sf6. n.d.

12 Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf. 2007.

Table 4.7-1
Comparison of Global Pre-Industrial and Current GHG Concentrations

Greenhouse Gas	Early Industrial Period Concentrations	Natural Range for Last 650,000 Years	2005 Concentrations
Carbon Dioxide (CO_2)	280 ppm	180 to 300 ppm	379 ppm
Methane (CH_4)	715 ppb	320 to 790 ppb	1774 ppb
Nitrous Oxide (N_2O)	270 ppb	NA	319 ppb

Source: Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policymakers 2007
ppm = parts per million; ppb = parts per billion.

Contributions to Greenhouse Gas Emissions

Global

Worldwide anthropogenic GHG emissions are tracked for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions for Annex I nations are available through 2007. Man-made GHG emissions for Non-Annex I nations are available through 2005. The sum of these emissions totaled approximately 42,133 million metric tons of CO_2 equivalents ($MMTCO_2e$).[13] It should be noted that global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data.[14] The top five countries and the European Union accounted for approximately 55 percent of the total global GHG emissions according to the most recently available data (see **Table 4.7-2, Top Five GHG Producer Countries and the European Union [Annual]**). The GHG emissions in more recent years may differ from the inventories presented in **Table 3.5-2**; however, the data is representative of currently available global inventory data.

13 The CO_2 equivalent emissions commonly are expressed as "million metric tons of carbon dioxide equivalent ($MMTCO_2E$)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that $MMTCO_2E$ = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for methane is 21. This means that the emission of one million metric tons of methane is equivalent to the emission of 21 million metric tons of CO_2.

14 The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the United Nations Framework Convention on Climate Change (UNFCCC) data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/ items/3841.php and "Flexible GHG Data Queries" with selections for total GHG emissions excluding LULUCF/LUCF, all years, and non-Annex I countries, http://unfccc.int/di/FlexibleQueries/Event.do?event= showProjection. n.d.

Table 4.7-2
Top Five GHG Producer Countries and the European Union (Annual)

Emitting Countries	GHG Emissions ($MMTCO_2e$)
China	7,250
United States	7,217
European Union (EU), 27 Member States	5,402
Russian Federation	2,202
India	1,863
Japan	1,412
Total	**25,346**

Source: World Resources Institute, "Climate Analysis Indicators Tool (CAIT)," http://cait.wri.org/. 2010 Excludes emissions and removals from land use, land-use change, and forestry (LULUCF).
Note: Emissions for Annex I nations are based on 2007 data. Emissions for Non-Annex I nations (e.g., China, India) are based on 2005 data).

United States

As noted in **Table 4.7-2**, the US was the number two producer of global GHG emissions in 2010. The primary GHG emitted by human activities in the US was CO_2, representing approximately 84 percent of total GHG emissions.[15] Carbon dioxide from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 80 percent of US GHG emissions.[16]

State of California

California Air Resources Board's (CARB) compiles GHG inventories for the State of California. Based on the 2008 GHG inventory data (i.e., the latest year for which data are available), California emitted 474 $MMTCO_2e$ including emissions resulting from imported electrical power in 2008.[17] Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California's total statewide GHG emissions rank second in the US (Texas is number one) with emissions of 417 $MMTCO_2e$ excluding emissions related to imported power.[18]

The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which

15 US Environmental Protection Agency, "Inventory of US Greenhouse Gas Emissions and Sinks 1990–2006," http://www.epa.gov/climatechange/emissions/usinventoryreport.html. 2008

16 California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

17 California Air Resources Board. *California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category – Summary*. http://www.arb.ca.gov/cc/inventory/data/data.htm. 2010

18 CARB. *California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category – Summary*.

include commercial and residential activities. **Table 4.7-3, GHG Emissions in California**, provides a summary of GHG emissions reported in California in 1990 and 2010 separated by categories defined by the United Nations Intergovernmental Panel on Climate Change (IPCC).

Table 4.7-3
GHG Emissions in California

Source Category	1990 ($MMTCO_2e$)	Percent of Total	2010 ($MMTCO_2e$)	Percent of Total
ENERGY	**386.41**	**89.2%**	**384.89**	**85.2%**
Energy Industries	157.33	36.3%	140.92	31.2%
Manufacturing Industries & Construction	24.24	5.6%	21.04	4.7%
Transport	150.02	34.6%	172.24	38.1%
Other Sectors (Residential/Commercial/Institutional)	48.19	11.1%	45.67	10.1%
Solid Fuels	1.38	0.3%	0.02	0.0%
Fugitive Emissions from Oil & Natural Gas	2.94	0.7%	3.94	0.9%
Fugitive Emissions from Geothermal Energy Production	2.31	0.5%	1.10	0.2%
Pollution Control Devices	--	--	0.06	0.0%
INDUSTRIAL PROCESSES & PRODUCT USE	**18.34**	**4.2%**	**27.62**	**6.1%**
Mineral Industry	4.85	1.1%	3.49	0.8%
Chemical Industry	2.34	0.5%	0.08	0.0%
Non-Energy Products from Fuels & Solvent Use	2.29	0.5%	1.87	0.4%
Electronics Industry	0.59	0.1%	0.96	0.2%
Substitutes for Ozone Depleting Substances	0.04	0.0%	13.84	3.1%
Other Product Manufacture and Use	3.18	0.7%	1.55	0.3%
Other	5.05	1.2%	5.83	1.3%
AGRICULTURE, FORESTRY, & OTHER LAND USE	**19.11**	**4.4%**	**29.82**	**6.6%**
Livestock	11.67	2.7%	20.05	4.4%
Land	0.19	0.0%	0.19	0.0%
Aggregate Sources & Non-CO_2 Sources on Land	7.26	1.7%	10.04	2.2%
WASTE	**9.42**	**2.2%**	**9.17**	**2.0%**
Solid Waste Disposal and Biological Treatment	6.26	1.4%	6.72	1.5%
Biological Treatment of Solid Waste	--	--	0.25	0.1%
Wastewater Treatment & Discharge	3.17	0.7%	2.19	0.5%
EMISSIONS SUMMARY				
Gross California Emissions	433.29		451.60	
Sinks from Forests and Rangelands	-6.69		-3.76	
Net California Emissions	426.60		447.84	

Sources:

[1] *California Air Resources Board, "California Greenhouse Gas 1990-2004 Inventory by IPCC Category - Summary," http://www.arb.ca.gov/cc/inventory/archive/archive.htm. 2011.*

[2] *California Air Resources Board, "California Greenhouse Gas 2000-2010 Inventory by IPCC Category - Summary," http://www.arb.ca.gov/cc/inventory/data/data.htm. 2013.*

Between 1990 and 2010, the population of California grew by approximately 8.2 million, from 29.8 to 38.0 million.[19] This represents an increase of approximately 27.5 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $788 billion in 1990 to $1.8 trillion in 2010 representing an increase of approximately 128 percent, over twice the 1990 gross state product.[20] Despite the population and economic growth, California's net GHG emissions only grew by approximately 5 percent. The California Energy Commission (CEC) attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy.[21]

4.7.2 REGULATORY FRAMEWORK

International

Intergovernmental Panel on Climate Change

The World Meteorological Organization (WMO) and United Nations Environmental Program (UNEP) established the IPCC in 1988. The goal of the IPCC is to evaluate the risk of climate change caused by human activities. Rather than performing research or monitoring climate, the IPCC relies on peer-reviewed and published scientific literature to make its assessment. While not a regulatory body, the IPCC assesses information (i.e., scientific literature) regarding human-induced climate change and the impacts of human-induced climate change, and recommends options to policy makers for the adaptation and mitigation of climate change. The IPCC reports its evaluations in special reports called assessment reports. The latest assessment report (i.e., Fourth Assessment Report, consisting of three working group reports and a synthesis report based on the first three reports) was published in 2007. In its 2007 report, the IPCC stated that global temperature increases since the mid-20th century were very likely attributable to man-made activities (greater than 90 percent certainty)[22].

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19 US Census Bureau, "Data Finders," http://www.census.gov/. 2009; California Department of Finance, "E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-1008, with 2000 Benchmark," http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009/. 2010

20 California Department of Finance, "Financial & Economic Data: Gross Domestic Product, California," http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FS_Misc.htm. 2010. Amounts are based on current dollars as of the data of the report (June 2, 2009).

21 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006).

22 Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf. 2007

Federal

Supreme Court Ruling

The US Supreme Court ruled in *Massachusetts v. Environmental Protection Agency, 127 S. Ct. 1438 (2007)*, that carbon dioxide and other greenhouse gases are pollutants under the Federal Clean Air Act (CCA), which the US Environmental Protection Agency (USEPA) must regulate if it determines they pose an endangerment to public health or welfare.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 includes several key provisions that will increase energy efficiency and the availability of renewable energy, which will reduce greenhouse gas emissions as a result. First, the Act sets a Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel by 2022. Second, it increased Corporate Average Fuel Economy (CAFE) Standards to require a minimum average fuel economy of 35 miles per gallon for the combined fleet of cars and light trucks by 2020. Third, the adopted bill includes a variety of new standards for lighting and for residential and commercial appliance equipment. The equipment includes residential refrigerators, freezers, refrigerator-freezers, metal halide lamps, and commercial walk-in coolers and freezers.

EPA Reporting Rule

The USEPA adopted a mandatory GHG reporting rule in September 2009. The rule would require suppliers of fossil fuels or entities that emit industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to the USEPA beginning in 2011 (covering the 2010 calendar year emission). Vehicle and engine manufacturers were required to begin reporting GHG emissions for model year 2011.

National Fuel Efficiency Policy

In addition, on May 19, 2009, President Barack Obama announced a new National Fuel Efficiency Policy aimed at increasing fuel economy and reducing greenhouse gas pollution.[23] The new National Fuel Efficiency Policy is expected to increase fuel economy by more than 5 percent by requiring a fleet-wide average of 35.5 miles per gallon by 2016 starting with model years 2012.

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23 The White House, Office of the Press Secretary, May 19, 2009, *http://www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/*.

Fuel Economy Standards

On September 15, 2009, the USEPA and the Department of Transportation's (DOT) National Highway Traffic Safety Administration (NHTSA) issued a joint proposal to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The proposed standards would be phased in and would require passenger cars and light-duty trucks to comply with a declining emissions standard. In 2012, passenger cars and light-duty trucks would have to meet an average emissions standard of 295 grams of CO_2 per mile and 30.1 miles per gallon. By 2016, the vehicles would have to meet an average standard of 250 grams of CO_2 per mile and 35.5 miles per gallon.[24] The final standards were adopted by the USEPA and DOT on April 1, 2010.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act (42 USC Section 7521):

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

While these findings do not impose additional requirements on industry or other entities, this action is a prerequisite to finalizing the USEPA's proposed GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the NHTSA. On April 1, 2010, the USEPA and NHTSA issued final rules requiring that by the 2016 model-year, manufacturers must achieve a combined average vehicle emission level of 250 grams CO_2 per mile, which is equivalent to 35.5 miles per gallon as measured by USEPA standards.

Heavy-Duty Vehicle Program

The Heavy-Duty Vehicle National Program was adopted on August 9, 2011 to establish the first fuel efficiency requirements for medium- and heavy-duty vehicles beginning with the model year 2014.

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24 US EPA, "EPA and NHTSA Propose Historic Nation Program," 2009.

State

In response to growing scientific and political concern with global climate change, California adopted a series of laws to reduce emissions of GHGs into the atmosphere.

Assembly Bill 1493 (AB 1493)

In September 2002, AB 1493 was enacted, requiring the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State.

Executive Order (EO) S-3-05

On June 1, 2005, EO S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order establishes State GHG emission targets of 1990 levels by 2020 (the same as AB 32) and 80 percent below 1990 levels by 2050. It calls for the Secretary of California Environmental Protection Agency (Cal/EPA) to be responsible for coordination of State agencies and progress reporting. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major "decarbonization" of electricity supplies and fuels, and major improvements in energy efficiency.[25]

In response to the Executive Order, the Secretary of the Cal/EPA created the Climate Action Team (CAT). California's CAT originated as a coordinating council organized by the Secretary for Environmental Protection. It included the Secretaries of the Natural Resources Agency, and the Department of Food and Agriculture, and the Chairs of the Air Resources Board, Energy Commission, and Public Utilities Commission. The original council was an informal collaboration between the agencies to develop potential mechanisms for reductions in GHG emissions in the state. The council was given formal recognition in Executive Order S-3-05 and became the CAT.

25 California Energy Commission, *California's Energy Future – The View to 2050*, May 2011.

The original mandate for the CAT was to develop proposed measures to meet the emission reduction targets set forth in the executive order. The CAT has since expanded and currently has members from 18 state agencies and departments. The CAT also has 10 working groups which coordinate policies among their members. The working groups and their major areas of focus are:

- Agriculture: Focusing on opportunities for agriculture to reduce GHG emissions through efficiency improvements and alternative energy projects, while adapting agricultural systems to climate change;
- Biodiversity: Designing policies to protect species and natural habitats from the effects of climate change;
- Energy: Reducing GHG emissions through extensive energy efficiency policies and renewable energy generation;
- Forestry: Coupling GHG mitigation efforts with climate change adaptation related to forest preservation and resilience, waste to energy programs and forest offset protocols;
- Land Use and Infrastructure: Linking land use and infrastructure planning to efforts to reduce GHG from vehicles and adaptation to changing climatic conditions;
- Oceans and Coastal: Evaluating the effects sea level rise and changes in coastal storm patterns on human and natural systems in California;
- Public Health: Evaluating the effects of GHG mitigation policies on public health and adapting public health systems to cope with changing climatic conditions;
- Research: Coordinating research concerning impacts of and responses to climate change in California;
- State Government: Evaluating and implementing strategies to reduce GHG emissions resulting from state government operations; and
- Water: Reducing GHG impacts associated with the state's water systems and exploring strategies to protect water distribution and flood protection infrastructure.

The CAT is responsible for preparing reports that summarize the state's progress in reducing GHG emissions. The most recent CAT Report was published in December 2010. The CAT Report discusses mitigation and adaptation strategies, state research programs, policy development, and future efforts.

Assembly Bill 32 (AB 32)

The State of California has implemented legislation targeting GHG emissions. Chief among these is the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance. The Act requires the State of California to reduce its emissions to 1990 levels by 2020.

The Act establishes key deadlines for certain actions the state must take in order to achieve the reduction target. The first action under AB 32 resulted in CARB's adoption of a report listing three specific early action GHG reduction measures on June 21, 2007. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons of CO_2 equivalents ($MMTCO_2e$). The inventory indicated that in 1990, transportation, with 35 percent of the state's total emissions, was the largest single sector generating carbon dioxide; followed by industrial emissions, 24 percent; imported electricity, 14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent (figures are based on the 1990 inventory). AB 32 does not require individual sectors to meet their individual 1990 GHG emissions inventory; the total statewide emissions are required to meet the 1990 threshold by 2020.

In addition to the 1990 emissions inventory, CARB also adopted regulations requiring the mandatory reporting of GHG emissions for large facilities on December 6, 2007. The mandatory reporting regulations require annual reporting from the largest facilities in the state, which account for approximately 94 percent of greenhouse gas emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 tons of CO_2 each year from on-site stationary combustion sources. Transportation sources, which account for 38 percent of California's total GHG emissions as of the 2002–2004 GHG inventory conducted by CARB, are not covered by these regulations but will continue to be tracked through existing means.[26] Affected facilities began tracking their emissions in 2008, and reported them beginning in 2009, with a phase-in process to allowed facilities to develop reporting systems and train personnel in data collection. Emissions for 2008 could be based on best available emission data. Beginning in 2010, however, emissions reporting requirements became more rigorous and are subject to third-party verification. Verification will take place annually or every three years, depending on the type of facility.

In December 2008, CARB adopted a *Climate Change Scoping Plan* indicating how emission reductions will be achieved from significant sources of GHGs via regulations, market mechanism, and other actions. The *Climate Change Scoping Plan* identifies 18 recommended strategies the state should implement to achieve AB 32. As of October 2010, CARB has identified ongoing programs and has adopted regulations

26 CARB 2009

for 29 individual measures to reduce GHG emissions in accordance with the *Climate Change Scoping Plan* strategies.

The *Climate Change Scoping Plan* must be updated every five years, and so is currently in the process of being updated. A draft first update of the Plan, titled *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework,* was released in February 2014. The update provides information on the accomplishments of the previous five years, the progress to date for each scoping plan sector, and recommended actions for continued progress toward the 2020 goals. The update states that based on current emissions forecasts California is on target to reach the 2020 goals, and that the Cap and Trade program is specifically designed to make up for any fluctuations in the forecasted emissions. Much of the progress is due to Scoping Plan strategies that have been implemented, but progress has also been accomplished due to the recession, which was responsible for a large drop in GHG emissions during 2008-2009. Overall, emissions from transportation and electric power, but emissions from the other Scoping Plan sectors have been relatively constant since 2000. However, the overall trend is good since energy and transportation account for approximately 88 percent of GHG emissions in California. The update also looks beyond 2020 at the targets set by S-3-05, and recommends that mid-term targets be developed. These would be emissions reduction targets for 2030 or some other year that would ensure progress toward the 2050 goals, which the update states will require much steeper reductions than those needed for achieving the 2020 targets.

California Environmental Quality Act Guidelines Amendments

California Senate Bill (SB) 97 required the Governor's Office of Planning and Research (OPR) to develop *California Environmental Quality Act (CEQA) Guidelines* "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The *State CEQA Guidelines* amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. Noteworthy revisions to the *State CEQA Guidelines* include:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;

- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and

- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

Senate Bill 375 (SB 375)

In 2008, Senate Bill 375 (SB 375) was adopted. SB 375 requires CARB, working in consultation with the metropolitan planning organizations (MPOs), to set regional greenhouse gas reduction targets for the automobile and light truck sector for 2020 and 2035. The target must then be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS. CARB set reduction targets for San Joaquin County at 5 percent for 2020 and 10 percent for 2035.

In September 2012, CARB adopted a California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, which established the cap-and-trade program to manage greenhouse gas emissions, for California. The cap-and-trade program is a key element that will enable California to achieve the greenhouse gas emission goals of AB 32. The cap-and-trade program is a market-based approach wherein the government determines an overall emission target, or "cap," for a particular set of facilities. The cap is the total amount of emissions that all of the facilities can produce. Tradable emissions allowances totaling the overall emissions cap are distributed either by auction or given out amongst the particular set of facilities. The emissions allowances can be traded amongst the facilities.

The Renewables Portfolio Standard (RPS) Program was established in 2002 under Senate Bill (SB) 1078 which required 20 percent of the electricity used by California to come from renewable energy sources by 2017. This was accelerated by SB 107 in 2006 which required 20 percent of electricity retail sales to come from renewable energy sources by 2010 and then by Executive Order S-14-08 in 2008 which required 33 percent of electricity sold by retail sellers to be produced by renewable energy in 2020. In April 2011, SB X1-2 required that all electricity retailers adopt the new RPS goals providing 20 percent renewable sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

Senate Bill 1078, Senate Bill 107, and Executive Order S-14-08 (Renewables Portfolio Standard)

On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107, signed by the Governor on September 26, 2006 changed the due date for this goal from 2017 to 2010. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Increased use of renewable energy sources will decrease California's reliance on fossil fuels, reducing emissions of greenhouse gases from the energy sector.

Assembly Bill 1493 (Pavley Regulations)

AB 1493 (referred to as Pavley I) required CARB to develop and adopt standards for vehicle manufacturers to reduce greenhouse gas emissions coming from passenger vehicles and light-duty trucks at a "maximum feasible and cost effective reduction" by January 1, 2005. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction by 2012 and 30 percent by 2016.

Executive Order (EO) S-1-07, the Low Carbon Fuel Standard

On January 18, 2007, EO S-1-07 was issued requiring a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. Regulatory proceedings and implementation of the Low Carbon Fuel Standard have been directed to the California Air Resources Board (ARB). The Low Carbon Fuel Standard has been identified by ARB as a discrete early action item in the Adopted *Climate Change Scoping Plan*. ARB expects the Low Carbon Fuel Standard to achieve the minimum 10 percent reduction goal; however, many of the early action items outlined in the *Climate Change Scoping Plan* work in tandem with one another. To avoid the potential for double-counting emission reductions associated with AB 1493 (see previous discussion), the *Climate Change Scoping Plan* has modified the aggregate reduction expected from the Low Carbon Fuel Standard to 9.1 percent.

Executive Order S-13-08

Executive Order S-13-08, signed on November 14, 2008, directs California to develop methods for adapting to climate change impacts through preparation of a statewide plan. In response to this order, the California Natural Resources Agency coordinated with 10 state agencies, multiple scientists, a consulting team, and stakeholders to develop the first statewide, multi-sector adaptation strategy in the country.

The resulting report, *2009 California Climate Adaptation Strategy*, summarizes the best-known science to assess the vulnerability of the state to climate change impacts, and outlines possible solutions that can be implemented within and across state agencies to promote resiliency. This strategy is the first step in an evolving process to reduce California's vulnerability to climate change impacts.

Adaptation refers to efforts that prepare the state to respond to the impacts of climate change – adjustments in natural or human systems to actual or expected climate changes to minimize harm or take advantage of beneficial opportunities. California's ability to manage its climate risks through adaptation depends on a number of critical factors. These include its baseline and projected economic resources, technology, infrastructure, institutional support, and effective governance, public awareness, access to the best available scientific information, sustainably managed natural resources, and equity in access to these resources.

California's Energy Efficiency Standards for Residential and Nonresidential Buildings

Located at Title 24, Part 6 of the California Code of Regulations and commonly referred to as "Title 24," these energy efficiency standards were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.[27] The most recent update to Title 24 was adopted by the California Energy Commission on April 23, 2008. The requirement for when the 2008 standards must be followed is dependent on when the application for the building permit is submitted. If an application for a building permit is submitted on or after January 1, 2010, the 2008 standards must be met. The California Energy Commission adopted the 2008 changes to the Building Energy Efficiency Standards to respond to the mandates of AB 32 and to pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.

Senate Bill 1368

SB 1368 (2006) directs the California Energy Commission and the California Public Utilities Commission to adopt a performance standard for greenhouse gas emissions for the future electricity used in California, regardless of whether it is generated in-state or purchased from other states.

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27 The California Energy Commission, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, *Title 24, Part 6, of the California Code of Regulations*, http://www.energy.ca.gov/title24, accessed August, 2011.

California Green Building Code

The California Green Building Code (2008) referred to as "CalGreen," is the first statewide green building code. It was developed to provide a consistent, approach for green building within California. Taking effect January 2011, it lays out minimum requirements for newly constructed buildings in California, which will reduce greenhouse gas emissions through improved efficiency and process improvements. It requires builders to install plumbing that cuts indoor water use by as much as 20 percent, to divert 50 percent of construction waste from landfills to recycling, and to use low-pollutant paints, carpets, and floors.

Senate Bill 1 (Million Solar Roofs)

SB 1 (2006) sets a goal to install 3,000 megawatts of new solar capacity by 2017 - moving the state toward a cleaner energy future and helping lower the cost of solar systems for consumers. The Million Solar Roofs Program is a ratepayer-financed incentive program aimed at transforming the market for rooftop solar systems by driving down costs over time. It provides up to $3.3 billion in financial incentives that decline over time.

Assembly Bill 811 (AB 811)

AB 811 (2008) authorizes California cities and counties to designate districts within which willing property owners may enter into contractual assessments to finance the installation of renewable energy generation and energy efficiency improvements that are permanently fixed to the property.

Local

San Joaquin Valley Air Pollution Control District

To assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has adopted the guidance: *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The guidance and policy rely on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively

significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual, is required to determine that a project would have a less than cumulatively significant impact. The guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project related impacts on global climate change.

City of Stockton Draft Climate Action Plan

The City of Stockton prepared a draft Climate Action Plan (CAP) on February 14, 2014 that stipulates City-level programs to reduce GHG emissions by 2020 to be consistency with AB 32. The 24 GHG reduction measures indicated in the CAP include the adoption of a Green Building Ordinance (GBO), changes to the Development Review Process (DRP), and locating higher density closer to transit areas.

County and City General Plans

Local jurisdictions may include greenhouse gas policies in an effort to reduce GHG emissions and encourage consistency with state regulations. The policies included in the County's local jurisdictions that are applicable to greenhouse gasses as related to the proposed projects are provided below.

San Joaquin County General Plan

San Joaquin County's General Plan includes no Greenhouse Gas policies.

City of Escalon General Plan

The City of Escalon's General Plan includes no Greenhouse Gas policies.

City of Lathrop General Plan

The City of Lathrop's General Plan includes no Greenhouse Gas policies.

City of Lodi General Plan

- Encourage reduction in vehicle miles traveled as part of a strategy to reduce greenhouse gas emissions.
- Develop, adopt, and implement a heat island mitigation plan to reduce carbon dioxide emissions, smog, and the energy required to cool buildings. This plan should contain requirements and incentives for the use of cool roofs, cool pavements, and strategic shade tree placement, all of which may result in as much as 6-8° F temperature decrease from existing conditions.
- Encourage the planting of shade trees along all City streets and residential lots (but, particularly in areas that currently lack street trees) to reduce radiation heating and greenhouse gases. Develop a

tree planting informational packet to help future residents understand their options for planting trees.

- Reduce greenhouse gas emissions to 15% below 2008 levels by 2020, to slow the negative impacts of global climate change.

City of Manteca

The City of Manteca's General Plan includes no Greenhouse Gas policies.

City of Ripon

The City of Ripon's General Plan includes no Greenhouse Gas policies.

City of Stockton

- Transportation Demand Management Programs: The City shall coordinate City Transportation Demand Management programs with other public and private agencies, including programs developed by the San Joaquin Council of Governments and the SJVAPCD.

- Planning Programs: The City shall support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

- Street Design: The City shall promote street design that provides an environment which encourages transit use, biking and walking.

- Design for Transportation Alternatives: The City shall encourage all new development to be designed to promote pedestrian and bicycle access and circulation, to the greatest extent feasible.

- Transportation Management Associations: The City shall encourage commercial, retail, and residential developments to participate in or create

- Develop Policies Requiring Minimizing of Greenhouse Gas Emissions: The City shall adopt new policies, in the form of a new ordinance, resolution, or other type of policy document, that will require new development to reduce its greenhouse gas emissions to the extent feasible in a manner consistent with state legislative policy as set forth in Assembly Bill (AB) 32 (Health & Safety Code, § 38500 et seq.) and with specific mitigation strategies developed by the California Air Resources Board (CARB) pursuant to AB 32. In furtherance of this effort, the City shall monitor the process by which CARB promulgates rules, regulations, limits, plans, and reduction measures pursuant to AB 32 to determine whether they result in recommended or mandatory principles or strategies by which greenhouse gas emissions reductions or minimization can be achieved through the land use planning process. If CARB does formulate any such principles or strategies, the City's own greenhouse gas emission reduction and minimization strategies shall be consistent with those promulgated by CARB. If CARB's efforts pursuant to AB 32 do not result in recommended or mandatory principles or strategies by which greenhouse gas emissions reductions or minimization can be achieved through the land use planning process, the City shall develop its own such principles and strategies. In doing so, the City shall consider the following potential mitigation strategies:

a. Increased density or intensity of land use, as a means of reducing per capita vehicle miles traveled by increasing pedestrian activities, bicycle usage, and public or private transit usage;

b. Increased energy conservation through means such as those described in Appendix F of the State Guidelines for the California Environmental Quality Act;

c. Greenhouse gas sequestration measures, such as increasing the effectiveness of carbon dioxide sinks through tree planting, for example;

d. The payment of fair share fees, or participation in fair share measures, that are imposed pursuant to a reasonable mitigation plan under which the fair share payment or fair share participation will foreseeably result in actual, enforceable mitigation that will offset some or all of the greenhouse gas emissions of development projects (e.g., through energy conservation, greenhouse gas sequestration, or increased usage of energy sources that do not contribute, or contribute only minimally, to global warming). In order to help achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions, and in furtherance of the inter-agency coordination objectives of AB 32, such a reasonable mitigation plan may include a multiple-agency program by which City-imposed fees are used to fund mitigation strategies implemented in whole or in part by regional or state agencies (e.g., the Air Resources Board, the Public Utilities Commission, or the State Energy Resources Conservation and Development Commission).

e. Public education measures intended to instruct future landowners, tenants, and users with respect to means by which they can reduce their own greenhouse gas emissions. For purposes of this policy, "feasible" shall have the same meaning as that set forth in Section 15364 of Title 14 of the California Code of Regulations and in case law interpreting the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.).

City of Tracy

The City of Tracy's General Plan includes no Greenhouse Gas policies.

4.7.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this EIR, SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) could result in significant adverse impacts to global greenhouse gas emissions if any of the following could occur:

- Increase GHG emissions compared to existing conditions (2012);
- Conflict with AB 32 or other applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases; or

- Conflict with SB 375 GHG emission reduction targets.

State CEQA Guidelines Section 15064.4(a) confirms that lead agencies retain the discretion to determine the significance of GHG emissions. The Guidelines advise lead agencies to consider the following factors in determining the significance of GHG emissions: whether the project increases or reduces GHG emissions compared to the existing environmental setting, whether project emissions exceed a threshold of significance identified by the lead agency as appropriate to the project, and the extent to which the project compiles with regulations or requirements of certain adopted GHG reduction plans.[28] Fundamentally, the courts recognize that lead agencies are allowed to decide what threshold of significance they will apply to a project.[29]

This Program EIR uses three thresholds of significance: increase in GHG emissions compared to existing conditions, conflict with SB 375 GHG emission reduction targets, and conflict with other applicable GHG reduction plans. SJCOG selected the SB 375-based threshold, because complying with SB 375 is the responsibility of this Plan. The other two thresholds are also consistent with *State CEQA Guidelines* suggestions.

SJCOG chose not to use the 2050 Executive Order emissions reduction target as a threshold of significance because the Executive Order is not an adopted GHG reduction plan within the meaning of CEQA Guidelines Section 15064.4(b)(2), and furthermore, the 2050 target is beyond the horizon year (2040) of the Plan. Although the Attorney General has advised that the Executive Order 2050 target can inform CEQA analysis, there is no requirement to use it as a threshold of significance. Further, the Plan, in meeting its SB 375 2035 target is in line with the goals of the Executive Order.

Methodology

The following section summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on GHG emissions.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact

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28 *State CEQA Guidelines* Section 15064.4(b).

29 See Citizens for Responsible Equitable Development v. City of Chula Vista (2011) 197 Cal.App. 4th 327, upholding an AB 32-based approach to setting significance thresholds.

the region, so that, too, is included in the project analysis for overall GHG emissions. SB 375 analysis methodology does not include pass-through traffic, therefore pass through trips are not included in the SB 375 impact analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of GHG emissions includes a comparison between the expected future conditions with the 2014 RTP/SCS and the expected future conditions if no Plan (No Project Alternative) were adopted. This evaluation is not included in the determination of the significance of impacts (which is based on a comparison of future conditions with the Plan to existing conditions); however, it provides a meaningful perspective on the effects of the Plan.

Determination of Significance

Analysis of the potential GHG impacts of the Plan was conducted based on regional-level modeling of on-road and gross estimates of area sources.

The GHG analysis calculates the mobile emissions associated with the 2014 RTP/SCS using SJCOG's Regional Travel Demand Model outputs and CARB's EMFAC2011 emissions model. Construction-related GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod). In the analysis below, future year emissions are compared to 2005, 2012, and 1990 (using 15 percent below 2005 emissions as a proxy). Estimates of energy and water use are based on (1) current demand factors and (2) emission rates associated with current power generation operations and water supply.

It is anticipated that future conservation (as a result of increased pressure to conserve and increased prices) will result in reduced demand. As energy providers and water suppliers respond to AB 32 and the Scoping Plan emission rates associated with power and water delivery are anticipated to decrease. However, in order to present a conservative analysis and without specific information on future demand factors, only modest reductions in electricity emission factors for 2020 and 2040 are assumed. It is anticipated that AB 32 will be implemented, but at the present time, sector-specific improvement cannot be quantified for this analysis.

Impacts and Mitigation Measures

Impact GHG-1 Increase GHG emissions compared to existing conditions (2012).

CEQA requires that impacts associated with a proposed project be compared to existing conditions. This differs from the requirements of other GHG reduction plans such as AB 32 and SB 375 in that they mandate a reduction from a specific baseline year, in this case 1990 and 2005 respectively. As neither 1990 nor 2005 can be reasonably said to reflect existing conditions, this threshold is used to address CEQA.

In addition to transportation improvements, the Plan identifies projected growth for the SJCOG region in accordance with policies identified to reduce vehicle trips and vehicle trip length. Between 2012 and 2040, the County is anticipated to experience substantial increases in population, households and jobs (see **Section 3.0, Project Description** and **Section 4.9, Land Use and Population**). The Plan focuses development in a compact pattern, which reduces per capita GHG emissions as compared to No Project or business-as-usual (BAU) because compact development generally uses less energy (e.g., multi-family housing units are insulated by each other as compared to single-family units and, therefore, require less heating and cooling) and water (e.g., multi-family units have less landscaping requiring irrigation as compared to single-family units).

GHG emissions result from direct and indirect sources. Direct emissions include emissions from fuel combustion in vehicles (i.e., autos, trucks, trains, buses, planes, ships, and trains) and natural gas combustion from stationary and area sources. Indirect sources include off-site emissions occurring as a result of electricity and water consumption. Regional GHG emissions are estimated for years 2012 and 2040, based on SJCOG's forecasts for employment, housing, and vehicle traffic.

Construction

Construction activities (of both transportation projects and development) throughout implementation of the Plan will result in direct and indirect emissions. Construction activities, including worker vehicle trips, transport of materials to and from the construction site, and operation of construction equipment, result in GHG emissions. Construction of individual projects occurs over a relatively short period of time as compared to the life of a project, and so emissions due to construction activities are often amortized over the life of a project (e.g., 30 years).

Typically, individual project construction characteristics are identified, such as the timing of construction phases and equipment fleet mix. However, due to the scale of construction activity associated with implementation of the Plan, construction would be expected to occur continuously throughout the life of the Plan as individual projects are constructed and, therefore, could result in significant emissions.

Annual construction-related GHG emissions would be expected to vary depending on the number and type of projects being constructed in a given year (which would vary according to the economy), but this level of data is unavailable for analysis. Therefore, for purposes of this analysis annual construction emissions were estimated based on total forecasted development in the region and assumed to be relatively constant for the region over the period of the project. This rate of construction was assumed to occur for the years 2012 and 2005 as well. It should be noted here that while this simplifying assumption regarding annual average rates of construction is reasonable for GHG emissions that have long-term impacts, it is too imprecise to be reasonable for criteria pollutant emissions. That is, the level of accuracy required for analysis of criteria pollutants is higher than for GHG emissions due to the differing impacts and residence times in the atmosphere. Therefore construction emissions were included for GHG estimates even though they were considered too speculative for criteria pollutant estimates.

SJCOG estimates that under the RTP 102,397 total new housing units would be built between 2012 and 2040, with 59,395 of these single-family homes, 42,125 multi-family units, and 877 other units (e.g., mobile homes). Under the No Build scenario, the total number of units would be the same, but the relative amounts of unit types would be different, with more single-family homes and fewer multi-family units. In both cases, the total number of housing units in San Joaquin County would be 319,756 in 2040. Data from SJCOG shows that in 2012 there were 219,570 units, and 205,497 units in 2005.

Construction was modeled using CalEEMod, the accepted model for estimating emissions of air pollutants from construction and operation of land use projects. As no specific information such as schedule, equipment fleet, and material import/export is available, the estimate of construction emissions is a gross estimate for purposes of this regional scale analysis. To estimate annual construction emissions due to development, total development was estimated based on forecasted housing units and jobs. The total number of residential units was estimated based on total projected household growth and assuming each residential project would be 100 units. Emissions from one 100-unit residential project was obtained from CalEEMod and used to determine emissions for total residential development. Each 100 residential units corresponded to the ratios of single-family homes, multi-family homes, and townhomes forecast for new development anticipated to occur between 2012 and 2040. Finally, in order to annualize the emissions, they were divided by a standard project lifetime of 30 years.

Commercial space was estimated in a similar fashion, with total new commercial space constructed between 2012 and 2040 estimated at roughly 100,000,000 square feet, based on the projected increase in employment during this period reported by SJCOG. This figure was then converted to an annual average amount of growth, and assumed to be generic commercial space. Emissions from construction of 250,000 square feet of commercial space were obtained from CalEEMod, and used to estimate average annual emissions.

Residential and Commercial Energy Use

GHG emissions would also result from the use of electricity, which is generated from a variety of sources. A statewide average GHG emissions factor provided by the USEPA was used to estimate emissions from these sources. This factor was published in 2011, so would be appropriate for use in calculating 2012 emissions. This factor was reduced by 35 percent to estimate 2040 emissions to account for increased use of renewable fuels and other improvements in electricity production. Residential energy consumption was based on figures provided by the California Energy Commission's Residential Appliance Saturation Study (CEC RASS). The RASS provides average electricity and natural gas consumption rates for single-family homes, multi-family buildings, and mobile homes. Commercial energy consumption was estimated from data provided in the CEC's Commercial End-Use Survey (CEUS). Water use also results in GHG emissions, primarily as a result of electricity and fuel use needed to transport the water. These emissions were calculated using water consumption rates provided by SJCOG, energy use for water treatment, handling, and transport published by the California Energy Commission, and the statewide electrical emissions factor.

Transportation

Finally, mobile sources are a major source of GHG emissions. Vehicle emissions were modeled by SJCOG using EMFAC2011. Results for all sources modeled are presented in **Table 4.7-4, Annual Additional GHG Emissions – 2012 Compared to 2040.** It should be noted that a number of potential sources have not been included, such as agricultural machinery, plants (including crops), solid waste collection and disposal, trains, airplanes, ships and other port activity, stationary sources, and industrial processes. This is due to a lack of information about these sources as well as a lack of potential impact by the RTP on these sources. For example, new industrial sources are typically relatively unique, and must be calculated using precise information regarding the specific process. No such information exists for potential future industrial sources of GHG emissions. The 2014 RTP/SCS also has little influence on emissions from such industrial processes. Similarly, the RTP/SCS would not have much if any effect on emissions from stationary sources, agricultural operations, watercraft, trains, or airplanes.

Table 4.7-4
Annual GHG Emissions – 2012 Compared to 2040

Source	2012 ($MTCO_2e$/Year)	2040 Plan ($MTCO_2e$/Year)	2040 No Project ($MTCO_2e$/Year)
Mobile Sources	3,508,974	6,013,068	6,296,640
Energy Use	1,540,053	1,708,438	1,782,639
Water Use	163,233	108,354	157,471
Construction	40,000	50,000	50,000
Total Emissions	**5,252,260**	**7,879,860**	**8,286,750**

As shown in **Table 4.7-4**, growth in San Joaquin County would result in an increase of approximately 2.6 $MMTCO_2e$ of GHG emissions in 2040 as compared to 2012 under the 2014 RTP/SCS. This represents a 50 percent increase from 2012 to 2040. Under the No Project Alternative, emissions would increase by 3.0 $MMTCO_2e$, or approximately 58 percent. It should be remembered in general that this is a very rough approximation in that it depends on many simplifying assumptions and does not include many types of sources. Also, emissions shown for both scenarios are highly conservative as the emission factors used do not reflect possible or planned improvements in the future from programs such as updated green building standards, advancements in energy efficiency, and increased use of electrical vehicles. Lastly, while the 2014 RTP/SCS includes many strategies for reducing GHG emissions from land use, the RTP does not have any authority over how land is actually developed in San Joaquin County. This analysis is provided only to adhere to the requirements of CEQA, but regardless the project would have a significant impact with regard to this threshold.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

GHG-1: SJCOG shall update future Regional Transportation Plans (including Sustainable Community Strategies) to incorporate policies and measures that build upon successful GHG reduction strategies form the 2014 RTP/SCS and lead to further reduced greenhouse gas (GHG) emissions. Such policies and measures may be derived from the General Plans, local jurisdictions' Climate Action Plans (CAPs), and other adopted policies and plans of its member agencies that include GHG mitigation and adaptation measures or other sources.

GHG-2: Local governments should adopt policies and develop practices that lead to GHG emission reductions. These activities will include, but are not limited to, providing technical assistance and information sharing on developing local Climate Action Plans.

GHG-3: Implementing and local agencies should adopt and implement Climate Action Plans (CAPs, also known as Plans for the Reduction of Greenhouse Gas Emissions as described in *State CEQA Guidelines* Section 15183.5 Tiering and Streamlining the Analysis of Greenhouse Gas Emissions) that do the following:

a) Quantify GHG emissions, both existing and projected over a specified period, resulting from activities within each agency's jurisdiction;

b) Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;

c) Identify and analyze the GHG emissions resulting for specific actions or categories of actions anticipated within their respective jurisdictions;

d) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

e) Establish a mechanism to monitor the plan's progress toward achieving that level and to require amendment if the plan is not achieving specified levels; and

f) Be adopted in a public process following environmental review.

CAPs should, when appropriate, incorporate planning and land use measures from the California Attorney General's latest list of example policies to address climate change at both the plan and project level. Specifically, at the plan level, land use plans can and should, when appropriate, incorporate planning and land use measures from the California Attorney General's latest list of example policies to address climate change (http://ag.ca.gov/globalwarming/pdf/GP_policies.pdf), including, but not limited to policies from that web page such as:

- Smart growth, jobs/housing balance, transit-oriented development, and infill development through land use designations, incentives and fees, zoning, and public private partnerships

- Create transit, bicycle, and pedestrian connections through planning, funding, development requirements, incentives and regional cooperation, and create disincentives for auto use

- Energy and water-efficient buildings and landscaping through ordinances, development fees, incentives, project timing, prioritization, and other implementing tools.

In addition, implementing and local agencies should incorporate, as appropriate, policies to encourage implementation of the Attorney General's list of project-specific mitigation measures available at the following web site: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf, including, but not limited to measures from the web page, such as:

- Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation
- Build or fund a major transit stop within or near development
- Provide public transit incentives such as free or low-cost monthly transit passes to employees, or free ride areas to residents and customers
- Incorporate bicycle lanes, routes and facilities into street systems, new subdivisions, and large developments
- Require amenities for non-motorized transportation, such as secure and convenient bicycle parking.

They should also incorporate, when appropriate, planning and land use measures from additional resources listed by the California Attorney General at the following webpage: http://ag.ca.gov/globalwarming/ceqa/resources.php.

In addition, CAPs should also incorporate analysis of climate change adaptation, in recognition of the likely and potential effects of climate change in the future regardless of the level of mitigation and in conjunction with Executive Order S-13-08, which seeks to enhance the state's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of state's first climate adaptation strategy.

Level of Significance After Mitigation

If implementing agencies adopts these mitigation measures, it is not anticipated that it will reduce impacts from GHG emissions to a less than significant level in all cases. The mitigation measures listed above would reduce GHG emissions substantially. However, as SJCOG does not have authority to guarantee that the measures would be implemented, and the fact this is a Program EIR there is no guarantee that GHG emissions in 2040 would be reduced to less than or equal to 2012. As appropriate,

SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact GHG-2: Conflict with AB 32 or other applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases.

SB 375 was adopted in order to assist the state in meeting AB 32 targets. By meeting SB 375 targets as discussed below, the RTP/SCS has successfully fulfilled its responsibilities with regard to AB 32. Furthermore, the draft update to the AB 32 Scoping Plan[30] indicates that the state as a whole is on course to reach the 2020 emissions target and CARB is confident that it will. CARB cites the successful implementation of the Scoping Plan measures, energy efficiency measures, renewable power requirements, and the recession as major factors in this progress. It also includes reductions resulting from implementation of SB 375. CARB also describes how the Cap and Trade program "provides a firm cap, ensuring that the 2020 emission target will be reached." The Cap and Trade program does this by modifying the emissions allowed under the program to follow emissions forecast. The RTP/SCS does not block or otherwise hinder any of the regulations or programs described by CARB as central to the success of AB 32.

However, in order to provide a more comprehensive analysis, emissions resulting from development anticipated to occur through the year 2040 in accordance with the 2014 RTP/SCS in the year 2020 were estimated. The resulting estimates are rough for the same reasons as described in the impact above. Sectors included are transportation and the construction and operation of residential and commercial buildings as these are the sectors directly impacted by the 2014 RTP/SCS. These emissions are compared to the 1990 baseline, which has been approximated as 2005 emissions less 15 percent.

Residential and Commercial Development

Emissions were estimated using the same methodology as described above. Housing in 2005 was estimated to be approximately 205,497 units, as opposed to 249,698 units forecast for 2020. The relative percentages of single-family homes, multi-family homes, and mobile homes in 2020 under the 2014 RTP and the No Build alternative were provided by SJCOG. Construction emissions were assumed to be similar to emissions in 2012 and 2040. Residential electricity and natural gas use was calculated using the same methodology as described above. Due to a lack of data, commercial electricity and natural gas use

30 California Air Resources Board *Climate Change Scoping Plan First Update: Discussion Draft for Public Review and Comment*. October 2013

in 2005 was assumed to be similar to use in 2012. The same emission factors used for the CEQA impact analysis above were used for this analysis, with the exception of emissions due to electricity use in 2020. For this factor, the same statewide emission factor as above was used, but reduced by 25 percent to account for increased use of renewable energy between 2005 and 2020.

Transportation

Mobile emissions for 2020 were modeled in EMFAC2011 and provided by SJCOG. Results are provided below in **Table 4.7-5**.

Table 4.7-5
Annual Additional GHG Emissions – 1990 Compared to 2020

Source	1990 (2005 minus 15%) ($MTCO_2e$/Year)	2020 Plan ($MTCO_2e$/Year)	2020 No Build ($MTCO_2e$/Year)
Mobile Sources	2,461,310	4,267,768	4,229,833
Energy Use	1,261,294	1,459,059	1,478,204
Water Supply	132,142	105,889	139,057
Construction	40,000	45,000	45,000
Total Emissions	**3,894,746**	**5,877,716**	**5,892,094**

The results above show that there will be a net increase in emissions between 1990 and 2020, rather than a reduction. Under the 2014 RTP/SCS the increase would be 2.0 $MMTCO_2e$, or approximately 51 percent. Under the No Build alternative, the increase would be slightly greater.

The figures provided above do not take into account any of the AB 32 Scoping Plan rules, regulations, or programs that have been or will be implemented, and therefore, present grossly conservative estimates. The 2014 RTP/SCS provides numerous strategies to reduce GHG emissions from land use and development, none of which are accounted for in these results. If the AB 32 Scoping Plan and 2014 RTP/SCS strategies could be fully accounted for and included it is expected that emissions in San Joaquin County would meet the AB 32 reductions targets. However, information required to show a full and accurate quantified analysis of the impact of the 2014 RTP/SCS on AB 32 is currently not available and so this impact is conservatively considered to be potentially significant.

Level of Significance Before Mitigation

Potentially significant.

As stated above, the Plan alone is not intended to meet the AB 32 target. By meeting the SB 375 targets, the Plan has successfully contributed its share of meeting the objectives of AB 32. However, given the unknowns associated with the other required sectors, such as the demand for water and energy, and the projected population growth in the region, estimated total emissions could result in a significant impact without assuming that the strategies in the AB 32 Scoping Plan are implemented.

Mitigation Measures

See measures **GHG-1** through **GHG-3,** above.

Level of Significance After Mitigation

Implementation of **Mitigation Measures GHG-1** through **GHG-3** would reduce GHG emissions through adoption of measures and policies that encourage GHG emissions reduction in regional plans, adoption of Climate Action Plans by local agencies, and using Best Available Control Technology (BACT) during construction and operation of implemented projects, though not to a less than significant level in all cases.

The projected increase in GHG emissions from existing conditions to 2040 would primarily be due to changes in regional growth/land use. While the mitigation measures listed would encourage reduction in GHG emissions, they do not provide a mechanism that guarantees GHG emission reductions. Other measures that were considered but found infeasible include the following:

- Requiring all vehicles driven within the SJCOG region to be zero-emission vehicles (ZEVs) or requiring all vehicles driven within the region to be powered by renewable energy was found to be infeasible due to the rate of turnover of vehicles on the roadway and limited number of ZEVs available. ARB has estimated that 50 percent of passenger cars are retired from service in 16.09 years and 18.63 years for light-duty trucks. As of 2010, there were an estimated 26,905,700 vehicles in California, with only 1.7 million ZEVs or low-emission vehicles. Similarly, conversion of existing vehicles to renewable energy fuel sources would likely result in greater demand than supply of renewable energy fuels.

- Requiring all future construction be net-zero energy use. While renewable energy is available and a feasible option for obtaining a portion of a project's energy needs, it is infeasible for all projects to have net-zero emissions. For projects with consistent-energy requirements, such as hospitals or manufacturing centers, renewable energy may not fulfill operational standards. In addition, some energy-consuming services that are part of new projects may not be feasible to change to renewable sources at the project level. For example, water is transported from long distances and a project may not be able to affect the power source for water transport. Similarly, wastewater is generally treated at a central location and operated independently from a project. For each project to treat its own wastewater with renewable energy sources may cause other environmental impacts.

- Requiring all future construction activity to include only retrofitted equipment. Some construction equipment may be retrofitted to significantly reduce the GHG emissions associated with construction

activities; however, not all equipment has retrofit components and is therefore technologically infeasible at this time.

Implementation of the Plan would result in an increase in GHG emissions as a result of the estimated mobile source emissions (other than light duty vehicles which would meet the applicable target – see SB 375 discussion) and construction and energy demand associated with residential and commercial buildings. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact GHG-3 Conflict with SB 375 GHG emission reduction targets.

SB 375 requires that local MPOs provide plans to reduce GHG emissions from cars and light trucks compared to 2005 levels. The specific reduction targets are determined by CARB. For San Joaquin County, CARB determined that the 2020 target is a 5 percent reduction from 2005 emissions levels, and the 2035 target is a 10 percent reduction. The 2014 RTP/SCS exceeds these targets, providing reductions of 24.4 percent in 2020 and 23.7 percent in 2035.

The RTP achieves the reductions by a mix of land use strategies, transportation management, economic factors, and road projects. The 2014 RTP/SCS also notes state and regional programs that assist in reaching the reductions targets, such as state funding for transportation management and infrastructure improvement, regional air district programs to replace inefficient or heavily polluting vehicles, regional energy planning, and efficient commuting programs.

Vehicle use and fuel consumption are also influenced by other factors, such as fuel prices and employment. These factors are included in the SB 375 calculations, similarly to the inclusion of the recession by CARB in tracking progress toward AB 32 goals. While these factors are not attributable to a purposeful effort by SJCOG, it is nevertheless allowable as a factor in calculating reductions for SB 375 as detailed by similar recession-based reductions discussed and included by CARB in their draft update to the AB 32 Scoping Plan. On page 99 of the proposed update, CARB provides an overview of emissions trends for the various sectors, as well as a total and per capita rate. Regarding the role of the recession in progress towards AB 32 goals they have this to say, "The recent recession had a major impact on GHG emissions between 2008 and 2009, when emissions decreased by almost 6 percent. Other changes reflect ongoing early implementation of Scoping Plan measures, energy efficiency actions, renewable power

requirements, and hydrology (rain and snow fall)."[31] The impacts of the recession on GHG emissions are also described in the following discussion of progress toward the 2020 goal for specific sectors, including the transportation, industrial, and residential and commercial sectors. Including reductions associated with the recession in meeting SB 375 goal is clearly entirely consistent with CARB methodology, which attributes progress to not only human design such as the Scoping Plan measures but also to variable economic factors and the weather.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less than significant.

4.7.4 CUMULATIVE EFFECTS

In general, GHG emissions analyses are by nature cumulative as impacts from GHG emissions are global, and there is currently no method to tie local impacts to specific sources. Emissions from any single project mix in the atmosphere and contribute to local, regional, and global impacts over long periods of time. Consequently, any project-specific GHG analysis is inherently a cumulative analysis. The analysis presented above is also a cumulative analysis in that it considers the entire County as the project site, includes all growth in residential and commercial space as well as Countywide vehicle traffic, and compares these impacts to statewide plans and regulations. In this way, it includes all projects of a similar nature and compares the total impact to regional thresholds. Adjacent jurisdictions in preparing their RTPs will similarly quantify GHG emissions; in addition, air quality management districts will quantify emissions associated with stationary and other non-mobile sources and local jurisdictions will more precisely quantify emissions associated with individual projects. Consequently, the analysis above is a cumulative analysis, and no separate assessment of cumulative effects is needed.

Level of Significance Before Mitigation

Significant

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31 California Air Resources Board, *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, February* 2014

Mitigation Measures

See **Mitigation Measures GHG-1** through **GHG-3,** above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.7.5 COMPARISON TO NO PROJECT ALTERNATIVE

The 2014 RTP/SCS includes strategies aimed at increasing the density of land use in San Joaquin County, thereby increasing the efficiency of vehicle and energy use. In all analysis years, emissions would be higher without adoption of the 2014 RTP/SCS. The first significance threshold for GHG emissions is whether the project would result in greater emissions than under existing conditions (i.e., would emissions in 2040 be greater than in 2012). As shown in **Table 4.7-4**, in 2040 emissions would be 8,286,750 $MTCO_2e$ under the No Project Alternative, compared to 7,879,860 $MTCO_2e$ under the 2014 RTP, which is a 5 percent increase. Both alternatives would result in greater emissions than under existing conditions. The second threshold asks whether the project would hinder progress toward the goals of applicable GHG reductions plans such as AB 32 (i.e., would emissions in 2020 be the same as emissions in 1990). In 2020 emissions would be roughly 5,892,094 without the plan, as opposed to 5,877,716 $MTCO_2e$ with the Plan, as shown in **Table 4.7-5**. In comparison, emissions in 1990 were estimated to be 3,894,746 $MTCO_2e$. Therefore, significance thresholds would be exceeded for the first two thresholds under both the 2014 RTP/SCS and the No Project Alternative. However, in all cases emissions under the Plan would be less than without the Plan. Therefore, impacts would also be less with the 2014 RTP/SCS than the No Project Alternative for **Impacts GHG-1** and **Impact GHG-2**.

The third threshold is whether San Joaquin County would meet its SB 375 targets of a 5 percent reduction in GHG emissions from cars and light trucks in 2020 and a 10 percent reduction in 2035. Data provided by SJCOG show that without the 2014 RTP/SCS per capita GHG emissions from cars and light duty trucks would be reduced by 24.8 percent in 2020 and 19.7 percent in 2035. This compares with reductions of 24.4 percent and 23.7 percent respectively for the 2014 RTP/SCS. Consequently, while the County would meet its targets for GHG reductions under SB 375 in either case, emissions would be lower with the 2014 RTP/SCS than without it. Therefore, impacts with the Plan would be less than the No Project alternative for SB 375.

4.8 HAZARDS AND HAZARDOUS MATERIALS

This section describes the current hazardous materials system in San Joaquin County, analyzes the potential impacts of the 2014 RTP/SCS on hazards and hazardous materials, identifies mitigation measures for impacts, and evaluates the residual impacts. (Note: that contamination of water resources is addressed in **Section 4.13 Water Resources,** wildfire risk is discussed in **Section 4.11.1 Fire Protection**, and air toxics are addressed in **Section 4.3 Air Quality**.)

4.8.1 ENVIRONMENTAL SETTING

Hazardous Materials

Hazardous Materials Defined

Under Title 22 of the California Code of Regulations (CCR), the term hazardous substance refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: toxicity, ignitability, corrosiveness, and reactivity.[1] A hazardous material is defined as a substance or combination of substances that may cause or significantly contribute to an increase in serious, irreversible, or incapacitating illness, or may pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been discarded, discharged, spilled, or contaminated or are being stored until they can be disposed of properly.[2] While hazardous substances are regulated by multiple agencies, cleanup requirements are determined on a case-by-case basis according to the agency with lead jurisdiction over the project.

Public health is potentially at risk whenever hazardous materials are, or will, be used. It is necessary to differentiate between the "hazard" of these materials and the acceptability of the "risk" they pose to human health and the environment. A hazard is any situation that has the potential to cause damage to human health and the environment. The California Department of Toxic Substances Control (DTSC) determines the risk to health and public safety by the probability of exposure, in addition to the inherent toxicity of a material.

Factors that can influence the health effects when human beings are exposed to hazardous materials include: the dose the person is exposed to, the frequency of exposure, the duration of exposure, the

1 CCR Title 22, Chapter 11, Article 3

2 CCR Title 22, Chapter 11, Article 2, Section 66261.10

exposure pathway (route by which a chemical enters a person's body), and the individual's unique biological susceptibility.

Hazardous Waste Generation and Management

There are four general categories of waste management: source reduction, recycling, treatment, and residuals disposal. All of these activities can occur on-site at the location where they are generated. Recycling, treatment, and disposal can also occur off-site but require additional intermediate support to store and transport waste.

The generation and handling of hazardous waste in the region is monitored by the US Environmental Protection Agency (EPA); Central Valley Regional Water Quality Control Board; San Joaquin Valley Air Pollution Management District; and the Environmental Health Division of the San Joaquin County Department of Public Health Services. Businesses that generate hazardous waste are either Large-Quantity Generators (e.g., heavy industrial or commercial facilities) or Small-Quantity Generators (e.g., dry cleaners, automotive repair shops, etc.); these businesses require an EPA identification number used to monitor and track hazardous waste activities.

Certain land uses may also serve as an indication that there is a potential for generating hazardous materials or waste, or existing hazardous materials or waste may be present. Hazardous wastes can be generated during a transportation project's construction activities. Common examples include oil, transmission fluids, fuels, solvents, and adhesives. Unless standard precautions are taken during construction, these wastes can be released into the environment.

Transportation of Hazardous Materials

The transportation of hazardous materials within the State of California is subject to various federal, state, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery, or the loading of such materials (California Vehicle Code Sections 31602(b), 32104(a)). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Transportation of hazardous materials is restricted to these routes except in cases where additional travel is required from that route to deliver or receive hazardous materials to and from users.

There are several risks associated with the transportation-related use of hazardous materials in the San Joaquin COG region. Actual transport of hazardous materials via truck, rail, and other modes involves a degree of risk of accident and release. The use of hazardous materials and the generation of hazardous waste in the construction and maintenance of the transportation system are other avenues for risk or

exposure. Finally, past disposal of hazardous materials in a manner that creates residual contamination of soil or water can be a source of risk when such sites are disturbed in the course of future transportation projects or associated development. Each of these avenues is discussed below.

Hazardous materials move through San Joaquin County by a variety of modes: truck, rail, air, ship, and pipeline. According to the Office of Hazardous Materials Safety (OHMS) in the US Department of Transportation (USDOT), hazardous materials shipments can be regarded as equivalent to deliveries, but any given shipment may involve one or more movements, or trip segments, that may occur by different modes. For instance, a shipment might involve initial pickup by truck (one movement), a transfer to rail (a second movement), and a final delivery by truck again (for a total of three movements). Each movement of hazardous materials implies a degree of risk, depending on the material being moved, the mode of transport, and numerous other factors.

Aside from rail, pipeline, and water shipments, vehicles transporting hazardous materials through San Joaquin County use many of the same freeways, arterials, and local streets as other traffic in the region. This creates a risk of accidents and associated release of hazardous materials for other drivers and for people along these routes, as does the use of rail modes for hazardous materials shipments. According to the USDOT, Hazardous Materials Information System, in 2013, highways accounted for the largest share of hazardous materials incidents, with a total of 13,057 incidents or 86.3 percent of total incidents. Air accounted for 8.9 percent of total hazardous materials incidents, followed by rail and water transport.[3]

Radioactive Materials

A majority of nuclear power plants in California were proposed but never built, furthermore the constructed and previously operating nuclear power stations within the state are now inoperative. The closest nuclear power plant to San Joaquin County which operated until June 1989 was the Rancho Seco Plant, located in Herald near Sacramento.

Contaminated Sites

Various federal, state, and local regulatory agencies maintain lists of hazardous materials sites where soil and/or groundwater contamination is known or suspected to have occurred, typically as a result of leaking storage tanks or other spills. These facilities are readily identified through regulatory agency database searches, such as the State Water Board GeoTracker online database, the DTSC Envirostor online

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3 United States, State Department of Transportation Hazardous Materials Information System. https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Dashboard&NQUser=HazmatWebsiteUser1&NQPassword=HazmatWebsiteUser1&PortalPath=/shared/Public%20Website%20Pages/_portal/10%20Year%20Incident%20Summary%20Reports ,2013.

database, and several other federal, state, and local regulatory agency databases. **Table 4.8-1, Description of Regulatory Agency Databases**, identifies key database references for hazardous materials.

Table 4.8-1
Description of Regulatory Agency Databases

Acronym	Name and Description of Database
NPL	The National Priorities List (NPL) of Superfund Sites is EPA's database of more than 1,200 sites designated for priority cleanup under the Superfund program. NPL sites may encompass relatively large areas.
RCRIS	The Resource Conservation and Recovery Information System (RCRIS) is an EPA database that includes selective information on sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Identification on this list does not indicate that there has been an impact on the environment.
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) is an EPA database that contains information on potential hazardous waste sites that have been reported to EPA by states, municipalities, private companies, and individuals, pursuant to Section 103 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites that are either proposed for or on the NPL, as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.
CORRACTS	Corrective Action Report (CORRACTS) is an EPA database that identifies hazardous waste handlers with RCRA corrective action activity.
RAATS	RCRA Administrative Action Tracking System (RAATS) is an EPA database that contains records based on enforcement actions issued under RCRA pertaining to major violators, and includes administrative and civil actions brought by EPA.
Geotracker	Geotracker is the State Water Resources Control Board's Internet-accessible database system used by the state board, regional boards, and local agencies to track and archive compliance data from authorized or unauthorized discharges of waste to land, or unauthorized releases of hazardous substances from underground storage tanks.
PADS	PCB Activity Database System (PADS) is an EPA database that identifies generators, transporters, commercial storers, and/or brokers and disposers of polychlorinated biphenyls (PCBs) who are required to notify EPA of such activities.
CHMIRS	The California Hazardous Material Incident Report System (CHMIRS) contains information on reported hazardous materials incidents (i.e., accidental releases or spills). The source of this information is the California Office of Emergency Services.
ERNS	The Emergency Response Notification System (ERNS) records and stores information on reported releases of oil and hazardous substances. The source of this database is the US EPA.
CALSITES	List of hazardous waste and substances sites from the DTSC Envirostor database.
CORTESE	The Cortese database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with underground storage tanks (USTs) having a reportable release, and all solid waste disposal facilities from which there is known hazardous substance migration. The source of this database is the California Environmental Protection Agency (CAL-EPA).
LUST	The Leaking Underground Storage Tank (LUST) Incident Reports contain an inventory of reported leaking underground storage tank incidents. This information comes from the State Water Resources Control Board Leaking Underground Storage Tank Information System.
UST	The Underground Storage Tank (UST) database lists registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The UST information comes from the State Water Resources Control Board's Hazardous Substance Storage Container Database.
HIST UST	The Hazardous Substance Storage Container Database is a historical listing of UST sites. The data source is the State Water Resources Control Board.
CA FID	The Facility Inventory Database (CA FID) lists active and inactive underground storage tank locations. This database is maintained by the State Water Resources Control Board.

Acronym	Name and Description of Database
HAZNET	The Hazardous Waste Information System (HAZNET) includes data extracted from the copies of hazardous waste manifests each year by the State Department of Toxic Substances Control.
FINDS	The Facility Index System (FINDS) contains both facility information and "pointers" to other sources of information that contain more detail (e.g., RCRA Info, Permit Compliance System [PCS], Aerometric Information Retrieval System [AIRS]). The source of this information is the US EPA.
FTTS	The Federal Toxics Tracking System (FTTS) tracks administrative cases and pesticide enforcement actions/compliance activities related to the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA), Toxic Substances Control Act (TSCA), and Emergency Planning and Community Right-to- Know Act (EPCRA). The source of this data is the Environmental Protection Agency (EPA) Office of Prevention, Pesticides, and Toxic Substances.
CA SLIC	The statewide Spills, Leaks, Investigations, and Cleanups (CA SLIC) database includes unauthorized discharges from spills and leaks, other than from underground storage tanks or other regulated sites. The data source is the State Water Resources Control Board.
EMI	Emissions Inventory Data (EMI) is comprised of toxics and criteria pollutant emissions data collected by the state Air Resources Board and local pollution agencies.
SWEEPS	The Statewide Environmental Evaluation and Planning System (SWEEPS) UST list, which is no longer maintained or updated, was under the purview of the State Water Resources Control Board. Other agencies (e.g., as identified above) now maintain UST records.

Source: State Water Board, EPA, DTSC, 2013

Various activities have contaminated several sites throughout San Joaquin County. Activities associated with specific businesses and improper disposal of hazardous waste, both legally and illegally have affected groundwater and soils throughout the area.

The Department of Toxic Substances Control (DTSC) maintained a database, known as "CalSites," which contained information on properties in California where hazardous substance were released, or where the potential for a release exists. In 2006, DTSC launched its brownfields site database, EnviroStor, which provides similar information to CalSites, including identification of formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. The DTSC has identified 118 sites in the County, and include sites in Stockton, French Camp, Lathrop, and Holt.

In addition to the DTSC EnviroStor Database, the US Environmental Protection Agency, (EPA), has created the Office of Underground Storage Tanks to carry out a Congressional mandate to develop and implement a regulatory program for underground storage tank (UST) systems.

An underground storage tank (UST) system is a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. The federal UST regulations apply only to underground tanks and piping storing either petroleum or certain hazardous substances. When the UST program began, there were approximately 2.1 million regulated tanks in the United States. Today, there are far fewer regulated tanks, since many substandard UST systems have been closed. Nearly all

USTs at these sites contain petroleum. These sites include marketers who sell gasoline to the public (such as service stations and convenience stores) and non-marketers who use tanks solely for their own needs (such as fleet service operators and local governments). USEPA estimates about 25,000 tanks hold hazardous substances covered by the UST regulations.[4]

The greatest potential hazard from a UST is that the petroleum or other hazardous substance can seep into the soil and contaminate groundwater, the source of drinking water for nearly half of all Americans. A UST can present other health and environmental risks, including the potential for fire and explosion. Until the mid-1980s, most USTs were made of bare steel, which is likely to corrode over time and allow UST contents to leak into the environment. Faulty installation or inadequate operating and maintenance procedures also can cause USTs to release their contents into the environment.

The Regional Water Quality Control Board (RWQCB), has created the Geotracker database, which tracks and archives information for soil, vapor, and groundwater of leaking underground storage tanks (LUST) cases and non-UST clean-up sites, including Site Cleanup Program Sites (formerly referred to as Spills-Leaks-Investigations-Cleanups (SLIC) sites), Military Sites (formerly referred to as Department of Defense sites [DOD]), and Land Disposal (Land Fill) Sites. **Table 4.8-2, Geotracker Active Sites in San Joaquin County,** provides the number and locations of the various open sites in the County. The listed sites may be in various stages of review. (The table does not include sites which are open but eligible for closure, have been classified as remediation, or permitted USTs.)

Table 4.8-2
Geotracker Active Sites in San Joaquin County

Site/Facility Type	Number of Sites	Locations
Land Disposal Site	69	Acampo, French Camp, Holt, Linden, Manteca, Ripon, San Joaquin County, Stockton, Tracy, Victor, Lathrop, and Lodi,
Cleanup Program Site	55	French Camp, Holt, Lathrop Lodi, Ripon, Stockton, Tracy, and Vernalis
Lust Cleanup Site	42	Lathrop, Manteca, Stockton and Tracy
Land Disposal Site	3	Stockton and Tracy
Military Base	4	Lathrop, Stockton, and Tracy

Source, Regional Quality Control Board, Geotracker Database, 2014
Notes: Referred sites are sites that based on limited information available to the DTSC, appear to be more appropriately addressed by the EPA.

4 US EPA, Tanks and Containment/Underground Storage Tanks, http://www.epa.gov/agriculture/ttan.html#Underground Storage Tanks, 2013.

Schools

California Environmental Quality Act (CEQA) Guidelines require EIRs to assess whether a project would emit hazardous air emissions or involve the handling of extremely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Children are particularly susceptible to long-term impacts from emissions of hazardous materials from roadways near schools as well as high-volume motor vehicle travel on roadways through residential areas. There are numerous schools located throughout the San Joaquin region. For a detailed discussion of schools, refer to **Section 4.11.3, Schools,** and **Section 4.3 Air Quality.**

Airports

Hazards associated with airport operations are generally associated with aircraft accidents. Aircraft accidents of most concern occur during takeoff and landing operations during which aircraft are operated close to the ground and within close proximity to one another. Potential hazards around an airport can be increased due to many external factors such as incompatible land uses in the vicinity of the airport, installation of power transmission lines, wildlife hazards (i.e., bird strikes, migrating wildlife, etc.), and construction of tall structures.

In order to mitigate the potential hazards of tall structures within the vicinity of an airport, the Federal Aviation Administration (FAA) established an airport height restriction area, defined by Federal Aviation Regulation (FAR) Part 77. FAR Part 77 establishes "imaginary surfaces" around an airport where a structure is considered to pose a hazard to an aircraft. FAR Part 77 requires that the FAA be notified prior to construction of any structure that would pierce these imaginary surfaces. However, the FAA cannot prohibit the construction of such structures. The State of California goes further, requiring that a permit be obtained from the State Division of Aeronautics prior to construction of such a structure.

In addition to imaginary surfaces, a safety restriction area is established around airports within which it is assumed that hazards may exist to people or structures on the ground in the event of an aircraft accident. Nationwide studies of aircraft accidents have found the following:

- Almost half of all accidents occur on airport property.
- An additional 15 percent of aircraft accidents occur outside airport property but within 1 mile of the airport runway(s).
- A substantial concentration of aircraft accidents occur within the initial climb-out and the final approach sectors of airports.

Further refinement of these data points to an increased risk near the ends of the runway and under the airport traffic pattern. In order to reduce these risks, especially those related to land use in these area, safety restriction areas are established around airports which restrict certain land uses in the vicinity of the airport. Typically, three types of areas are established. The clear zone is an area at each end of the runway(s) within 200 feet of the runway threshold. The clear zone is the most restrictive safety area. The approach/departure zone extends beyond the clear zone and is aligned with the runway as well. The overflight zone represents the area commonly overflown by aircraft utilizing the airport. The overflight zone surrounds the airport and is the least restrictive safety area.

Imaginary surfaces and safety restriction areas are established by the FAA and are included in the local ALUCP for each airport. The ALUCP establishes guidelines for development in the vicinity of the airport in the areas of noise impacts, safety hazards, and height restriction. **Table 4.8-3, Airports in San Joaquin County**, lists the six public use airports in the San Joaquin County.

Table 4.8-3
Airports in San Joaquin County

Airport	Location
Kingdon Executive Airport	Lodi
Lodi Airport	Lodi
Lodi Precissi Airpark	Lodi
New Jerusalem Airport	Vernalis
Stockton Metropolitan Airport	Stockton
Tracy Municipal Airport	Tracy

Source: San Joaquin COG, 2013

Ports

The Port of Stockton is located in San Joaquin County, on the Stockton Deepwater Ship Channel, 75 nautical miles east of the Golden Gate Bridge. The Port owns and operates a major, diversified intermodal transportation center that encompasses more than 2,000 acres of operating area and real estate. The Port of Stockton has over 11,000 lineal feet of waterside docking for berthing and cargo operations of up to 17 vessels, as well as 1.1 million square feet of dockside transit sheds and shipside rail trackage, with 40 miles of rail track that can be served by Union Pacific (UP) or Burlington Northern Santa Fe (BNSF) Railroads. Existing facilities include 7.7 million square feet of warehousing for both dry bulk and general cargo, which compose the largest percentage of the Port's dockside operations.

Stockton's deepwater channel has an average depth of 37 feet at average low tide and 40 feet at average high tide. Panamax-sized vessels with load capacity up to 45,000-ton dead-weight class, which are fully loaded, and partially loaded 80,000-ton dead-weight vessels can be accommodated. There is no width restriction of vessels, and ships up to 900 feet in length can navigate the Stockton Ship Channel. The Port is 1 mile from I-5 and all interconnecting major highway systems. The nearest port of entry for container cargo is the Port of Oakland.[5]

4.8.2 REGULATORY SETTING

Federal

Federal Aviation Administration

The FAA is responsible for the safety of civil aviation. The Administration issues and enforces regulations and minimum standards covering manufacturing, operating, and maintaining aircraft, as well as certify airmen and airports that serve air carriers. The Administration's major roles include:

- Regulating civil aviation to promote safety
- Encouraging and developing civil aeronautics, including new aviation technology
- Developing and operating a system of air traffic control and navigation for both civil and military aircraft
- Researching and developing the National Airspace System and civil aeronautics
- Developing and carrying out programs to control aircraft noise and other environmental effects of civil aviation
- Regulating US commercial space transportation

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act, as amended, is the basic statute regulating hazardous materials transportation in the United States. The purpose of the law is to provide adequate protection against the risks to life and property inherent in transporting hazardous materials in interstate commerce. This law gives the US Department of Transportation (DOT) and other agencies the authority to issue and enforce rules and regulations governing the safe transportation of hazardous materials.

5 2009 San Joaquin County General Plan Update, Transportation and Circulation Element

Department of Transportation Regulations

The Secretary of the Department of Transportation receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act (HMTA), as amended and codified in 49 USC. 5101 et seq. The Secretary is authorized to issue regulations to implement the requirements of 49 USC. The Pipeline and Hazardous Materials Safety Administration (PHMSA) (formerly the Research and Special Provisions Administration [RSPA]) was delegated the responsibility to write the hazardous materials regulations, which are contained in 49 CFR Parts 100-180. Under the HMTA the Secretary:

> *may authorize any officer, employee, or agent to enter upon inspect, and examine, at reasonable times and in a reasonable manner, the records and properties of persons to the extent such records and properties relate to: (1) the manufacture, fabrication, marking, maintenance, reconditioning, repair, testing, or distribution of packages or containers for use by any "person" in the transportation of hazardous materials in commerce; or (2) the transportation or shipment by any "person" of hazardous materials in "commerce."*

Environmental Protection Agency (EPA) Regulations

The EPA's mission is to protect human health and the environment. The EPA takes action to reduce risks associated with exposure to chemicals in commerce, indoor and outdoor environments, and products and food. The EPA continues to oversee the introduction and use of pesticides, improve their Integrated Risk Information System (IRIS) program, reduce radon risks, identify and address children's health risks in schools and homes, and improve chemical management practices. Oversight of chemical storage and manufacturing in coordination with their interagency partners remains a key focus of the EPA, as well as efforts to reduce urban air toxics.

Resource Conservation and Recovery Act (RCRA)

RCRA gives the EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste by "large-quantity generators" (1,000 kilograms/month or more). Under RCRA regulations, hazardous wastes must be tracked from the time of generation to the point of disposal. At a minimum, each generator of hazardous waste must register and obtain a hazardous waste activity identification number. If hazardous wastes are stored for more than 90 days or treated or disposed at a facility, any treatment, storage, or disposal unit must be permitted under RCRA. Additionally, all hazardous waste transporters are required to be permitted and must have an identification number. RCRA allows individual states to develop their own program for the regulation of hazardous waste as long as it is at least as stringent as RCRA. In California, the USEPA has delegated RCRA enforcement to the State of California.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. CERCLA was intended to be comprehensive in encompassing both the prevention of, and response to, uncontrolled hazardous substances releases. CERCLA deals with environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

Toxic Substances Control Act

Congress enacted the Toxic Substances Control Act (TSCA) of 1976 to give EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

Research and Special Programs Administration Regulations

Research and Special Programs Administration (RSPA) regulations cover definition and classification of hazardous materials, communication of hazards to workers and the public, packaging and labeling requirements, operational rules for shippers, and training. They apply to interstate, intrastate, and foreign commerce by air, rail, ships, and motor vehicles, and also cover hazardous waste shipments. The Federal Highway Administration (FHWA) is responsible for highway routing of hazardous materials and highway safety permits. The US Coast Guard regulates bulk transport by vessel. The hazardous material regulations include emergency response provisions, including incident reporting requirements. Reports of major incidents go to the National Response Center, which in turn is linked with CHEMTREC, a service of the chemical manufacturing industry that provides details on most chemicals shipped in the US

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (generally referred to as Superfund) was enacted by Congress on December 11, 1980. CERCLA provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and

abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the NPL sites, which is the list of hazardous waste sites eligible for long-term remedial action financed under the federal Superfund program. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act (SARA) of 1986 reauthorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definitions, clarifications, and technical requirements were added to the legislation, including additional enforcement authorities

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act, which is implemented by the Federal Occupational Safety and Health Administration (OSHA), contains provisions with respect to hazardous materials handling. Federal OSHA requirements, as set forth in Title 29 of the Code of Federal Regulations (CFR) Section 1910, et. seq., are designed to promote worker safety, worker training, and a worker's right–to-know. In California, OSHA has delegated the authority to administer OSHA regulations to the State of California.

Title 49 of the CFR, which contains the regulations set forth by the Hazardous Materials Transportation Act of 1975, specifies additional requirements and regulations with respect to the transport of hazardous materials. Title 49 of the CFR requires that every employee who transports hazardous materials receive training to recognize and identify hazardous materials and become familiar with hazardous materials requirements. Drivers are also required to be trained in operations of their equipment and commodity specific requirements.

Emergency and Community Right to Know Act

The Emergency and Community Right to Know Act (EPCRA) was enacted by Congress as the national legislation on community safety. This law was designated to help local communities protect public health, safety, and the environment from chemical hazards. EPCRA was passed in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. EPCRA establishes requirements for federal, state, and local governments, tribes and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The

Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment. To implement EPCRA, Congress required each state to appoint a State Emergency Response Commission (SERC). The SERCs were required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee for each district.

State

California Environmental Protection Agency and California Department of Toxic Substances Control Regulations

The California Environmental Protection Agency (Cal EPA) includes the Department of Toxic Substances Control (DTSC) whose mission it is to protect California's people and environment from harmful effects of toxic substances through the restoration of contaminated resources, enforcement, regulation, and pollution prevention. The DTSC regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. Approximately 1,000 scientists, engineers, and specialized support staff ensure that companies and individuals handle, transport, store, treat, dispose of, and clean-up hazardous wastes appropriately. Through these measures, DTSC contributes to greater safety for all Californians, and less hazardous waste reaches the environment.

DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code. The DTSC regulates hazardous waste, cleans up existing contamination, and researches ways to reduce the hazardous waste produced in California. In addition, the DTSC develops legislation, coordinates with lawmakers, and responds to constituent complaints. The regulations spell out what those who handle hazardous waste must do to comply with the laws.

Statewide, DTSC cleans-up or oversees approximately 220 hazardous substance release sites at any given time and completes an average of 125 cleanups each year. Ensuring compliance through inspection and enforcement is an important part of effectively regulating hazardous waste. DTSC conducts roughly 200 inspections a year. DTSC's Criminal Investigations Branch has the only law enforcement officers in the Cal/EPA. These peace officers, with the powers of arrest, and search and seizure, investigate alleged criminal violations of the Hazardous Waste Control Law. They work closely with district attorneys' offices, the federal Environmental Protection Agency, the Federal Bureau of Investigation, and law enforcement personnel in other states.

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan, which must include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored on-site;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses.

California Occupational Safety and Health Administration Regulations

The California Occupational Safety and Health Administration (Cal OSHA) has set forth work requirements for disturbance of Asbestos Containing Construction Materials (ACCMs) including removal operations for all types of ACCMs. In addition, the agency has developed standards for general industry and the construction industry hazardous waste operations and emergency response. Cal OSHA ensures that employers must have controls to reduce and monitor exposure levels of hazardous materials, an informational program describing any exposure during operations and the inspection of drums and containers prior to removal or opening. Decontamination procedures and emergency response plans must be in place before employees begin working in hazardous waste operations.

California Office of Emergency Services Regulations

The California Office of Emergency Services (CAL OES) Hazardous Materials (HazMat) Section under the Fire and Rescue Division coordinates statewide implementation of hazardous materials accident prevention and emergency response programs for all types of hazardous materials incidents and threats. In response to any hazardous materials emergency, the section staff is called upon to provide state and local emergency managers with emergency coordination and technical assistance.

California Code of Regulations Title 8

This section of the California Code of Regulations regulates asbestos exposure in all worked defined in the Code's Section 1502 including, demolition or salvage of structures where asbestos is present, removal or encapsulation of materials containing asbestos, construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos, installation of products containing asbestos, asbestos spill/emergency cleanup, transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at

which construction activities are performed, and excavation which may involve exposure to asbestos as a natural constituent which is not related to asbestos mining and milling activities.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to but more stringent than the federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with DTSC.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) required the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are: Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (or "Tiered Permitting"); Aboveground Petroleum Storage Tank Spill Prevention Control and Countermeasure Plan (SPCC); Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community-Right-To-Know"); California Accidental Release Prevention Program (Cal ARP); Underground Storage Tank (UST) Program; and Uniform Fire Code Plans and Inventory Requirements. The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities,

inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Source Reduction and Management Review Act of 1989

This Act requires generators of 12,000 kilograms/year of typical/operational hazardous waste to conduct an evaluation of their waste streams every four years and to select and implement viable source reduction alternatives. This Act does not apply to non-typical hazardous waste (such as asbestos and polychlorinated biphenyls).

California Vehicle Code

The California Vehicle Code (Title 13 of the CCR) establishes regulations for motor carrier transport of hazardous materials. For example, all motor carrier transporters of hazardous materials are required to have a Hazardous Materials Transportation license issued by the California Highway Patrol. In addition, placards identifying that hazardous materials are being transported must be displayed on the vehicle.

California Health and Safety Code

The transport of hazardous waste materials is further governed by the California Health and Safety Code Section 25163 and Title 22, Chapter 13, of the CCR. Specifically, Section 25163 of the California Health and Safety Code requires transporters of hazardous waste to hold a valid registration issued by the DTSC in his/her possession while transporting hazardous waste. Additionally, Title 22, Chapter 13 of the CCR includes a number of requirements, which include, but are not limited to, the following:

- Transporters shall not transport hazardous waste without first receiving an identification number and a registration certificate from DTSC;
- Registration as a hazardous waste transporter expires annually, on the last day of the month in which the registration was issued;
- To be registered as a hazardous waste transporter, an application must be submitted;
- Hazardous waste shall not be accepted for transport without a Uniform Hazardous Waste Manifest that has been properly completed and signed by generator and transporter; and
- Hazardous waste shall be delivered to authorized facilities only.

Local

Fire Departments and other agencies in San Joaquin County have a variety of local laws that regulate reporting, storage and handling of hazardous materials and wastes. Title 4 Division 8 of the San Joaquin County Municipal Code outlines the handling of and regulations of hazardous materials in the County.

San Joaquin County Environmental Health Department

The San Joaquin County Environmental Health Department (SJCEHD), with assistance from the OES and under the CUPA Program, enforces state regulations governing hazardous waste generators, hazardous waste treatment and hazardous substance 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 both compliance of recorded permits and respond to issued complaints. The SJCEHD and OES annually prepare the following reports to Cal/EPA (as required by CCR, Title 27, Section 15290): The Single Fee Summary Report (Report 2), Inspection Summery Report (Report 3), and an Enforcement Summary Report (Report 4). On a semiannual basis, each CUPA sends information pertaining to local UST program implementation to the State Water Resources Control Board using the Semi-Annual UST Program Report (Report 6).

The Local Oversight Program (LOP) within the SJCEHD ensures adequate and appropriate cleanup of petroleum contamination associated with leaks from USTs. The SJCEHD 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 confined, 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 SJCEHD 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 state and federal cleanup sites and environmental assessment sites.

San Joaquin County Toxic Enforcement Task Force.

The San Joaquin County District Attorney's Office conducts monthly meetings as an open forum for any 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 OES and San Joaquin County Environmental Health Department (SJCEHD), California Department of Fish

and Wildlife, the Regional Water Quality Control Board, the San Joaquin County Sheriff's Office, the San Joaquin County Agricultural Commissioner's Office, and municipal utility districts.

San Joaquin County 2009 Airport Land Use Compatibility Plan and 1993 Stockton Airport Land Use Plan

The fundamental purpose of the ALUC is to carry out the statutory responsibilities required by Sections 21670 et seq. of the California Public Utilities Code (PUC). The statutes describe these responsibilities as being "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports.

The powers and duties of the ALUC are (as enumerated within PUC Section 21674):

a) To prepare and adopt an airport land use compatibility plan for each of the airports within the commission's jurisdiction.

b) To review the plans, regulations, and other actions of local agencies and airport operators pursuant to PUC Section 21676.

c) To assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.

d) To coordinate planning at the state, regional, and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare.

San Joaquin County Airport Land Use Commission

The San Joaquin Council of Governments Board of Directors serves as the Airport Land Use Commission (ALUC) for San Joaquin County. The ALUC provides for the appropriate development of the areas surrounding the public airports in the San Joaquin County. Depending on location and type, proposed new land uses need to conform to the guidelines stipulated in the ALUCP. It is the responsibility of ALUC staff to work collaboratively with the incorporated cities and the County of San Joaquin, developers, and the public at-large to ensure that consistency is maintained between local land-use decision making process and the strategic areas surrounding each of the public access airports.

County and Cities General Plans

In addition to state and federal regulations, most jurisdictions provide policies and regulations regarding the storage, use, and transportation of hazardous materials in their general plans. The County's and local jurisdictions' General Plan's hazards policies are listed below:

San Joaquin County General Plan

- Hazardous materials and wastes shall not contaminate air or water resources or soils.
- The use, storage, and disposal of hazardous materials and wastes shall be controlled to prevent harm to individuals.
- Land uses and structures which contain hazardous materials or wastes which may be a safety hazard for nearby areas shall be located away from existing and planned populated areas.
- The use of hazardous materials and the creation of hazardous wastes shall be minimized.
- All development shall be consistent with the County's Waste Management Plans.

City of Escalon General Plan

- Industrial development should not create significant off-site circulation, noise, dust, odor, visual, and hazardous materials impacts that cannot be adequately mitigated.

City of Lathrop General Plan

- The reduction of loss of life or property due to crime, fire, earthquake, flooding or other disasters, or hazards.
- The provision of adequate medical and emergency services to reduce the effects of natural or manmade disasters.
- The promotion of citizen awareness and preparedness for emergency/disaster situations or potential for the incidence of crime.
- The implementation of adequate inter-agency disaster planning, including evacuation of all or parts of the community to safe areas of the County.

City of Lodi General Plan

- Require that all fuel and chemical storage tanks are appropriately constructed; include spill containment areas to prevent seismic damage, leakage, fire, and explosion; and are structurally or spatially separated from sensitive land uses, such as residential neighborhoods, schools, hospitals and places of public assembly.

- Ensure compatibility between hazardous material users and surrounding land use through the development review process. Separate hazardous waste facilities from incompatible uses including, but not limited to, schools, daycares, hospitals, public gathering areas, and high-density residential housing through development standards and the review process.

- Consider the potential for the production, use, storage, and transport of hazardous materials in approving new development. Provide for reasonable controls on such hazardous materials. Ensure that the proponents of applicable new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies, as necessary, for each identified site as part of the design phase for each project. Require projects to implement federal or state cleanup standards outlined in the studies during construction.

- Regulate the production, use, storage, and transport of hazardous materials to protect the health of Lodi residents. Cooperate with the County and Lodi Fire Department in the identification of hazardous material users, development of an inspection process, and implementation of the City's Hazardous Waste Management and Hazardous Materials Area plans. Require, as appropriate, a hazardous materials inventory for project sites, including an assessment of materials and operations for any development applications, as a component of the development environmental review process or business license review/building permit review.

- Work with waste disposal service provider(s) to educate the public as to the types of household hazardous wastes and the proper methods of disposal and shall continue to provide opportunities for residents to conveniently dispose of household hazardous waste.

- Continue to follow the County Comprehensive Airport Land Use Plan for guidelines on land use compatibility near airports, land use restrictions, and to ensure public safety.

- Support grade-separated railroad crossings, where feasible, and other appropriate measures adjacent to railroad tracks to ensure the safety of the community.

- Continue to mark underground utilities and abide by federal safe-digging.

City of Manteca General Plan

- The City shall maintain an awareness of hazardous materials throughout the Manteca region.

- City approvals of all new development shall consider the potential for the production, use, storage, and transport of hazardous materials and provide for reasonable controls on such hazardous materials.

- Within its authority, the City shall regulate the production, use, storage, and transport of hazardous materials to protect the health of Manteca residents.

City of Ripon General Plan

- City approvals of all development will consider the potential for the production, use, storage, and transport of hazardous materials, and its associated impacts upon any and all Hazardous Material Teams.

- Within its authority, the City will regulate the production, use, storage, and transport of hazardous materials to protect the health of Ripon residents.

- The City shall conduct audits of its own hazardous materials use and storage to ensure that City-owned materials are properly stored and marked, and that, City employees responsible for the storage, use and transport of Hazardous materials are properly trained and certified.

City of Stockton General Plan

- The City shall seek to attract clean, non-polluting industries and maintain existing clean industries within the City.

- The City shall require that hazardous materials are used, stored, transported, and disposed of within the City in a safe manner and in compliance with local, state, and federal safety standards.

- The City shall restrict transport of hazardous materials within the City to routes that have been designated for such transport.

- The City shall cooperate with the County in the identification of hazardous material users (both large and small scale) and in the development of an inspection process and hazardous materials management plan.

- The City shall require, as appropriate and as a component of the environmental review process, a hazardous materials inventory for project sites, including an assessment of materials and operations for any development applications. Particular attention should be paid to land that previously contained agricultural uses.

- The City shall continue to work with San Joaquin County Public Works Department to provide household hazardous waste disposal and recycling services.

- The City shall work to educate the public as to the types of household hazardous wastes and the proper methods of disposal.

- The City shall use the development review process to ensure compatibility between hazardous material users and surrounding land use.

- The City shall ensure that the proponents of new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies for each identified site as part of the design phase for each project. Recommendations required to satisfy federal or state cleanup standards outlined in the studies will be implemented as part of the construction phase for each project.

City of Tracy General Plan

- Adequate separation shall be provided between areas where hazardous materials are present and sensitive uses such as schools, residences, and public facilities.

- When reviewing applications for new development and redevelopment in areas historically used for commercial or industrial uses, developers shall conduct the necessary level of environmental investigation to ensure that soils, groundwater and buildings affected by hazardous material releases from prior land uses and lead or asbestos potentially present in building materials, will not have a negative impact on the natural environment or health and safety of future property owners or users.

- The safe transport of hazardous materials through Tracy shall be promoted by implementing the following measures:

- Maintain formally designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.

- Prohibit the parking of vehicles transporting hazardous materials on City streets.

- Require that new pipelines and other channels carrying hazardous materials avoid residential areas and other immobile populations to the extent possible.

- Emergency response plans shall be submitted as part of use applications for all large generators of hazardous waste.

- The City shall continue to encourage the reduction of solid and hazardous wastes generated within the City, in accordance with Countywide plans.

- The City shall partner with San Joaquin County to implement the Hazardous Materials Area Plan.

Emergency Response and Evacuation Plans

Emergency response plans include elements to maintain continuity of government, emergency functions of governmental agencies, mobilization, and application of resources, mutual aid, and public information. Emergency response plans are maintained at the federal, state, and local levels for all types of disasters, human-made and natural. It is the responsibility of government to undertake an ongoing comprehensive approach to emergency management in order to avoid or minimize the effects of hazardous events. Local governments have the primary responsibility for preparedness and response activities.

The San Joaquin County 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, which is the Countywide disaster preparedness program, including dam evacuation procedures and hazardous materials incidents. OES also provides training for first responders, businesses, and other governmental agencies.

4.8.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the 2014 RTP/SCS would result in significant impacts due to the use and/or transportation of hazards and hazardous materials, if any of the following would occur:

- 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 0.25 mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
- For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Methodology

This impacts analysis addresses each significance criterion individually, assessing how implementation of the 2014 RTP/SCS, including changes to the land use pattern and transportation network, could result in impacts as a result of use, storage, and/or transport of hazardous materials. In addition, the analysis assesses potential impacts from other hazards including airports, interference with emergency response.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact

the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of hazards and hazardous materials includes a comparison of the expected future conditions with the 2014 RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of hazardous impacts compares the existing conditions to the 2014 RTP/SCS conditions in 2040, as required by *State CEQA Guidelines* Section 15126.2(a). The known hazardous materials located within the region were evaluated using the criteria set forth by the California Department of Toxic Substances Control (DTSC), the Environmental Protection Agency (EPA), and the *State CEQA Guidelines*.

The analysis is based on an assessment of growth (population, housing, and employment) projected for the region by 2040, and an assessment of how that growth will impact, or be impacted by, hazards and hazardous materials. Individual project sites within San Joaquin County were not physically surveyed, rather this is a programmatic analysis based on a brief description of the types of hazards and hazardous materials issues found within the region.

Roadway transportation projects consist of freeway, high-occupancy vehicle (HOV) lanes, auxiliary, arterial/expressway miles, collector and local streets, Class I bicycle and pedestrian facilities, and Class II bicycle lanes. Different project types will have different impacts on, or be differently impacted by, hazards and hazardous materials.

The evaluation of hazards and hazardous materials impacts in this section assumes that construction and development in San Joaquin County will adhere to applicable federal, state, and local regulations, and will conform to the applicable industry standards, as appropriate for individual projects.

Impacts and Mitigation Measures

Impact-HAZ-1 **Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

Regional development will increase density and population, and it will include a variety of land uses including residential, commercial, and industrial uses as well as new schools and hospitals. In proximity to residential areas and other sensitive receptors, new (and existing) businesses that use hazardous materials include: dry cleaners, gas and service stations, industrial uses (that can use and generate a variety of hazardous materials and wastes), agricultural uses (herbicides and pesticides), etc. All of these uses/businesses require the routine transport, use, and disposal of hazardous materials. In addition, sensitive uses themselves (residences, hospitals, schools) use and generate household hazardous materials and wastes including cleaning supplies, solvents, and paints.

In this analysis, anticipated future land uses are discussed in general programmatic terms. Project-specific, parcel-level future land uses are unknown. Routine transportation of hazardous materials poses a risk to residents within San Joaquin County as a result of potential accidents involving trucks, rail, and other modes that are used to transport hazardous materials and wastes and are shared with the public.

The operation of businesses (including transportation to and from such businesses) that use, create, or dispose of hazardous materials is regulated and monitored by federal, state, and local regulations and policies. These regulations and policies provide a high level of protection to the public and the environment.

A variety of transportation improvements are included in the 2014 RTP/SCS, such as new HOV lanes, auxiliary lanes, roadway widening, new interchanges, freight rail, bicycle and pedestrian infrastructure improvements, transit facilities, increased transit service, and roadway maintenance and rehabilitation projects. The RTP/SCS projects involve the expansion or extension of the transportation system, which may increase the capacity to transport hazardous materials. Roadway improvements in the 2014 RTP/SCS while increasing capacity would also improve road safety, as well as pedestrian and bicycle safety, thereby possibly reducing the potential for transportation related hazardous materials risks.

Implementation of the transportation network improvements as well as anticipated development, would involve an increase in the routine transport, use, and disposal of hazardous materials, particularly the highway and arterial improvement projects and freight rail, which could result in increased transport of hazardous goods, as well as the use of equipment that contains or uses routine hazardous materials (e.g., diesel-fueled equipment), or the transportation of excavated soil and/or groundwater containing contaminants from areas that are identified as being contaminated. In addition, the construction and

maintenance of transportation facilities included in the proposed RTP/SCS would involve the use of hazardous materials such as solvents, paints, and other architectural coatings.

As discussed above, existing federal, state, and local regulations and policies that govern the use of hazardous materials strictly regulate the proper handling of such materials and their containers. Therefore, it is anticipated that the anticipated increase in the routine transport, use, and disposal of hazardous materials would not create a significant hazard to the public or the environment. Therefore, impacts from the routine use and transport of hazardous materials as a result of land use and transportation improvements in the 2014 RTP/SCS are considered less than significant for **Impact HAZ-1**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant

Impact HAZ-2 **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.**

Regional development will increase density and population, and it will include a variety of land uses that will increase the potential for upset or accident conditions involving the release of hazardous materials into the environment. In this analysis, anticipated future land uses are discussed in general programmatic terms. Project-specific, parcel-level future land uses are unknown. Regional development will generally increase the number of land uses that require the use, storage, and transport of hazardous materials. Such land uses would include dry cleaners, gas stations and service stations, industrial uses, agricultural uses, etc. Businesses that store large quantities of hazardous materials (e.g., fuel storage facilities, chemical warehouses, etc.), can be subject to accidents that result from transporting, pumping, pouring, emptying, injecting, spilling, and dumping or disposing of hazardous materials and wastes and that could be released into the environment. The severity of potential effects varies with the activity conducted and the concentration and type of waste involved.

Existing federal, state, and local regulations and policies that govern the use of hazard materials strictly regulate the proper handling of such materials and their containers to ensure that accidents involving the release of toxic materials into the environment do not occur.

The 2014 RTP transportation projects involve the expansion or extension of the transportation system, and, as noted above, may increase the capacity to transport hazardous materials. For example, gas or oil spilling from vehicle accidents or a tanker overturning on a highway could release hazardous materials. Transportation improvements that expand the transportation system and extend it to new areas expose more adjoining land uses to risks associated with risk of upset on the roadway, highway, or railroad.

As discussed above, existing federal, state, and local regulations and policies that govern the use of hazardous materials strictly regulate the proper handling of such materials and their containers to ensure that accidents involving the release of toxic materials into the environment do not occur. Therefore, the potential for significantly increased hazards as a result of increased potential for accidents and upset conditions as a result of land use and transportation improvements in the 2014 RTP/SCS is considered less than significant for **Impact HAZ-2**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant

Mitigation Measures

None

Level of Significance After Mitigation

Impacts are less than significant

Impact HAZ-3 **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

Regional development will increase density and population that will increase the potential for hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There are currently more than 200 schools within the region and a variety of land uses that are in proximity to these schools.

Table 4.8-4 Sensitive Receptors within 0.25 mile of RTP/SCS Projects identifies the number of sensitive receptors that would be located near RTP/SCS transportation projects included in the 2040; the table also identifies the number of sensitive receptors that would be near projects included in the No Project Alternative.[6] **Figure 4.8-1 Sensitive Receptors within 0.25 mile of RTP/SCS Projects** provides the location of sensitive receptors in relation to 2014 RTP/SCS projects.

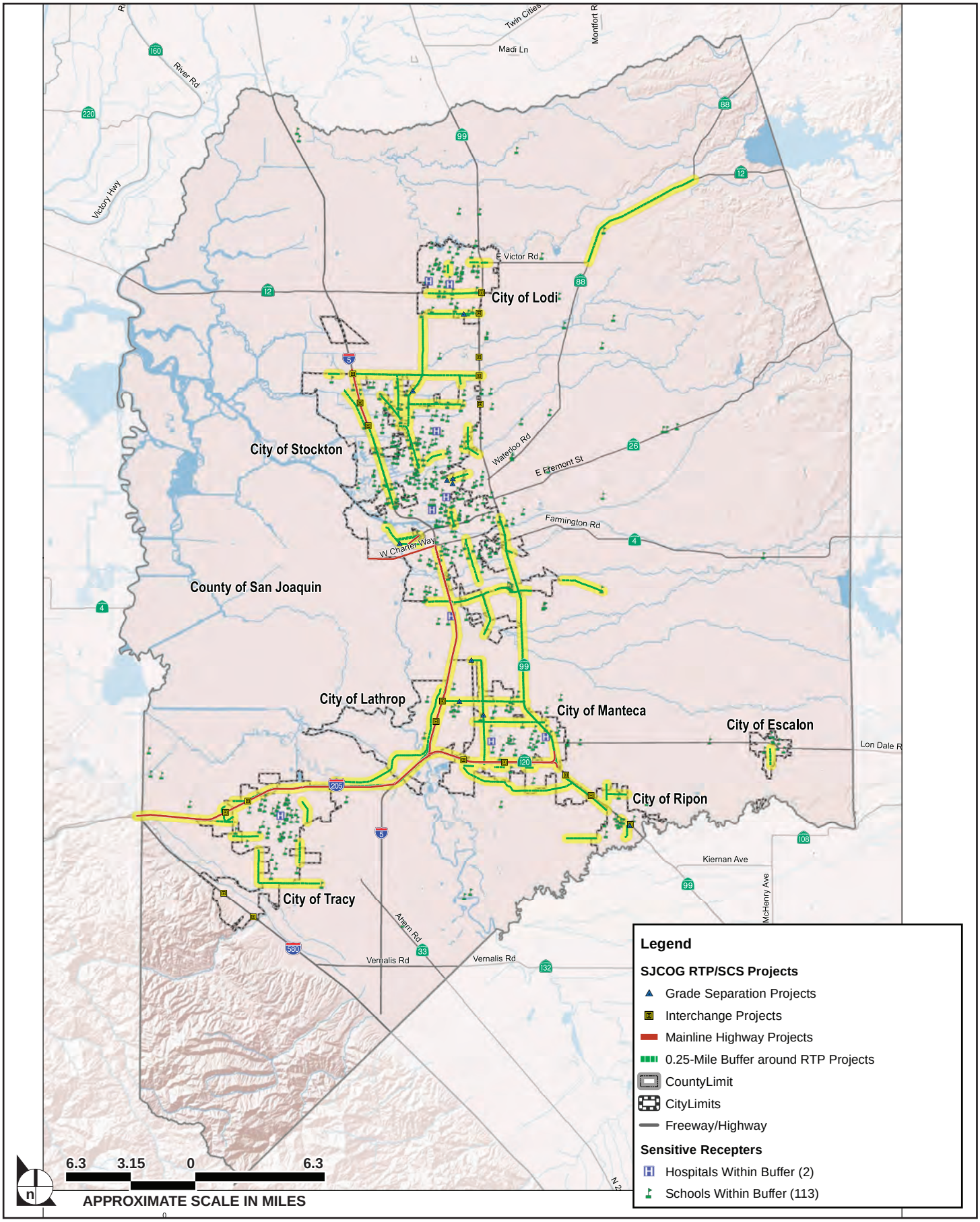
Table 4.8-4
Sensitive Receptors within 0.25 mile of RTP Projects

Land Use Type	No Project in 2040	2014 RTP in 2040
Hospitals	2	2
Schools	113	113
Households	74,693	77,799

Source: Impact Sciences, SJCOG, 2014
Note: number of households is based on an estimation of residential uses with TAZs

Compliance with existing federal, state, and local regulations and policies would ensure that hazardous materials do not pose a significant increase in risk to nearby sensitive receptors. For example, companies using hazardous materials or generating hazardous wastes must submit their business plan to the Office of Emergency Services who will review the plan to ensure it is consistent with the San Joaquin County Hazardous Material Management Plan. In general, roadway improvements in the 2014 RTP/SCS will improve road safety, thereby reducing the potential for accidents of all types including accidents involving hazardous materials in proximity to schools. For new schools the state school siting process requires that emissions of hazardous materials, substances, or waste within one-quarter mile be addressed. Additionally, individual hazardous materials emitters or handlers must adhere to permitting requirements that require evaluation and notification of where potential materials handling and emissions could occur within 0.25 mile proximity of existing or proposed schools.

6 Number of households is based on an estimation of residential uses with TAZs



SOURCE: San Joaquin COG, February 2014

FIGURE **4.8-1**

Sensitive Receptors within 0.25 mile of RTP/SCS Projects

The 2014 RTP/SCS transportation projects could include transportation system expansions or extensions near 113 schools. These transportation improvements may increase the capacity to transport hazardous materials. Compliance with existing federal, state, and local regulations and policies wound ensure that hazardous materials do not pose significantly increased additional risk to nearby receptors (including schools). As discussed above, while roadway projects in the 2014 RTP/SCS will increase capacity they will also improve road safety, thereby potentially reducing the risk of accidents (including those involving hazardous materials) in proximity of schools. Therefore, the potential for significantly increased risks to schools within 0.25 mile of a facility handling hazardous or acutely hazardous materials as a result of land use and transportation improvements in the 2014 RTP/SCS is considered less than significant for **Impact HAZ-3**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant

Impact HAZ-4 **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.**

The 2014 RTP/SCS includes development and transportation projects that are located on sites within the region where hazardous materials could be present. These include greenfield projects on properties with prior agricultural chemical use to brownfield urban redevelopment on properties with prior land uses that may have contaminated the site. Brownfield sites may be contaminated by previous uses as a result of improper handling of hazardous materials and/or wastes. In some cases this may be because sites have been used over many years prior to the high level of regulation of hazardous materials and wastes. A common practice when property changes hands is for a Phase I Environmental Site Assessment (Phase I ESA) to be prepared in order to research and disclose the prior uses of the site and the likelihood that residual hazardous materials and/or wastes are present. As part of project specific environmental review, implementing agencies and local agencies require a Phase ESA or equivalent prior to approval or implementation of a project. These studies include research of a variety of government databases to

determine whether the site has had prior underground tanks or other industrial uses that could have resulted in hazardous materials on or below the ground surface. If a Phase I ESA indicates the presence, or potential presence of contamination, a site-specific Phase II ESA is required to test soil and/or groundwater. Based on the outcome of a Phase II ESA, remediation of contaminated sites under federal and state regulations, administered at the local level, is required prior to development. Once hazardous materials are identified on a particular site, federal, state, and local regulations address proper on-site treatment and/or disposal to protect the public and environment. In urban areas (where much of the new development will be focused) the potential for impacts can be greater as site for development generally have previous uses associated with them. Redevelopment of sites where chemicals were previously uses, such as industrial uses, dry cleaners, or gas stations could result in potentially significant impacts. Further, many of the sites that have been identified on a government list as containing hazardous materials are located in urban areas.

Compliance with the National Environmental Policy Act (NEPA), CEQA, and other applicable regulations for properties at risk of potential hazardous materials and/or waste contamination will avoid adverse impacts associated with buildout of the 2014 RTP/SCS.

However, it is possible that RTP/SCS projects and development could occur without thorough evaluation of the potential for on-site contamination, and therefore the potential impact related to disturbing contaminated soils as a result of land use and transportation improvements included in the 2014 RTP/SCS is considered potentially significant for **Impact HAZ-4**. Mitigation is required. **Mitigation Measure HAZ-1** is described below.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

HAZ-1: Implementing and local agencies should determine whether specific project sites are listed on government lists of hazardous materials and/or waste sites compiled pursuant to Government Code Section 65962.5. Implementing and local agencies should require preparation of a Phase I Environmental Site assessment (ESA) for any listed sites or sites with the potential for residual hazardous materials and/or waste as a result of location and/or prior uses. Implementing and local agencies should require that recommendations of the Phase I ESA be fully implemented. If a Phase I ESA indicates the presence or likely presence of contamination, the implementing agency should require a Phase II ESA, and recommendations of the Phase II ESA should be fully implemented.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts would be reduced to less than significant. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt **Mitigation Measure HAZ-1**. However, as SJCOG cannot require implementation of this measure, impacts could remain significant and unavoidable.

Impact HAZ-5 **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.**

Regional development could include a variety of land uses that would require increased air transportation of people and goods. In this analysis, anticipated future land uses are discussed in general programmatic terms. Project-specific, parcel-level future land uses are unknown. Regional development could increase the number of land uses and developments within an airport planning area and within airport hazard zones, creating hazards from tall structures, glare producing objects, bird and wildlife attractants, radio waves from communication centers, or other features that have the potential to interfere with aircraft take-off and/or landings.

The airports in San Joaquin County are listed in **Table 4.8-2**. Land development associated with the proposed RTP/SCS would likely occur in and near airport flight corridors and within areas subject to policies contained in an Airport Land Use Compatibility Plan (ALUCP). In California, potential hazards to airport operations are generally regulated by the Federal Aviation Administration (FAA) (FAR Part 77), with local planning and evaluation of proposed projects (in terms of a proposed project's compatibility in relationship to air and ground operations and the safety of the public) under the authority of the applicable Airport Land Use Commission through ALUCPs.

While the ALUCPs determines a project's compatibility with respect to the ALUCP and notifies the lead agency of its recommendation, the organization is not a land use permitting agency and does not have the authority to approve or deny projects. Implementing agencies are responsible for analyzing compliance with Airport Land Use Commission (ALUC) plans as a part of their land use approval authority. Legislation passed in the 1994 ALUP Handbook requires that when preparing an environmental impact report for any project situated within an airport influence area as defined in an ALUC compatibility plan (or, if a compatibility plan has not been adopted, within two nautical miles of a

public-use airport), lead agencies should utilize the California Airport Land Use Planning Handbook as a technical resource with respect to airport noise and safety compatibility issues. The FAA also evaluates projects located within two miles of a public use airport, and other projects that may pose a potential hazard for people residing or working in the project area, due to height, visual hazard, or the attraction of wildlife. RTP/SCS transportation projects and development could occur within 2 miles of a public airport and in the vicinity of private airstrips. As discussed above, potential hazards to airport operations are generally regulated by the FAA (FAR Part 77), with local planning and evaluation of proposed projects (in terms of a proposed project's compatibility in relationship to air and ground operations and the safety of the public) under the authority of the applicable Airport Land Use Commission through ALUCPs. As described in the regulatory framework, San Joaquin County includes policies to ensure review of projects located within ALUCPs. In addition, improvements included in the proposed RTP/SCS are more likely to improve safety (through improvements to the roadway network and public transportation) than cause hazards or interfere with airport operations.

Therefore, as a result of the stringent regulatory environment, the potential for significantly increased risk due to proximity to airports and airstrips as a result of land use and transportation improvements included in the 2014 RTP/SCS is considered less than significant for Impact **HAZ-5**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant

Impact HAZ-6 **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

By 2040, the RTP/SCS plan area will grow by approximately 365,694 people, 92,839 jobs, and 100,186 households. Implementation of the proposed RTP/SCS will convert about 18,123 acres of undeveloped land to new development. As described in the RTP/SCS (see Chapter 5 Performance of the Sustainable Communities Strategy), the RTP encourages a more compact growth pattern than in previous RTPs.

The San Joaquin County Office of Emergency Services has developed a hazardous material management plan for San Joaquin County to respond to a possible emergency situation (e.g., fires, floods, earthquakes, etc.). The plan covers all of the land within the County including both incorporated and unincorporated areas. The plan provides a process for evacuating people from danger, preventing or minimizing loss of life and property. The management of the multi-hazard plan includes regular updates to the plan that incorporate new or proposed developments into the plan. The 2014 RTP/SCS has been developed in coordination with numerous stakeholders including the County of San Joaquin, and aims to improve the overall safety of the transportation system. The RTP/SCS includes Intelligent Transportation Systems (ITS) that apply advanced information processing, communication, vehicle sensing, and traffic control technologies to the surface transportation system that could help optimize evacuation in the event of an emergency.

Poor visibility due to fog, dust, truck traffic, high winds in parts of San Joaquin County, steep grades, rock falls, and red-light violations all contribute to highway safety. The RTP/SCS includes four ITS applications that will allow motorists to choose travel options and allow local and state agencies to respond to roadway incidents and other emergencies more quickly. They include: closed circuit television to monitor and provide real time travel conditions, alterable message signs, traffic detection equipment, and traveler information systems.

Therefore, given that there is multi-hazard plan in place on a Countywide basis, and the RTP/SCSs inclusion of ITS applications and that project-level review is required for all individual projects to ensure adequate emergency access the potential for adverse impacts land use and transportation changes from the implementation of the proposed RTP are considered less than significant for **Impact HAZ-6**. No mitigation is required.

Level of Significance Before Mitigation

Less than significant

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant

4.8.4 CUMULATIVE EFFECTS

As discussed above, implementation of the 2014 RTP would result in increased transportation and use of hazardous materials, which could lead to greater hazardous materials passing through adjacent jurisdictions, similarly increased growth in adjacent jurisdictions adds to the transport of hazardous materials through San Joaquin County. The No Project Alternative would result in similar growth (albeit dispersed), but could also result in materials traveling on a less efficient roadways system that could be more dangerous. Therefore, the No Project Alternative's cumulative impacts to hazards would be greater than those of the 2014 RTP. However, as discussed throughout this section, the area of hazardous materials and movement of hazardous materials is well regulated by federal and state agencies. The majority of these regulations would apply both in San Joaquin and in neighboring counties. As a result of the high level of regulation of hazardous materials, the proposed project would not contribute to a cumulatively considerable effect.

Level of Significance Before Mitigation

Less than significant

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant

4.8.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would continue to grow by approximately 365,694 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the emphasis on urban centers under the 2014 RTP/SCS.

Due to the reduced number of transportation projects, the No Project Alternative could result in a reduced movement of hazardous materials around the region, resulting in fewer associated risks. However, since the same population and employment increases would occur, the demand for goods (including hazardous materials) could be the same as the project resulting in increased movement on less safe roads. The No Project Alternative would result in the construction of fewer new lane miles compared to the 2014 RTP/SCS. As a result, fewer new transportation projects would be located near sensitive uses

(74,693 households under the No Project compared to 77,799 under the Plan). Because there would be fewer transportation projects built, the No Project Alternative could result in a smaller increase in the movement of hazardous materials around the San Joaquin COG region, resulting in fewer associated risks. However, population and employment would be the same as the project and therefore the demand for goods would be similar. As the population in California increases through 2040, the amount of hazardous materials that pass through San Joaquin County (trucks, trains, ships and pipelines) is expected to increase regardless of RTP/SCS scenario implemented.

Without the transportation system improvements incorporated in the proposed RTP/SCS, total annual vehicle miles travelled (VMT) would be slightly greater as compared to the project. Total VMT under the No Project would be 10.51 billion compared to 10.43 billion under the Plan. As a result of increased VMT, there could be more opportunities for accidents with vehicles transporting hazardous materials under the No Project Alternative than under the proposed RTP/SCS. Construction could occur on or adjacent to a greater number of potentially contaminated sites than under the No Project Alternative thereby increasing the risk of an exposure of hazardous materials. The proposed RTP/SCS assumes the use of urban form strategies that would encourage greater property reuse and more infill development than under the No Project Alternative. Under the No Project Alternative only 1 percent of growth would be infill/redevelopment compared to 3 percent under the Plan. Thus, it is more likely that previously contaminated urban sites would be encountered under the proposed RTP/SCS than the No Project Alternative.

Impacts of the No Project Alternative would be greater than the Plan for **Impacts HAZ 1, HAZ-2,** and **HAZ-6** because of the increased consumption of land and lack of transportation network improvements. Impact related to **Impact HAZ-5** would be similar under the Plan and the No Project Alternative as most airports are located on the fringe of urbanized areas, while some development could occur within these area, any development would have to comply with local regulations and be consistent with the ALUCP.

4.9 LAND USE AND POPULATION

This section describes the existing land uses in San Joaquin County and its incorporated communities, describes the land use regulations for each jurisdiction, and evaluates the environmental effects of implementation of the proposed 2014 RTP/SCS.

4.9.1 ENVIRONMENTAL SETTING

San Joaquin County is located in the San Joaquin Valley in what is considered the Central Valley of California. The County covers approximately 1,440 square miles and is predominantly flat land with some gently rolling hills. The County is bordered to the southwest by the Diablo Range and to the east by the Sierra Nevada foothills. The County contains a combination of metropolitan and rural areas with a long history of agricultural activities. Incorporated cities within San Joaquin County include the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. San Joaquin County is considered the fastest growing region in the Central Valley.[1]

Political Jurisdictions City of Escalon

The City of Escalon is located along State Route 120 in the southeast corner of San Joaquin County. The City is bisected by State Route 120, an east-west transportation artery, and by the Burlington Northern Santa Fe (BNSF) Railroad (formerly Atchison Topeka and Santa Fe Railroad), which runs in a northwest to southeast direction through the center of town. Incorporated as a General Law City in 1957, Escalon is located approximately 13 miles east of Manteca and 9 miles north of Modesto.

The current population, according to the Department of Finance (DOF), is 7,177 as of January 1, 2012. Escalon is situated in one of the most productive agricultural regions in the world, and its economy is principally dependent on agriculture and agriculturally based industries. The city limits currently contain approximately 2 square miles.

City of Lathrop

The City of Lathrop is located along the San Joaquin River within San Joaquin County. Interstate 5, the major north-south corridor, runs through Lathrop where it intersects with State Route 120. The City of Lathrop was incorporated in 1989 and is a part of the Stockton- Lodi metropolitan area. Lathrop is located approximately 58 miles south of Sacramento and 47 miles northeast of San Jose. The City is within a 50-

1 California Department of Finance, Report P-1 (County): State and County Total Population Projections, 2010-2060 (5 year increments), 2013.

minute or less commute from Tracy, Manteca, Stockton, Lodi, Modesto, Livermore, and Pleasanton. Lathrop occupies an area of approximately 16.7 miles.

According to the DOF, the population of Lathrop as in 2012 is 18,831. The City of Lathrop is one of Northern California's fastest growing and most comprehensive Master Planned Communities.

City of Lodi

The City of Lodi is situated along State Route 99 in the San Joaquin Valley, approximately 6 miles north of Stockton and 35 miles south of Sacramento. Lodi is located on the main line of the Union Pacific Railroad and is within 5 miles of I-5 via SR-12. The City occupies an area of just over 13 square miles.

The City's economy is anchored in the manufacturing, retail, health care, and hospitality industries. In addition, agriculture contributes to the local economy, with wine grapes being the largest crop. The 80,000 acres of vineyards produce annually a crop worth in excess of $300 million. Further, nearly 20 percent of California's premium wine grapes are grown in Lodi. The DOF estimates Lodi's population at 62,574 persons in 2012. Lodi has been the slowest growing city in San Joaquin County in recent years; between 2000 and 2008, while the City's population has increased by 11 percent, the comparable-sized cities of Tracy and Manteca grew 43 percent and 35 percent, respectively, during this period.[2]

City of Manteca

The City of Manteca is located in southern San Joaquin County, approximately 15 miles from Stockton and Tracy and 18 miles from Modesto. State Route 99 travels through Manteca near the eastern edge of the City and State Route 120 travels through the City near the southern edge of the City. Manteca occupies an area of just under 16 square miles.

With its relatively low costs and proximity to the San Francisco Bay and Sacramento areas, Manteca has attracted many commercial and industrial businesses. Manteca is also a popular place to live for commuters to the San Francisco Bay area. The DOF estimates Manteca's population at 69,536 in 2012.

City of Ripon

The City of Ripon is located along the Stanislaus River, approximately 20 miles south of Stockton and 4 miles north of Modesto. State Route 99 and the Central Valley route of the Union Pacific Railroad bisect the City. Ripon occupies an area of just over 4 miles.

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2 City of Lodi 2011 Housing Element, http://www.lodi.gov/community_development/pdf/2010_2016_Lodi_HousingElement_Adopted_lo%20res.pdf, 2013.

Ripon's economic base has long been tied mainly to agriculture and related businesses. While agriculture continues to play a large part in Ripon's economy, during the past 10 years, Ripon has begun to transition towards other non-agriculture industries, specifically transportation and traveler accommodation. The estimated 2012 population in Ripon is 14,477

City of Stockton

The City of Stockton is the largest urban center in San Joaquin County. Stockton is located in central San Joaquin County and occupies approximately 62 square miles. Interstate 5 and State Route 99 provide north-south regional access through the City. State Route 4 provides an east-west connection between these two routes and areas further east and west. The Southern Pacific Rail Road, the Union Pacific Rail Road, and the Stockton Terminal and Eastern Rail Road lines converge in south central Stockton in the industrial district. Major drainage channels run through Stockton and include the San Joaquin River and the Stockton Deep Water Channel that meet near the western edge of the City. The Port of Stockton is an island segment on the western section of the City at the Stockton Deep Water Channel. The Stockton Metropolitan Airport is the County's commercial airport on the southeast section of the City. The Calaveras River travels east-west through north central Stockton.

The majority of land developed within Stockton is for residential uses, followed by commercial and industrial. The estimated population in Stockton was 294,537 persons in 2012.

City of Tracy

The City of Tracy is located in southwest San Joaquin County, occupying an area of approximately 21 square miles. Interstate 205 passes through Tracy's northern area, linking Interstate 580 and I-5. Interstate 205 also serves as the major access route to the Bay Area. In addition, I-205 and I-580 join and continue west, providing direct access to the Bay Area. State Route 132, located 7 miles south of Tracy, provides an east-west route linking I-580 and I-5. Railroad transportation is provided by the Union Pacific and Southern Pacific railroad lines, which converge within Tracy's industrial district.

The vast majority of land within Tracy is designated for residential land uses, which generally surround commercial and industrial areas. Vacant and agricultural land generally extends outward from the City center. The estimated population in Tracy was 83,562 persons in 2012.

Population, Housing, and Employment

Over the next 27 years, the San Joaquin region will continue to grow rapidly. SJCOG projects a total employment of 299,717 for San Joaquin County by 2040. This will accompany an increase in population in

the County of 365,694 persons between 2012 and 2040, an increase in population of approximately 52 percent. In 2040, the estimated total population for San Joaquin County is 1,070,486 persons.

The San Joaquin Valley continues to remain a commuter-oriented county, with approximately 74.0 percent of the workforce driving alone to work.[3] The average daily commute time in San Joaquin County was almost 30 minutes in 2012. Almost 11 percent have a commute that is 1 hour or longer each way compared to 16 percent in 2008. Of the 233,200 residents representing the employed workforce, approximately 114,610 commute outside of the region to their employment sites.[4]

Population growth continues to be due in part but not limited to:

- Bay Area jobholders taking up residence in the County, creating a market demand for interregional commute alternatives;
- A shortage of affordable housing in neighboring Bay Area counties;
- Significantly less expensive housing costs in the Central Valley;
- Job relocations to the Central Valley due to lower cost of doing business;
- A decentralization of Stockton's commercial and retail businesses;
- An increase in the economic interaction with surrounding counties;
- Major growth in cities neighboring bay area counties.

Population

San Joaquin County population grew by 2.5 percent from April 2010 to July 2012 and ranks as one of the top nine of the fastest growing regions within the state's 58 counties. The rate of growth is having profound effects on the ability to finance, deliver, and maintain the infrastructure needed to support the population. For the SJCOG, the issue is transportation, but the same concerns apply to water delivery, sewer and storm water runoff, and education. **Table 4.9-1, Population Trends, San Joaquin County** provides a summary of past population trends.

3 American Community Survey, 2012

4 San Joaquin COG 2014 RTP/SCS

Table 4.9-1
Population Trends 2000-2012 San Joaquin County

	2000	2010	2012	Total change	%Change 2000–2012	% Share 2000	% Share 2012
Escalon	5,963	7,132	7,266	1303	17.9	1.0	1.0
Lathrop	10,455	18,023	19,141	8686	45.3	1.9	2.7
Lodi	56,999	61,134	63,301	6302	9.9	10.1	9.0
Manteca	49,258	67,193	71,067	24,809	30.2	8.7	10.0
Ripon	10,146	14,297	14,686	4,540	30.9	1.8	2.1
Stockton	243,771	291,729	297,984	54,213	18.1	43.3	42.3
Tracy	56,929	82,992	84,669	27,740	32.7	10.1	12.0
County	130,087	142,806	146,680	16,593	11.3	23.1	20.8
Total	**563,608**	**685,306**	**704,794**	**141,186**			

Source: US Census, 2014
San Joaquin COG, 2014

By the 2010 Census, the most rapid growth occurred in the communities located in the south county, and the largest absolute growth occurred in the City of Stockton with a 54,213 net gain between 2000 and 2012. In the same period, the population of the City of Lathrop grew more than 45 percent, compared to the overall growth of the County of 20 percent. The cities of Lathrop, Tracy, and Manteca increased their share of the County's population, while the unincorporated areas' share dropped 2.3 percent. Growth rates have slowed somewhat due to the recession which slowed migration to the region.

Housing

As indicated by population and employment trends, growth pressures are increasing at a significant rate. Because most of this growth comes from outside of the County, in particular employment opportunities in the Bay Area, the growth within San Joaquin County is focused on the development of single-family homes. Currently, the region supports 227,475 households of which approximately 92 percent are single-family dwelling units.[5]

Employment

In 2012 the County maintained a labor for of 298,500 and 253,200 employees. The unemployment rate was 15.2 percent, which was the fourth highest unemployment rate in the state at the time.

5 San Joaquin Council of Governments, 2009

A meaningful trend is suggested by the declining ratio of San Joaquin County residents employed in San Joaquin County. In 2008, only 75 percent of San Joaquin County's labor force worked within San Joaquin County, as the number was 83 percent in 1990. In 2012, 50 percent of the workforce commutes outside the region.

Table 4.9-2 Employment by Industry in San Joaquin County, shows employment trends between 1990 and 2012 in San Joaquin County. As shown in the table, non-farm and private service jobs have steadily increased while manufacturing jobs have decreased.

Table 4.9-2
Employment by Industry in San Joaquin County

	1990	2000	2012
Total Non-Farm	153,000	192,900	196,100
Total Wage and Salary	163,600	203,100	206,400
Total Private	118,900	156,400	158,200
Goods Producing	31,600	24,800	24,300
Private Service Providing	121,400	131,600	171,800
Natural Resources and Mining	100	100	100
Total Farm	10,600	10,200	10,300
Construction	8,900	7,700	7,300
Specialty Construction	4,800	5,100	5,200
Manufacturing	22,600	17,000	16,900
Durable Goods	11,200	7,000	7,200
Nondurable Goods	11,400	10,000	9,700
Food Manufacturing	6,800	6,100	5,800
Trade, Transportation and Utilities	32,000	52,500	48,600
Wholesale Trade	6,700	10,700	9,900
Retail Trade	19,300	26,000	25,000

Source: Employment Development Department, 2014

4.9.2 REGULATORY SETTING

Federal

Department of Transportation Act - Section 4(f)

The Department of Transportation Act of 1966, which was previously discussed in **Section 4.4, Biological Resources**, is set forth in Title 49 United States Code (USC). This law established that it is the policy of the

United States Government to make a special effort to preserve the natural beauty of the countryside and public parks and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation may approve a transportation program or project that requires the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance only if: a) There is no prudent and feasible alternative to using that land; and b) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

United States Environmental Protection Agency

The United States Environmental Protection Agency (USEPA) implements the National Environmental Policy Act (NEPA). NEPA provides information on expected environmental effects of federally funded projects. Impacts on land uses and conflicts with state, regional, or local plans and policies are among the considerations included in the regulations. The regulations also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

US Bureau of Land Management

The US Bureau of Land Management (BLM) manages large rural land areas, including land that is environmentally sensitive. The BLM governs uses that are allowed on land that it manages, striving to balance environmental protection and conservation goals with other uses, such as recreation and grazing.

US Forest Service

The US Forest Service (USFS) is responsible for the management and conservation of large areas of National Forest land. National forests are primarily managed for outdoor recreation uses (such as camping, hiking, fishing, hunting, skiing, and nature interpretation, among others) and for resource preservation by the USFS.

US Fish and Wildlife Service

The US Fish and Wildlife Service (USFWS) administers the Federal Endangered Species Act (FESA), which designates critical habitat for Endangered species. This enables USFWS to carry out its mission to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of people. Critical habitat areas cannot be disturbed without permission from the USFWS and other federal agencies, depending on land ownership. The USFWS also manages a system of land and waters

for the conservation of wildlife and associated ecosystems. These National Wildlife Refuges are primarily managed for the preservation and protection of unique or important resources and ecosystems.

US Army Corps of Engineers

The US Army Corps of Engineers (USACE) is responsible for administration of Section 404 of the Clean Water Act (CWA), which governs specified activities in waters of the United States, including wetlands. In this role, the USACE requires that permits be obtained for projects whose plans would place structures, including dredged or filled materials, within navigable waters or wetlands, or result in alteration of such areas.

State

California Environmental Quality Act

California Environmental Quality Act (CEQA) defines a significant impact on the environment as a substantial, or potentially substantial, adverse change in the physical conditions within the area affected by the project. Land use is a required impact assessment category under CEQA. CEQA documents generally evaluate land use in terms of compatibility with the existing land uses and consistency with local general plans and other local land use controls (zoning, specific plans, etc.).

California Department of Transportation (Caltrans)

Caltrans' jurisdiction includes the rights-of-way associated with state and interstate routes within California. Any work performed within a federal or state transportation corridor is subject to Caltrans regulations governing allowable actions and modifications to the right-of-way. Caltrans issues encroachment permits on land within their jurisdiction to ensure encroachment is compatible with the primary uses of the State Highway System, to ensure safety, and to protect the state's investment in the highway facility. The encroachment permit requirement applies to persons, corporations, cities, counties, utilities, and other government agencies.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CDF) reviews and approves plans for timber harvesting on private lands. In addition, the CDF plays a role in planning development in forested areas as a part of its responsibility for fighting wild land fires.

California Department of Parks and Recreation

The principal mission of the California Department of Parks and Recreation (CDPR) is to provide sites for a variety of recreational and outdoor activities to California residents and tourists. Natural resource management and protection is also a part of the mission of CDPR. Different park designations dictate the extent to which natural resources are a management priority; natural preserves, state parks, state reserves, and state wilderness designations are terms, which indicate that an area has outstanding natural features. The California Department of Parks and Recreation is a trustee agency that owns and operates all state parks and participates in land use planning affecting state parkland.

California Department of Conservation

In 1975, the Natural Resources Conservation Service began production of agricultural resource maps based on soil quality and land use. In 1982, the State of California created the Farmland Mapping and Monitoring Program within the California Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The California Department of Conservation also administers the Williamson Act for the conservation of farmland and other resource-oriented laws. The Williamson Act is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, offer tax incentives for agricultural land preservation by ensuring that land will be assessed for its agricultural productivity rather than its highest and best uses.

State Lands Commission

According to the State Lands Commission (SLC), when California was admitted to the Union, it acquired approximately 4 million acres of sovereign land underlying the state's navigable waterways, including the waters and underlying beds of rivers, lakes, streams, and sloughs. The SLC holds the lands subject to the Public Trust for commerce, navigation, fisheries, and open space preservation.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) is mandated to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. In particular, CDFW is required under the California Endangered Species Act, the California Native Plant Protection Act, the California Environmental Quality Act, and the Natural Community Conservation Planning Act to conserve species through listing, habitat acquisition and protection, review of local land use planning, multi-species conservation planning,

stewardship, recovery, research, and education. The CDFW protects Rare, Threatened and Endangered species by managing habitats in legally designated ecological preserves or wildlife areas.

Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional greenhouse gas (GHG) reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. The California Air Resources Board (CARB), in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

This law also extends the minimum period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Senate Bill 743

On September 27, 2013, Governor Brown signed Senate Bill (SB) 743. To further the state's commitment to the goals of SB 375 and AB 32, SB 743 adds Chapter 2.7, Modernization of Transportation Analysis for Transit-Oriented Infill Projects, to Division 13 (Section 21099) of the Public Resources Code. Key provisions of SB 743 include reforming aesthetics and parking CEQA analyses for urban infill projects and eliminating the measurement of auto delay, including Level of Service (LOS), as a metric that can be used for measuring traffic impacts in transit priority areas. SB 743 provides that, "aesthetics and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment." This means that, effective January 1, 2014, aesthetics and parking will no longer be considered in determining if a project has the potential to result in significant environmental effects provided a project meets all of the following three criteria:

a) The project is in a transit priority area

b) The project is on an infill site

c) The project is residential, mixed-use residential, or an employment center

Senate Bill 743 requires Office of Planning and Research (OPR) to develop revisions to the *State CEQA Guidelines* establishing criteria for determining the significance of transportation impacts of projects within transit priority areas that promote the "reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." It also allows OPR to develop alternative metrics outside of transit priority areas. The statute provides that, upon certification and adoption of the revised *State CEQA Guidelines* by the Secretary of the Natural Resources Agency, "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant" to CEQA. In other words, LOS generally shall not be used as a significance threshold under CEQA. Senate Bill 743 states that in developing alternative CEQA significance criteria for transportation, OPR can recommend potential metrics that include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. Senate Bill 743 requires OPR to circulate a draft of such criteria on or before July 1, 2014. These changes would need to be adopted by the Secretary of the Natural Resources Agency and are anticipated to be effective sometime in 2015.

The Regional Housing Needs Assessment

The Regional Housing Needs Assessment (RHNA) is mandated by State Housing Law as part of the periodic process of updating local housing elements of the General Plan. The RHNA quantifies the need for housing within each jurisdiction during specified planning periods. The 5th cycle RHNA Allocation Plan, which covers the planning period from October 2013 to October 2021 was adopted by the Regional Council on October 4, 2012. Fifth cycle housing element updates were adopted in October of 2013.

Communities use the RHNA in land use planning, prioritizing local resource allocation, and in deciding how to address identified existing and future housing needs resulting from population, employment, and household growth. The RHNA does not necessarily encourage or promote growth, but rather allows communities to anticipate growth, so that collectively the region and subregion can grow in ways that enhance quality of life, improve access to jobs, promotes transportation mobility, and addresses social equity, fair share housing needs.

Local

At the local levels, a number of agencies, including the Local Area Formation Commission, San Joaquin County Airport Land Use Commission, San Joaquin County Council of Governments, San Joaquin County, and the Cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy, all have a role in land use and planning throughout the County. The County and Cities typically serve as a lead agency with the discretionary approval authority.

Local Area Formation Commission

The San Joaquin Local Area Formation Commission (LAFCo) is a legislatively established commission responsible for coordinating logical and timely changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structure, and preparing a sphere of influence for each city and special district within each county. LAFCo is directed to see that services are provided efficiently and economically while agricultural and open-space lands are protected.

Zoning

The zoning code of the County and each incorporated community is the set of detailed requirements that implement the general plan land use designations and policies at the individual parcel level. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan, except in charter cities.

Specific and Community Plans

The County or the incorporated communities may also provide additional specificity in land use planning beyond that identified in their respective General Plans by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans, which are often referred to as "Master Planned Communities," provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Specific and community plans are required to be consistent with the city or county's general plan.

San Joaquin County Regional Blueprint Process

The primary purpose of San Joaquin County Regional Blueprint is to establish a coordinated long-range (year 2050) regional vision between transportation, land use, and the environment from an overall quality of life perspective.

As a vision, the Blueprint recognizes that economic, environmental, and social issues are interdependent and only integrated approaches will effect needed changes. The location of jobs, housing, and commerce affects the transportation system, the nature of the transportation system affects air quality, and air quality affects health outcomes.

Below are the three key products developed during the Blueprint process.

Regional Vision Statement

Creative community planning, combined with a shared regional vision, will result in a superior quality of life for all San Joaquin County residents, now and as we move forward. Sustainability in action as well as in vision will ensure this quality of life for future generations.

Guiding Principles

The San Joaquin County Regional Blueprint Guiding Principles were developed based, primarily, on citizen-identified visions, values, and aspirations for San Joaquin County from the Phase I workshops. In turn, the Blueprint Guiding Principles provided the foundation upon which the Phase II Blueprint Vision choices were built.

1. Sustainable Planning & Growth
2. Housing Choices
3. Transportation & Mobility Options
4. Farming & Agriculture
5. Preservation of the Environment
6. Economic Development
7. Education & Workforce Development
8. Cultural Richness & Unique Attractions

General Plans

California state law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (Government Code § 65300). The California Supreme Court has called the general plan the "constitution for future development." The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private.

The policies of the general plan are intended to underlie most land use decisions. Pursuant to state law, subdivisions, capital improvements, development agreements, and many other land use actions must be consistent with the adopted general plan. In counties and general law cities, zoning and specific plans are also required to conform to the general plan.

San Joaquin County and each of the incorporated Cities have adopted general plans that govern the land use decisions within their respective jurisdictions. The general plans include numerous goals, objectives, policies, and implementation measures that control land uses and population growth.

San Joaquin County General Plan

The San Joaquin County General Plan (2005) did not include any policies specific to land use.

City of Escalon General Plan

- Develop design review standards for structures, landscaping and related development to facilitate compatibility with surrounding uses and the overall character of the community.
- Gateways to Escalon and the downtown shall be designated and identified by well-designed, landscaped entrances to enhance access corridors. Land uses in the vicinity of Gateways should be of high quality design which reflects favorably on the image of the community.
- Emphasize pedestrian amenities in the downtown area including landscaped open space areas, street furniture, lighting and signage.
- Develop a Citywide tree and landscape master plan to delineate neighborhoods, master and specific plan areas.
- Develop scenic entryways (gateways) and roadway corridors into the City through special setback and landscape standards, entry signage open space and park development, and/or land use designations. These corridors shall also have enhanced landscape standards. Gateways and entryways to be considered should include:
- Gateways:
- North: Escalon Avenue/Mahon Avenue

- South: McHenry Avenue/Jones Avenue
- East: SR 120/Campbell
- West: SR 120/Brennan Avenue
- Give priority consideration to infill development of vacant and underutilized land within the City limits through expedited permit processing. Consideration shall be given to financially assisting such development through special infrastructure financing programs.
- Consider annexations which are consistent with the extension of public services and facilities and other City policies and plans. The City shall maintain at least a 10-year supply of zoned land in the City for all residential land use types, and a minimum five-year supply of "ready to go" zoned land served by infrastructure. Designate an adequate amount of residential land in the General Plan for a 30-year supply of single-family and multifamily land uses.
- In reviewing proposals for changes in land use to or from a residential land use, a fiscal/economic impact analysis shall be completed to ensure that the change is fiscally and economically beneficial to the City. The City shall also determine if the change will result in residential land use inventory that is insufficient to meet the City's Regional Housing Needs Allocation.
- Encourage the use of site development techniques which ensure that a good mix of housing types is provided through such methods as inclusion of duplexes on corner lots in low-density areas where they can be made to be compatible with surrounding development.
- Plan and coordinate residential development in close proximity to planned urban facilities and services such as schools, parks, sanitary sewer, water, storm drainage, circulation network, transportation facilities and commercial centers.
- Promote comprehensively planned and high quality building and site design for multi-family developments with the following criteria:
  - Exterior Elevations-Use design features such as offsets, balconies, projections, landscaping or similar elements to preclude large expanses of uninterrupted building surfaces.
  - Building, Parking, Walkway Separation-Provide privacy, light, air, and access to dwellings within the development by ensuring adequate distances among buildings, parking lots and driveways, and walkways.
  - Open Space, Landscaping, and Screening-Designate private open space exclusive of required setbacks, right-of-way, and easements within each development for the use of residents.
  - Open space, landscaping and screening should provide outdoor space for the residents and mitigate negative impacts related to land use compatibility between the development and adjacent land uses, noise, lighting, parking (screening and shading), on-site traffic circulation, and preservation of natural features.
  - Energy Efficiency-Encourage the following measures: 1) appropriate landscaping materials to provide shade in the summer and protection from the weather in winter; 2) eaves, canopies,

awnings, along south and west elevations; 3) secured bicycle storage areas with lock-up capabilities.

- Continue to encourage the distribution of low and moderate-income housing throughout the community and on smaller sites.

- Encourage development of housing for seniors and other special populations (i.e. developmentally disabled and physically handicapped). Locational criteria for these development proposals, at a minimum, should include proximity to health care, recreation/cultural, and/or commercial facilities; and, aesthetic quality of area, including noise impact compatibility, and open space.

- In order to avoid over concentration of multifamily dwelling units, they should be spread throughout the community, integrated as part of overall neighborhood planning, and be in concentrations consistent with Policy 22.

- Encourage planned unit developments according to the following criteria:

  - For mixed-use developments which include a Convenience Center or a Neighborhood Center, the minimum site area shall be 20 acres. Sites less than 20 acres may be considered upon recommendation of the Planning Commission.

  - Common usable open space, exclusive of right-of-way and required setbacks, shall be encouraged to the greatest extent possible for recreation and open space purposes.

  - Existing natural features shall be preserved and enhanced consistent with the Conservation, Open Space, Parks and Recreation Element.

  - Density shall not exceed the underlying zoning provisions. Density increases may be granted in accordance with the Zoning Ordinance such as density bonuses or for infill projects, or for affordable housing.

- Identify residential areas adjacent to roadways and other noise-sources. (i.e., railroads, airport, industry) which require setbacks and/or special soundproofing to reduce negative noise-related impacts, as identified in the Noise Element. Mitigation measures shall include the following:

  - The performance standards of the City's Noise Element.

  - Noise mitigation "packages" including the use of setbacks to ensure that the exterior noise levels at the closest building façade do not exceed 65 dB Ldn and interior noise exposure of 45 dB Ldn or below.

  - For multi-family development, site design techniques shall be used to reduce the need for supplemental noise mitigation requirements. Also, investigate the feasibility of requiring greater setbacks for multi-family residential development along arterials and collectors as an alternative to walls and fences.

- Develop design measures to buffer residential development from non-residential land uses. These measures should, at a minimum, include setbacks; roadways; community waterways, landscaping; and landforms such as berming, fences, and walls.

- Encourage higher density residential development near employment centers, commercial development, transit, and parks.

- Provide for the continued viability of existing single-family areas in the downtown of the community and encourage medium and high-density residential development in the central business district where such uses do not conflict with existing neighborhoods.

- Require special site development standards for proposed non-residential or more intensive land uses adjacent to established residential areas to minimize negative impacts on abutting properties.

- Estate Residential areas shall be designed to provide opportunities for residential dwellings or in conjunction with small-scale farming and animal husbandry or in a semi-rural setting. Estate Residential development (6 persons per acre - up to 2 dwelling units per gross acre) shall be directed to areas where:

  – 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;

  – Boundaries between dissimilar land uses (i.e., industrial to residential in the northwest and agriculture to residential in the southwest);

  – 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.

- One half-acre lot shall be allowed in the R-E zone through the approval of a conditional use permit if the City determines that the size or shape of the site limits the development of a standard size subdivision or the approval of 1/2-acre parcels would facilitate infill development.

- Continue to encourage comprehensively planned Low Density Residential development (up to 21 persons/acre - 2 to 10 dwelling units net acre). Developments in excess of 7 units per acre may be permitted through the PD process. Usage of duplex or halfplex units shall be encouraged to increase overall densities where they are made to be compatible with the overall residential development.

- Promote Medium Density Residential development (up to 40 persons per acre - 10 to 15 dwelling units per net acre) which typically consists of duplex, triplex and four-plex development for in-fill or new development at Local/Collector and/or Collector/Collector intersections to a maximum of 50 units in one contiguous development on sites ranging from 3.5 to 5 acres. Medium Density Residential developments on sites less than 3.5 acres at arterial/collector intersections may also be

considered. Medium density developments may be permitted on corner lots in single-family zones where they can be provided in conformance with Policy 18. Medium density residential developments may also be used in infill areas where they can be made to be consistent with adjacent properties through the PD process and contract zoning.

  - Locate High Density Residential development (up to 58 persons per acre - 15 to 29 dwelling units per net acre) throughout the City at arterial, collector and Data locations according to the following criteria:

  - Arterial intersections - 100-unit maximum on sites ranging from 3.5 to 5 acres.

  - Arterial/collector intersections - 75-unit maximum on sites ranging from 2 to 5 acres.

  - Mid-block arterials - 50-unit maximum on sites ranging from 1 to 3 acres.

  - Downtown - at in-fill locations, which do not jeopardize the viability of existing single-family areas.

  - High-density residential developments may also be used in in-fill areas where they can be made to be consistent with adjacent properties through the PD process and conditional zoning. Consistency and compatibility with adjacent properties shall be evaluated based on issues including but not limited to: adjacent zoning, adjacent land use, proposed building mass, and the adequacy of public facilities available to the site.

- Densities in excess of 20 units/acre will be reviewed on a case-by- case basis and may be approved through a the PD process where measurable community benefit is demonstrated and where infrastructure including mass transit facilities is available (or can be made available) to accommodate impacts of increased density.

- Future growth of the City shall conform to the Growth Management Ordinance of the City of Escalon. Residential building permits shall be limited as provided by the City's Growth Management Ordinance in effect.

- Ensure that future commercial development is concentrated in shopping districts and nodes to discourage expansion of new strip commercial development.

- It shall be a priority of the City to develop commercial land on the west and east sides of the community along SR 120.

- In order to accommodate modern shopping center formats, the depth of new commercial areas shall be at least 500 feet. The depth of existing commercial development along SR 120 and McHenry Avenue may be extended on a case-by-case basis if the extension increases the feasibility of commercial development and the proposed action will not create land use conflicts or reduce viability of adjacent residential properties.

- Encourage convenience commercial development in residential areas that serve the needs of the area and include site development standards which minimize negative impacts on adjacent properties.

- Development standards for the interface between commercial or office uses and residential uses shall be as follows:

  - A landscaped setback of at least ten feet wide containing deciduous and evergreen trees shall be planted and maintained along the property line between commercial or office uses and residential properties that have a common property line.

  - A masonry wall eight feet in height shall be erected along the property line where commercial and office uses have a common property line with residentially designated properties.

  - A masonry wall three and one-half feet in height or landscape berm shall be erected along the front setback line, parallel to, and ten feet from the local streets abutting planned residential uses.

  - A commercial loading and storage areas shall be screened from view of adjoining residential property by a combination of landscape planting and a masonry wall. Loading areas shall be enclosed and be located so that there are no noise impacts to adjacent residential properties. All storage shall be within an enclosed structure.

  - Roof-mounted and detached mechanical equipment shall be acoustically baffled to prevent noise from the equipment from exceeding 55dB (A) measured at the nearest residential property line.

- In order to encourage the integration of Neighborhood and Community Commercial uses into neighborhoods, designs should de-emphasize the usage of walls as buffers where they create barriers to pedestrian access. Continuous block walls shall be discouraged and offsets, landscaping pockets and openings shall be encouraged.

- In order to promote non-vehicular modes of transportation, and to limit the unnecessary usage of Collectors and Arterials for vehicular access, commercial development shall provide direct pedestrian and vehicular access to adjoining residential areas through Minor Collectors, Local Streets and/or through pedestrian access points.

- Designate Convenience Centers for personal and convenience goods and services for nearby residential areas. Such centers may be in new, in-fill, and/or consolidated existing strip commercial developments and at a scale which is compatible with surrounding residences. Special site design standards shall be imposed on these facilities including high quality architecture, landscaping, signage and lighting to ensure that they are aesthetically pleasing. Convenience Centers may be approved by a planned development permit on the corner of arterial/ collector intersections on sites of three acres or less, and at least at one-half mile away from neighborhood shopping centers. Where possible, such centers are to be developed as part of specific plans or master plans.

- Designate Neighborhood Centers for shopping centers with a major grocery store as an anchor and supporting businesses which serve one square mile residential area. Location shall be at one corner of arterial/arterial or arterial/collector intersections on sites of approximately 10 acres in area. Centers shall be located no closer than approximately one mile from other General Plan designated neighborhood centers, from existing Grocery stores, or from General Plan designated community centers. The center's scale and site design must be compatible with the surrounding residential area with an emphasis on access, circulation, parking, signage, noise, and landscaping. Where possible, these facilities should be planned and integrated into neighborhoods as part of a specific plan or master plan.

- Preserve and enhance the Central Business District (CBD) as the community's historic services center. Promote retail commercial, specialty retail, professional/administrative office, personal services, professional services, public and community facilities and urban residential uses.

- Visitor-serving commercial areas are to be promoted along the SR 120 corridor for tourists and travelers uses. Development in these areas shall be in compliance with the goals, policies and development standards of the Community Design Element to promote the SH 120 corridor as a scenic entrance to the community.

- Designate an Historic Preservation Conversion zone district to preserve distinctive structures and areas proposed for conversion in the Central Business District where adequate parking can be provided.

- Promote a mix of industrial uses that provide the City with a sound, diverse industrial base.

- Provide adequate land for a wide range of industrial uses. Heavy industrial uses (warehousing) and higher intensity uses not compatible with residential development should be located in the industrial area along McHenry Avenue and light industrial uses should be located in the industrial area north of SR 120. In order to increase the capture rate of industries in the community, such areas should be master planned to expedite processing of applications, and aggressively marketed (along with the industrial park) to targeted industries.

- Industrial development should not create significant off-site circulation, noise, dust, odor, visual, and hazardous materials impacts that cannot be adequately mitigated.

- Prepare a specific plan for the south industrial area to provide for an adequate mix of parcel sizes, identification of needed infrastructure, transportation routes and development of guidelines for future annexations.

- In order to achieve a high-quality natural environment, it shall be the policy of the City to encourage industries which demonstrate minimum air and water quality impacts and to discourage air and water quality impacts which cannot be offset.

- Update the water, wastewater and storm drainage master plans, and any other specific or master plans related to infrastructure development on a periodic basis.

- Annually monitor the need for law enforcement, fire and other emergency services personnel as the City grows.

- Continue to implement a recycling and source reduction program to promote recycling.

- Continue to plan and provide efficient public safety and leisure/cultural facilities and services for the community.

- In considering development proposals which have the potential to affect school capacity, the City shall refer such proposals to the Escalon Unified School District for review and comment to ensure that adequate school facilities are implemented to serve the proposed developments. Developers should mitigate impacts to schools in accordance School District plans.

- Provide for orderly outward expansion of new urban development that is contiguous with existing development, allows for the incremental expansion of infrastructure and public services, and minimizes impacts on the environment.

- When reviewing proposed changes to the land use map, circulation map, and/or zoning code, consider air quality and mobility.

- Preserve and enhance existing neighborhoods and commercial districts having transit and pedestrian-oriented designs.

- Encourage development of vacant and underutilized in-fill parcels, particularly those that support pedestrian and other alternative modes of transportation.

- Limit provision of public services to the incorporated city boundaries.

City of Lathrop General Plan

- Areas designated for industrial use are intended to take advantage of rail and freeway access.

- Areas designated for industrial use are to assure that there will be sufficient long-term availability of industrial land to expand the City's economic base and capability for meeting the on-going costs of public services required by the community. A slow pace of industrial development is not to be construed alone as justification for designating industrial land areas for another type of urban use unless such use would be of a regional commercial character.

- Industrial proposals should be located where possible within an industrial park designed for the accommodation of a community of industries that are compatible in terms of operational characteristics, aesthetic qualities, utility service requirements and street circulation.

- Industries are to be developed and operated in such manner as to avoid damage, destruction or degradation of the environment.

- A Specific Plan shall be prepared to guide and specify the distribution, location and extent of land uses for Sub-Plan Area #3. 4-A-23

- Development of Sub-Plan Area #3 shall be designed to promote the efficient use of the Stewart Tract while preserving important natural resources.

- The City shall promote patterns of development that facilitate the efficient and timely provision of urban infrastructure and services.

- The Specific Plan for Sub-Plan Area #3 shall identify the ranges of housing and population densities expected for the SPA's residential areas.[6]

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6 Sub-Plan Area #3 represents the largest remaining area in Lathrop that is available for future master planned development. The 5,794-acre Stewart Tract represents a unique opportunity to control phasing of a large-scale mixed use development designed to establish an integrated community environment west of Interstate 5.

- Residential development within Sub-Plan Area #3 shall provide a variety of housing types and a range of lot sizes throughout the Stewart Tract.

- Housing diversity within Sub-Plan Area #3 shall be encouraged through a mix of housing types and sizes, attractive design, innovation in site planning and design, and housing opportunities for a variety of income levels.

- The City shall promote residential project design within Sub-Plan Area #3 which reflects and considers natural features, noise exposure of residents, visibility of structures, circulation, access, and the relationship of the project to surrounding uses. Residential densities and lot patterns will be determined by these and other factors.

- Residential subdivisions within Sub-Plan Area #3 shall be designed to provide well-connected internal and external street and pedestrian systems.

- The City shall discourage the development of isolated, remote, and/or walled residential projects that do not contribute to the sense of community desired for Sub-Plan Area #3.**]**

- Generally, areas proposed for Lower Density Residential Development in Sub-Plan Area #3 should be located along the San Joaquin River and along Paradise Cut where lower density is compatible with these natural habitat areas. They would also be located in the western part of the Stewart Tract in proximity to golf course and other open space amenities. The Low Density housing environment will be given specific physical dimension as part of the Specific Plan for West Lathrop.

- Areas proposed for Higher Density in Sub-Plan Area #3 should be located within and nearby the town center, central canal or lake and employment center, as well as near convenience retail or other workplaces.

- An employment center on the Stewart Tract shall be developed at a minimum FAR of .25 and a maximum FAR of .5 (1 to 10 stories).

- An employment center shall be designed to support a variety of employment-generating, commercial uses, including, but not limited to R&D, office and administrative uses.

- Commercial development within Sub-Plan Area #3 shall be designed to encourage and facilitate pedestrian circulation within and between commercial sites and nearby residential areas.

- The City shall encourage development of a new town center within Sub-Plan Area #3 to provide a variety of goods and services to area residents.

- The City shall require minimal, or in some cases no, building setbacks for commercial and office uses in a town center within Sub-Plan Area #3.

- Mixed Use Commercial uses shall be developed at a minimum FAR of .5 and a maximum of (1 to10 stories). The higher densities and building heights may be considered as they provide special opportunities to combine mixed-use residential and commercial uses.

- The Mixed Use Commercial designation shall provide for the development of buildings and sites that contain a mix of uses, including the vertical integration of housing with retail, office, civic or other uses.

- Town Center Commercial development should be allowed in commercial areas where the residential component is compatible with the desired commercial function of the area.

- Public uses (e.g., day and senior care facilities, community meeting rooms, recreation facilities, police and fire stations, etc.) shall be integrated, as necessary, with other commercial and residential uses in areas designated for Mixed Use.

- The City shall encourage the location of new neighborhood commercial development within Sub-Plan Area #3 near residential neighborhoods, the town center, and/or major transportation corridors.

- New public and quasi-public facilities necessary for emergency response, health care, and other critical functions shall be located outside areas subject to natural or artificial hazards.

- Public facilities, such as wells, pumps, tanks, and yards, shall be located and designed so that noise, light, odors, and appearance do not adversely affect nearby land uses.

- Sub-Plan Area #3 should provide sufficient land area for school sites. In the alternative, the City may establish appropriate mechanisms for funding development of school facilities through the use of development fees.

- New parks and recreational facilities including, but not limited to, parks, plazas and ball fields, should be integrated with residential neighborhoods, as new residential development occurs within Sub-Plan Area #3.

- Water-oriented recreational development, such as marinas, boating areas, and parks shall be encouraged within residential neighborhoods and commercial areas along Stewart Tract waterways.

- Significant natural open space and cultural resources should be identified prior to development and incorporated into site-specific development project design.

- Development within Sub-Plan Area #3 should be planned and designed to avoid or minimize effects on areas rich in wildlife or of a fragile ecological nature (e.g., areas of rare or endangered plant and animal species, riparian areas). Alternatively, where avoidance is infeasible or where equal or greater ecological benefits can be obtained through off-site mitigation, the City shall allow project proponents to contribute to offsite mitigation efforts in lieu of on-site mitigation.

City of Lodi General Plan

- Create a balanced and sustainable land use pattern that provides for a diversity of uses and satisfies existing and future needs.

- Encourage development of downtown as a mixed-use activity center with a range of commercial, residential, and civic uses.

- Promote revitalization of key commercial spines of the community with focused, mixed-use development.

- Foster development of walkable new neighborhoods, with a mix of uses and diversity of housing types.

- Maintain land use patterns that maximize residents' access to parks, open space, and neighborhood shopping centers.

- Ensure the continued economic sustainability of the community and fiscal health of the City government.

- Strengthen the City's economic base and provide employment opportunities for residents to achieve a more balanced jobs housing ratio.

- Update the City's Zoning Ordinance and Subdivision Regulations contained in the Municipal Code for consistency with the General Plan, including the General Plan Diagram. Zoning changes that will need to be made include:

  - Establishment of new base districts, consistent with the land use classifications in the General Plan, such as for mixed-use centers, corridors and downtown; and

  - New development regulations that reflect policy direction contained throughout the General Plan (e.g. parking standards).

- Require sites designated for mixed-use development—downtown, corridors, and in new neighborhood centers—to be developed with a variety of residential and non-residential uses, in accordance with the General Plan designation.

- Do not allow development at less than the minimum density prescribed by each residential land use category, without rebalancing the overall plan to comply with the "no net loss provisions of state housing law."

- Maintain the highest development intensities downtown, and in mixed-use corridors and centers, with adequate transition to Low-Density Residential neighborhoods.

- Maintain a centralized economic development and land information system to continually monitor land use availability, ensuring sufficient land for appropriate use designations, development intensities and locations.

- Locate new medium- and high-density development adjacent to parks or other open space, in order to maximize residents' access to recreational uses; or adjacent to mixed-use centers or neighborhood commercial developments, to maximize access to services.

- Encourage new neighborhood commercial facilities and supermarkets in locations that maximize accessibility to all residential areas.

- Permit child-care centers in all districts except Industrial.

  - Regulations would also need to be in accordance with criteria for family day care homes established in Chapter 3.4 and Chapter 3.6, Division 2 of the California Health and Safety Code.

- Focus new business park growth in the southeast portion of the city and new industrial growth along the two railroad lines, as shown in the Land Use Diagram.

- Allow employee-serving amenities and services such as restaurants, cafés, dry cleaners, and other complementary uses in Business Park areas.

- Promote clustering of industrial uses into areas that have common needs and are compatible in order to maximize their efficiency. Work closely with industry contacts to identify specific needs to be addressed through development standards.

- Prioritize economic development activities on potential growth industries that are appropriate for Lodi, including retail and tourism, as well as office/industrial users in need of large parcels.

- Continue to publish a handbook and/or fact sheets of permitting procedures and fees for new and existing businesses.

- Partner with business and community groups to proactively pursue companies and industries and to implement economic development programs.

- Continue efforts to locate a hotel in conjunction with or in proximity to Hutchins Street Square.

- Promote downtown as the center of tourism, business, social, and civic life by directing high intensity office uses, government, and entertainment uses to locate downtown.

- Establish land use regulations and development standards in the Zoning Code to reinforce Downtown's assets and traditional development pattern. These should include:

  - Extending the Downtown Mixed Use classification to parcels along Main Street on the Eastside to improve connectivity, while retaining the respective identities of downtown and the Eastside.

  - Establishing maximum setbacks or build-to lines for development in areas designated Downtown Mixed Use.

  - Requiring retail, eating and drinking establishments, or other similar active uses—except for sites designated Public—at the ground level. Alleyway corners shall be "wrapped" with retail uses as well.

- Encourage medium- and high-density residential development in downtown by permitting residential uses at upper levels; and east and northwest of downtown, as depicted on the Land Use Diagram, by identifying vacant and underutilized sites that are appropriate for redevelopment.

- Maintain parking regulations for downtown that are lower than elsewhere in the city, reflecting its position as a pedestrian- and transit-friendly center.

- Expand the Downtown Parking District to include the Downtown Mixed Use area in order to consolidate parking areas. Require all development within these boundaries to either meet the

established off-street parking requirements or contribute an appropriate share to the Downtown Parking District.

- Allow an appropriate range of single uses or mixed-use development, with use requirements/ mixes as follows:

  – Kettleman Lane. Allow any mix of uses as permitted within the Mixed Use Corridor classification. Ensure that residential uses are sited at upper levels or, if at ground level, then not directly facing the highly trafficked Kettleman Lane.

  – Cherokee Lane. Require that any new development/redevelopment of sites with

- Mixed Use designation south of Tokay Street to devote at least one-quarter of the built-up area to commercial or business park uses, while allowing the full spectrum of single or mixed-uses permitted within the designation.

  – Lodi and Central avenues. Require any development or redevelopment of sites to have active uses—retail, restaurants, cafés, and personal service establishments— fronting the streets at the ground level. A range of compatible uses, such as residential or office, may be located at upper levels and in portions not fronting the streets.

- Promote infill development that maintains the scale and character of established neighborhoods.

- Establish bulk and Floor Area Ratio standards for older residential neighborhoods surrounding Downtown to preserve their character.

- Guide new residential development into compact neighborhoods with a defined Mixed-Use Center, including public open space, a school or other community facilities, and neighborhood commercial development.

- Require a centrally located Mixed-Use Center within each new residential neighborhood: one west of Lower Sacramento Road and two south of Harney Lane, as shown on the Land Use Diagram. Centers should serve as a focal point for the surrounding neighborhood, be pedestrian-oriented and encourage a mix of uses to serve local needs.

- Require a master or specific plan in areas with a Mixed-Use Center and adjacent complementary uses, as a condition of subdivision approval. Uses should include neighborhood commercial, civic and institutional uses, parks, plazas, and open space—consistent with Land Use Diagram (unless any of these uses are found infeasible and/or alternative locations are available to carry out mixed-use policies). Streets should adhere to the pattern depicted on the Land Use Diagram.

- Provide for a full range of housing types within new neighborhoods, including minimum requirements for small-lot single-family homes, townhouses, duplexes, triplexes, and multi-family housing.

City of Manteca General Plan

- To provide for orderly, well-planned, and balanced growth consistent with the limits imposed by the city's infrastructure and the city's ability to assimilate new development.

- Growth shall mitigate its own impacts and shall provide a positive benefit to the City of Manteca.
- Growth must contribute to a strong diversified economic base and an effective balance between employment and housing opportunities for all income levels.
- The City shall encourage a pattern of development that promotes the efficient and timely development of public services and facilities.
- The City shall encourage a development pattern that is contiguous with the boundary of the City.
- The City shall establish and maintain a Primary Urban Service Boundary line designating lands eligible for annexation and urban development prior to the year 2013
- The City shall establish and maintain a Secondary Urban Service Boundary line designating lands eligible for annexation and urban development beyond the year 2013. Lands outside the Primary Urban Service Boundary line, but within the Secondary Urban Service Boundary line, shall not be annexed to the City of Manteca prior to their inclusion within the Primary Urban Service Boundary line. Prior to 2013, the Primary Urban Service Boundary line may be amended through adoption of a specific plan, an area plan, or comparable planning process, or an amendment to the General Plan.
- All lands within the Primary and Secondary Urban Service Boundary lines to be ultimately developed to urban standards should be developed under the jurisdiction of the City of Manteca. Pending annexation to the City, all such lands should remain in agricultural, open space, or other low intensity uses. The City shall work cooperatively with the County to ensure that development approved by the County on unincorporated lands within the Primary and Secondary Urban Service Boundary lines is developed according to standards consistent with those of the City of Manteca. The City shall request all proposals for development on unincorporated lands within the Primary and Secondary Urban Service boundary lines be referred to the City for review and comment prior to formal consideration by the County.
- The City will review proposals for residential, commercial or industrial development in unincorporated areas within the General Plan Study Area. Urban development should occur within the City boundary.
- The City will consider applications for annexations that:
  - Are contiguous with city boundaries and provide for a logical expansion of the city;
  - Create clear and reasonable boundaries;
  - Ensure the provision of adequate municipal services;
  - Reflect a long-term fiscal balance to the city and its residents, when reviewed cumulatively with other annexations;
  - Are consistent with State law and San Joaquin County Local Agency Formation Commission standards; and
  - Are consistent with the General Plan.

- The City will consider expanding its sphere of influence to incorporate areas that logically should be planned and serviced by Manteca. The City shall consider the following factors when making determinations involving sphere of influence boundaries:
  - Present and planned land uses in the area;
  - Present and probable need for public facilities and services in the area;
  - Present capacity of public facilities and adequacy of public services; and
  - Existence of any social or economic communities of interest in the area.
- The City shall manage the rate and type of growth in Manteca according to a growth management program that provides for an annual allocation of residential, commercial and industrial development. The growth management program shall consider the capacities of City facilities and services, and the ability of the community to assimilate new development, and fluctuations in the balance of market demand for new housing and new job development.
- The City will encourage the use of specific plans as needed to ensure orderly, well-planned growth.
- The City may designate areas on the Land Use Map as Urban Reserve. Such areas are not planned for development prior to 2023, but are recognized by the City as areas of future growth that may be annexed to the City at the appropriate time.
- To provide adequate land in a range of densities to meet the housing needs of all income groups expected to reside in Manteca, and to regulate residential growth consistent with the capacities of City facilities and services and the ability of the community to assimilate new development.
- The City shall promote the development of a variety of housing types and prices to meet the needs of all households, including very low-, low-, and moderate-income households.
- Higher density housing shall be located in areas served by the full range of urban services, preferably along collector and arterial streets, and within walking distance of shopping areas.
- The City shall promote the preservation and integrity of existing stable residential neighborhoods.
- The City shall encourage neighborhood revitalization and improvement including replacement, renovation or conversion to alternative use of buildings in serious disrepair.
- The City shall seek funding to undertake neighborhood improvement programs designed to stabilize and enhance the quality of existing neighborhoods. Such improvement may include, but are not limited to sidewalk upgrade and repair, street tree programs, street lighting, signage, trash collectors, bus stop shelters and benches and similar improvements to the public areas.
- Provide adequate land for the development of commercial uses that provide goods and services to Manteca residents and Manteca's market area.
- The City shall promote and assist the maintenance and expansion of Manteca's commercial sector to meet the needs of both Manteca residents and those living within Manteca's market area.

- The City shall promote the establishment, maintenance and expansion of businesses in Manteca that generate high retail sales taxes as important contributors to the local economy.

- The City shall promote the downtown as a significant pedestrian oriented, commercial and financial center of Manteca and as the primary civic and cultural center.

- New commercial development serving citywide and regional shopping needs shall be located along major arterial streets.

- New visitor-serving commercial development shall be located in areas with easy access to freeway interchanges.

- New commercial development shall be designed to avoid the appearance of strip development.

- The City and Redevelopment Agency will continue to support the downtown merchants in the improvement of facades, promotion of downtown and the solution of problems specific to downtown.

- Redevelopment incentives shall be used judiciously to promote and assist commercial development and revitalization in approved Project Areas and in areas benefiting the approved Project Areas.

- The City shall monitor commercial development to balance growth in residential, commercial and industrial development.

- The City shall monitor revenues relative to new growth to ensure that projected cumulative revenue of all land uses in the City would be sufficient to support public service costs.

- The City shall support and encourage small business development and retention through providing appropriately zoned land and through such programs to reduce development and operations costs as may be available to the City.

- Provide for land uses that expand employment, education, recreation and cultural opportunities for residents and enhance Manteca as the commercial and service center for southern San Joaquin County.

- The City shall promote, cooperate in, and assist in the maintenance and expansion of Manteca's industrial sector employment development within the City of Manteca and in the south San Joaquin County area that will help reduce the home-to-work commute distance for Manteca residents.

- New employment centers that may include office, business professional, research and development, and light industrial or industrial development and shall be located in areas served by full City services or served by suitable facilities approved by the City. Employment centers should be located along major arterials with easy freeway access and with access from public transit, and accessible to bicyclists and pedestrians.

- The City shall continue to support full development of its existing industrial park.

- The City shall promote the development of "clean" industries that do not create problems or pose health risks associated with water and air pollution or potential leaks or spills. However, the City will designate appropriate locations that accommodate light industrial and heavy industrial uses.

- Redevelopment incentives shall be used judiciously to promote industrial employment development in approved Project Areas and for projects benefiting approved Project Areas.

- The City shall monitor employment development to maintain the balance of residential, commercial, and industrial development.

- The City shall promote and plan for at least one Primary Employment Center to accommodate a variety of employment opportunities compatible with the employment skills of the Manteca

- To provide adequate land for development of public and quasi-public uses to support existing and new residential, commercial, and industrial land uses.

- The City shall designate adequate land, appropriately located for City, County, and School District facilities.

- The City shall designate adequate land, appropriately located for quasi-public uses such as hospitals, churches, private school facilities and utility uses.

- In determining appropriate locations for public and quasi-public uses, the City shall consider, among other things, proximity to major streets, the cost to develop access to public facilities, and the safety of pedestrians and motorists.

- Development shall be managed to ensure that adequate public facilities and services, as defined in the Public Services and Facilities Element, are planned and provided.

- Provide open space as a framework for the city, and meet the active and passive recreational needs of the community.

- The City shall encourage the continuation of agricultural uses on lands within the Primary and Secondary Urban Services Boundary lines pending their development as urban uses consistent with the General Plan.

- The City will encourage the continuation of small, specialty agricultural operations and demonstration or educational agricultural operations that are compatible with the adjacent urban uses.

- The City shall promote the provision of both public and private open space within urbanized Manteca to provide visual contrast with the built-environment and to provide for the recreational needs of Manteca residents. Private open space shall not be considered for public use, other than as visual open space, and shall not be constrained from other uses as identified in the General Plan, unless as provided for by agreement with the land owner.

- The City shall develop an Open Space Master Plan that is consistent with the General Plan, the Bicycle Master Plan and Recreation Master Plan. The Open Space Master Plan should address the potential linkages between public plazas, promenades, parks, utility easements suitable for public

access, landscape areas, nature preserves, open drainages, parks and similar public lands and right-of- ways that provide open space. The Open Space Master Plan may also identify future extensions of pedestrian and bikeway corridors, natural features, and nature preserve areas that may be suitable for acquisition by the City as public land or other agency to be held as public land in or in a public trust.

- The City shall encourage commercial recreation uses at the Oakwood Lake Resort, and on other appropriate lands within the City.

- Reinforce land use and development patterns that encourage walking and the use of public transit within the community.

- The City shall allow for higher density housing opportunities along major streets so as to provide residents with access to the public transit system.

- The City shall develop and apply standards for pedestrian circulation that enable residents to select a reasonably direct and safe pedestrian route to schools, parks, transit stops and commercial services.

- Storm drainage systems within new development areas should include open drainage corridors, where feasible, that would provide bike and pedestrian paths, and visual open space within neighborhoods. The pedestrian connection should link parks and open space to residential neighborhoods.

- To reinforce strong urban design, quality development and a compact city form.

- The City shall give priority to in-fill development and new development contiguous to existing developed areas, whenever practical.

- The City shall encourage and direct growth that supports the downtown as the geographic, civic, cultural, and economic center of Manteca.

- New residential land uses (developments with no less than 5 units) within the Stockton Metro Airport Area of Influence must have an avigation easement recorded in favor of the airport. The Deed of Avigation and Hazard Easement must be filed with the County Recorder prior to development construction.

  - Occupied structures must be soundproofed to reduce interior noise to 45 dB.

  - Reflective materials are not permitted to be used in structures or signs to avoid distracting pilots.

  - All proposed acquisitions of property within a 2-mile radius of an airport runway for the purpose of constructing a school requires a review and approval by the State Department of Transportation, Division of Aeronautics.

  - No transmission which would interfere with aircraft communications or navigation are permitted. Power lines must be under grounded if necessary to prevent hazard to aircraft.

- The City of Manteca shall refer all applications for development within the Stockton Metro Airport Area of Influence to the Airport Land Use Commission, and the Stockton Metro Airport.

- The City of Manteca shall cooperate with City of Ripon in implementing the principle points of the Memorandum of Understanding regarding future land use and public services and facilities in the area between the two cities.

- The City of Manteca shall cooperate with City of Ripon in identifying a suitable location for an interchange at Highway 99 connecting to major roads in Ripon and Manteca.

- The City shall maintain a growth management system that provides a mechanism for the annual allocation of the amount of residential, commercial, and industrial development that may occur. The growth management system shall have the following objectives:

  - Maintain, and where necessary enhance, the community's current public services and facilities;

  - Protect against the construction of development projects which will require sewage treatment capacity in excess of that determined available by the City Council;

  - Preserve and protect the environment;

  - Preserve and protect the quality of life and character of the community.

  - Provide for the orderly and adequate expansion of the City's housing stock in order to advance housing opportunities and to accommodate a reasonable share of expected regional growth.

  - Provide for the adequate and orderly expansion of the City's commercial and employment development base in balance with the city's housing stock;

  - Provide for a balance between multi-family and single family residential development;

  - Conserve viable agricultural and open space lands; and

  - Encourage and facilitate development proposals that accomplish the goals, policies, and programs of the General Plan through development innovations that cannot be accomplished by conventional zoning.

- The growth management system shall consist of the following features:

  - Establishment of the maximum number and types of residential dwelling units and the acres or square feet of commercial, industrial, and public facility projects that may be approved for a subsequent period, as determined by the City Council based on the following considerations:

    i. The goals, policies, and programs of the General Plan including the Housing Element goals, objectives, and programs for affordable housing, housing mix, and jobs/housing balance.

    ii. The number of projects previously approved but not developed, including exempt projects.

    iii. The general availability of existing and projected public utilities, facilities, and services. The City shall establish and maintain a geographic information system (GIS) that is common to all departments to provide a base for data collection and management relative to city growth and provision of public services and infrastructure maintenance and expansion.

iv. The specific availability of sewage capacity

v. The development review report to be drafted by the Staff and/or Growth Management Committee in order to assist the City Council in their growth management determinations. The City Manager shall address the status of public services in the annual budget report. This report should document growth trends the capacity and level of service for public services and facility planning efforts. The City Manager shall address land use in the annual budget report. This report will document the growth in residential and commercial development and estimate the increase in employment in the City over the previous year.

The land use summary shall include a reference to the range of land use projected for future needs in the Land Use Element and determine the then current and five-year projection of land use in the City.

vi. Comments received at public hearings held in conjunction with the annual growth determinations. In a public hearing process, the City shall establish guidelines and procedures for periodic monitoring and evaluation of the growth in the City budget, the number of dwelling units, growth in sales tax revenue and other factors that affect the fiscal stability and health of the City. The intent is to maintain balance

- Exemptions of certain small residential projects and specific plans, vested subdivision maps, income-restricted residential developments, and other projects subject to a development agreement that are exempt from the annual allocations.

- A competitive rating system for evaluating and approving developments. Such rating system shall at a minimum include the following general categories of criteria:

  i. Availability of or contribution toward public utilities, facilities, and services.

  ii. Location factors (in-fill/redevelopment area).

  iii. Response to housing needs specified in the Housing Element.

  iv. Environmental impacts.

  v. Traffic impacts.

  vi. Employment impacts.

  vii. Contribution to tax base.

  viii. Other community benefits.

- The City shall monitor implementation of the growth management system and new commercial and industrial development so that General Plan objectives for a balanced community are achieved.

- The City shall request the San Joaquin County LAFCo to adopt a sphere of influence for Manteca based on the long-term growth plans of the City as reflected in the General Plan goals and policies and proposed land use.

- The City shall review and revise, as necessary, the Zoning Ordinance to accomplish the following purposes:
  - Ensure consistency with the General Plan in terms of zoning districts and development standards;
  - Ensure consistency with the General Plan in terms of the distribution and boundaries of zoning districts;
  - Establish a Central Business District Zoning District;
  - Provide for density bonuses for projects that reserve units for low- and/or moderate-income households.
  - Provide for a mixed-use zone that permits residential, commercial, office, business-professional and commercial recreation subject to a use permit.
  - Provide for an accelerated project review and entitlement process for commercial, office, business-professional, research and development, industrial and light industrial uses.
- The City shall maintain a Main Street program to promote economic development in the downtown area.
- The City will continue to cooperate with planning efforts among local jurisdictions to minimize the impacts of growth to Manteca and in the south San Joaquin County area.

City of Ripon General Plan

- A balance between jobs, housing, educational, and recreational opportunities.
- Designate adequate land to meet residential, commercial, and industrial development needs.
- Designate adequate land intended for public and quasi-public uses to support existing and new residential, commercial, and industrial development.
- Urban development should be kept as contiguous as possible to avoid premature urbanization of valuable farmland, promote resident convenience, and provide for economy in city services.
- Preserve natural resource areas while providing open space to meet recreation needs.
- The city may require that development occurring on newly annexed lands are done as a planned unit development or that a specific plan be prepared.
- The city may require execution of an annexation agreement before the annexation of any land to the city.

- The City may require the execution of a Development Agreement for any commercial or industrial development or residential development of ten or more units.
- The City will annex enough residentially designated land to provide for a projected residential growth rate in the 3% - 6% range for the urban planning period. At its discretion the City Council will annually review development activities and determine the rate of growth to be followed during a specified period.
- The City will annex sufficient land designated for job generating uses to provide for a projected ratio of at least two jobs per household.
- The City will ensure that proposed development within newly annexed territory will not be a fiscal burden. Development project applications may be required to include a financial analysis of the projects impact on the City.
- Development within the Stanislaus River floodplain and residential development within the sewer buffer from the wastewater treatment ponds will be prohibited by the City.
- Nonresidential uses, large group care facilities, small shelters, and mobile home parks in residential districts should be on major streets because of increased traffic and noise.
- Assure economic viability of the community by retaining and renewing existing commercial and industrial uses and designating sufficient new commercial and industrial areas to meet future city needs.
- Create job generating development corridors at strategic locations.
- Encourage diversified industry and other job generating uses in the City.
- Ensure that land use proposals can fund services.
- Encourage businesses and professional uses in the commercial centers.
- Encourage a prosperous and vibrant downtown.
- Create both a physical and financial environment that enhances the desirability to locate certain new businesses in the downtown area
- Encourage expansion and/or retention of established businesses.
- Ensure that new businesses in the downtown area are carefully integrated into the surrounding area.
- Provide adequate public services to serve the community.
- Require residential and commercial development to connect to city water, non-potable water, wastewater Treatment and storm drainage systems.

- Industrial, mixed use and highway service development may install on site water, non-potable water, wastewater treatment and storm drainage systems if approved by the City Engineer and City Council.

- Adopt, and update as required, City fee ordinance, which reflects current estimates of public facilities costs and the allocation of those costs to future urban development.

- Subdivision projects shall be referred to utility agencies for comment. Easements necessary to provide service to the project shall be dedicated on the final map or parcel map.

- Subdivision projects shall be referred to the Ripon Unified School District and Ripon Consolidated Fire District for comment.

- The City shall require, to the extent possible, that new school facilities, fire facilities, and police facilities are constructed concurrently with new residential development.

- The City shall ensure that new development provides necessary infrastructure to develop residential projects that will meet the needs of the community, including schools, irrigation and drainage facilities and water wells.

City of Stockton General Plan

- To ensure that Stockton's future growth will proceed in an orderly manner, encourage and provide incentives for infill development, prevent urban sprawl, and promote the efficient and equitable provision of public services.

- The City shall utilize and maintain the Land Use Diagram to designate the location and extent of each land use designation within the Planning Area (Figure 3-1).

- The City shall designate an Urban Service Area boundary beyond the existing City limits within which City services and facilities will be available for extension upon annexation and where future urban development shall be in conformance with City Council adopted master utility and circulation plans.

- The City shall expand the Urban Service Area Boundary only when applicable General Plan policies can be met and appropriate services and efficient infrastructure can be provided.

- The City shall designate all lands outside the Urban Service Area boundary as Agriculture/Open Space (with the exception of the Wright/Elwood Tract).

- Future urban development within the Planning Area should occur under the jurisdiction of the City. To this end, the City shall require that vacant unincorporated properties be annexed into the City prior to the provision of any City services, or that a conditional service agreement be executed agreeing to annex when deemed appropriate by the City.

- The City shall regulate the levels of building intensity and population density according to the standards and land use designations set out in the Land Use Element and the City's Development Code.

- The City shall continue to apply the regulations and procedures of the Development Code and shall use the environmental process to prevent or mitigate land use conflicts.

- The City shall encourage San Joaquin County to honor the City's Urban Service Area policies and to approve no development within the City's Planning Area that is inconsistent with the City's General Plan.

- The City shall work with San Joaquin County and surrounding cities to develop a uniform land use policy for the lands within and adjacent to the city so no inconsistencies will arise should these areas eventually be annexed to the City.

- The City shall participate in the San Joaquin Council of Governments' regional planning programs and shall coordinate City plans and programs with those of the Council of Government.

- The City shall limit urban growth in areas with hazardous nuisance conditions such as noise, flooding or unstable soils if such conditions cannot be adequately mitigated.

- The City shall strive to minimize the commuting distances between residential concentrations and employment centers by encouraging infill development and a mix of residential densities.

- The City shall phase growth based on the availability of adequate water supplies, market forces, infrastructure financing capacity, and the timing of the design, approval, and construction of water supply and transportation facilities and other infrastructure.

- The City shall annually review the General Plan in order to monitor its implementation.

- The City shall conduct a major review of the General Plan, including the General Plan Policy Document and Background Report, every five years from the date of final approval of this General Plan and shall revise it as deemed necessary.

- The City shall not approve new development beyond the amount of development assumed in the final EIR for the Stockton General Plan 2035 without re-evaluating the General Plan and conducting appropriate environmental analysis.

- To promote a variety of housing types and densities throughout the City that address the housing needs of various age and socio-economic groups.

- The City shall strive to maintain a ratio of 70 percent single family and 30 percent multifamily residential uses in the overall housing stock.

- The City shall encourage higher residential densities at appropriate infill locations through the design flexibility made possible by the Planned Development provisions of the Development Code.

- The City shall encourage the development of senior housing in areas that are accessible to public transportation, near commercial services, and health and community facilities.

- The City shall provide for open space in residential development in either private yards or common areas to partially meet the residents' recreational needs.

- The City shall encourage the use of planned development provisions in residential development to provide flexibility, to meet various socioeconomic needs, and to address environmental and site design constraints.

- The City shall review proposed rezonings that would increase density in existing residential areas considering such factors as: neighborhood character and identity; compatibility of land use; impact on services and facilities (including schools); and impact on streets and highways.

- The City shall protect existing residential neighborhoods from the encroachment of incompatible activities and land uses (i.e., traffic, noise) and environmental hazards (i.e., flood, soil instability).

- The City shall approve proposals to convert residential properties along major streets to office or commercial uses only when there already is a substantial non-residential character to the area, the proposal is compatible with the surrounding land use, and adequate off-street parking can be provided.

- The City shall designate new residential developments in areas that will not create conflicts with existing or planned industrial or intensive commercial uses.

- To encourage commercial and mixed use commercial/housing development at locations that provide convenient neighborhood retail and services to existing and new housing areas, and that maximize regional shopping opportunities where their economic viability can be sustained.

- The City shall encourage the upgrading, beautification, revitalization, and appropriate reuse of existing commercial areas and shopping centers.

- The City shall maximize development opportunities within the City/County locally designated Enterprise Zone.

- The City shall encourage the compatible integration of commercial and new residential uses. Existing residential areas shall be integrated with new commercial uses through the provisions of the Development Code.

- The City shall require commercial projects to provide frontage roads and/or access controls to reduce traffic congestion.

- The City shall require that new commercial development incorporate landscaping and good design in accordance with Citywide Design Guidelines.

- The City shall discourage the creation of new strip commercial areas along arterial streets to reduce

- traffic congestion and to enhance the visual appearance of the city.

- The City shall require that signage in commercial development complement rather than detract from the visual quality of the commercial development and surrounding neighborhood.

- The City shall encourage small neighborhood serving commercial uses adjacent to and within residential areas where such uses are compatible with the surrounding area and mitigate any significant impacts (i.e., traffic, noise, lighting).

- The City shall encourage the redevelopment and conversion of distressed commercial strips into housing and mixed-use areas.

- The City shall encourage the clustering of commercial uses and discourage the splitting of commercial clusters or centers by arterial roadways.

- The City shall authorize developments in the Mixed Use designation subject to approval of a Master Development Plan and rezoning the area to a MX zoning district. Land uses proposed for a mixed use development in the Mixed Use designation shall support each other by providing an integrated

- Master Development Plan that may include one or more industries, services, offices, retail uses, with residential uses for the common needs of the occupants and users of the mixed use development.

- To encourage, facilitate, and assist the location of new industry, and the expansion of existing industry.

- The City shall encourage industrial activities to locate where municipal services are available including adequate sanitary, storm drainage and water facilities as well as easy access to multiple modes of transportation.

- The City shall encourage the clustering of industrial uses into areas that have common needs and are compatible in order to maximize their efficiency.

- The City shall support the assembly of land for new industrial growth where the fragmentation of parcels and/or the limited size of existing parcels act as a deterrent to new industrial development.

- The City shall discourage industrial development in locations where access conflicts with neighboring land uses.

- The City shall ensure an adequate separation between sensitive land uses (residential, educational, healthcare) and industrial land uses to minimize land use incompatibility associated noise, odors, and air pollutant emissions from industrial uses.

- The City shall require that industrial development incorporate landscaping and good design in accordance with Citywide Design Guidelines.

- The City shall guide industrial uses near the Stockton Metropolitan Airport and the Port of Stockton by the policies of the Airport Land Use Commission and the Port of Stockton Master Development Plan, respectively.

City of Tracy General Plan

- New development and redevelopment in existing areas shall be organized as a series of residential Neighborhoods, Employment Areas, Corridors, Village Centers, the Downtown and the I-205 Regional Commercial Area. Each is defined as follows:

  – Neighborhoods are residential areas of the city that are approximately ½ mile in diameter and centered on a focal point such as a park, school or public open space.

  – Employment Areas are the job-centers of the city and include office districts, retail centers and industrial areas.

  - The Downtown provides a focal point of community life in the City and contains a mix of uses including commercial, residential, public facilities and community services.

  - Village Centers are retail areas that may contain a mix of uses, such as housing and office uses. These areas serve several neighborhoods and are designed to be walkable, main-streets.

  - Corridors refer to several arterial streets, each with a mix of uses.

  - The I-205 Regional Commercial Area is a special district north of I-205 that contains big-box retail, automobile sales establishments and a large, regional shopping mall.

- The City shall maintain a Sphere of Influence that is consistent with the long-term land use vision in this General Plan.

- The proposed general distribution and general location and extent of land uses throughout the City and Sphere of Influence, including Specific Plan and PUD areas is shown on Figure 2-2.

- The Urban Reserve designation shall be applied to relatively large, contiguous geographic areas where comprehensive planning is expected to occur.

- P2. The City shall periodically review and modify Urban Reserve areas as needed to ensure an adequate, long-term supply of developable land and balance land uses. The first applicant for development in each Urban Reserve shall be responsible for preparing a General Plan amendment and a Specific Plan or Planning Unit Development (PUD) for the entire area.

- Schools and parks should be located and designed to serve as focal points of neighborhood and community life and should be distributed in response to user populations.

- Schools and parks should be accessible by automobile and bicycle and within walking distance from residential areas.

- Schools and parks should have full frontage on at least two streets.

- Where possible, schools should locate and be planned together with other public facilities, such as parks and community centers, to increase the availability and decrease the costs of public facilities.

- Projects that provide lands for private open spaces, parks, community service facilities, such as places of worship and daycare facilities, and public facilities shall be allowed to transfer density to other portions of the site.

- The City shall use guidelines for residential growth detailed in the Growth Management Ordinance.

- The City shall prioritize the allocation of Residential Growth Allotments (RGAs) for new residential development to meet the goals of the General Plan including, but not limited to, concentrated growth, infill development, affordable housing, senior housing, and development with a mix of residential densities and housing types, as a high priority.

- The City shall encourage residential growth that follows an orderly pattern with initial expansion targeted for areas shown in Figure 2-3. Applications for residential development shall only be considered in the following instances:

  – In areas designated within Figure 2-3

  – In areas and Urban Reserves that primarily contain land uses focused on the generation of jobs with ancillary residential development. However, the residential portions of such areas or Urban Reserves shall not be considered eligible to apply for RGAs until RGAs necessary to develop all areas within Figure 2-3 have been awarded, unless those RGAs sought for projects in such areas are for affordable housing as defined by the Tracy Municipal Code, in which cases RGAs for affordable housing may be awarded.

- The City shall continue to make available RGAs for infill development as a high priority.

- New development shall not be approved unless there is infrastructure in place or planned to support the growth.

- Development with a vertical mix of uses, such as residential or office above retail is encouraged within ¼ mile of existing and proposed transit stations.

- The Bowtie shall include high-density residential development in close proximity to the multi-modal station.

- A new, mixed-use, high-density Village Center should be developed in Urban Reserves 10 and 11 along the Union Pacific Railroad.

- The City's priorities for future growth, in order of priority are job-generating development, diversification of housing types and continued growth of the retail base.

- Regional-scale retail development, such as shopping malls, big-box retail and auto sales, shall be primarily located in the I-205 Regional Commercial Area.

- New neighborhood-serving retail and service commercial uses, such as supermarkets, dry cleaners, coffee shops, banks and drug stores, shall be located in Village Centers and the Downtown and be designed to meet the principles presented in the Community Character Element.

- New restaurants and specialty retail shall be encouraged to locate in the Downtown.

- The Northeast Industrial Area should contain a mix of heavy industrial, light industrial, warehouse, and distribution users to maximize rail and highway access on large parcels of land.

- The Industrial Areas Specific Plan south of Valpico Road and east of Tracy Boulevard should focus on flex office uses since the area is in close proximity to existing residential areas. Examples of office/flex uses include research and development centers, office, institutional, day care facilities, places of worship and minimal impact industrial uses.

- Consistent with goals in the Economic Development Element, office-flex uses or higher-quality space should be located in areas at entryways to the city such as in Tracy Gateway, Cordes Ranch, and the Tracy Hills Specific Plan area along I-205 and I-580.
- Large-scale office buildings shall be encouraged to locate in the Tracy Gateway area.
- Small-scale office uses should be located in the following areas:
  - Tracy Boulevard south of Valpico Road
  - The Downtown, with the exception of the ground floor of buildings on Tenth Street between B Street and D Street and on Central Avenue between Sixth Street and Eleventh Street.
  - Identified mixed-use corridors, such as Eleventh Street, Tracy Boulevard and Grant Line Road.
  - Village Centers.
- Medical offices should be located in Gateway, near the intersection of Grant Line Road and Corral Hollow Road, in the vicinity of the Sutter Tracy Hospital and in Tracy Hills.
- The City should support the development of a range of cultural and arts facilities throughout the City, such as museums, performing arts centers and art exhibition spaces.
- The City shall support the efforts of non-profit organizations and the private sector that are working to increase cultural arts facilities and events in Tracy.
- Residential neighborhoods should contain a mix of housing types including single family homes on a range of lot sizes; townhomes; duplexes, triplexes and fourplexes; and apartments.
- Second units on individual parcels shall be allowed and encouraged in existing and new neighborhoods.
- Within the range of allowable residential densities, intensities and uses, the City shall determine the most appropriate density, intensity, or use for any individual site. Consideration may include, but is not limited to: quality of design; implementation of the General Plan Housing Element; mitigation of potential adverse impacts such as noise and traffic; compatibility with the character, circulation system, and general improvements of adjacent neighborhoods; and the shape, configuration and natural character of the site.
- Commercial uses that provide goods and services to support daily life should be located within walking distance to as many neighborhoods as possible.
- Direct, pedestrian connections shall be created between residential areas and nearby commercial areas.
- New neighborhoods shall be designed to incorporate neighborhood parks and other gathering spaces into developments.

- Home occupations shall be restricted to those with negligible impacts on the surrounding residential uses.

- The City shall pursue additional "anchors" that generate significant new visitations to the downtown.

- Cultural uses should be concentrated in the Downtown, including museums, theaters, art galleries, and regional festivals such as the Dry Bean Festival.

- New residential development or redevelopment of existing residential shall be allowed and encouraged in or around the Downtown.

- Specialty retail and restaurants shall be encouraged to locate in the Downtown.

- Downtown parking shall be expanded and remain convenient.

- City government and quasi-public uses are encouraged to establish or retain locations in the Downtown or in close proximity to the Downtown.

- The Downtown Urban Design and Specific Plan shall include an analysis of grouping of uses and key locations for desirable uses so as to continue to foster the Downtown "walk, shop, eat" atmosphere as the heart of the City. Such an analysis should include provisions on where office uses are most desirable, and where they should be considered for land use limitations.

- New industrial or mining uses shall be designed to not adversely impact adjacent uses, particularly residential neighborhoods, with respect to, but not limited to, noise, dust and vibration, water quality, air quality, agricultural resources and biological resources.

- All proposed development shall comply with existing applicable County and State waste management plans and standards.

- Use of berms, landscaped buffer zones, soundwalls, and other similar measures between quarrying operations and noise-sensitive adjacent uses is encouraged to ensure consistency with standards established in City's Noise Element of the General Plan.

- Uses that are compatible with the noise, air quality and traffic impacts associated with freeways, such as auto oriented commercial and industrial uses, should be located near and along freeway corridors whenever possible.

- Adequate environmental protection and mitigation shall be provided for uses that are less compatible with development near and along freeway corridors.

- New development and expansion of existing development shall conform to the safety and development restrictions in the San Joaquin County Airport Land Use Plan.

- All developers and landowners within San Joaquin County Airport Land Use Plan influence area shall be required to file avigation agreements.

- The City shall provide opportunities for individuals, organizations and neighborhood associations to participate in the planning process.
- Sponsors of new development projects should have early and frequent communication with affected citizens and stakeholders.
- The City shall not support development within the Sphere of Influence until it is annexed.
- The City shall not make new commitments to provide water and wastewater services to areas outside the City limit unless such commitment is accomplished by a pre annexation agreement and approved by LAFCO if required.
- The City shall support existing San Joaquin County land use designations in the Planning Area and discourage changes that result in increased urbanization.
- The City shall encourage the County to preserve significant agricultural lands outside of Tracy's Sphere of Influence.

4.9.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed RTP (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) would result in significant impacts to population and land use, if any of the following would occur:

- 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 plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Physically divide an established community;
- Incompatibility with adjacent land uses, including impacts to sensitive receptors.
- Induce substantial population growth to areas of the region.
- Require the acquisition of right-of-ways that would displace a substantial number of existing businesses or homes.

Methodology

The analysis assesses the potential impacts to existing land uses, population, and housing resources that could result from implementation of the proposed RTP/SCS. For each potential impact, implementation of the proposed RTP/SCS is analyzed at the regional level. Impacts are assessed in terms of both land use

and transportation impacts. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions.

Comparison with the No Project Alternative

The analysis of land use, population, and housing resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of land use impacts compares the existing conditions to future (2040) conditions, as required in CEQA Section 15126.2(a).

The 2014 RTP/SCS consists of a combination of transportation policies, objectives, investments, and, in accordance with the requirements of SB 375, an SCS, see **Section 3.0, Project Description**, of this Program EIR for the Plan's goals, policies transportation investments, and SCS. In addition, project growth forecasts were developed for the Plan and a range of alternatives (see **Section 6.0, Alternatives**). For each alternative, differing sets of policies, objectives, and investments were applied. Alternative growth forecasts vary in their reliance on local input trend data and existing General Plans. The growth forecast for the No Project Alternative relies exclusively on trend data adjusted to reflect 2014 RTP growth totals. The No Project Alternative indicates the land use pattern that could be expected without implementation of the 2014 RTP. The 2040 population, households, and employment growth projections for the Plan and No Project Alternative (and other alternatives) are held constant at the regional level but differ from one another in land use patterns. Changes in investments and policies would shift the land use patterns as a function of changes in mobility and land use decisions.

One of the most important goals of the 2014 RTP/SCS is to achieve SB 375 targets as established by Air Resources Board (ARB). SJCOG has made certain land use assumptions based on the policies and projects contained within the RTP and market demand (within existing zoning) in order to model anticipated development in the year 2040. However, it will be up to individual jurisdictions to determine consistency of individual projects with the RTP (including the SB 375 goals). It is not the intent of the RTP or associated modeling effort to impose land use requirements on local jurisdictions.

SB 375 specifically provides that nothing in an SCS supersedes the land use authority of cities and counties, and that cities and counties are not required to change their land use policies and regulations,

including their general plans, to be consistent with the SCS (Government Code Section 65080(b)(2)(K)). Moreover, cities and counties have plenary authority to regulate land use through their police powers granted by the California Constitution, art. XI, § 7, and under several statutes, including the local planning law (Government Code Sections 65100–65763), the zoning law (Government Code Sections 65800–65912), and the Subdivision Map Act (Government Code Sections 66410–66499.37). As such, SJCOG has no concurrent authority/jurisdiction to regulate or implement land uses or implement mitigation related to land use plans and projects. With respect to the transportation projects in the RTP, while SJCOG prioritizes and facilitates these projects (and therefore has the ability to influence project selection), they are implemented by Caltrans, local transit agencies, and local governments (i.e., cities and the County), and not SJCOG. SJCOG has limited authority/jurisdiction to require these implementing agencies to implement project-specific mitigation measures.

The development types used in the SCS for purposes of modeling anticipated outcomes, do not represent detailed, parcel-level land use designations such as those found within a local jurisdiction's General Plan, but rather represent the aggregation of multiple land uses, densities and intensities that are expected to average out within a neighborhood-sized area by 2040. Each development type is comprised of various characteristics related to employment and housing density, urban design, mix of land uses, and transportation options. Details describing the characteristics contained within each development type are available in the Envision Tomorrow documentation. The lead agency for each development project, not SJ COG, will be responsible for making the determination of consistency with the RTP and for CEQA streamlining purposes, pursuant to the provisions of SB 375, for any given proposed project. See Government Code Section 65080(b)(2).

The potential for community disruption was assessed by evaluating the location of proposed transportation projects in relation to surrounding land uses and community development. Highway and transit extensions and major interchange projects were assumed to have a higher potential to disrupt or divide existing communities since they would involve the creation of new roadways. Highway widening and other projects along established transportation rights-of-way were assumed to have a lower potential to divide or disrupt existing communities and neighborhoods.

The following analysis is based on general descriptions of projects in the Plan and location of high quality transit areas (HQTAS) (see **Section 3.0, Project Description**, and **Appendix 3.0, 2014 RTP Project List**) and is regional and programmatic in nature. This section is intended to serve as a regional cumulative analysis for local jurisdictions in the preparation of project specific environmental documentation and to provide a framework for mitigation measures.

Implementation of the 2014 RTP/SCS would affect land use patterns. Expected significant impacts include substantial land use density growth in areas of the region adjacent to transit, right-of-way acquisitions that could separate residences from community facilities and services, and impacts to vacant natural lands, including agricultural and forested lands.

Both short-term construction related impacts as well as off-site impacts from new facilities would occur as a result of implementation of the 2014 RTP. Indirect impacts from changes in land use patterns expected to occur due to the 2014 RTP transportation investments and land use policies are also identified.

Impacts and Mitigation Measures

Impact LU-1 **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 plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.**

SJCOG has developed a land use distribution pattern to address actions and strategies included in the SCS portion of the 2014 RTP/SCS. The SCS demonstrates San Joaquin County's ability to attain and exceed the GHG emission reduction targets set forth by the ARB (see **Section 4.7, Greenhouse Gasses**). The SCS outlines a plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs and changing demographics and transportation demands. The SCS focuses development in urban areas near HQTAs and other opportunity areas resulting in more opportunity for transit-oriented development. This overall land use pattern supports and compliments the proposed transportation network that emphasizes system preservation, active transportation (such as bike lanes), and transportation demand management measures. In addition, the RTP includes the following goals related to transit and non-motorized transportation:

Strategy #4: Improve Regional Transportation System Efficiency

Strategy #5: Optimize Public Transportation System to Provide Efficient & Convenient Access for Users at All Income Levels

Strategy #6: Facilitate Transit Oriented Development to Maximize Existing Transit Investments

Strategy #7: Provide Transportation Improvements to Facilitate Non-Motorized Travel

Strategy #8: Improve Major Transportation Corridors to Minimize Impacts on Rural Roads

Strategy #26: Improve the Connection Between Land Use and Transportation

Strategy #27: Enhance Public Health through Active Transportation Projects

Table 4.9-3, Developed Land Uses, provides the acres of developed land uses within the County and the projected (2040) land uses in the County.

Table 4.9-3
Developed Land Uses San Joaquin County

Type	Existing (2012)	No Project (2040)	Plan (2040)
Multi-family (attached housing)	8,529	977	3,496
Single-Family (detached housing)	55,392	30,831	11,874
Mixed Use	1,026	1,102	1,203
Commercial	48,670	2,273	1,550
Total	**113,618**	**35,184**	**18,123**

Source: San Joaquin COG, 2014

The 2014 RTP/SCS contains transportation projects and strategies to help more efficiently distribute population, households, and employment growth. Many of the land use strategies that support transportation strategies were developed as a result of San Joaquin's Blueprint process outlined in the SCS. This processes involved extensive outreach to and input from local jurisdictions. The growth forecast in the RTP is for use in both the Regional Housing Needs Allocation (RHNA) and the RTP.

In addition, the 2014 RTP/SCS was built primarily from local General Plans and input from local governments, and local transportation agencies. As a result of this comprehensive and integrated approach, the transportation projects and land use strategies included in the 2014 RTP/SCS are generally consistent with the County and local level general plan data available to SJCOG. However, general plans are updated on an inconsistent basis. Some of the general plans that SJCOG relied on when creating the RTP are not current and may not reflect current planning policy or practice. In addition, the RTP 2040 horizon year is beyond the timeline of many of the most recent general plans.

As discussed above under Methodology, SJCOG has no land use authority to adopt local land use plans or approve local land use projects that will implement the SCS. **Mitigation Measures LU-1** through **LU-3** would reduce potential land use impacts related to potential land use conflicts; however, impacts would remain significant.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

LU-1: SJCOG will work with its member cities and counties to encourage that transportation projects and growth are consistent with the RTP/SCS and general plans.

LU-2: Local jurisdictions should reflect RTP policies and strategies in their general plan updates. San Joaquin COG will work to build consensus on how to address inconsistencies between general plans and RTP policies.

LU-3: SJCOG will provide technical assistance and regional leadership to implement the RTP/SCS goals and strategies, integrate growth and land use planning with the existing and planned transportation network, determine and upon request help local jurisdictions/project sponsors in determining consistency with the SCS included within the 2014 RTP.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts of the 2014 RTP/SCS would be reduced, although not to a less than significant level. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures LU-1** through **LU-3**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact LU-2 Physically divide an established community.

The 2014 RTP/SCS includes completion of major highway projects, reductions in travel delay by adding lanes to highways and arterials, and creation of complete streets such that vehicles and non-motorized transit can both use the streets simultaneously. Construction and implementation of new transportation facilities or expansion of existing facilities could disrupt or divide established communities. Short-term construction impacts, as well as completion and operation of some transportation projects, would include physical barriers that limit access to a community or restrict movement within a community.

Additional short-term construction related impacts could result from disturbances due to construction equipment; these impacts are discussed under other impact categories (e.g., Noise, Aesthetics, and Air Quality). Long-term impacts could result from the completion of new or expanded roadways or transit facilities in existing communities. For example, the widening of a roadway could be perceived as too great a distance to cross by a pedestrian, thereby dividing a community. An elevated grade crossing may create a physical barrier in some locations. Impacts would most likely occur in urbanized or urbanizing parts of the region. New transit facilities are often planned in areas that have existing communities and generally create a community benefit by connecting communities, and providing a new mode of travel or relieving overcrowding on an existing mode of travel.

New roadways and/or the addition of new lanes to existing freeways and roadways have the potential to divide communities. Roadways as well as overcrossings and under-crossings associated with new or widened roadways or freeways can create a real or perceived barrier to pedestrians, bicyclists, and motorists. New freeway or roadway segments that occur in rural areas would have the least potential to divide established communities. Rural areas do not typically have the same degree of established communities as urban areas; however, the potential for impacts still exists.

It is important to note that displacement of residences or businesses can be mitigated with specific relocation measures as dictated by local, state, and federal requirements. Such measures include assistance in finding a new location, assistance with moving, and compensation for losses. Where it has been determined that displacement is necessary and displaced individuals are eligible, a relocation assistance program consistent with the State Uniform Location Assistance and Real Properties Acquisition Policies Act provides compensation and assistance in finding new residence for displaced individuals. Nonetheless, impact would remain potentially significant.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

Implement **Mitigation Measures LU-1** through **LU-3**.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts of the 2014 RTP/SCS would be reduced, although not to a less than significant level. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with

implementation of Mitigation Measures LU-1 through LU-3, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact LU-3 **Incompatibility with adjacent land uses, including impacts to sensitive receptors.**

Implementation of the 2014 RTP/SCS would affect a number of land uses. In general, land uses within 150 feet of transportation improvements could experience some kind of land use impact (as noted above noise and air quality impacts would extend beyond this distance); commercial and industrial uses are less sensitive to land use impacts. **Table 4.9-4** shows the acreage of different land use categories that occur within 150 feet of either side of transportation facilities. Under both the Plan and the No Project Alternative impacts could occur.

In addition to these direct impacts on land use, the total vacant land that is expected to be consumed under the 2014 RTP is estimated to be approximately 18,123 acres compared to up to 35,184 acres under the No Project Alternative.

Table 4.9-4 shows the sensitive receptors that would be affected by transportation projects included in the Plan and No Project Alternative.

Table 4.9-4
Sensitive Receptors within 0.25 mile of RTP Projects

Land Use Type	No Project (2040)	2014 RTP (2040)
Hospitals	2	2
Schools	113	113
Households	74,693	77,799

Source: Impact Sciences GIS analysis, 2014, SJCOG 2014
Note: number of households is based on an estimation of residential uses with TAZs

The 2014 RTP/SCS includes policies that would influence the distribution of the growing population. The land use measures included in the 2014 RTP/SCS would encourage use of underutilized urban land, and in some cases would help increase the intensity of the use to achieve mobility and other benefits. However, stable single-family neighborhoods would be protected, regardless of whether or not they were built at the maximum allowable density, as indicated by general plans.

Implementation of the innovative strategies in the 2014 RTP/SCS could result in changes in land uses by changing concentrations of development. Implementation of **Mitigation Measures LU-4** through **LU-6** would reduce land use impacts; however, the potential for incompatibilities with transportation projects and anticipated development remains.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

LU-4: SJCOG will use a continuing SCS or a Greenprint process (to prioritize maintenance of open space areas) and other ongoing regional planning efforts to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.

LU-5: SJCOG will continue to encourage patterns of development that are consistent with RTP/SCS policies.

Level of Significance After Mitigation

Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore even with implementation of **Mitigation Measures LU-4** and **LU-5**, impacts could remain significant and unavoidable.

LU-4 Induce substantial population growth to areas of the region

The population growth projection described in the 2014 RTP/SCS represents the expected amount and distribution of people that would occur in 2040 if the policies and investments included in the Plan were to be implemented. The total San Joaquin County population is expected to increase by approximately 365,694 persons upon buildout of the proposed RTP. **Table 4.9-5** provides 2040 population, households, and employment.

Table 4.9-5
2040 Population, Household, and Employment

	Population		Households		Employment	
	Existing (2012)	Plan (2040)	Existing (2012)	Plan (2040)	Existing (2012)	Plan (2040)
San Joaquin County	704,794	1,070,486	219,640	319,756	206,900	299,717

Source: San Joaquin COG 2014, The Planning Center/DC & E 2012, University of the Pacific 2012

The land use development pattern of the proposed RTP, assumes a substantial increase in multi-family and mixed use housing. **Table 4.11-6, RTP Housing Types**, provides a summary of new housing anticipated with the RTP. In most cases, this shift in housing type, especially the switch from large-lot to small-lot single-family homes, will occur naturally in the marketplace as developers shift to products in high demand.

Table 4.9-6
RTP Housing Types

Housing Type	Units	Percent of New Development	Total Units (Existing Plus Growth)	Percent of Total Units
Large Lot	4,023	4.1	37,418	11.7
Single-Family Detached	22,665	22.13	135,478	42.3
Small Lot	32,526	31.76	36,117	11.3
Multi-Family	42,125	41.14	104,815	32.8
Mobile Home/Other	877	0.86	5,927	1.9
Total	102,216	100	319,755	100

Note: Multi-family category includes mixed use units
Source: San Joaquin COG 2014

Of the 102,216 new housing units expected in 2040, approximately 73 percent will be small lot or multi-family homes (multi-family includes mixed use projects). In accordance with Government Code Section 65080(b)(2)(B)(ii), these projected housing densities will help the region accommodate the projected housing needs at all income levels over the life of the proposed RTP, especially housing at the lower income categories. After the final RHNA plan is adopted in 2014 San Joaquin COG jurisdictions will revise their Housing Elements to meet their respective allocations. The land use strategies in the SCS may inform the development of those Housing Elements.

The proposed RTP land use development pattern accommodates housing as infill, without changing local general plans. It moves the region towards more compact, mixed-use development leading to more opportunities for walking and biking, more transit use, and shorter auto trips.

The transportation investments and urban form strategies in the proposed RTP would foster substantial economic and household growth and would remove some obstacles to growth in some parts of the region. Growth strategies within the RTP/SCS would target growth in areas proximate to jobs and transit. Specifically, the improved accessibility from the proposed RTP/SCS could help facilitate population and economic growth to areas of the region that are currently not developed. The RTP/SCS housing and employment growth pattern focuses on areas of existing development, to a greater degree than in the past. As the transportation and urban form strategies in the RTP/SCS would focus development in urban areas, it is expected substantial growth would occur as a result. However, the capacities of the existing infrastructure to absorb such growth will likely need to be augmented. Therefore, growth related impacts related to the land use changes and transportation improvements from implementation of the proposed RTP/SCS are considered potentially significant for **Impact LU-4**. Mitigation is required. **Mitigation Measure LU-6** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

LU-6: SJCOG, will work with its member agencies to implement growth strategies to create an urban form designed to focus development in urban areas in accordance with the policies, strategies and investments contained in the 2014 RTP/SCS, enhancing mobility and reducing land consumption, providing urban infrastructure to support growth and ensuring a jobs-housing balance that supports decreases in greenhouse gas emissions.

Level of Significance After Mitigation

Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore even with implementation of **Mitigation Measure LU-6**, impacts could remain significant and unavoidable.

Impact LU-5 **Require the acquisition of right-of-ways that would displace a substantial number of existing businesses or homes.**

In general, projects proposed in the 2014 RTP/SCS would attempt to utilize existing rights-of-way (ROWs) to the maximum extent feasible. However, development of some highway, arterial, and transit projects proposed under the 2014 RTP/SCS would result in the disturbance and/or loss of residential and business uses. However, the RTP would include new lane miles including freeway, major and minor arterials, and collectors. These additional transportation facilities could displace homes and businesses in the region.

Additional residential and business lands would be affected by the growth associated with the 2014 RTP/SCS. Implementation of **Mitigation Measures LU-7** and **LU-8** would reduce impacts related to population displacement; however, the impacts would remain significant.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

LU-7: Implementing and local agencies should evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. An iterative design and impact analysis would help where impacts to homes or businesses are involved. Potential impacts should be minimized to the extent feasible. If possible, existing rights-of-way should be used.

LU-8: Implementing and local agencies to mitigate impacts to affordable housing as feasible through construction of affordable units (deed restricted to remain affordable for an appropriate period of time) or payment of any fee established to address loss of affordable housing.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts of the 2014 RTP/SCS would be reduced, although not to a less than significant level. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures LU-7** and **LU-8**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing

agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.9.4 CUMULATIVE EFFECTS

Implementation of the 2014 RTP/SCS would result in an increase in density and land use development over the next 27 years. By 2040, the region is anticipated to add an additional 365,694 people with or without the 2014 RTP/SCS. The improved accessibility from the 2014 RTP/SCS could help facilitate urbanization to areas outside the region. Changes in the land use patterns in the region (for example, increased urbanization) could affect areas outside the region, resulting in increased urbanization in other areas as well. Implementation of **Mitigation Measures LU-1** through **LU-8** would reduce cumulative impacts; however, the impacts would remain significant.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. Under the No Project Alternative land use changes could affect jurisdictions outside the region, by setting a precedent for and/or urbanization; such impacts would be cumulatively considerable. The Plan would decrease congestion potentially making it easier for people to live and work outside the region, thereby inducing land uses changes outside the region, these impacts also could be cumulatively considerable.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Measures LU-1 through LU-8

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts of the 2014 RTP/SCS would be reduced, although not to a less than significant level. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures LU-7** and **LU-8**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.9.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, population would still grow by 365,694 people; however, no regional transportation investments would be made above the existing programmed projects, and no land use strategies would be in place. The population distribution would follow past trends, uninfluenced by additional transportation investments.

The No Project Alternative includes fewer transportation projects than the 2014 RTP/SCS and does not include any land use strategies. It would have a lesser potential for conflicting with general plans as the only growth strategies that would occur would be local land use controls. It also would have less of an influence on the patterns of urbanization in the region. Nonetheless, urbanization with significant potential for land use incompatibility would occur.

The No Project Alternative would likely have similar or possibly greater impact on land use incompatibility because redevelopment in existing communities would still occur and more land in general would be impacted. Under the Plan 3.16 percent of new growth would be infill/redevelopment, while only 1 percent of new growth would be redevelopment under the No Project.

4.10 NOISE

This section describes the existing noise and vibration levels within the region and evaluates the significance of the changes in short and long-term noise and groundborne vibration that could result from the 2014 RTP/SCS. In addition, as appropriate and feasible, mitigation measures are identified to reduce potentially significant adverse impacts.

4.10.1 NOISE CHARACTERISTICS AND EFFECTS

Characteristics of Sound. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement for sound is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The "A-weighted scale," abbreviated dB(A), reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dB(A). **Figure 4.10-1, A-Weighted Decibel Scale,** provides examples of A-weighted noise levels from common sounds.

Noise Definitions. Environmental noise levels typically fluctuate across time of day; different types of noise descriptors are used to account for this variability, and different types of descriptors have been developed to differentiate between cumulative noise over a given period and single noise events. Cumulative noise descriptors include the energy-equivalent noise level (Leq), Day-Night Average Noise Level (DNL), and Community Noise Equivalent Level (CNEL). The Leq is the actual time-averaged, equivalent steady-state sound level, which, in a stated period, contains the same acoustic energy as the time-varying sound level during the same period. DNL and CNEL values result from the averaging of Leq values (based on A-weighted decibels) over a 24-hour period, with weighting factors applied to different periods of the day and night to account for their perceived relative annoyance. For DNL, noise that occurs during the nighttime period (10:00 PM to 7:00 AM) is "penalized" by 10 dB. CNEL is similar to DNL, except that it also includes a "penalty" of approximately 5 dB for noise that occurs during the evening period (7:00 PM to 10:00 PM).

Individual noise events, such as train pass-bys or aircraft over-flights, are further described using single-event and cumulative noise descriptors. For single events, the maximum measured noise level (Lmax) is often cited, as is the Sound Exposure Level (SEL). The SEL is the energy-based sum of a noise event of given duration that has been "squeezed" into a reference duration of 1 second, and is typically a value 5 to 10 dB higher than the Lmax.

Effects of Noise. Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment range from levels that interfere with speech and sleep (annoyance and nuisance)

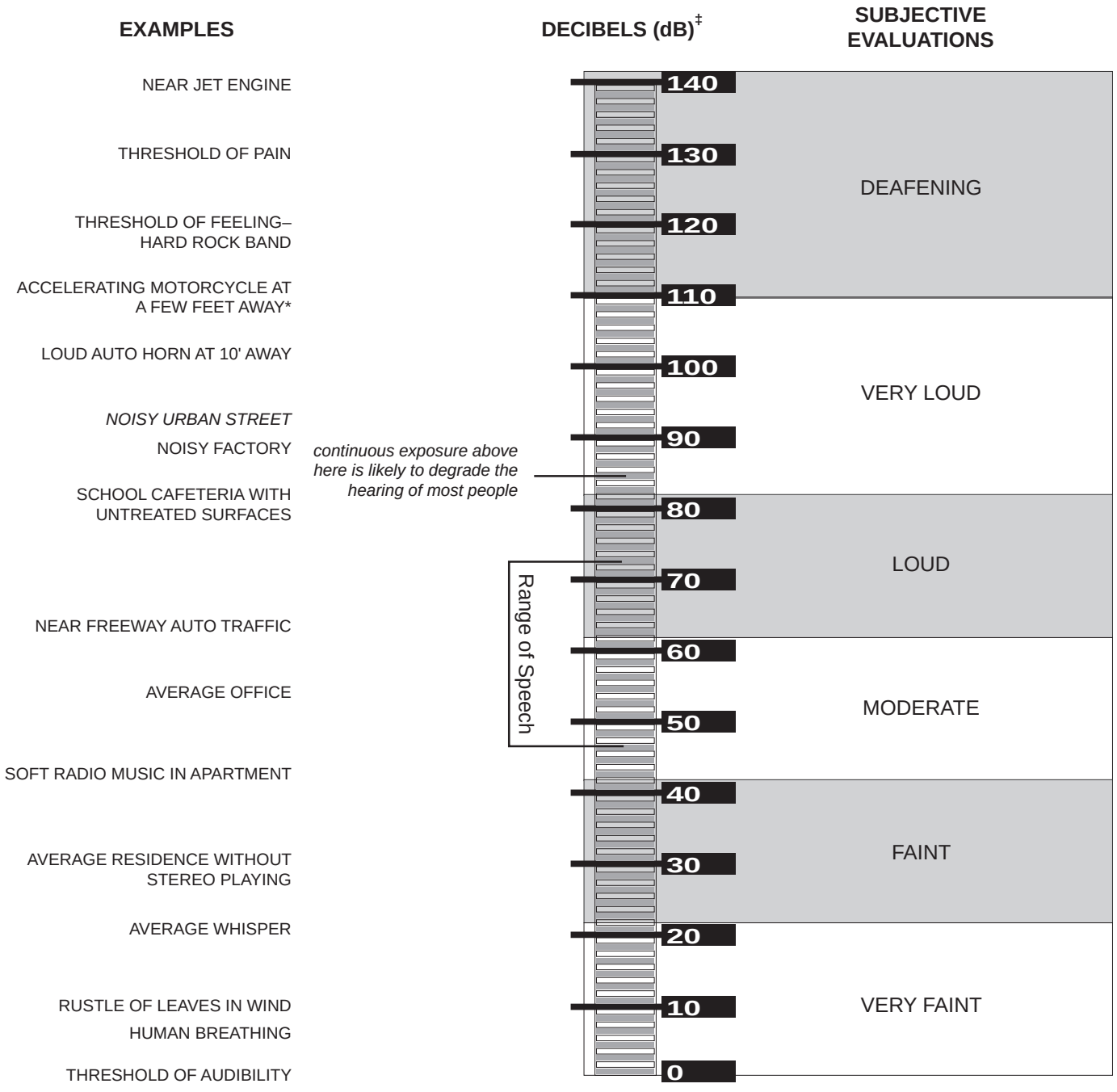
to levels that cause adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual response include the intensity, frequency, and pattern of noise, the amount of background noise present before the intruding noise, and the nature of work or human activity that is exposed to the noise source.

Audible Noise Changes. Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dB(A). A change of at least 5 dB(A) would be noticeable and would likely evoke a community reaction. A 10-dB(A) increase is subjectively heard as a doubling in loudness and would cause a community response.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," will decrease by approximately 6 dB(A) over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dB(A) over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dB(A) at a reference distance of 50 feet, then the noise level would be 83 dB(A) at a distance of 100 feet from the noise source, 77 dB(A) at a distance of 200 feet, and so on. Noise generated by a mobile source will decrease by approximately 3 dB(A) over hard surfaces and 4.8 dB(A) over soft surfaces for each doubling of the distance.

Generally, noise is most audible when traveling by direct line-of-sight. Barriers, such as walls, berms, or buildings that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier. Sound barriers can reduce sound levels by up to 20 dB(A). However, if a barrier is not high or long enough to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced.

Decibels are logarithmic units. Two-decibel levels cannot be added by ordinary arithmetic means. If one automobile produces a 70-dB noise level when it passes an observer, two cars passing simultaneously would not produce 140 dB. They would combine to produce a 73-dB noise level. As an example, consider a receptor located near the interchange of two freeways. One freeway generates a 72-dB(A) noise level and the other freeway generates a 66-dB(A) noise levels. The combined noise exposure from the freeways would be 73 dB(A). Another example is a receptor located near a freeway and underneath an airport flight path. The noise levels at a receptor could be 75 dB(A) from aircraft noise and 72 dB(A) from freeway noise. The combined noise level from aircraft and freeway noise exposure would be 77 dB(A).



** NOTE: 50' from motorcycle equals noise at about 2000' from a four-engine jet aircraft.*

‡ *NOTE: dB are "average" values as measured on the A–scale of a sound–level meter.*

SOURCE: Impact Sciences, Inc., January 2014

FIGURE **4.10-1**

A-Weighted Decibel Scale

4.10.2 VIBRATION CHARACTERISTICS AND EFFECTS

Vibration is a unique form of noise. It is unique because its energy is carried through structures and the earth, whereas, noise is simply carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise; e.g., the rattling of windows from truck pass-bys. This phenomenon is related to the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, groundborne vibration generated by man-made activities attenuates rapidly as distance from the source of the vibration increases. Vibration, which spreads through the ground rapidly, diminishes in amplitude with distance from the source. The ground motion caused by vibration is measured as particle velocity in inches per second and, in the US is referenced as vibration decibels (VdB).

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is the typically background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

Figure 4.10-2, Typical Levels of Ground-Borne Vibration, identifies the typical groundborne vibration levels in VdB and human response to different levels of vibration.

Vibration Definitions. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.[1]

Effects of Vibration. High levels of vibration may cause physical personal injury or damage to buildings. However, groundborne vibration levels rarely affect human health. Instead, most people consider groundborne vibration to be an annoyance that can affect concentration or disturb sleep. In addition, high

1 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

levels of groundborne vibration can damage fragile buildings or interfere with equipment that is highly sensitive to groundborne vibration (e.g., electron microscopes).

Perceptible Vibration Changes. In contrast to noise, groundborne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 RMS or lower, well below the threshold of perception for humans which is around 65 RMS. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

4.10.3 ENVIRONMENTAL SETTING

Sources of Noise Generation in San Joaquin County

Many principal noise generators within the County are associated with transportation (i.e., airports, freeways, arterial roadways, and railroads). Additional noise generators include stationary sources, such as industrial manufacturing plants, and construction sites. Local collector streets are not considered to be a significant source of noise since traffic volume and speed are generally much lower than for freeways and arterial roadways. Generally, transportation-related noise sources characterize the ambient noise environment of an area.

Solid walls and berms may reduce noise levels by 5 to 10 dB(A).[2] The minimum attenuation of exterior to interior noise provided by typical structures in California is provided in **Table 4.10-1, Outside to Inside Noise Attenuation**.

When assessing community reaction to noise, there is an obvious need for a scale that averages sound pressure levels over time and quantifies the result in terms of a single numerical descriptor. Several scales have been developed that address community noise levels.

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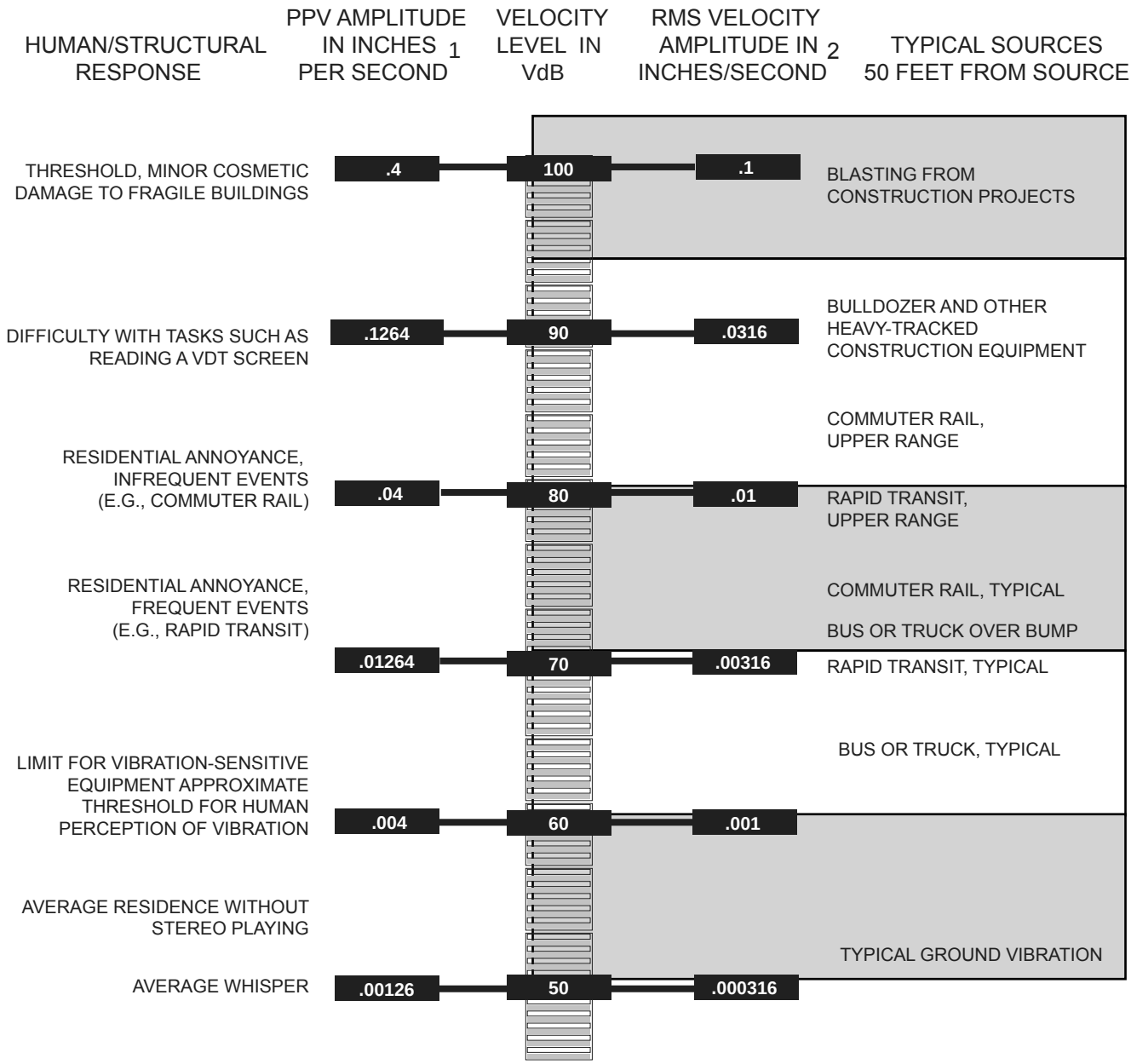
2 US Department of Transportation, Federal Highway Administration, *Highway Noise Mitigation*, (Springfield, Virginia: US Department of Transportation, Federal Highway Administration, September 1980), p. 18.



[1] PPV is typically a factor 1.7 to 6 times greater than RMS vibration velocity. A factor of 4 was used to calculate noise levels.

[2] Vibration levels in terms of velocity levels are defined as: $V=20 \times \log_{10} (a/r)$
V=velocity levels in decibels
a=RMS velocity amplitude
r=reference amplitude (accepted reference quantities for vibration velocity are 1×10^{-6} inches/second in the United States)

FIGURE **4.10-2**

Typical Levels of Groundbourne Vibration

Table 4.10-1
Outside to Inside Noise Attenuation (dB(A))

Building Type	Open Windows	Closed Windows
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30
Hotels/Motels	17	25

Source: Transportation Research Board, National Research Council, Highway Noise: A Design Guide for Highway Engineers, National Cooperative Highway Research Program Report 117.

Freeways and Arterial Roadways

The extent to which traffic noise levels along the County's roads affect sensitive land uses depends upon a number of factors. These include whether the roadway itself is elevated above grade or depressed below grade, whether there are intervening structures or terrain between the roadway and the sensitive uses, and the distance between the roadway and such uses. For example, measurements show that depressing a freeway by approximately 12 feet yields a reduction in traffic noise relative to an at-grade freeway of 7 to 10 dB at all distances from the freeway.[3]

Traffic noise from an elevated freeway is typically 2 to 10 dB less than the noise from an equivalent at-grade facility within 300 feet of the freeway, but beyond 300 feet, the noise radiated by an elevated and at-grade freeway (assuming equal traffic volumes, fleet mix, and vehicle speed) is the same.[4]

Additionally, the County has a number of arterial roadways. Typical arterial roadways have one or two lanes of traffic in each direction, with some containing as many as four lanes in each direction. Noise from these sources can be a significant environmental concern where buffers (e.g., buildings, landscaping, etc.) are inadequate or where the distance from centerline to sensitive uses is relatively small. An additional factor where trucks are present is gradient, road alignment, and signalization. Trucks going up or down a grade can produce significantly more noise due to de-acceleration or acceleration.

3 Beranek, L. L. 1988. *Noise and vibration control* (pp. 182). New York: McGraw-Hill.

4 Beranek, L. L. 1988. *Noise and vibration control* (pp. 182). New York: McGraw-Hill.

Airports

San Joaquin County contains three public use airports (see **Section 4.8, Hazards and Hazardous Materials**) including Stockton Metropolitan Airport, Tracy Municipal Airport, and New Jerusalem Airport. The remaining three, Lodi (Lindi's) Airport, Kingdon Airport, and Lodi (Precissi) Airpark are privately owned. In addition to these six airports, the Sharpe Army Deport operates a military airfield and 11 private airstrips and heliports within the County which are used primarily by crop dusting aircrafts.[5]

Stockton Municipal Airport is the only airport to offer commercial and cargo air carrier service in the County.[6] Most aircrafts using the facility are single-engine piston aircrafts; however, as the airport retains the longest runway in the County, a significant number of operations are performed by twin-engine turboprops and jets.[7]

The major private civilian facilities have potential for significant noise level impacts as urban development continues to encroach into the rural areas. San Joaquin County noise contour measurements and estimates for airports can be found in the 2009 San Joaquin County Airport Land Use Compatibility Plan (ALUCP) and 1993 Stockton Metropolitan Airport ALUCP.

Airport noise contours have been established for all airport facilities in the County and are consistent with the Federal Aviation Administration (FAA) Integrated Noise Model. In addition, noise contours for existing and future conditions at each of the airports are contained in plans or studies, including: Airport Master Plans, Airport Land Use Compatibility Plan, Comprehensive Airport Land Use Plans, Airspace Plans, and Airport Layout Plans, which are all incorporated by reference. Each of these plans or studies includes implementation goals, objectives, and policies and/or recommendations to lessen noise impacts.

Railroad Operations

Railroad operations generate high, relatively brief, intermittent noise events. These noise events are an environmental concern for sensitive uses located along rail lines and in the vicinities of switching yards. Locomotive engines and the interaction of steel wheels and rails primarily generate rail noise. The latter source creates three types of noise: (1) rolling noise due to continuous rolling contact, (2) impact noise when a wheel encounters a rail joint, turnout or crossover, and (3) squeal generated by friction on tight curves. For very high-speed rail vehicles, air turbulence can be a significant source of noise. In addition,

5 1993 Stockton Airport Land Use Plan

6 1993 Stockton Airport Land Use Plan

7 2009 San Joaquin General Plan Background Update, Noise Element

use of air horns and crossing bell gates contribute to noise levels in the vicinity of grade crossings. **Table 4.10-2, Reference Noise Levels for Various Rail Operations,** provides reference noise levels in terms of Sound Exposure Levels for different types of rail operations.

High noise impacts can be expected within approximately 100 feet of the main line railroad tracks, moderate impacts from 100-700 feet, and low impacts at distances greater than about 700 feet. The above-noted impacts may be lesser or greater depending on site-specific factors such as sound walls, grade crossings and topographic shielding. Insignificant noise impacts can be expected adjacent to the several branch lines in San Joaquin County.

Table 4.10-2
Reference Noise Levels for Various Rail Operations

Source/Type		Reference Condition	Reference Noise Level (SEL, dB(A)
Commuter Rail, At-Grade	-Locomotives	Diesel-electric, 3,000 horsepower, throttle 5	92
		Electric	90
	-Diesel Multiple Unit	Diesel-powered, 1,200 horsepower	85
	-Horns	Within 0.25 mile of grade crossing	110
	-Cars	Ballast, welded rail	82
Rail Transit		At-grade, ballast, welded rail	82
Transit Whistles/Warning Devices		Within one-eighth mile of grade crossing	93
Automated Guideway Transit	-Steel Wheel	Aerial, concrete, welded rail	80
	-Rubber Tire	Aerial, concrete, guideway	78
Monorail		Aerial, straddle beam	82
Maglev		Aerial, open guideway	72

Source: FTA, Transit Noise and Vibration Impact Assessment, May 2006

The County is also affected by freight and passenger railroad operations. While these operations generate significant noise levels in the immediate vicinity of the railroad tracks during train passages, these operations are intermittent, and the tracks are widely dispersed throughout the County and many parallel existing freeway corridors.[8]

8 2009 San Joaquin County General Plan Update, Noise Element

Freight Trains

Noise levels generated by freight train passby events reflect locomotive engine noise and rail car wheel rail interaction. The former depends upon track grade conditions (i.e., uphill versus downhill) and is largely independent of speed whereas the latter is highly speed dependent, increasing approximately 6 dB for each doubling of train velocity. In addition to noise, freight trains also generate substantial amounts of ground-borne noise and vibration in the vicinity of the tracks. Ground-borne noise and vibration is a function of both the quality of the track and the operating speed of the vehicles.

The County has an extensive network of railroad lines belonging primarily to two major railroads: Union Pacific (UP) and Burlington Northern/Santa Fe Railway (BNSF). [9] **Figure 4.10-3, San Joaquin County Railroad Lines,** shows the location of the UP and BNSF lines, and the specific lines used by the commuter passenger trains. Both railroad main lines parallel the State Route (SR)-99 and Interstate (I)-5 in the northern portion of the County, while in the southern area, the UP main line parallels the SR-99 and the BNSF main line runs along the Mariposa Road/Santa Fe Road to the east and SR-4 to the west.[10] **Table 4.10-3, Exterior Noise Exposure Adjacent to Nearby Rail Lines,** provides the CNEL for several segments of the primary UP and BNSF lines.

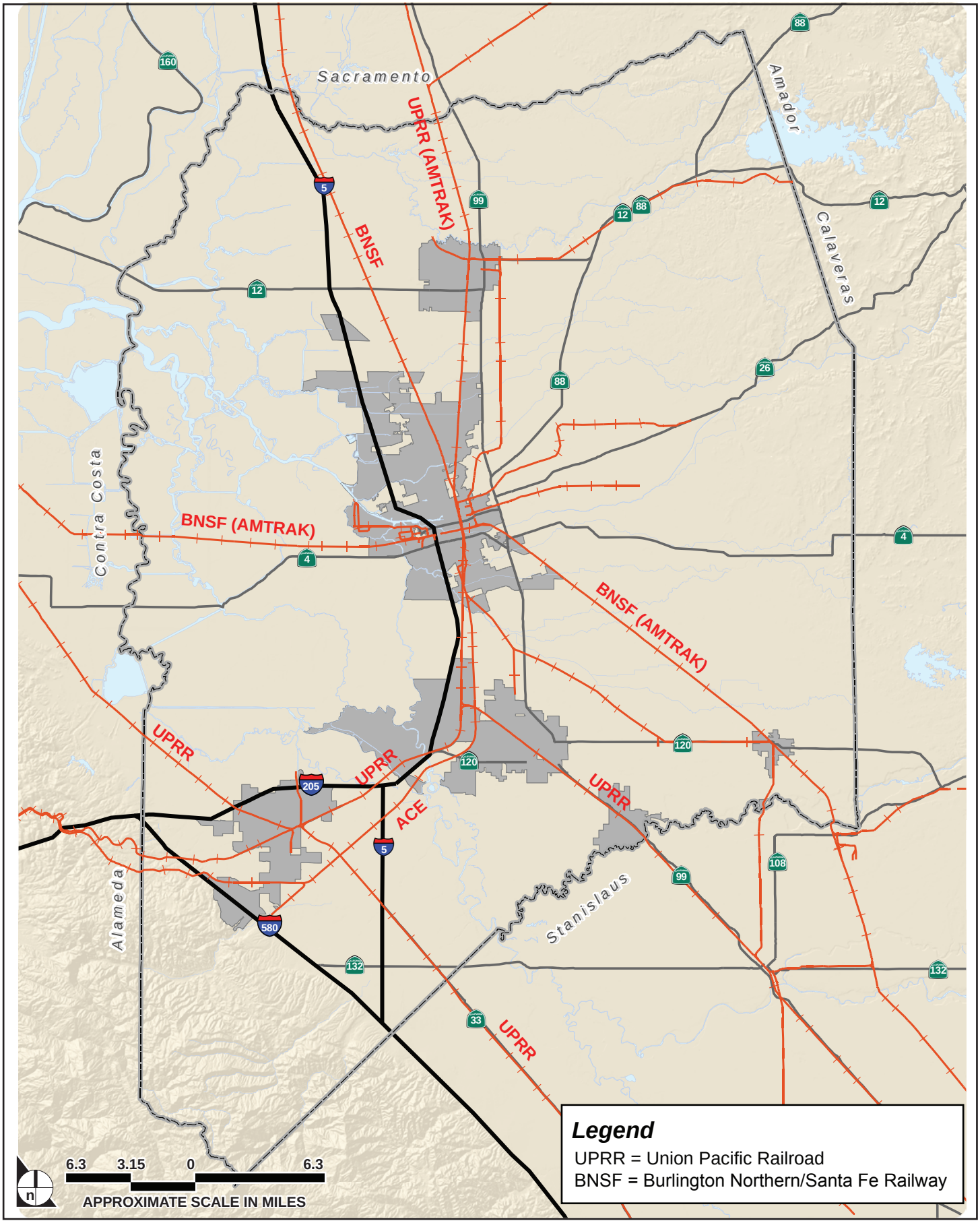
Table 4.10-3
Exterior Noise Exposure Adjacent to Nearby Rail Lines

Segment	Number of Trains	Ldn at 100 feet	Noise Contour Distance (feet) 65 dB Ldn	60 dB Ldn
Inland Rd. at SR 4 East of Holt	33	65	171	368
Woodward Rd. at Moffatt Blvd. South of Manteca	23	75	466	1,003
Lawrence Rd. & Arthur Rd. North of Escalon	47	72	305	657
South Lathrop	11	66	115	55

Source: 2009 San Joaquin County General Plan Update, Table 15.9

9 Two of the major railroads that historically have been associated with California, the Southern Pacific Railroad and the Atchison, Topeka and Santa Fe Railway, have merged into other railroad companies. In 1995, the Atchison Topeka and Santa Fe Railway merged with Burlington Northern to become Burlington Northern Santa Fe Railway. In the following year, the Southern Pacific Railroad merged with Union Pacific Railroad with the merged company retaining the Union Pacific name.

10 2009 San Joaquin County General Plan Update, Noise Element



SOURCE: San Joaquin County General Plan Update, 2009

FIGURE **4.10-3**

San Joaquin County Railroad Lines

1173.001•02/14

The data in **Table 4.10-3** 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 at 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.[11] At grade crossings, warning horns dominate train noise exposure, producing an average SEL as high as 110 dB at 100 feet from the tracks.[12]

The data presented in **Table 4.10-3** illustrates 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 create challenges when trying to determine the impacts on surrounding communities. This information illustrates the importance of site-specific train noise assessment for projects identified as noise sensitive.

Commuter Passenger Trains

In general, the noise generated by commuter rail facilities (powered by either diesel or electric locomotives) is from the locomotives themselves. In the County, Amtrak and Altamont Commuter Express (ACE) provide commuter passenger train service. Amtrak operates trains with destinations to Las Vegas, San Diego, and San Luis Obispo. A typical Amtrak passby event generates SEL 107 dB at 50 feet; two such events during the daytime or evening periods generate approximately DNL 61 dB at 50 feet and approximately DNL 52 dB at 200 feet. Nine such events generate approximately DNL 67 dB at 50 feet and 58 DNL dB at 200 feet. The San Joaquin Amtrak passenger cars provide passenger service throughout the California's Central Valley with seven northbound and seven southbound trains every day.

Industrial, Manufacturing, and Construction

Noise from industrial complexes, manufacturing plants and construction sites are characterized as stationary, or point, sources of noise even though they may include mobile sources, such as forklifts and graders. Local governments typically regulate noise from industrial, manufacturing, and construction equipment and activities through enforcement of noise ordinance standards, implementation of general plan policies, and imposition of conditions of approval for building or grading permits. Industrial

11 2009 San Joaquin County General Plan Update, Noise Element

12 2009 San Joaquin County General Plan Update, Noise Element

complexes and manufacturing plants are generally located away from sensitive land uses, and, as such, noise generated from these sources generally has less effect on the local community.

In contrast to industrial and manufacturing plants, construction sites are located throughout the region and are often located within, or adjacent to, residential districts. In general, construction activities generate high noise levels intermittently on and adjacent to the construction sites, and the related noise impacts are short-term in nature. The dominant source of noise from most construction equipment is the engine, usually a diesel engine, with inadequate muffling. In a few cases, however, such as impact pile driving or pavement breaking, noise generated by the process dominates.

Construction equipment can be considered to operate in two modes, stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed-power operation (pumps, generators, compressors) or a variable noise operation (pile drivers, pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion (bulldozers, loaders), or movement to and from the site (trucks).

Construction-related noise levels generally fluctuate depending on the construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. **Table 4.10-4, Demolition and Construction of Equipment Source Noise Levels,** shows typical noise levels associated with various types of construction-related machinery. These noise levels, which correspond to a distance of 50 feet, decrease by approximately 6 dB with each doubling of distance from the construction site (e.g., noise levels from excavation might be approximately 83 dB at 100 feet from the site, and about 77 dB at 200 feet from the site). Interior noise levels from construction are approximately 10 dB (open windows) to 20 dB (closed windows) less than exterior noise levels due to the attenuation provided by building facades.

Siting of an industrial facility so that noise generated beyond the boundaries of the project site does not affect sensitive receptors is the most effective mitigation. Reduction of noise can also occur through changes in operations and installation of sound dampening equipment.

Table 4.10-4
Demolition and Construction of Equipment Source Noise Levels

Equipment	Levels in dB(A) at 50 feet
Front Loader	73-86
Trucks	82-95
Cranes (Moveable)	75-88
Cranes (Derrick)	86-89
Vibrator	68-82
Saws	77-82
Pneumatic Impact Equipment	83-88
Jackhammers	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Back Hoe	73-85
Pile Driving (Peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88

Source: USEPA, Noise From Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Vibration

Similar to the environmental setting for noise, the vibration environment is typically dominated by traffic from nearby roadways and activity on construction sites. Heavy trucks can generate groundborne vibrations that vary depending on vehicle type, weight, and pavement conditions. Heavy trucks typically operate on major streets. Nonetheless, vibration levels adjacent to roadways are typically not perceptible.

As shown in **Table 4.10-5, Vibration Levels Associated with Construction Equipment**, the highest impact is associated with the heaviest equipment, such as pile drivers or large bulldozers, can generate vibrations of 1.518 to 0.089 inches per second PPV at a distance of 25 feet.

Table 4.10-5
Vibration Levels Associated with Construction Equipment

Equipment		PPV at 25 feet (inches per second)	Approximate VdB at 25 feet
Pile Driver (Impact)	Upper Ranges	1.518	112
	Typical	0.644	104
Pile Driver (Sonic)	Upper Range	0.734	105
	Typical	0.170	93
Vibratory Roller		0.210	95
Clam Shovel Drop (Slurry Wall)		0.202	94
Hydrol Mill (Slurry Wall)	In Soil	0.008	66
	In Rock	0.017	75
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to noise exposure (in terms of both exposure time and "insulation" from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, natural areas, parks and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses. Consequently, the noise standards for sensitive land uses are more stringent than those for less sensitive uses, such as commercial and industrial.

To protect various human activities and sensitive land uses (e.g., residences, schools, and hospitals) lower noise levels are needed. A noise level of DNL 55 to 60 dB outdoors is the upper limit for intelligible speech communication inside a typical home. In addition, social surveys and case studies have shown that complaints and community annoyance in residential areas begin to occur at DNL 55 dB. Sporadic complaints associated with the DNL 55 to 60 dB range give way to widespread complaints and individual threats of legal action within the DNL 60 to 70 dB range. At DNL 70 dB and above, residential community reaction typically involves threats of legal action and strong appeals to local officials to stop the noise.

San Joaquin County encompasses a large area with a wide variety of noise sources and noise levels. The ambient noise environment ranges from low levels associated with wilderness areas to high levels

associated with airports and heavily trafficked roadways. Given the size of the County and the variation in sources, it is not useful to complete a detailed noise monitoring study for this Program EIR. Rather this Program EIR presents a discussion of noise levels associated with different noise sources and thereby allows the reader to infer the noise level at different locations depending on the proximity of a location to a noise source.

4.10.4 REGULATORY FRAMEWORK

The federal government sets noise standards for transportation-related noise sources that are closely linked to interstate commerce, such as aircraft, locomotives, and trucks, and, for those noise sources, the state government is preempted from establishing more stringent standards.

The state sets noise standards for those transportation noise sources that are not preempted from regulation, such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies.

Federal

Federal Highway Administration

Federal regulations for railroad noise are contained in 40 CFR Part 201 and 49 CFR Part 210. The regulations set noise limits for locomotives and are implemented through regulatory controls on locomotive manufacturers.

Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR Part 205, Subpart B. The federal truck passby noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers. The Federal Highway Administration (FHWA) regulations for noise abatement must be considered for federal or federally funded projects involving the construction of a new highway or significant modification of an existing freeway when the project would result in a substantial noise increase or when the predicted noise levels approach or exceed the Noise Abatement Criteria (NAC).

Title 23 of the Code of Federal Regulations (23 CFR § 772) provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Under 23 CFR § 772.7, projects are categorized as Type I or Type II projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a

highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment.

Type I projects include those that create a completely new noise source, as well as those that increase the volume or speed of traffic or move the traffic closer to a receiver. Type I projects include the addition of an interchange, ramp, auxiliary lane, or truck-climbing lane to an existing highway, or the widening an existing ramp by a full lane width for its entire length. Projects unrelated to increased noise levels, such as striping, lighting, signing, and landscaping projects, are not considered Type I projects.

Under 23 CFR § 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR § 772 requires that the project sponsor "consider" noise abatement before adoption of the environmental document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR § 772.5, occur when the predicted noise level in the design year approaches or exceeds the NAC specified in 23 CFR § 772, or a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). Under these regulations, an impact could result unrelated to the Plan if existing noise levels already exceed the NAC. A "substantial increase" is defined as an increase in Leq of 12 dB during the peak hour of traffic noise. For sensitive uses, such as residences, schools, churches, parks, and playgrounds, the NAC for interior and exterior spaces is Leq 57 and 66 dB, respectively, during the peak hour of traffic noise. **Table 4.10-6, Noise Abatement Criteria,** summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area.

Table 4.10-6
Noise Abatement Criteria

NAC, Hourly A-Weighted Noise Level	Description of Activities
57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
72 (Exterior)	Developed lands, properties, or activities not included in above.
52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: Caltrans, Technical Noise Supplement, November 2009

Federal Aviation Administration (FAA)

Aircraft operated in the US are subject to certain federal requirements regarding noise emissions levels. These requirements are set forth in Title 14 CFR, Part 36. Part 36 establishes maximum acceptable noise levels for specific aircraft types, taking into account the model year, aircraft weight, and number of engines. Pursuant to the federal Airport Noise and Capacity Act of 1990, the FAA established a schedule for complete transition to Part 36 "Stage 3" standards by year 2000. This transition schedule applies to jet aircraft with a maximum takeoff weight in excess of 75,000 pounds, and thus applies to passenger and cargo airlines, but not to operators of business jets or other general aviation aircraft.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is implemented by regulations included in the Code of Federal Regulations (40 CFR § 1500 *et seq*.), which require careful consideration of the harmful effects of federal actions or plans, including projects that receive federal funds, if they may have a significant adverse effect on the environment. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. Although NEPA does not establish specific noise standards, the noise impacts of projects are routinely considered as one of the potential environmental consequences of federal actions subject to NEPA. While NEPA compliance is not required for the project, NEPA compliance will be required for transportation improvement projects that will be financed using federal funds. Some development projects (such as low-income housing) also use federal funds and are subject to NEPA. The regulations also require projects requiring NEPA review to seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

Department of Housing and Urban Development

The mission of the Department of Housing and Urban Development (HUD) includes fostering "a decent, safe, and sanitary home and suitable living environment for every American." Accounting for acoustics is intrinsic to this mission, as an environment's safety and comfort can be compromised by excessive noise. In order to facilitate the creation of suitable living environments, HUD has developed a standard for noise criteria. The basic foundation of the HUD noise program is set out in the noise regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

HUD's noise policy clearly requires noise attenuation measures be provided when proposed projects are to be located in high noise areas. Within the HUD Noise Assessment Guidelines, potential noise sources

are examined for projects located within 15 miles of a military or civilian airport, 1,000 feet from a road or 3,000 feet from a railroad.

HUD exterior noise regulations state that 65 dB(A) DNL noise levels or less are acceptable for residential land uses and noise levels exceeding 75 dB(A) DNL are unacceptable. HUD's regulations do not contain standards for interior noise levels. Rather a goal of 45 decibels is set forth and the attenuation requirements are geared toward achieving that goal. It is assumed that with standard construction any building will provide sufficient attenuation so that if the exterior level is 65 dB(A) DNL or less, the interior level will be 45 dB(A) DNL or less.

Federal Transit Administration

The Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, engineered concrete and masonry buildings can be exposed to groundborne vibration levels of 0.3 inch per second without experiencing structural damage. Buildings extremely susceptible to vibration damage can be exposed to groundborne vibration levels of 0.12 inch per second without experiencing structural damage.[13]

State

California Environmental Quality Act

Methods of controlling noise exist through the environmental review process required by the California Environmental Quality Act (CEQA). Noise control measures can be required as mitigation measures under CEQA for projects that would generate excessive noise or would be impacted by existing noise sources. Under the California Administrative Code, all multi-family dwellings that are in noise impact areas must undergo acoustical analysis and must contain structural or design features that would mitigate excessive noise levels. All other residential uses must comply with the San Joaquin County General Plan Noise Element. Through discretionary permit processing, residential uses are evaluated during the CEQA review.

California Department of Health Services

The state has published guidance for locating land uses in areas compatible with the existing noise environment. These guidelines are shown in **Table 4.10-7**, **Land Use Compatibility for Community Noise Environments.** For example, it would normally be acceptable for a single-family residence to be located in an area with an existing noise level of 60 dB(A) CNEL or less.

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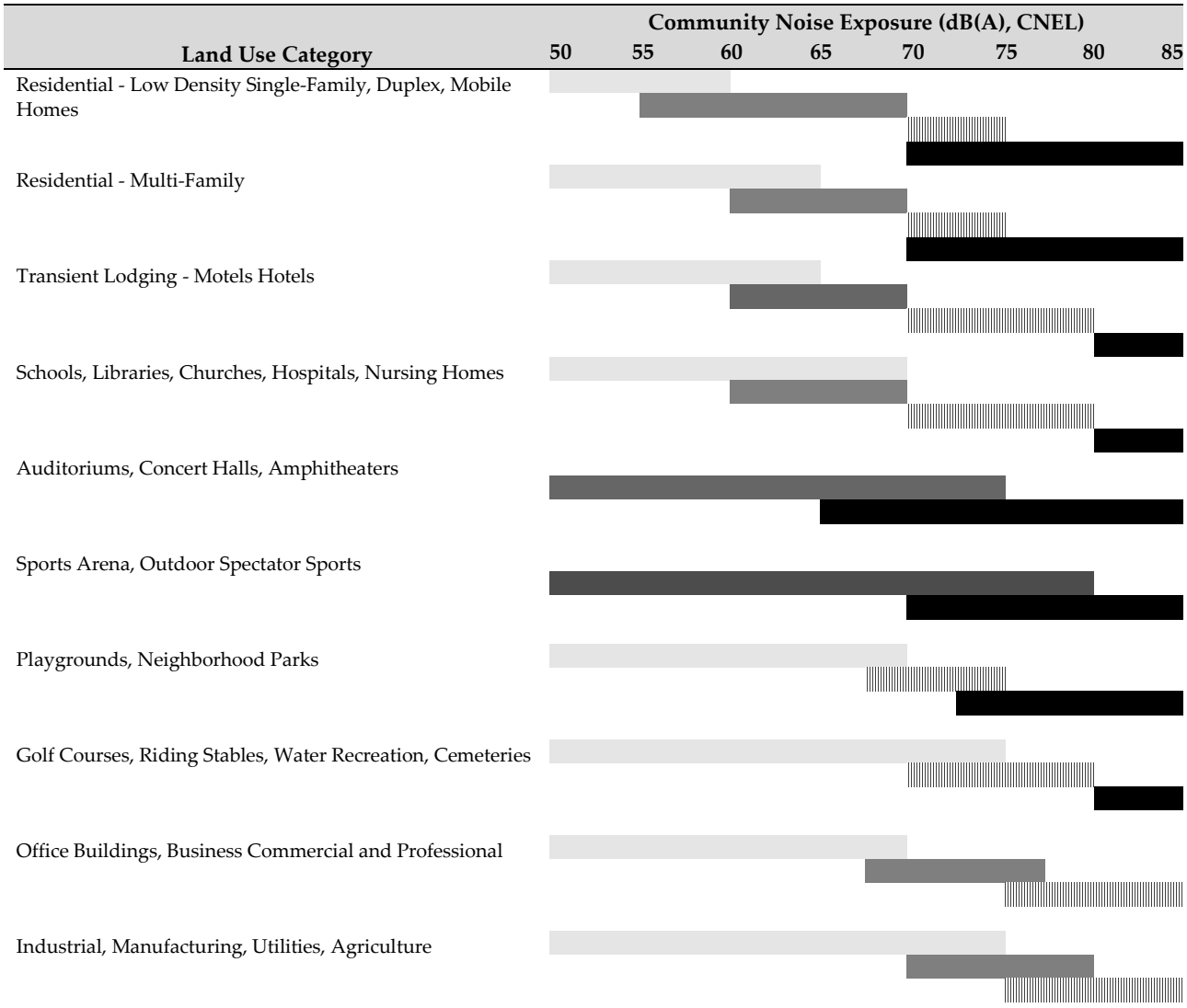
13 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

Table 4.10-7
Land Use Compatibility for Community Noise Environments



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 included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditionally will normally suffice.

Normally Unacceptable - New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable - New construction or development should generally not be undertaken.

Source: California Office of Noise Control, Department of Health Services.

California's Airport Noise Standards

The state of California has the authority to establish regulations requiring airports to address aircraft noise impacts on land uses in their vicinities. The State of California's Airport Noise Standards, found in Title 21 of the California Code of Regulations, identify a noise exposure level of CNEL 65 dB as the noise impact boundary around airports. Within the noise impact boundary, airport proprietors are required to ensure that all land uses are compatible with the aircraft noise environment or the airport proprietor must secure a variance from the California Department of Transportation.

California Department of Transportation (Caltrans)

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state passby standard is consistent with the federal limit of 80 dB. The state passby standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline. For new roadway projects, Caltrans employs the Noise Abatement Criteria, discussed above in connection with FHWA.

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dB(A) Leq in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dB(A) Leq. If the noise levels generated from freeway and non-freeway sources exceed 52 dB(A) Leq prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

California Noise Insulation Standards

The California Noise Insulation Standards found in Title 24 of the California Code of Regulations set requirements for new multi-family residential units, hotels, and motels that may be subject to relatively high levels of transportation-related noise. For exterior noise, the noise insulation standard is DNL 45 dB in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dB.

State Vibration Regulations

There are no adopted state policies or standards for ground-borne vibration. However, Caltrans recommends that extreme care be taken when sustained pile driving occurs within 7.5 meters (25 feet) of any building, and 15 to 30 meters (50 to 100 feet) of a historic building or a building in poor condition.

Local

County and City General Plans

To identify, appraise, and remedy noise problems in local communities, the County and each city in the County is required to adopt a noise element as part of its General Plan. Each noise element is required to analyze and quantify current and projected noise levels associated with local noise sources, including, but not limited to, highways and freeways, primary arterials and major local streets, rail operations, air traffic associated with the airports, local industrial plants, and other ground stationary sources that contribute to the community noise environment. Beyond statutory requirements, local jurisdictions are free to adopt their own goals and policies in their noise elements, although most jurisdictions have chosen to adopt noise/land use compatibility guidelines that are similar to those recommended by the state. The overlapping DNL ranges indicate that local conditions (existing noise levels and community attitudes toward dominant noise sources) should be considered in evaluating land use compatibility at specific locations.

In addition to regulating noise through noise element policies, local jurisdictions regulate noise through enforcement of local ordinance standards. These standards generally relate to noisy activities (e.g., use of loudspeakers and construction) and stationary noise sources and facilities (e.g., air conditioning units and industrial activities).

In terms of airport noise, some of the actions that airport proprietors have been allowed to take to address local community noise concerns include runway use and flight routing changes, aircraft operational procedure changes, and engine run-up restrictions. These actions generally are subject to approval by the FAA, which has the authority and responsibility to control aircraft noise sources, implement and enforce flight operational procedures, and manage the air traffic control system. Airport proprietors may also consider limitations on airport use, but such restrictions can be overridden by the Federal Aviation Administration if it is determined that they unjustly discriminate against any user, impede the federal interest in safety and management of the air navigation system, or unreasonably interfere with interstate commerce.

The noise policies included in each jurisdiction's general plan are listed below:

San Joaquin County General Plan

- The maximum allowable noise exposure level from transportation noise sources at outdoor activity areas of noise-sensitive uses shall be 65 dB Ldn/CNEL.
- The maximum allowable noise exposure level from transportation noise sources within noise sensitive spaces shall be 45 dB Ldn/CNEL.
- The maximum allowable noise exposure level from non-transportation (stationary) noise sources at outdoor activity areas of noise-sensitive uses shall be 50 dB Hourly Leq during the daytime (7:00 AM to 10:00 PM) and 45 dB Hourly Leq during the nighttime (10:00 PM to 7:00 AM).
- The maximum allowable noise exposure level from non-transportation noise sources at outdoor activity areas of noise-sensitive uses shall be 70 dB Lmax and 65 dB Lmax during the daytime and nighttime hours, respectively.
- New residential developments may not be permitted within the 65 dB Ldn/CNEL noise exposure contour of a public airport.
- Development shall be planned and designed to minimize noise impacts on neighboring noise sensitive uses and to minimize noise interference from outside noise sources.
- Noise exposure shall be based on future projections using the noise exposure contours provided in Volume III of the General Plan, or appropriate modeling or calculations.
- Seek to remedy existing community noise problems.

City of Escalon General Plan

- Areas shall be recognized as noise impacted if exposed to existing or projected future noise levels at the exterior of buildings in excess of 65 dB Ldn (or CNEL).
- Noise sensitive land uses should be discouraged in noise impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce exterior noise levels to 65 dB Ldn (or CNEL) or less and 45 dB Ldn (or CNEL) or less within interior living spaces. Noise sensitive land uses include hospitals, residences, schools, churches, and other uses of a similar nature as determined by the Planning Director.
- Industrial, commercial, or other noise generating land uses should be discouraged if resulting noise levels will exceed 65 dB Ldn (or CNEL) at the boundary areas of planned or zoned noise sensitive land uses. Noise generating land uses should not be located near roadways or railways that exceed 65 dB(A).
- The City shall enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC) noise requirements.
- New equipment and vehicles purchased by the City should comply with noise level performance standards consistent with the best available noise reduction technology.

- The preferred method of noise control used is thoughtful site design. Secondarily, noise control should be achieved through the use of artificial noise barriers. Site and building design guidelines may include:

  - Noise sensitive land uses should not front onto the primary noise source. Where this is not possible, the narrow portion of the building should face the primary noise source, and the interior layout should locate the most sensitive areas away from the noise source by placing garages, storage facilities, carports, or other such areas nearest the noise source.

  - Site design should permit noise to pass around or through a development. This can be achieved by placing the narrow or convex portion of the structure toward the primary noise source.

  - Commercial and industrial structures should be designed so that any noise generated from the interior of the building is focused away from noise sensitive land uses.

  - Two-story residential construction should be avoided, where possible, immediately adjacent to arterials or collectors unless an adequate combination of noise attenuation procedures are used.

  - When possible, residential cul-de-sacs should be perpendicular to adjacent arterials or collectors.

  - Loading and unloading activities for commercial uses should be conducted in an enclosed loading dock, preferably with a positive seal between the loading dock and trucks.

- The City shall review all relevant development plans, programs, and proposals to ensure their conformance with the policy framework outlined in this Noise Element.

- Prior to the approval of a proposed development in a noise impacted area, or the development of an industrial, commercial or other noise generating land use in or near an area containing existing or planned noise sensitive land uses, an acoustical analysis may be required if any of the following findings are made:

  - The existing or projected future noise exposure at the exterior of buildings which will contain noise sensitive uses or within proposed outdoor activity areas (patios, decks, backyards, pool areas, recreation areas, etc.) exceeds 65 dB Ldn (or CNEL).

  - Interior residential noise levels resulting from off-site noise are estimated to exceed 45 dB(A).

  - Estimated or projected noise levels cannot be reduced to the noise exposure limitations specified in this Noise Element by the application of Standard Noise Reduction Methods.

- When noise studies are necessary they should:

  - Be the responsibility of the applicant.

  - Be prepared by an individual or firm with demonstrable experience in the fields of environmental noise assessment and architectural acoustics.

  - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

  - Include estimated noise levels in terms of dB Ldn (or CNEL) for existing and projected future conditions, with a comparison made to the adopted policies of the Noise Element.

  - Include recommendations for appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element

  - Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

  - Be prepared as early in the project review or permitting process as possible, so that noise mitigation measures may be an integral part of the project design, rather than an afterthought.

- Reduce downtown noise levels by re-routing truck traffic off of Main Street in downtown. Truck traffic is only permitted along 3rd Street from SR 120 to Main and along Main Street from 3rd Street south to Santa Fe.

- Noise created by temporary activities necessary to provide construction or required services should be permitted for the shortest duration possible and limited to periods that will have the least possible adverse impact on surrounding land uses.

City of Lathrop General Plan

- Areas within the City shall be designated as noise-impacted if exposed to existing or projected future noise levels exterior to buildings exceeding 60 dB CNEL or the performance standards prescribed in Table VI-1, (**Table 4.10-8**, below).

- New development of residential or other noise sensitive land uses will not be permitted in noise impacted areas unless effective mitigation measures are incorporated into project designs to reduce noise to the following levels:

- Noise sources preempted from local control, such as railroad and highway traffic:

  - 60 dB CNEL or less in outdoor activity areas;

  - 45 dB CNEL within interior living spaces or other noise-sensitive interior spaces.

  - Where it is not possible to achieve reductions of exterior noise to 60 dB CNEL or less by using the best available and practical noise reduction technology, an exterior noise level of up to 65 dB CNEL will be allowed.

  - Under no circumstances will interior noise levels be allowed to exceed 45 dB

- CNEL with windows and doors closed.

- For noise from other sources, such as local industries:

  - 60 dB CNEL or less in outdoor activity areas;

- 45 dB CNEL or less within interior living spaces, plus the performance standards contained in **Table 4.10-8**.

- New development of industrial, commercial, or other noise generating land uses will not be permitted if resulting noise levels will exceed 60 dB CNEL in areas containing residential or other noise-sensitive land uses. Additionally, new noise generating land uses which are not preempted from local noise regulation by the State of California will not be permitted if resulting noise levels will exceed the performance standards contained in Table VI-1 (**Table 4.10-8**). in areas containing residential or other noise-sensitive land uses.

- Noise level criteria applied to land uses other than residential or other noise-sensitive uses shall be consistent with the recommendations of the California Office of Noise Control.

- New equipment and vehicles purchased by the City shall comply with noise level performance standards consistent with the best available noise reduction technology.

Table 4.10-8
Noise Level Performance Standards for Non-Preempted Noise Sources

	Nighttime 10:00 PM–7:00AM			Daytime 7:00 AM–10:00 PM		
Receiving Land Use	**Rural Suburban**	**Suburban**	**Urban**	**Rural Suburban**	**Suburban**	**Urban**
One and Two Family Residential	40	45	50	50	55	60
Multiple Family Residential	45	50	55	50	55	60
Public Space	50	55	60	50	55	60
Limited Commercial	N/A	55	N/A	N/A	60	N/A
Commercial	N/A	60	N/A	N/A	65	N/A
Light Industrial	N/A	70	N/A	N/A	70	N/A
Heavy Industrial	N/A	75	N/A	N/A	75	N/A

Source: City of Lathrop General Plan, Noise Element
Notes: Each of the noise level standards specified herein shall be reduced by 5 dB for pure tone noises, noise consisting primarily of speech or music, or for recurring impulsive noises. The standards should be applied at a residential or other noise-sensitive land use and not on the property of a noise-generating land use. Nighttime and Daytime standards are measured by dB.

City of Lodi General Plan

- Protect humans, the natural environment, and property from manmade hazards due to excessive noise exposure.

- Protect sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise.

- Control and mitigate noise at the source where feasible, as opposed to at the receptor end.

- Encourage the control of noise through site design, building design, landscaping, hours of operation, and other techniques for new development deemed to be noise generators.

- Use the noise and land use compatibility matrix (**Table 4.10.9**) and allowable noise exposure levels (**Table 4.10-10**, below) as review criteria for all new land uses. Incorporate noise attenuation measures for all projects that have noise exposure levels of "conditionally acceptable" and higher. These may include:
  - Façades constructed with substantial weight and insulation;
  - Sound-rated windows in habitable rooms;
  - Sound-rated doors in all exterior entries;
  - Active cancellation;
  - Acoustic baffling of vents for chimneys, fans and gable ends;
  - Ventilation system affording comfort under closed-window conditions; and double doors and heavy roofs with ceilings of two layers of gypsum board on resilient channels to meet the highest noise level reduction requirements.

Table 4.10-9
Community Noise Exposure Matrix

Land Use	Community Noise Exposure Ldn or CNEL, dB			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Conditionally Unacceptable
Residential (Low Density, Single-Family, Duplex, Mobile Homes)	50–60	61–70	71–75	76–85
Multi-Family	50–65	66–70	71–75	76–85
Motel/Hotel				
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–65	66–70	71–75	76–85
Auditorium, Concert Halls, Amphitheaters	N/A	55–70	N/A	71–85
Sports Arena, Outdoor Spectator Sports	N/A	50–75	N/A	76–85
Playgrounds/Neighborhood Parks	50–67	68–73	N/A	69–74
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–70	71–80	81–85	N/A
Office Buildings, Business Commercial and Professional	50–70	71–75	76–85	N/A
Industrial, Manufacturing Utilities, Agriculture	55–70	71–80	81–85	N/A

Source: City of Lodi General Plan, Noise Element.

- Discourage noise sensitive uses such as residences, hospitals, schools, libraries, and rest homes from locating in areas with noise levels above 65 dB. Conversely, do not permit new uses likely to produce high levels of noise (above 65 dB) from locating in or adjacent to areas with existing or planned noise-sensitive uses.

- Noise sensitive uses, such as residences, hospitals, schools, libraries, and rest homes, proposed in areas that have noise exposure levels of "conditionally acceptable" and higher must complete an acoustical study, prepared by a professional acoustic engineer. This study should specify the appropriate noise mitigation features to be included in the design and construction of these uses, to achieve interior noise levels consistent with **Table 4.10-10**.

Table 10.4-10
Allowable Noise Exposure Outdoor and Interior

Land Use	Outdoor Activity Areas (CNEL)	Indoor Areas
Residential	60	45
Motels, Hotels	60	45
Public/Semi-Public	65	45
Recreational	65	50
Commercial	65	50
Industrial	70	65

Source: City of Lodi General Plan, Noise Element
Notes: or non-residential uses, where an outdoor activity area is not proposed, the standard does not apply.

- Where substantial traffic noise increases (to above 70 dB) are expected, such as on Lower Sacramento Road or Harney Lane, as shown on the accompanying graphic, require a minimum 12-foot setback for noise-sensitive land uses, such as residences, hospitals, schools, libraries, and rest homes.

- Require developers of potentially noise-generating new developments to mitigate the noise impacts on adjacent properties as a condition of permit approval. This should be achieved through appropriate means, such as:

  - Dampening or actively canceling noise sources;

  - Increasing setbacks for noise sources from adjacent dwellings;

  - Using soundproofing materials and double glazed windows;

  - Screening and controlling noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment;

  - Using open space, building orientation and design, landscaping and running water to mask sounds; and

  - Controlling hours of operation, including deliveries and trash pickup.

- Update Noise Ordinance regulations to address allowed days and hours of construction, types of work, construction equipment (including noise and distance thresholds), notification of neighbors, and sound attenuation devices.

- Develop and implement noise reduction measures when undertaking improvements, extensions, or design changes to City streets where feasible and appropriate.

- Encourage transit agencies and rail companies to develop and apply noise reduction technologies for their vehicles to reduce the noise and vibration impacts of bus and rail traffic.

- Coordinate with the California Public Utilities Commission and other pertinent agencies and stakeholders to determine the feasibility of development a railroad "quiet zone" in downtown, which would prohibit trains from sounding their horns.

- Restrict the use of sound walls as a noise attenuation method to sites adjacent to State Route (SR)-99, the railroad, and industrial uses east of SR-99.

- Ensure that new equipment and vehicles purchased by the City of Lodi are equipped with the best available noise reduction technology.

- Reduce vibration impacts on noise-sensitive land uses (such as residences, hospitals, schools, libraries, and rest homes) adjacent to the railroad, SR-99, expressways, and near noise-generating industrial uses. This may be achieved through site planning, setbacks, and vibration-reduction construction methods such as insulation, soundproofing, staggered studs, double drywall layers, and double walls.

City of Manteca General Plan

- Areas within Manteca exposed to existing or projected exterior noise levels from mobile noise sources exceeding the performance standards in **Table 4.10-11**, below, shall be designated as noise-impacted areas.

- New development of residential or other noise-sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the project design to satisfy the performance standards in **Table 4.10-11**.

- The City may permit the development of new noise-sensitive uses only where the noise level due to fixed (non-transportation) noise sources satisfies the noise level standards of **Table 4.10-12**. Noise mitigation may be required to meet **Table 4.10-12** performance standards.

- The City shall require stationary noise sources proposed adjacent to noise sensitive uses to be mitigated so as to not exceed the noise level performance standards in **Table 4.10-12**. N-P-5: In accord with the standards, the City shall regulate construction-related noise impacts on adjacent uses.

Table 4.10-11
Maximum Allowable Noise Exposure for Mobile Noise Sources

Land Use	Outdoor Activity Areas	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB
Residential	60[2]	45	N/A
Transit Lodging	60[2]	45	N/A
Hospitals/Nursing Homes	60[2]	45	N/A
Theaters/Auditoriums/Music Halls	N/A	N/A	35
Churches, Music Halls	60[2]	N/A	40
Office Buildings	65	N/A	45
Schools, Libraries, Museums	N/A	N/A	45
Playgrounds, Neighborhood Parks	70	N/A	N/A

Source: City of Manteca General Plan, Noise Element
Notes: Outdoor activity areas for residential development are considered to be backyard patios or decks of single-family dwellings, and the common areas where people generally congregate for multi-family developments. Outdoor activity areas for non-residential developments are considered to be those common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
In areas where it is not possible to reduce exterior noise levels to 60 dB Ldn or below using a practical application of the best noise-reduction technology, an exterior noise level of up to 65 Ldn will be allowed.
Determined for a typical worst-case hour during periods of use.
Where a proposed use is not specifically listed on the table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the City.

Table 4.10-12
Performance Standards for Stationary Noise Sources or Projects Affected by Stationary Noise Sources

Noise Level Descriptor	Daytime 7:00 AM to 10:00 PM	Nighttime 10:00 PM to 7:00 AM
Hourly Leg, dB	50	45
Maximum Level, dB	70	65

Source: City of Manteca General Plan, Noise Element
Each of the noise levels specified above should be lowered by 5 dB for simple noise tones, noises consisting primarily of speech or music, or recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints.
No standards have been included for interior noise levels. Standard construction practices should, with the exterior noise levels identified, result in acceptable interior noise levels.

- Where the development of residential or other noise-sensitive land use is proposed for a noise-impacted area, an acoustical analysis is required as part of the environmental review process so that noise mitigation may be considered in the project design. The acoustical analysis shall:
  - Be the responsibility of the applicant.

  - Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
  - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
  - Estimate existing and projected (20 years) noise levels in terms of the standards below, and compare those levels to the adopted policies of the Noise Element.
  - Recommend appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element.
  - Estimate noise exposure after the prescribed mitigation measures have been implemented.
  - Describe a post-project assessment program that could be used to monitor the effectiveness of the proposed mitigation measures.

- Noise level criteria applied to land uses other than residential or other noise-sensitive uses shall be consistent with noise performance levels below.
- The City shall enforce the Sound Transmission Control Standards of the California Building Code concerning the construction of new multiple occupancy dwellings such as hotels, apartments, and condominiums.
- New equipment and vehicles purchased by the City shall comply with noise level performance standards consistent with the best available noise reduction technology.
- The Manteca Police Department shall actively enforce requirements of the California Vehicle Code relating to vehicle mufflers and modified exhaust systems.
- For residential development backing on to a freeway or railroad right-of-way, the developer shall be required to build a sound barrier wall, and provide for other appropriate mitigation measures, to satisfy the performance standards below.
- The City shall require new roadways to be mitigated so as to not exceed the noise levels specified below. Widening or other improvement projects of existing roadways shall be mitigated to the most practical extent.
- The City shall carefully review and shall give potentially affected residents an opportunity to fully review any proposals for the establishment of helipads or heliports.

City of Ripon General Plan

- To require noise buffering, barriers, and/or setbacks as construction techniques in developments in the proximity to the highway, railroad, or major streets as required to maintain City noise standards.
- To control noise sources in residential neighborhoods by restricting through truck traffic to designated truck routes.

- To require analysis of potential noise from developments and require mitigating measures to reduce noise impacts to adopted City noise standards.

- To examine any source of noise projected at or above 70 dB at 50 feet for compatibility with existing or projected planned neighborhood land use before granting a rezoning or conditional use permit.

- Develop a community noise ordinance.

- The Land Use Compatibility Standards set forth in General Plan. **(Figure 4.10-4,** below**)** are the adopted noise standards of the City of Ripon.

- To minimize the duration of heavy equipment operations in the vicinity of residential uses or other sensitive noise receptors, especially during evening and early morning hours.

- Coordinate with and encourage Caltrans to install sound barrier walls along sections of State Route 99 affecting residential uses.

City of Stockton General Plan

- The City shall prohibit the development of new commercial, industrial, or other noise-generating land uses adjacent to existing residential uses, and other sensitive noise receptors such as schools, health care facilities, libraries, and churches if noise levels are expected to exceed 70 dB(A) Community Noise Equivalent (CNEL) (decibels on A-weighted scale CNEL) measured at the property line of the noise sensitive land use.

- The City shall allow the development of noise sensitive land uses (which include, but are not limited to, residential neighborhoods, schools, and hospitals) only in areas where existing or projected noise levels are "acceptable" according to Table HS-11.1 "Land Use Compatibility for Community Noise Environments." (**Figure 4.10-5**, below) Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to achieve these levels.

- The City shall require noise analysis of proposed development projects as part of the environmental review process and to require mitigation measures to reduce noise impacts to acceptable levels. The acoustical analysis shall:

  - Be the responsibility of the applicant.

  - Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.

  - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

  - Estimate existing and projected (20 years) noise levels in terms of Ldn/CNEL and compare the levels to the adopted policies of the Public Health and Safety Element.

  - Recommend appropriate mitigation to achieve compatibility with the adopted noise policies and standards of this Public Health and Safety Element. Where the noise source in question consists

of intermittent single events, the acoustical analysis must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

- Estimate noise exposure after the prescribed mitigation measures have been implemented. If the project does not comply with the adopted standards and policies of the Public Health and Safety Element, the analysis must provide acoustical information for a statement of overriding considerations for the project.

- Describe a post-project assessment program, which could be used to evaluate the effectiveness of the proposed mitigation measures.

- The City shall establish an ongoing noise-monitoring program to enforce City noise standards.

- The City shall work with Caltrans to mitigate noise impacts on sensitive receptors near Interstate 5, State Route 99, and other key state roadways by requiring noise buffering or insulation in new construction.

- The City shall control noise sources in residential areas and other noise-sensitive areas by restricting truck traffic to designated truck routes.

- The City shall work with Caltrans to mitigate noise impacts on sensitive receptors near state roadways, by requiring noise buffering or insulation in new construction.

- The City shall require that development around the Stockton Metropolitan Airport be consistent with the noise standards contained in the approved Airport Land Use Plan.

- The City shall coordinate with SJCOG in maintaining the noise contours for the Stockton Metropolitan Airport as notable changes in current or projected operations are planned.

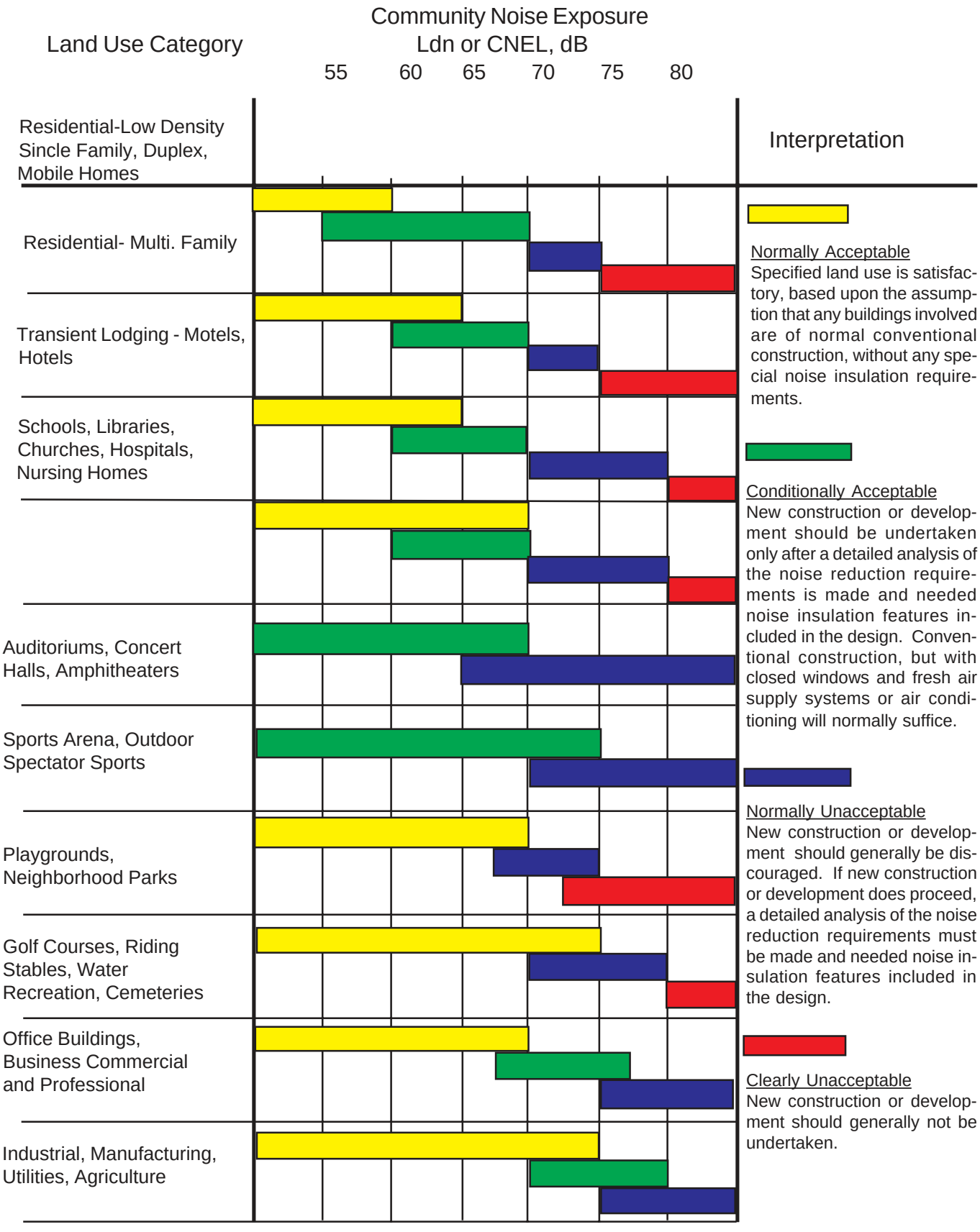
- The City shall seek to limit the potential noise impacts of construction activities on surrounding land uses.

- The City shall limit construction activities to the hours of 7:00 AM to 7:00 PM, Monday through Saturday. No construction shall occur on Sundays or national holidays without a written permit from the City.

- The City shall require sound attenuation features such as walls, berming, heavy landscaping between commercial, industrial, and residential uses to reduce noise and vibration impacts.

- The City shall require noise buffering or construction treatments (additional insulation, double paned glass, etc.) in new development that includes noise sensitive uses located near major streets, highways, the airport, railroad tracks, or other significant noise sources.

- The City shall enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code.



SOURCE: City of Ripon General Plan Noise Element, 2013

FIGURE **4.10-4**

City of Ripon: Land Use Compatibility for Community Noise Environments

Land Use Type	Noise Level (Ldn) 0 - 55	56 - 60	61 - 65	66 - 70	71 - 75	75 - 80	> 81
Residential							
Hotels, Motels							
Schools, Libraries, Churches, Hospitals, Extended Care Facilities							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Mining, Industrial, Manufacturing, Utilities, Agriculture							

Normally Acceptable. *Specified land use is satisfactory, based on 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 insulation features have been included in the design.*

Unacceptable. *New construction or development should not be undertaken.*

If existing noise standards are currently exceeded, a proposed project shall not incrementally increase noise levels by more than 3 dBA

SOURCE: Stockton 2035 General Plan Goals and Policies Report, 2013

FIGURE **4.10.5**

City of Stockton: Land Use Compatibility for Community Noise Environments

- The City shall actively support enforcement of California Vehicle Code sections relating to vehicle mufflers and modified exhaust systems.

- The City shall ensure that new equipment and vehicles purchased by the City of Stockton are equipped with the best available noise reduction technology.

- The City shall require that noise produced by commercial uses not exceed 75 dB Ldn/CNEL at the nearest property line.

- The City shall grant exceptions to the noise standards for commercial and industrial uses only if a recorded noise easement is conveyed by the affected property owners.

- The City shall require that all new habitable structures be setback at least 85 feet from the nearest railroad track. These setback areas shall be measured from the edge of the outermost railroad track.

City of Tracy General Plan

- Noise sensitive land uses shall not be located in areas with noise levels that exceed those considered normally acceptable for each land use unless measures can be implemented to reduce noise to acceptable levels.

- Less noise sensitive uses shall require appropriate interior noise environments when located in areas adjacent to major noise generators.

- New single-family residential development shall maintain a standard of 60 Ldn (day/night average noise level) for exterior noise in private use areas.

- New single-family residential development sites exposed to noise levels exceeding 60 Ldn shall be analyzed following protocols in the Appendix, Chapter 12, Section 1208A, Sound Transmission Control of the California Building Code.

- All new residential land uses shall maintain a standard of 45 Ldn in building interiors.

- New multi-family residential developments shall maintain a standard of 65 Ldn in community outdoor recreation areas. Noise standards shall not apply to balconies.

- New residential development affected by noise from railroads or aircraft operations shall be designed to limit typical maximum instantaneous noise levels to 50 dB(A) in bedrooms and 55 dB(A) in other rooms.

- Residential development sites exposed to noise levels exceeding 60 Ldn shall be analyzed following protocols in Appendix Chapter 12, Section 1208A, Sound Transmission Control, California Building Code.

- Measures to attenuate exterior and/or interior noise levels to acceptable levels shall be incorporated into all development projects. Acceptable, conditionally acceptable and unacceptable noise levels are presented in Figure 9-2 (**Figure 4.10-6**, below).

- The City shall reduce traffic noise levels in existing residential areas through enforcement and structural improvements, to the extent feasible.

- Mitigation measures shall be required for new development projects that exceed the following criteria:

  – Cause the Ldn at noise-sensitive uses to increase by 3 dB or more and exceed the "normally acceptable" level.

  – Cause the Ldn at noise-sensitive uses to increase 5 dB or more and remain "normally acceptable."

  – Cause new noise levels to exceed the City of Tracy Noise Ordinance limits.

- Pavement surfaces that reduce noise from roadways should be considered as paving or repavement opportunities arise.

- All construction in the vicinity of noise sensitive land uses, such as residences, hospitals, or convalescent homes, shall be limited to daylight hours or 7:00 AM to 7:00 PM. In addition, the following construction noise control measures shall be included as requirements at construction sites to minimize construction noise impacts:

  – Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

  – Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction area.

  – Utilize "quiet" air compressors and other stationary noise sources where technology exists.

- Designing landscaped building setbacks to serve as a buffer between the noise source and receptor.

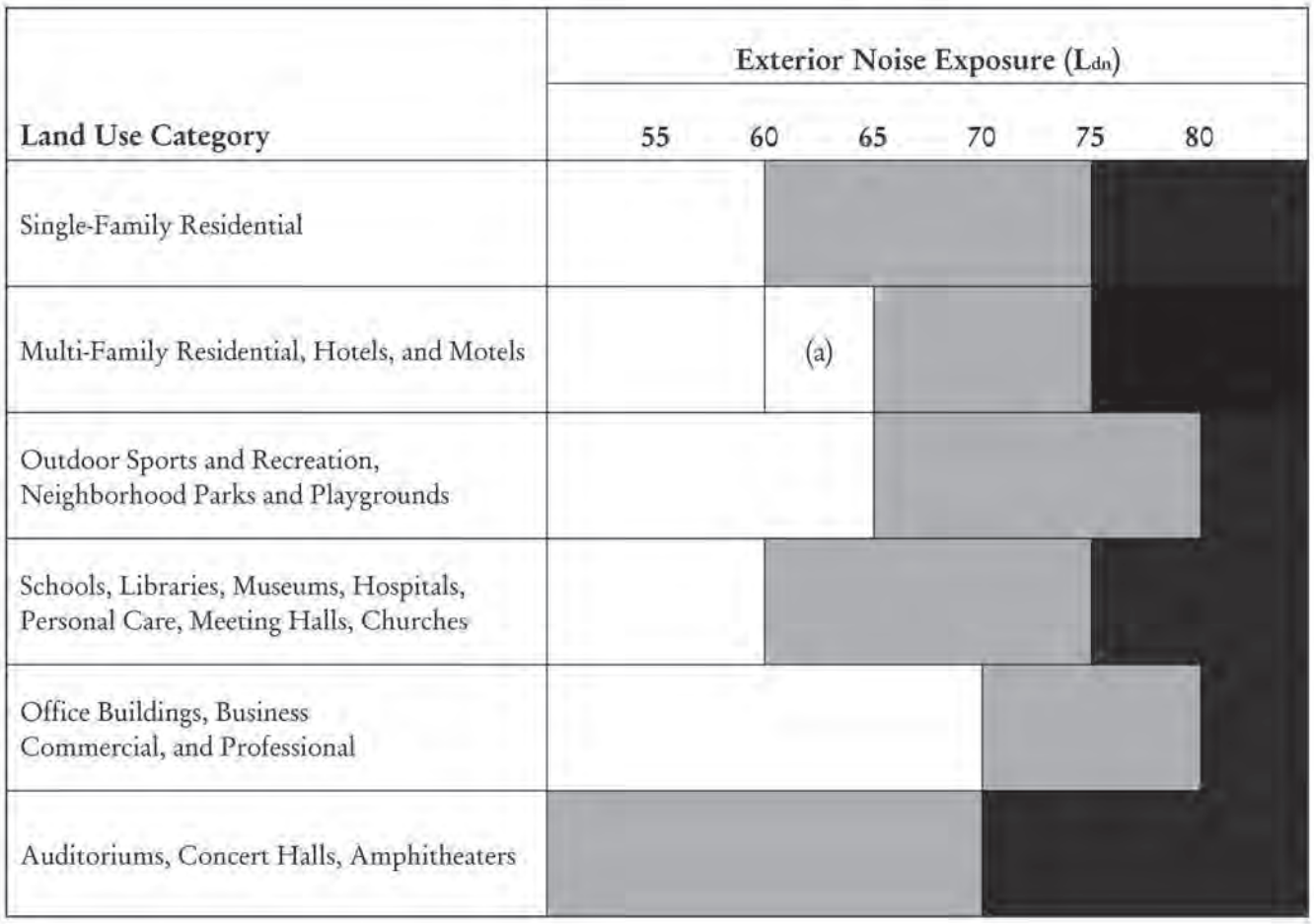
- Placing noise-tolerant land uses, such as parking lots, maintenance facilities, and utility areas between the noise source, such as highways and railroad tracks, and receptor.

- Orienting buildings to shield noise sensitive outdoor spaces from a noise source.

- Locating bedrooms or balconies on the sides of buildings facing away from noise sources.

- Utilizing noise barriers (e.g., fences, walls, or landscaped berms) to reduce adverse noise levels in non-sensitive outdoor activity areas.

- The City shall seek to reduce impacts from groundborne vibration associated with rail operations by requiring that vibration-sensitive buildings (e.g., residences) are sited at least 100 feet from the centerline of the railroad tracks whenever feasible. The development of vibration-sensitive buildings within 100 feet from the centerline of the railroad tracks would require a study demonstrating that ground borne vibration issues associated with rail operations have been adequately addressed (i.e., through building siting or construction techniques).



(a) Residential development sites exposed to noise levels exceeding 60 Ldn shall be analyzed following protocols in Appendix Ch apter 12, Section 1208A, Sound Transmission Control, California Building Code.

Normally Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements.

Conditionally Acceptable
Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

Unacceptable
New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

SOURCE: Tracy General Plan, 2014

FIGURE **4.10-6**

City of Tracy: Land Use Compatibility for Community Noise Element

San Joaquin County Airport Land Use Compatibility Plan (ALUCP)

The Airport Land Use Compatibility Plan (ALUCP) was adopted by SJCOG in 2009 and to satisfy the state's aviation law requirements. The ALUCP provides for the orderly growth of each public use airport over a 20-year span and minimizes land use conflicts over height and noise with the surrounding area. The ALUCP includes building height restrictions, specify allowable land uses, and determine building standards within all airports within the County are required to be consistent with the measures set forth in the ALUCP.

Local Vibration Regulations

Some local jurisdictions regulate vibration through enforcement of local ordinance standards. These standards generally relate to preventing perceptible vibration from being generated past the property line of the source location.

4.10.5 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the 2014 RTP/SCS (including RTP policies, the SCS, and the transportation project list and financing plan) would result in significant impacts related to noise and vibration, if either of the following could occur:

- Expose persons or generate noise in levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; and/or result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the project; and/or result in a substantial permanent increase in ambient noise levels above levels existing without the project.
- Expose people to or generate excessive groundborne vibration.

Methodology

The analysis assesses the potential impacts from noise and vibration that could result from implementation of the proposed 2014 RTP/SCS. Impacts are assessed in terms of both land use and transportation impacts. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions.

Since noise is a highly localized impact, specific and detailed analyses are most appropriate at the project level. Subsequent project-specific EIRs will be required to further analyze the transportation improvements to determine the magnitude of noise and vibration impacts, and to identify appropriate potential mitigations for each individual improvement project.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., Air Quality Management Plans (AQMPs) as well as RTPs and AQMPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of noise and vibration includes a comparison of the expected future conditions with the 2014 RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of noise and vibration impacts compares the existing conditions to the RTP/SCS conditions, as required by *State CEQA Guidelines* Section 15126.2(a). The noise level in the region was evaluated using the criteria set forth by the California Department of Conservation (CDC) and the *State CEQA Guidelines*.

The analysis is based on an assessment of growth (population, housing, and employment) projected for the region by 2040, and an assessment of how that growth will impact, or be impacted by, noise and vibration. Individual project sites within San Joaquin County were not physically surveyed, rather this is a programmatic analysis based on a brief description of the types of noise and vibration issues found within the region.

Roadway transportation projects consist of freeway, high-occupancy vehicle (HOV) lanes, auxiliary, arterial/expressway miles, collector and local streets, Class I bicycle and pedestrian facilities, and Class II bicycle lanes. Different project types will have different impacts on or be differently impacted by, noise and vibration.

The evaluation of noise and vibration impacts in this section assumes that construction and development in San Joaquin County will adhere to applicable federal, state, and local regulations, and will conform to the applicable industry standards, as appropriate for individual projects.

Impacts and Mitigation Measures

Impact NOISE-1 **Expose persons or generate noise in levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; and/or result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the project; and/or result in a substantial permanent increase in ambient noise levels above levels existing without the project.**

Construction

Grading and construction activities associated with the proposed 2014 RTP/SCS transportation projects could intermittently and temporarily generate noise levels above ambient background levels including noise levels above those permissible by local general plans, noise ordinances and other applicable standards. Noise levels in the immediate vicinity of the construction sites, including adjacent sensitive receptors, would increase substantially, sometimes for extended durations. **Table 4.10-13, Sensitive Receptors within 0.25 mile of Proposed 2014 RTP Transportation Projects,** shows the number of existing sensitive receptors located within 0.25 mile under the No Project Alternative and 2014 RTP/SCS.

Table 4.10-13
Sensitive Receptors within 0.25 miles of Proposed 2014 RTP/SCS Projects

Land Use Type	No Project	2014 RTP
Hospitals	2	2
Schools	113	113
Households	74,693	77,799

Source: Impact Sciences GIS analysis, 2014, SJCOG 2014
Note: number of households is based on an estimation of residential uses with TAZs

As shown in **Table 4.10-13,** a number of noise-sensitive land uses are located near 2014 RTP/SCS projects, including hospitals schools, nursing homes, and senior centers. Generally, construction related noise impacts would be short-term and localized in nature. Further, during construction, ground clearing, grading, structural, and other noise-generating activities would occur at project sites between the hours designated in accordance with the applicable jurisdiction's Municipal Code Noise Ordinance and any additional applicable plans or standards.

Many RTP/SCS projects include development of new infrastructure such as bridges, transit facilities, and highways, or modifications to existing infrastructure, including the widening of roads, grade crossings, maintenance, and service alterations. **Table 4.10-14, Types and Duration of Noise Generated from Proposed Projects,** presents the different types of freeway and transit which typically emit noise during construction and the relative duration of construction noise created by project type.

Table 4.10-14 does not include development types since the variety and duration of such projects is infinite resulting in a wide variety of noise levels and durations. Impacts to sensitive receptors resulting from the construction of transportation and development projects would depend on several factors, such as the type of project proposed, adjacent land use, and duration of proposed construction activities.

Table 4.10-14
Types and Duration of Noise Generated from Proposed Projects

Project Type	Noise Levels			Duration		
	High	Medium	Low	Extended	Medium	Short
FREEWAYS AND ARTERIALS						
Arterials/Interchanges	X			X		
Freeway – Mixed-flow	X			X		
HOV Connector	X			X		
Reconfigure Ramp	X			X		
Replace Overcrossing	X			X		
Capacity Enhancement Facilities	X			X		
Widen Underpass (four to six lanes)	X			X		
Auxiliary Lanes		X			X	
Interchange Addition		X			X	
Bikeways		X				X
Capacity Enhanced Arterial		X				X
Interchange Improvement		X			X	
Park & Ride		X				X
Roadway Operations and Maintenance			X			X
Smart Street Improvements			X			X
Transit						
Commuter Rail	X			X		
Inter-city Rail	X			X		
Transit Center		X			X	
Grade Crossing			X			X
Intelligent Transportation Systems			X			X
Rail Improvement	X			X		
Rail Tunnel Improvement	X			X		

Note: Project-specific impacts depend on location and location of sensitive receptors. This table provides a general assessment of noise-generated by different types of impacts irrespective of the relationship to sensitive receptors.
Source: *Impact Sciences, 2014*

Operation

During long-term operation of the projects noise impacts from new highways, highway widening, commuter rail corridors, and increased frequency along existing rail corridors could generate noise levels in excess of standards established in the local general plan or noise ordinance.

Caltrans has identified a noise abatement criterion of 66 dB(A) where sensitive receptors are located adjacent to freeways and collectors/arterials and, as such, any increase in noise levels adjacent to these facilities would be subject to abatement measures. Most heavily travelled roadways meet this criterion. In

general an increase of 3 dB(A) is perceptible to the average human ear. In order to assess where noise levels could increase by 3 dB(A) or more the highest volume roadway segments are identified in **Figure 4.10-7** (Existing Conditions), **Figure 4.10-8** (No Project), and **Figure 4.10-9** (2014 RTP/SCS). These are the most likely to generate substantial noise.

In general, most of the urban areas would be significantly impacted as a result of increasing traffic in the region. With the focus on increased development in urban areas, increased congestion could be expected in urban areas, but Plan improvements are sufficient to balance this increased urban focus, whereas the No Project Alternative does result in a more dispersed development pattern it also increases noise traffic and therefore noise in urban areas with none of the off-setting improvements associated with the Plan.

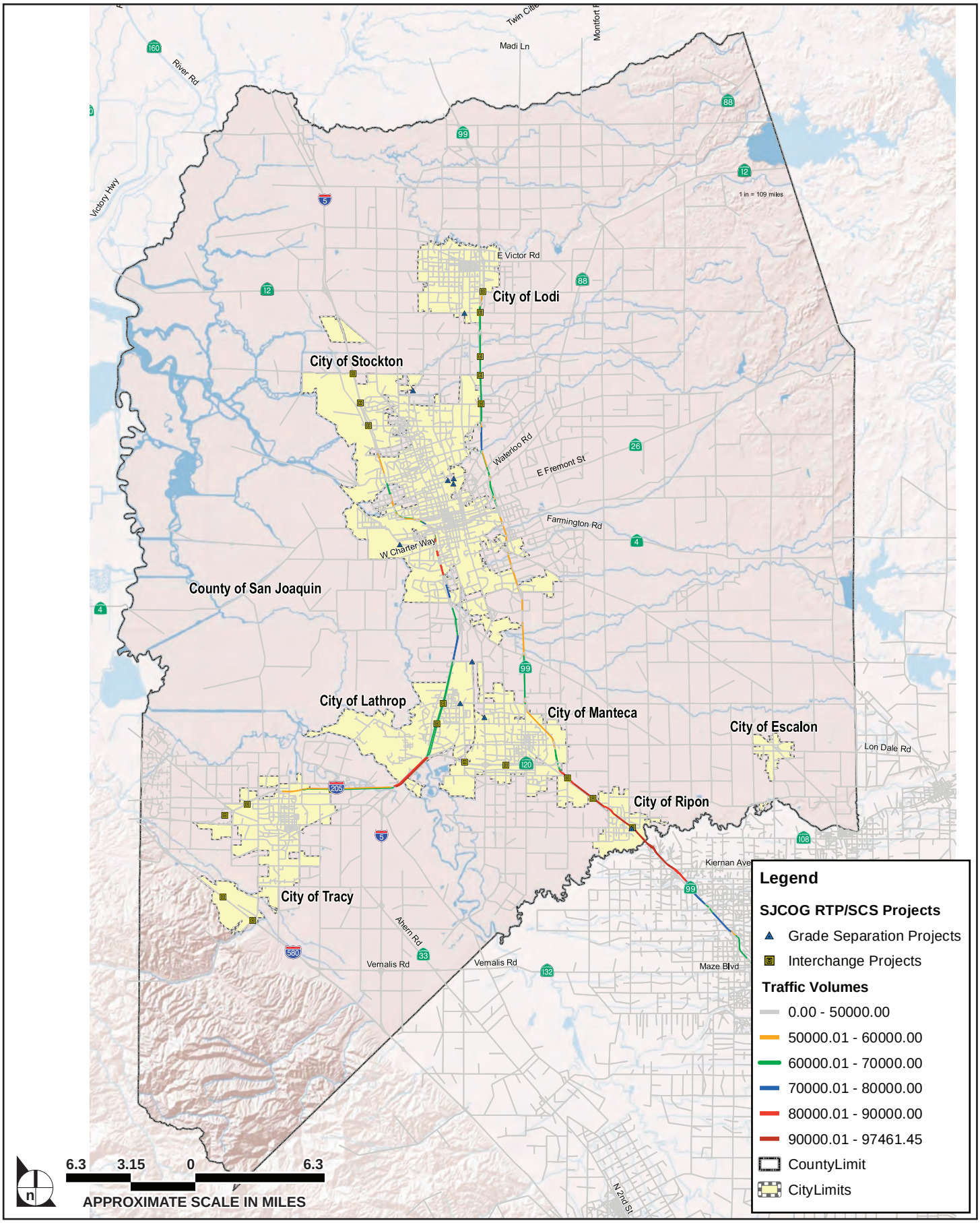
Some transportation and development projects would be so small they would not require environmental review, and some projects may receive streamlined environmental review as a result of SB 375, SB 743 or other legislation. For these projects that would not receive project-specific review, it is anticipated that they would comply with local general plans and ordinances designed to reduce impacts.

Increases in noise levels are expected adjacent to transportation facilities including highways, freeways, rail transit, toll-ways, truck-climbing lanes, freeway interchanges, and passenger and high-speed rail projects. These projects are subject to rigorous federal and local environmental review and would be required to abate increases in noise levels in accordance with applicable criteria. Many development projects especially larger projects would receive project-specific environmental review and would be required to adhere to the local general plans and noise ordinances, as part of the design and approval process for each facility.

Thus, together, impacts from exposure to increased noise levels from implementation of the proposed 2014 RTP/SCS would generally be mitigated but potentially not to a level of less than significance. In addition, because project specific conditions cannot be evaluated in this Program EIR, potential exposure of people to substantially increased noise levels is considered significant for **Impact NOISE-1**. Mitigation is required; see **Mitigation Measure NOISE-1**, below.

Level of Significance Before Mitigation

Potentially significant



SOURCE: San Joaquin COG, February 2014

FIGURE **4.10-7**

San Joaquin County Total Roadway Volume: Existing Conditions

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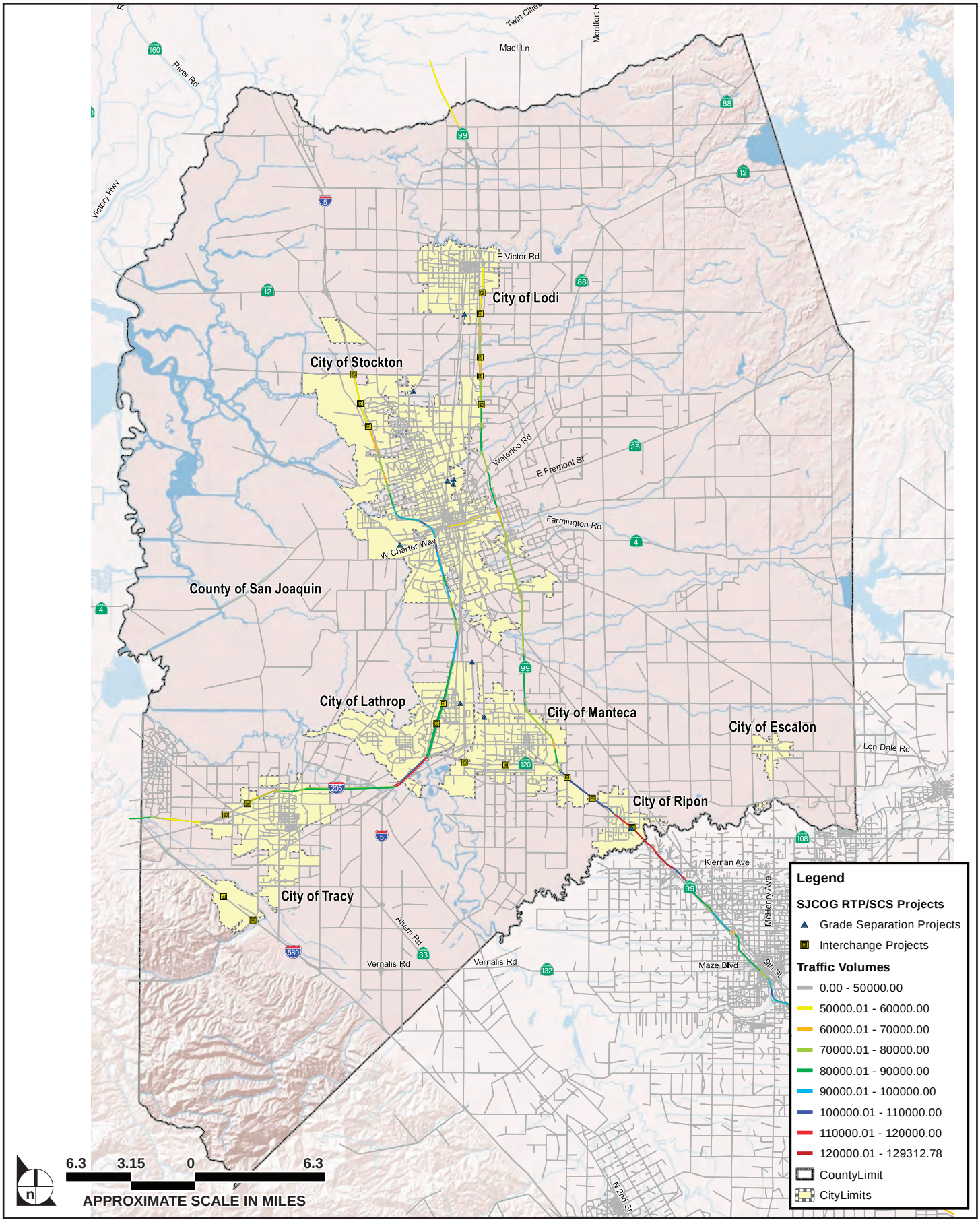

SOURCE: San Joaquin COG, February 2014

FIGURE **4.10-8**

San Joaquin County Total Roadway Volume: No Project

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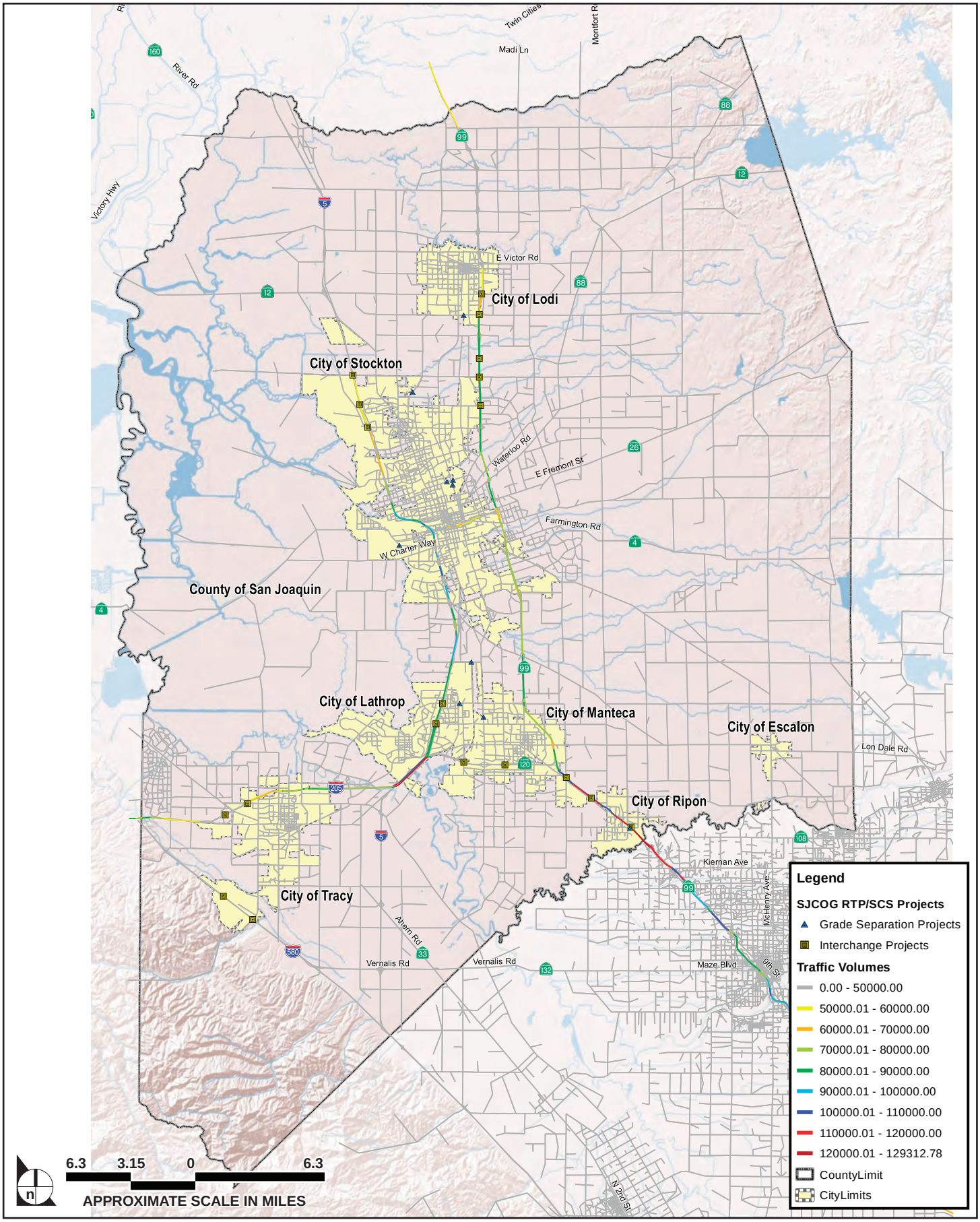

SOURCE: San Joaquin COG, February 2014

FIGURE **4.10-9**

San Joaquin County Total Roadway Volume: 2014 RTP/SCS

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Mitigation Measures

NOISE-1: Implementing and local agencies should assess and mitigate to the extent feasible short- and long-term noise impacts in accordance with applicable regulations and to implement site-specific noise reduction measures, including the following as applicable:

- Equipment and trucks used for project construction can and should utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible).

- Except as may be exempted by the Lead Agency (or other appropriate government agency), impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction can and should be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dB(A). External jackets on the tools themselves should be used, if such jackets are commercially available and this could achieve a reduction of 5 dB(A). Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

- Stationary noise sources can and should be located as far from adjacent sensitive receptors as possible and they should be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the Lead Agency (or other appropriate government agency) to provide equivalent noise reduction.

- A procedure and phone numbers for notifying the Lead Agency staff and local Police Department; (during regular construction hours and off-hours);

- A sign posted on-site pertaining with permitted construction days and hours and complaint procedures and who to notify in the event of a problem. The sign should also include a listing of both the Lead Agency and construction contractor's telephone numbers (during regular construction hours and off-hours);

- The designation of an on-site construction complaint and enforcement manager for the project;

- Notification of neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of extreme noise generating activities about the estimated duration of the activity.

- A preconstruction meeting can and should be held with the job inspectors and the general contractor/on-site project manager to confirm that noise measures and

practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.

- Use of portable barriers in the vicinity of sensitive receptors during construction.
- Projects that require pile driving or other construction noise above 90 dB(A) in proximity to sensitive receptors, should reduce potential pier drilling, pile driving and/or other extreme noise generating construction impacts greater than 90dB(A), a set of site-specific noise attenuation measures should be completed under the supervision of a qualified acoustical consultant.
- Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts**.**
- Monitor the effectiveness of noise attenuation measures by taking noise measurements.
- Strategically place material stockpiles between the operation and the affected dwelling to minimize noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence.
- Retain a structural engineer or other appropriate professional to determine threshold levels of vibration and cracking that could damage any adjacent historic or other structure subject to damage, and design means and construction methods to not exceed the thresholds.
- Maximize the distance between noise-sensitive land uses and new roadway lanes, roadways, rail lines, transit centers, park-and-ride lots, and other new noise-generating facilities.
- Construct sound reducing barriers between noise sources and noise-sensitive land uses.
- Implement, to the extent feasible and practicable, speed limits and limits on hours of operation of rail and transit systems, where such limits may reduce noise impacts.
- Maximize the distance of new route alignments from sensitive receptors.
- Locate transit-related passenger stations, central maintenance facilities, decentralized maintenance facilities, and electric substations away from sensitive receptors to the maximum extent feasible.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, it is not anticipated that it will reduce noise impacts to a less than significant level in all cases. Because this document evaluates impacts at the

programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure NOISE-1**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt **Mitigation Measure NOISE-1**, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact NOISE-2 Expose people to or generate excessive groundborne vibration.

Noise and vibration impacts from the construction and operation of transportation projects and development of the surrounding area could generate excessive groundborne vibration and noise levels. Construction-related vibration has the potential to damage structures, cause cosmetic damage (e.g., crack plaster), or disrupt the operation of vibration sensitive equipment. Vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. Heavy construction operations can cause substantial vibration in close proximity to the source.

Typical project construction activities, such as the use of jackhammers, other high-power or vibratory tools, compactors, and tracked equipment, could also generate substantial vibration (i.e., greater than 0.2 inch per second PPV) in the immediate vicinity, typically within 15 feet of the equipment. However, building construction does not typically have these larger sources of vibration and is, therefore, not anticipated to be a source of substantial vibration. By use of administrative controls, such as scheduling, typical construction activities would be restricted to hours with the least potential to affect nearby properties. Thus, perceptible vibration can be kept to a minimum and not result in human annoyance or structural damage.

Specific construction activities such as pile driving, could result in higher levels of vibration. Pile driving has the potential to generate the highest vibration levels and is the primary concern for structural damage when it occurs within 50 feet of structures. Vibration levels generated by pile driving activities would vary depending on project conditions, such as soil conditions, construction methods, and equipment used. Pile driving activities may result in short-term annoyance. Depending on the proximity of existing structures to each construction site, the structural soundness of the affected buildings, and the methods of construction used, vibration levels caused by pile driving or other foundation work with a substantial impact component such as blasting, rock or caisson drilling, and site excavation or compaction could be high enough to be perceptible within 100 feet and may be high enough to damage existing structures within 50 feet.

In addition to pile driving activities, light industrial and commercial operations have, on occasion, been known to utilize equipment or processes in the manufacture and distribution of materials that have a potential to generate vibration. However, vibrations found to be excessive for human exposure that are the result of a manufacturing process or industrial machinery are generally addressed from an occupational health and safety perspective. The residual vibrations from industrial processes or machinery are typically of such low amplitude that they quickly dissipate into the surrounding soil and are rarely perceivable at the surrounding land uses.

Distribution of materials to and from industrial and commercial land uses can have the potential to generate more substantial levels of vibration than that of the mechanical equipment. Heavy trucks used for delivery and distribution of materials to and from industrial and commercial sites generally operate at very low speeds while on the industrial or commercial site. Therefore, the vibration induced by heavy truck traffic at industrial or commercial land uses is not anticipated to be perceptible at distances greater than 25 feet (typical distance from roadway centerline to edge of roadway right-of-way for a single-lane road).

Transit

The 2014 RTP/SCS includes investments in freight rail and passenger rail. This plan lays out an investment strategy of incremental speed and capacity improvements to existing ACE and Altamont and freight service to provide expanded service within the County. A series of grade separations, grade closures, track expansions, station improvements, earthen works, and other improvements will allow more and faster service in the San Joaquin Valley Corridor.

Improvements, additions, and extension of transit corridors, such as those associated with bus rapid transit and passenger rail would expose existing and future noise-sensitive land uses to high levels of noise generated by high-volume transit corridors. Noise levels would increase along bus and rail corridors where speeds are increased, trains are double-tracked and/or the number of trains increases as a result of physical and/or programmatic changes.

Noise would also increase adjacent to new bus and rail corridors where there were previously no buses or trains. Increased noise levels would only be relevant where adjacent sensitive receivers are located along existing or proposed corridors. Crossings also use audible warning signals that could impact nearby residents. Increases in bus and rail traffic could also lead to more horns and/or whistles at crossings near residential areas, which is a source of annoyance, especially at night or in early morning or evening.

Impacts from exposure to excessive groundborne vibration as a result of the 2014 RTP/SCS are considered significant for **Impact NOISE-2**. Mitigation is required; Mitigation Measure **NOISE-1** would also address vibration.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Implement **Mitigation Measure NOISE-1,** above.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, it is not anticipated that it will reduce vibration impacts to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation MeasureNOISE-1**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt **Mitigation Measure NOISE-1**, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.10.6 CUMULATIVE EFFECTS

The RTP/SCS includes transportation projects and land use strategies that will shape the region over the next 27 years. These changes will include the extension of transportation and related infrastructure that would result in additional noise sources. Plan projects will connect with projects outside the region facilitating and potentially inducing construction of transportation infrastructure outside the region. This additional infrastructure outside the County could lead to development outside the region. Construction noise and vibration impacts are generally site specific, although to the extent that the RTP/SCS would induce growth outside the region it could result in construction noise outside the region. The Plan could facilitate movement in other regions, which would increase noise levels outside the County. The proposed RTP/SCS encompasses all development (both transportation and land use changes) that would occur in the region through 2040. The impacts of anticipated development are discussed fully above; the RTP/SCS could contribute to a cumulatively considerable increase in noise and vibration outside the region as a result of increased activity resulting from the Plan (increased travel outside the region and/or induced growth outside the region). This activity would include aircraft overflights, railroads, as well as

freeway, arterial and transit noise. As a result, the 2014 RTP/SCS could result in a cumulatively considerable increase in noise and vibration.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measure NOISE-1**, above.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, noise and vibration impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt **Mitigation Measure NOISE-1**. However, as SJCOG cannot require implementation of **Mitigation Measure NOISE-1**, impacts could remain significant and unavoidable.

4.10.7 COMPARISON WITH NO PROJECT ALTERNATIVE

Implementation of the 2014 RTP/SCS would result in the same total regional population and households as the No Project Alternative. Population for both No Project and the Plan is projected to be approximately 1,070,486 million people in 2040. However, no regional transportation investments would be made beyond the existing programmed projects under the No Project Alternative. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments and growth policies contained within the proposed RTP/SCS.

Both the No Project and 2014 RTP/SCS would expose people to an increase in the noise and vibration level. Under the Plan, development would be more concentrated potentially exposing more people to noise and vibration in urban areas (including both construction and operational noise). However, the Plan includes improvements in urban areas that would facilitate traffic movement, increase use of transit and alternate modes, and reduce noise. On balance, the No Project Alternative would result in more roadways with substantial increases in noise (see **Figure 4.10-8** as compared to **Figure 4.10-9**).

The greater amount of transportation projects in the RTP/SCS would increase the amount of construction activity, which would increase short-term noise and vibration levels. However, as a result of the more dispersed growth pattern, and no emphasis on alternative modes of transportation, the No Project Alternative would result in fewer people exposed to substantial increases in noise as compared to the Plan as more people would be located in urban areas where bus and rail improvements would be likely to occur. The more compact development pattern under the Plan would lead to less dispersed impacts from operation and construction noise levels. The No Project Alternative could result in less cumulative impacts as it would not facilitate movement out of the County.

4.11 PUBLIC SERVICES AND UTILITIES

This section describes the existing public services and utilities within the region, identifies the regulatory framework with respect to regulations that addresses public resources and utilities, and evaluates the significance of the potential changes to these resources that could result from development of the 2014 RTP/SCS. In addition mitigation measures are identified as appropriate and feasible to reduce identified impacts. Sources utilized in this discussion include the San Joaquin County Fire Department, the California Highway Patrol, the San Joaquin County Sheriff's Office, the San Joaquin County Superintendent of Schools, the San Joaquin General Plan Background Update, California Energy Commission (CEC), California State Water Resources Control Board, and CalRecycle.

4.11.1 FIRE PROTECTION SERVICES

4.11.1.1 ENVIRONMENTAL SETTING

Fire Protection Services

Fire protection within San Joaquin County includes a variety of federal, state, county, city, and local fire protection agencies. Primary fire protection services occur at the community level, with city and county fire departments and fire protection districts providing this service. Also serving as fire protection services are a variety of volunteer fire companies. In addition, there are fire protection agencies that provide fire protection services within state and federal lands. These agencies include, but are not limited to, federal fire agencies (Bureau of Land Management, National Park Service, National Forest Service, Department of Defense, etc.), state forestry department, tribal fire departments, airport and harbor fire departments, and in some instances business sponsored fire departments (i.e., refineries, etc.). Each agency provides fire services within their own area of responsibilities, but they can call upon other agencies for fire support through mutual aid agreements. Generally, fire departments take proactive and preventative measures to provide fire suppression and emergency response services for all private, institutional, and public facilities within their area of responsibility. County service is for both unincorporated areas, cities that contract with the County for fire protection service, and independent fire protection districts.

Wildfires

The wildfire season typically lasts from early spring to late fall (although the 2013/2014 winter has been unusually dry and fire season has extended from 2013 in to 2014). Hazards arise from a combination of hot weather, the accumulation of dried vegetation, and low moisture content in the air. These conditions, if coupled with high winds and drought, can compound the risk and potential impact of a fire. Fires are usually classified as either urban fires or wildland fires. However, growth into rural areas has increased the number of people living in heavily vegetated areas where wildlands meet urban development, also referred to as the wildland-urban interface. This trend is spawning a third classification of fires: the urban wildfire. A fire along the wildland-urban interface can result in major losses of property and structures.

Three major factors sustain wildfires and allow for predictions of a given area's potential to burn. These factors include fuel, topography, and weather. The communities of Bellota, Clements, Linden, and Lockeford are extremely vulnerable to fires as a result of dense, grassy vegetation combined with a growing number of structures being built near and within rural areas.[1] **Figure 4.11.1-1, San Joaquin**

1 San Joaquin County General Plan Background Update, Safety Element.

County Wildfire Hazard Severity Zones, illustrates the areas in the County that are most susceptible to wildland fires.

Urban Fires

Urban fires occur in developed areas and include structural, chemical, and vehicular-related fires. Structural fires can result from mechanical failures, accidental occurrences, or arson. The building materials used in various structures can limit or be a catalyst for the spread of structural fires. Although structural fires can occur in any developed area, non-sprinklered commercial buildings in downtown areas and dwelling units in lower socio-economic areas appear to be more susceptible to fires, namely due to the age of the structures. Older structures are more susceptible to fire because they were built under older building standards and fire codes, are made from non-fire-resistive construction materials, and do not have internal sprinklers or other fire safety systems.

Fire Protection Agencies

Fire suppression is the responsibility of various fire departments and districts, which often also employ paramedics for emergency medical services. City fire departments (Stockton, Lodi, Tracy, and Manteca) provide urban fire protection within their respective incorporated areas. In addition, Stockton provides contract fire service to the Boggs Tract, Lincoln, Tuxedo-Country Club, and Eastside Fire Districts. Two fire departments (Escalon and Ripon) are "consolidated fire districts" which provide fire protection to their respective incorporated cities and surrounding rural areas. Additional fire districts provide fire protection within unincorporated areas and outlying small communities. **Figure 4.11.1-2, San Joaquin County Fire District Boundaries,** outlines the boundaries of the various fire districts in the County and provides a general location of each fire station in the County.

Bureau of Land Management

The Bureau of Land Management (BLM) is the nation's largest land manager and is responsible for more than 260 million acres of public land and 700 million acres of federal subsurface mineral estate nationwide. Much of the land currently managed by the BLM today was claimed by the federal government for homesteads, railroads, parks, wildlife refuges, national forests, military bases, or for other public uses.[2]

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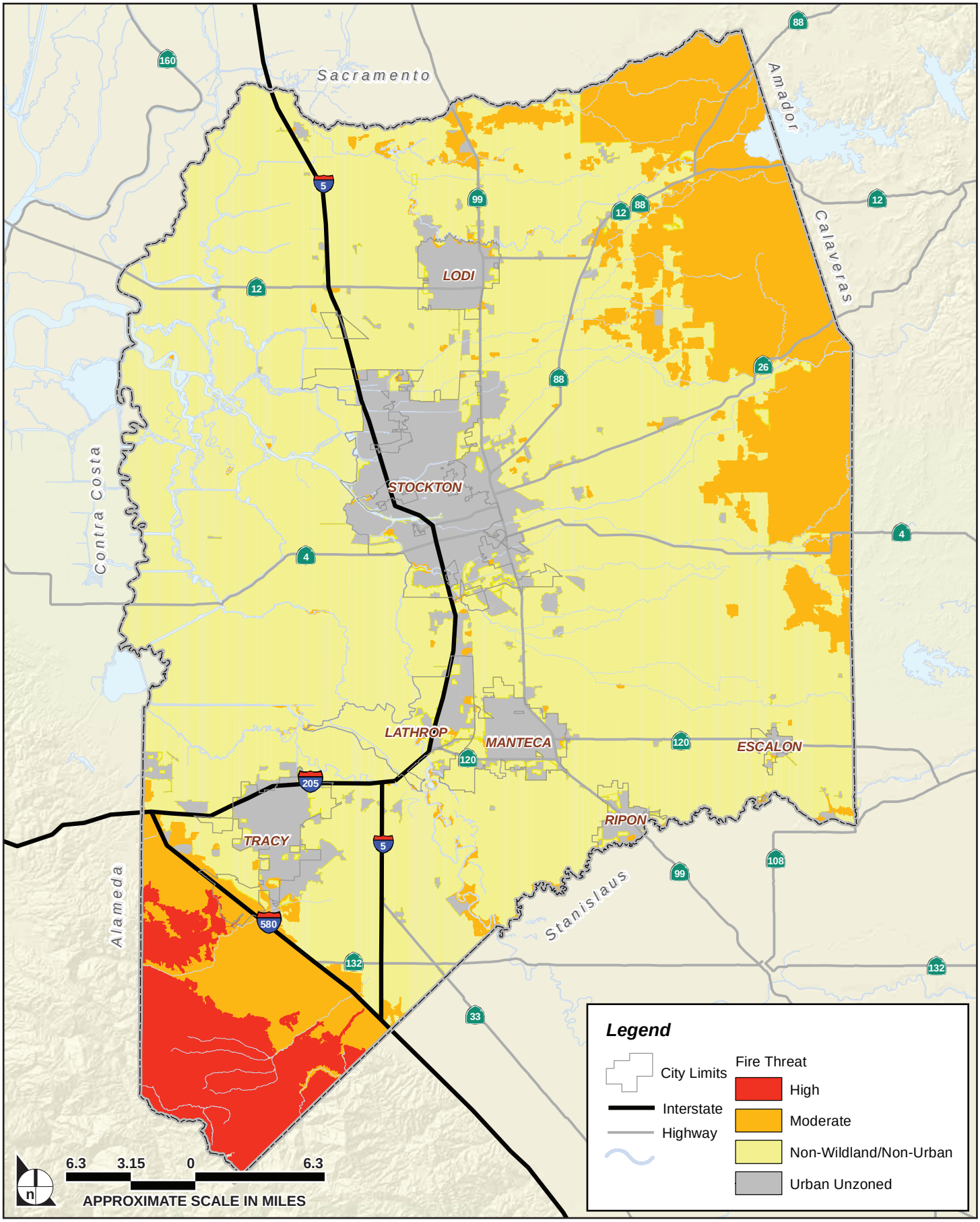
2 Bureau of Land Management, http://www.blm.gov/pgdata/etc/medialib/blm/wo/Communications_Directorate/general_publications/general.Par.75750.File.dat/TextBLMbro.pdf, July 18, 2013.



SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.11.1-1**

San Joaquin County Wildfire Hazard Severity Zones

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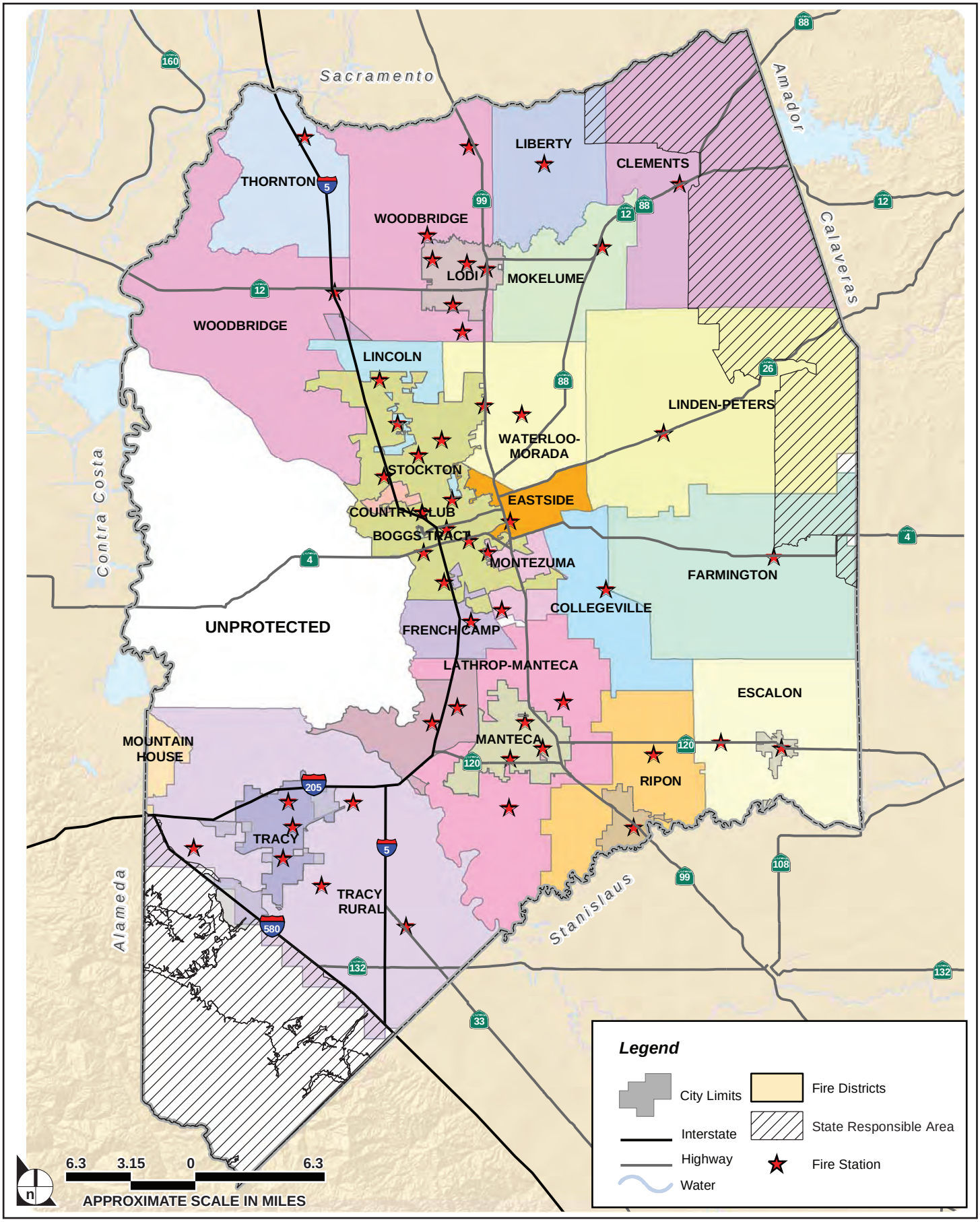

SOURCE: San Joaquin County General Plan Draft Background Report, 2013

FIGURE **4.11.1-2**

San Joaquin County Fire District Boundaries

The BLM operates the Fire and Aviation Directorate (FAD) organization which works with state and field offices to provide a fire and aviation management program. The FAD is headquartered at the National Interagency Fire Center (NIFC) in Boise, Idaho, where it works with seven other federal agencies to manage wildland fire in the United States. The BLM's fire and aviation program has three organizational levels: (1) the national office which provides leadership and oversight, and develops policy, procedures and budgets for the fire and aviation program; (2) state offices which are responsible for coordinating policies and interagency activities within their state; and (3) field offices which are responsible for on-the-ground fire management and aviation activities, often partnering with other agencies to maximize rapid initial attack.

The BLM plays a primary role in the nation's wildland fire management efforts, and undertakes a broad range of activities to protect the public, natural landscape, wildlife habitat, and recreational areas. The BLM trains firefighters in fire suppression, preparedness, predictive services, fuels management, fire planning, community assistance and protection, prevention and education, and safety.[3]

Most of the County is located in the BLM's Mother Lode jurisdiction, with a small portion located in the Hollister jurisdiction. The Mother Lode BLM Field Office is located in El Dorado Hills, approximately 30 miles east of Sacramento. Personnel working at the field office manage 230,000 acres of public lands in 14 Central California counties, including San Joaquin County. Public lands managed by the Mother Lode office include the Sierra Nevada Mountain Range, with the exception of the Cosumnes River Preserve in southern Sacramento County.[4]

National Park Service

The National Park Service (NPS) manages wildland fire in an effort to minimize destruction of infrastructure and communities, conserve natural and cultural resources, and restore and maintain the lands ecological health. The NPS manages 398 parks and more than 84 million acres of land throughout entire US and its territories. Of the over 84 million acres which the NPS is responsible for, 53 million acres have burnable vegetation. The NPS maintains 14 water tenders (often referred to as water tankers, which are used to transport large amounts of water), 160 engines, 18 fire module vehicles,[5] five crew carries, 16 helicopters, and one air tanker base located in Chattanooga, TN. NPS fire management includes hand crews, wildland fire modules, engine and helitack crews, as well as support personnel in parks and regional and national offices. Two Type 1 hotshot crews, Alpine Interagency Hotshot Crew (IHC) and Arrowhead IHC are based at Rocky Mountain National Park and Sequoia/Kings Canyon National Parks,

3 Bureau of Land Management, http://www.blm.gov/nifc/st/en/prog/fire.html, July 18 2013.

4 Bureau of Land Management, http://www.blm.gov/ca/st/en/fo/folsom/blmfacts.html January 29, 2014.

5 Fire modules can refer to equipment, logistical support and/or fire crews

respectively. The National Park Service also supports one interagency smokejumper, based at West Yellowstone, Yellowstone National Park. The NPS has seven active modules which are used to support NPS and interagency prescribed fire activities and wildfire incidents. The seven locations are:[6]

- Bandelier National Monument (NM)
- Black Hills at Jewel Cave NM (SD)
- Buffalo National River (AR)
- Cumberland Gap NHP (KY)
- Great Smoky Mountains NP (TN)
- Saguaro National Park (AZ)
- Whiskeytown Nation Recreation Area (CA)

National Forest Service

The National Forest Service (NFS) is an agency of the US Department of Agriculture which manages 193 million acres of public lands in national forests and grasslands. The NFS performs similar duties to the NPS, including managing wildland fires, reduce flammable fuels, and restore fire-adapted ecosystems. NFS management includes hand crews, engine crews, aviation and helitack crews, hotshot crews, lookouts, and smokejumpers. The NFS is responsible for fire prevention and suppression in the Plumas National Forest north of San Joaquin County, and the Stanislaus National Forest east of San Joaquin County.

National Indian Forestry and Wildland Fire Management Program

The National Indian Forestry and Wildland Fire Management Program is a cooperative effort of the United States Department of the Interior, Bureau of Indian Affairs, Office of the Deputy Director – Trust Services, Division of Forestry and Wildland Fire Management, Intertribal Timber Council, and individual Tribal governments on reservations that contain forest resources. Additionally, many Tribal governments also operate their own fire protection districts and fire departments.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CalFire) is California's fire department and resource management agency, and is responsible for the protection and stewardship of over 31 million

6 National Park Service, http://www.nps.gov/fire/wildland-fire/about.cfm, 2013.

acres of California's privately owned wildlands. In addition to fighting fires, CalFire responds to auto accidents, hazardous material spills, swift water rescues, civil disturbances, train wrecks, search and rescue missions, floods, and earthquake assistance. The organization is comprised of nearly 8,000 permanent and seasonal employees. CalFire provides a variety of programs and products to residents to help minimize wildland fires, including Fire and Resources Assessment Programs, the Returning Veterans Enlisting Their Skills (RVET) program, and fire prevention classes.

The Department provides emergency services in 36 of the State's 58 counties via contracts with local governments. The Department responds to more than 5,600 wildfires and over 350,000 emergency calls per year and is supported by the Office of State Fire Marshall (OSFM) which enforces fire-related laws in state-owned or operated buildings, investigates arson fires in California, licenses those who inspect and service fire protection systems, approves fireworks as safe and sane for use in California, regulates the use of chemical flame retardants, evaluates building materials against fire safety standards, regulates hazardous liquid pipelines, and tracks incident statistics for local and state government emergency response agencies[7].

Cal Fire is responsible for fire protection within State Responsibility Areas (SRA). SRA is found in 56 of California's 58 counties and totals more than 31 million acres. Within San Joaquin County CalFire is responsible for wildfires in the Coastal and Sierra Nevada Foothills.

Emergency Services Agencies

California Emergency Management Agency

The California Emergency Management Agency (Cal EMA) was established as part of the Governor's Office on January 1, 2009, merging the duties, powers, purposes, and responsibilities of the former Governor's Office of Emergency Services with those of the Governor's Office of Homeland Security.

Cal EMA is responsible for the coordination of overall state agency response to major disasters in support of local government. The Agency is responsible for assuring the state's readiness to respond to and recover from all hazards (natural, manmade, and war-caused emergencies and disasters) and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

County Offices of Emergency Services

The County Board of Supervisors has designated the Office of Emergency Services (OES) as the single coordinating center for major emergency activities. OES provides disaster mitigation, preparedness,

7 California Department of Forestry and Fire Protection, http://calfire.ca.gov/index.php, July 18, 2013.

response, and recovery planning for the people of San Joaquin County. In cooperation with other agencies and organizations, OES maintains and oversees the Multi-Hazard Functional Plan (MHFP) for San Joaquin County, a comprehensive disaster preparedness program. OES is granted Countywide emergency powers during a major emergency 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 as affected by the emergency. The OES becomes the Emergency Operations Center (EOC) as the single coordinating center for County emergency operations. Potential emergency situations requiring emergency services operations by OES include dam evacuation procedures, hazardous material incidents, flood evacuations and response, and mass casualty incidents as established in the County Basic Plan portion of the MHFP. Specific contingency plans have been developed for each of these emergency situations.

Beyond the disaster response function, OES provides administrative services for over 3,500 businesses in the County that are required by the State Health and Safety Code to report storage or use of hazardous materials.

Emergency Operations Centers

In coordination with the local OES, jurisdictions house Emergency Operations Centers (EOC), which are command centers where emergency service providers (many from the local OES) meet and coordinate response, recovery, and resources during disasters. The following functions are performed in the EOC, as necessary:

- receiving and disseminating warnings;
- managing emergency operations;
- developing emergency response and recovery policies;
- collecting intelligence from, and disseminating information to, the various EOC representatives, and assuring coordination between the Field Operations Center locations, building managers, and departmental safety representatives throughout the regional system;
- coordinating information with Cal EMA, the Federal Emergency Management Agency, and other appropriate outside agencies;
- preparing intelligence/information summaries, situation reports, operation progress reports and other reports as required;
- preparing incident action plans;

- maintaining general and specific maps, information display boards, and other data pertaining to emergency operations;
- continuing analysis and evaluation of all data pertaining to emergency operations; and
- controlling and coordinating, within established policy, the operations and logistical support of resources committed to the EOC.

4.11.1.2 REGULATORY SETTING

Federal

Federal Emergency Management Agency

In March 2003, the Federal Emergency Management Agency (FEMA) became part of the US Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the US Fire Administration.

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (42 USC § 5121 note) was signed into law to amend the Robert T. Stafford Disaster Relief Act of 1988 (42 USC § 5121-5207). Among other things, this new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities. Some of the major provisions of the Act include:

- funding pre-disaster mitigation activities;
- developing experimental multi-hazard maps to better understand risk;
- establishing state and local government infrastructure mitigation planning requirements;
- defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP); and
- adjusting ways in which management costs for projects are funded.

The mitigation planning provisions outlined in Section 322 of the Act establish performance based standards for mitigation plans and requires states to have a public assistance program (Advance Infrastructure Mitigation—AIM) to develop county government plans. The consequence for counties that

fail to develop an infrastructure mitigation plan is the chance of a reduced federal share of damage assistance from 75 percent to 25 percent if the damaged facility has been damaged on more than one occasion in the preceding 10-year period by the same type of event.

Federal Fire Safety Act

The Federal Fire Safety Act (FFSA) of 1992 is significantly different from other laws affecting fire safety as the Law applies to federal operations, and there is no requirement for local action unless a private building owner leases space to the federal government. The Federal Fire Safety Act (FFSA) requires federal agencies to provide sprinkler protection in any building, whether owned or leased by the federal government that houses at least 25 federal employees during the course of their employment[8].

State

California Fire Code

Title 24, Part 9 of the California Code of Regulations (CCR) is the California Fire Code. Title 24, Part 9 of the CCR sets forth regulations regarding building standards, fire protection and notification systems, fire protection devices such as fire extinguishers and smoke alarms, high-rise building standards, and fire suppression training. The 2007 California Fire Code is the incorporation of the 2006 International Fire Code of the International Code Council with necessary California amendments. Development under the proposed project would be subject to applicable regulations of the California Fire Code.

8 California Code of Regulations Sections 1270 and 6773. In accordance with CCR, Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration (Cal OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

14 California Code of Regulations Division 1.5. These regulations constitute the basic wildland fire protection standards of the California Board of Forestry. They have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in state recreation areas. Title 14 regulates that the future design and construction of structures, subdivisions, and developments in a state recreation area shall provide for basic emergency access and perimeter wildfire protection measures.

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8 Understanding the Federal Fire Safety Act, http://www.safe-t-first.com/commercial/library/articles/FMJOURNL.html, July 18, 2013.

Mutual Aid Agreements (MAA)

Immediately following the 1994 Northridge earthquake, city and county emergency managers in the Office of Emergency Services (OES) coastal, southern, and inland regions developed a coordinated emergency management concept called the Emergency Managers Mutual Aid (EMMA) system. EMMA provided a valuable service in the emergency response and recovery efforts at the Southern Regional Emergency Operations Center (REOC), local Emergency Operations Centers (EOCs), the Disaster Field Office (DFO), and community service centers.

The purpose of EMMA is to support disaster operations in affected jurisdictions by providing professional emergency management personnel. In accordance with the Master Mutual Aid Agreement, local and state emergency managers have responded in support of each other under a variety of plans and procedures.

The objectives of the EMMA Plan include:

- Providing emergency management personnel from unaffected areas to support local jurisdictions, Operational Areas, and regional emergency operations during proclaimed emergencies;
- Providing a system, including an organization, information, and forms necessary to coordinate the formal request, reception, assignment, and training of assigned personnel;
- Establishing a structure to maintain this document (the Emergency Managers Mutual Aid Plan) and its procedures;
- Providing for the coordination of training for emergency managers, including Standardized Emergency;
- Management System (SEMS/NIMS) training, emergency management course work, exercises, and disaster response procedures; and
- Promoting professionalism in emergency management.

California Code of Regulations Sections 1270 and 6773

In accordance with CCR, Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," Cal OSHA has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

California Code of Regulations Division 1.5

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Uniform Fire Code

The Uniform Fire Code (UFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices, and fire suppression training.

Local

County Offices of Emergency Services.

Counties and cities are generally the first responders to any security or emergency situation. These responders include fire departments, police and sheriff department, hospitals, ambulance services and transportation agencies. Coordination among public and private agencies within various cities and counties make the most use of all available resources in the event of any emergency.

While each city and county has their own security procedures, the policies are generally similar. Mutual Aid agreements between cities, counties, and private organizations help to maximize resources and reduce the human suffering associated with disaster situations.

San Joaquin County Fire Prevention Bureau

The San Joaquin County Fire Warden currently reviews development plans and building permits in unincorporated areas of the County for compliance with the California Fire Code. The County adopts the latest published California Fire Code regularly. The California Fire Code requires developers to provide approved water supplies capable of delivering adequate fire flow for fire protection to all premises upon which buildings or portions of buildings are constructed. Water supply may consist of reservoirs, pressure tanks, elevated tanks, water mains, or other fixed systems capable of supplying the required fire flow.

County and City General Plans

The State of California requires every county and city to adopt a General Plan, which must contain a Safety Element. CCR Section 65302(g) specifically provides that a city may adopt the county's safety element if the county's element "is sufficiently detailed containing appropriate policies and programs for adoption by a city." The Safety Element must include methods to reduce the potential risk of fires, floods, earthquakes, landslides, and other hazards. Other locally relevant safety issues, such as emergency response, hazardous materials spills, and crime reduction, may also be included. Some local jurisdictions have also incorporated their hazardous waste management plans into their safety elements. In addition, the safety element may be used to establish programs and policies that promote neighborhood, institutional, governmental, and business safety. The safety element must identify and map urban fringe and rural-residential areas that are prone to wildfires, adequate evacuation routes, and peak load water supplies to reduce fire hazards. The policies of the safety element form the basis of adopted fire safe ordinances and strategic fire defense system zoning. Fire and safety policies from the County's and each local jurisdictions' general plan are included below.

San Joaquin County General Plan

- The fire protection and law enforcement services and facilities shall provide adequate protection throughout the County, including waterways used by boaters.
- New development shall have water systems which meet County fire flow requirements or shall provide adequate on-site water storage, as determined by the County Fire Warden or by the local fire district having jurisdiction, if the district has a fire prevention bureau.
- In areas with high and extreme wildfire hazards, the County shall limit development to rural residential densities or lower, or encourage cluster development and require on-site fire suppression measures.
- Fire stations shall be strategically located so as to offer fire protection to all portions of the community, consistent with standards for comparable communities in the County.

- All development shall have adequate access for firefighting and emergency equipment

City of Escalon General Plan

- The City's fire service response goal shall be 5 minutes from "tone-out" to arrival on scene.
- The City shall maintain a reliable water supply system that meets the fire protection needs of the community.
- The City shall enforce the municipal code as it pertains to the abatement of fire hazards related to existing buildings, structures, and weed control.
- The City shall support local, state and federal programs designed to inform and educate the public concerning fi re prevention and suppression.
- The City will coordinate with San Joaquin County in the provision of fire protection services to ensure the maximum level of protection for all residences, commercial establishments, and industries within the planning area.
- The City will encourage installation of fire safety devices in all residences and require such installation at the time of original construction, remodeling, or expansion.
- The City will establish 5 minutes or 2 miles travel distance as the maximum response time or travel distance from the nearest fi re station. Outside of this response range, built-in fire protection systems (i.e., sprinklers) shall be required in all new buildings.
- The City will encourage the community to become involved in promoting state and federal fire protection programs in school and civic functions.

City of Lathrop General Plan

- The City will continue to give high priority to the support of police protection, and to fire suppression and prevention and life safety functions of the Fire District. Ultimate expansion of the City's fire service is to include additional stations affording adequate response within a maximum of 3 to 4 minutes to all parts of the urban area.
- The City will work to maintain a fire flow standard of 3,000 gallons per minute (gpm) for all commercial and industrial areas of the community, and 1,500 gpm for residential areas, to assure the capability to suppress urban fires. In strategic areas, the City should provide above ground water storage with capacities sufficient to supply the City for required durations.
- The City will maintain a street system, which is capable of providing access to any fires that may develop within the urban area, and which is capable of providing for the adequate evacuation of residents in the event of an emergency condition of magnitude.
- The City will continue to maintain and update emergency service plans, including plans for managing emergency operations, the handling of hazardous materials, and the rapid cleanup of hazardous materials spills.

- The City will continue to cooperate with the County of San Joaquin and other agencies in pre-disaster planning activities such as evacuation required in the event of a serious breach of an upstream dam capable of flooding the community.

- The City will seek to reduce the risks and potential for hazards to the public through planning and zoning practices and regulations, which avoid hazardous land use relationships, and by the continued and timely adoption of new-edition building and fire codes.

City of Lodi General Plan

- The City shall promote the installation of automatic interior sprinkler systems in all new developments.

- The City shall require new development to comply with minimum fire flow rates determined jointly by the City Fire Department and the Public Works Department.

- The City shall monitor fire flow capability throughout the City and set a high priority on improving fire flow in those areas where fire flow is not adequate.

- The City Fire Department shall maintain a regular program of fire inspection for commercial and industrial buildings.

- The City shall ensure, in approving private streets and access areas, that they are adequate in terms of width and turning radius to facilitate access by City firefighting apparatus. All plans for such streets shall be reviewed by the Fire Department to ensure these standards are met.

- The City shall endeavor to at least maintain the existing overall fire insurance (ISO) rating of three.

- The City shall endeavor through adequate staffing and station locations to maintain the minimum feasible response time for fire and emergency calls. The goal for travel time by the fire department in responding to an emergency shall be 3 minutes. As areas are developed beyond the 3-minute standard, additional fire stations, capital equipment, and personnel shall be provided or alternative fire protection measures shall be required.

- The City shall endeavor to maintain a firefighting staff level consistent with the provision of three-person companies and a 3-minute emergency travel time. The City shall translate this ratio to land use equivalents to correspond to the City's fee ordinance.

- The City shall attempt to offset the need for new fire department staff and equipment and to improve fire safety by promoting the installation of built-in fire protection equipment in all new development.

- The City shall assess development fees on all new residential, commercial, office, and industrial development sufficient to fund capital improvements and equipment required to provide fire protection,

City of Manteca General Plan

- The City shall endeavor to maintain an overall fire insurance (ISO) rating of 4 or better.

- The City shall endeavor through adequate staffing and station locations to maintain the minimum feasible response time for fire and emergency calls.

- The City shall provide fire services to serve the existing and projected population.

- The City will establish the criteria for determining the circumstances under which fire service will be enhanced.

- The Fire Department shall continuously monitor response times and report annually on the results of the monitoring.

- The Planning Commission and City Engineer will review proposed residential street patterns to evaluate the accessibility for fire engines and emergency response.

City of Ripon General Plan

- All new non-residential development will be equipped with automatic interior sprinkler systems to meet the Uniform Building Code.

- Encourage the Ripon Consolidated Fire District to maintain a regular program of fire inspection for existing commercial and industrial buildings. Involve the District at the planning stage of new development to ensure appropriate life safety and fire issues are addressed.

- Require that the construction of new roads and streets be adequate as to width and turning radius to simplify access by firefighting apparatus. Plans for new streets will be submitted for review and comment to the Ripon Consolidated Fire District.

- All development will be required to meet the minimum fire flow rates specified by the City's Fire Code.

- Enforce building and fire codes and City ordinances regarding fire protection.

- Support the Ripon Consolidated Fire District in the establishment and adjustments of fees and/or funds collected from new development for capital facilities, apparatus, and equipment required to mitigate the impact of new growth.

City of Stockton General Plan

- The City shall work to maintain a fire response time, which shall be used to determine future fire station's needs.

- The City shall strive to maintain an ISO rating of 1 as long as the rating continues to be a benefit to the City.

- The City should provide fire station facilities, equipment (engines and other apparatus), and staffing necessary to maintain current levels of service throughout the City, including newly developed areas. The City shall require new development to pay all public facility fees (PFF) as a means to provide a fair share of costs to provide fire station facilities and equipment in order to maintain current levels of service in newly developed areas. Also, new development may be required to create a Community

Facility District (CFD) or other funding mechanisms to pay the costs associated with the operation of a fire station.

- The City shall continue to cooperate with adjacent fire districts in the provision of fire protection services through mutual aid agreements.
- The City shall require that new development provide adequate access for emergency vehicles, particularly firefighting equipment, as well as provide evacuation routes.
- The City shall require that the storage of flammable and explosive materials and transportation of such materials are in accordance with local, state, and federal safety standards.
- The City shall consider protection from fire hazards in all planning, regulatory, and capital improvement programs.
- The City shall ensure that adequate fire flow requirements are maintained throughout the City.
- The City shall continue to promote public awareness and prevention of fire hazards through fire prevention programs.

City of Tracy General Plan

- The City shall provide fire and emergency response facilities and personnel necessary to meet residential and employment growth in the City.
- The City shall ensure that new development pays a fair and equitable amount to offset the costs for fire and emergency facilities by collecting a Public Buildings impact fee, or by requiring developers to build new facilities.
- Fire hazards shall be identified and mitigated during the project review and approval process.
- The City shall build and require roadways that are adequate in terms of width, radius, and grade to facilitate access by City fire-fighting apparatus, while also maintaining and improving Tracy's neighborhood character and hometown feel.
- The City shall plan fire station locations to maintain or enhance current response levels.
- Fire sub-stations shall be constructed in new development areas in order to meet the City's response time requirements.
- New developments shall satisfy fire flow and hydrant requirements and other design requirements as established by the City.
- The City shall use physical site planning as an effective means of preventing wildland fires.
- All development in areas of potential wildland fire hazards shall include the following:
  - Clearance around structures.

  - Fire-resistant ground cover.
  - Fire-resistant roofing materials.

- Development in areas with steep terrain shall be restricted as necessary in order to ensure fire safety.
- New developments shall satisfy fire flow and hydrant requirements, street widths and design requirements as established by the City.
- The City shall incorporate drought-resistant and fire-resistant plants in public works projects in areas subject to wildland fires.
- The City of Tracy Fire Department shall train regularly for urban and wildland firefighting conditions.

4.11.1.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including adoption of the RTP policies, adoption of the SCS, and adoption of the transportation project list and financing plan) could result in significant impacts to fire protection services, if any of the following could occur:

- Create a substantial need within the region for construction of additional public facilities, such as fire stations
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including whether wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Methodology

The analysis assesses the potential impacts to fire facilities that could result from implementation of the 2014 RTP/SCS. Impacts to fire resources are assessed in terms of both land use and transportation changes that could occur under the 2014 RTP/SCS. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" refers to conditions in the year 2012.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis

captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of fire resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under the California Environmental Quality Act [CEQA]); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of fire resources compares the existing conditions to the 2014 RTP/SCS conditions, as required by *State CEQA Guidelines* Section 15126.2(a). The known fire services located within the region were evaluated using the criteria set forth by the BLM, NPS, NFS, CalFire, and the *State CEQA Guidelines*.

Generally, with regard to impacts on fire resources, the greater the increase in population, housing, and employment from existing conditions, the more significant the impact on the existing resources. The addition of new communities generally has a greater impact on fire resources than the addition of new homes in an existing community. Nevertheless, the addition of any new structures and an increase in population and employment can still have significant local impacts.

The development of new transportation facilities may affect fire services, through direct effects by increasing the number of users on the road, and thus increasing the number of incidents which fire and emergency officials must respond to. Further as the population is expect to grow by 365,694 people, 92,839 jobs, and 100,186 households the potential for impacts to fire services is significant.

Since this document analyzes impacts to fire resources on a program level only, project-level analysis of impacts must be undertaken as appropriate.

Impacts and Mitigation Measures

Impact FIRE-1 **Create a substantial need within the region for construction of additional public facilities, such as fire stations.**

Fire and emergency services within San Joaquin County are provided by numerous agencies within multiple jurisdictions. Depending upon the timing, location, and duration of construction activities, several of the proposed projects, including grade crossings, arterials, interchanges, and auxiliary lanes, as well as development project construction could delay emergency vehicle response times or otherwise disrupt delivery of emergency services. By closing off one or more lanes of a roadway, emergency routes would be impaired. The closure of these lanes could potentially cause traffic delays and ultimately prevent access to calls for service. While these impacts would be brief in nature, they are potentially significant. As part of project specific environmental review, local agencies are required to determine the degree of impact to fire and emergency services and mitigate any impacts in accordance with county and city requirements to protect public safety.

Overall, construction-related impacts to fire and emergency vehicle response times and access could be reduced through adherence to road encroachment permits by the implementing agency. Traffic control plans should be prepared as part of the construction mitigation strategy to further reduce impacts on traffic and emergency response vehicles.

By 2040, the Plan area will grow by approximately 365,692 people, 92.817 jobs, and 100,116 housing units. Implementation of the 2014 RTP/SCS will consume roughly 18,123 acres of undeveloped land. Depending on the growth and housing patterns, existing facilities and services may become overextended during the lifetime of the Plan. In particular, the RTP/SCS includes a shift in housing patterns (from past RTPs) to emphasize development in urbanized areas. For example, 3.16 percent of new development would be infill/redevelopment and 41.14 or 42,125 new units would be multi-family or mixed use units. This increase in development in urban areas could result in the need for additional facilities in these areas to ensure acceptable levels of service.

Public service standards, performance measures, and related policies are usually set in city and county general plans. To meet increased demand, existing facilities would likely need additional personnel and equipment to maintain adequate service levels. In some cases, depending on the pattern of development, it will be necessary to construct new facilities to maintain adequate response times, capital capacity, equipment, and personnel. Such construction could have impacts on aesthetics, air quality, cultural resources, geology, land use, noise, transportation, utilities, and other related environments.

Historically, local jurisdictions have accommodated increases in demand for public services, including fire protection and emergency services by constructing new facilities and leveraging existing facilities, equipment, and personnel. Future increases in demand would likely be handled in the same way. The timing, siting, and project-specific details of individual development projects will dictate the necessity of increasing service in existing service areas or expanding service to new areas. In most cases, local jurisdictions will not grant building permits until public services such as fire facilities are in place to serve the new development.

Historically, local jurisdictions have accommodated increases in demand (with increased staff and facilities funded through general funds of each jurisdiction). New or expanded transportation facilities may increase the demand for emergency personnel and facilities potentially without increasing funding, resulting in a significant impact related to police, fire, and emergency services. Increased development would increase demand for fire and emergency services; frequently tax revenues associated with development pays for increased services. The timing, siting, and project-specific details of individual development projects will dictate the necessity of increasing service in existing service areas or expanding service to new areas. In most cases, local jurisdictions will not grant building permits until public services such as fire facilities are in place to serve the new development. Nonetheless, tax revenue is not always sufficient and therefore impacts would remain potentially significant.

Therefore, the impacts on fire services related to the 2014 RTP/SCS are considered potentially significant for **Impact FIRE-1**. Mitigation is required. **Mitigation Measure FIRE-1** is described below.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

FIRE-1: Implementing and local agencies should ensure adequate fire protection services will be available to satisfy community needs. The implementing local agency should ensure that the fire department will be available to continue to provide acceptable levels of service with implementation of each project.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts could be reduced to less than significant. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage

implementing agencies to adopt **Mitigation Measure FIRE-1**. However, as SJCOG cannot require implementation of this measure, impacts could remain significant and unavoidable.

Impact FIRE-2 **Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including whether wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.**

Wildfires can cause significant damage to people and property because they can spread quickly across large areas. The 2014 RTP/SCS could pose a hazard if it results in the loss, injury, or death and damage to property adjacent to wildlands where residences are intermixed with wildlands. Fire threats are depicted in **Figure 4.11.1-1**. **Table 4.11.1-1** provides the number of households that would be exposed to wildfire risk under the Plan.

Table 4.11.1-1
Households Exposed to Wildfire Risk 2040 Plan vs. No Project

Risk Class	Households (2040 No Project)	Households (2040 Plan)
Very High	0	0
High	40	40
Moderate	4,318	3,458

Source: Impact Sciences GIS analysis 2014, SJCOG 2014
Note: number of households is based on an estimation of residential uses with TAZs

In this analysis, anticipated future land uses are discussed in general programmatic terms. Project-specific, parcel-level future land uses are unknown. By 2040, the number of structures adjacent to wildlands and areas known for wildfire risk would be expected to increase. The threat of wildfires from development of areas within CalFire's responsibility, which include non-federal lands in unincorporated areas with watershed value, is addressed through compliance with Title 14 of the CCR, Division 1.5 to minimize exposing people and structures to loss, injury, or death and damage. Title 14 identifies the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent damage to structures or people by reducing wildfire hazards. In addition, wildfire prevention is a shared responsibility between federal, state, and local agencies. Federal lands fall under Federal Responsibility Areas, and all incorporated areas and other unincorporated lands are classified as Local Responsibility Areas.

The 2014 RTP/SCS projects involve the expansion or extension of the transportation system, which could increase the threat of adverse impacts from wildland fires. Transportation improvements that expand the

transportation system and extend it to new areas can expose more urban-adjoining land uses to risks associated with wildland fires.

Transportation improvements, especially capacity improvements, generally improve the transportation network to move people more efficiently, in case there is a need to evacuate due to a wildfire. As discussed above, the threat of wildfires from transportation improvements and development within CalFire's responsibility is addressed through compliance with Title 14 of the CCR, Division 1.5.

Nonetheless, implementation of the 2014 RTP/SCS would result in additional residential structures being located in wildfire risk areas. Impact would be potentially significant. **Mitigation Measures FIRE-2** and **FIRE-3** would be required.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measure

FIRE-2: Implementing and local agencies should avoid siting new development in wildfire zones.

FIRE-3: Implementing and local agencies should ensure that in the event that new development occurs in wildfire zones, the projects comply with safety measures as specified by CAL FIRE.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, it is not anticipated that it will reduce impacts to fire resources to a less than significant level in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure FIRE-2** and **FIRE-3**, impacts could remain significant and unavoidable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt **Mitigation Measures FIRE-2** and **FIRE-3**. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.11.1.4 CUMULATIVE EFFECTS

In general impacts to fire services would be confined to the region and would result from transportation projects and anticipated growth. However, large fires can extend across regional boundaries requiring firefighters from adjacent regions and beyond to assist on a case-by-case basis. To the extent that the

RTP/SCS would increase urban uses along the wildland interface and increase fire risk, the chance of a fire requiring multi-regional support increases. To that extent cumulative impacts would increase compared to today.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures FIRE-1** through **FIRE-3**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable

4.11.1.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365,694 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the RTP/SCS's objectives and policies.

Since the No Project Alternative includes fewer transportation projects than the Plan, it would have a lesser impact in terms of additional transportation infrastructure which would most likely increase the number of users and incidents requiring fire official's attention.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in dense areas which would help reduce response times, as most requests would be from concentrated urban areas. The No Project Alternative is more likely to permit sprawl development which could strain fire resources due to the physical distances between developments. Under the No Project Alternative, the denser land use

strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Further, under the No Project Alternative, more households could be exposed to wildfire threat than under the 2014 RTP/SCS as more development would occur in areas outside the urban core. **Table 4.11-1** shows a total of 4,358 households would be exposed to wildfire risk under the No Project Alternative, while 3,498 households would be exposed to wildfire risk under the Plan.

The Plan also includes transportation improvements that facilitate access to undeveloped lands, making those lands more attractive for development than under the No Project Alternative. However, the Plan includes policies to dissuade such encroachment on open space and vacant lands and is anticipated to result in far fewer impacts. It is anticipated that the land use planning strategies included in the proposed RTP/SCS will minimize consumption of vacant, open space/recreation and agricultural lands compared to the No Project Alternative (about 18,123 acres under the RTP/SCS and about 35,184 acres under the No Project Alternative). The No Project impacts would be greater than the Plan impacts for **Impact FIRE-1** and **Impact FIRE-2** because of the increased consumption of open space and vacant land, the increase number of households that could be exposed for wildland fire risk, and the strain on fire resources which would result from the above actions.

4.11.2 Police Protection

4.11.2.1 ENVIRONMENTAL SETTING

Police Protection Services

Law enforcement takes into account a variety of federal, state, county, city, and other local law enforcement agencies. Primary law enforcement is at the community level, with City Police and County Sheriff's Departments providing this service. Additionally, there are more specialized law enforcement agencies that assist in law enforcement at the community or resource level. These specialized agencies include, but are not limited to State Highway Patrol, School Police, Airport and Port Police, Transit Police, Park Rangers (federal, state, county, and city), and a wide variety of federal agencies (FBI, ATF, etc.). Each agency has their own responsibilities, some of which may overlap with other law enforcement agencies. State Park Rangers may call upon Sheriff's Deputies for assistance. Transit Police might call upon City Police to aid them. In general, law enforcement agencies provide first response to all emergencies, perform preliminary investigations, and provide basic patrol services in their service area.

California Highway Patrol

The California Highway Patrol (CHP) enforces state and local regulations along interstate and state highways. The agency's service area within San Joaquin County includes the following state routes (SR): SR-4, SR-12, SR-26, SR-88, SR-99, SR-120, and SR-132. In addition, officers patrol Interstate (IS): IS-5, IS-205, and IS-580 which also traverse through San Joaquin County. While monitoring the roadways the CHP provides traffic regulation enforcement, accident management, and assistance to stopped motorists. The CHP maintains one primary office in San Joaquin County and two area offices, located in the cities of Stockton and Tracy. When necessary the CHP coordinates with both the San Joaquin County's Sheriff Department and the nine local police departments within the County.

San Joaquin County Sheriff

The San Joaquin County Sheriff is responsible for providing general law enforcement to the unincorporated areas in the County and to the City of Lathrop and Mountain House Community Service District. The Sheriff Department consists of six divisions, including the Civil and Custody Division, Coroner's Office, Internal Affairs Division, the Public Information and Record's Division, the Administration Division, and the Operations Services Division.

The Sheriff's office employs sworn and civilian employees. In addition to the officer and civilian employees, detention deputies are deployed in the detention facilities and professional support staff

assigned throughout San Joaquin County. The main sheriff is an elected position and also serves as the County's Coroner, all other positions are County employees.

Communications Center

The Sheriff's Department staffs a County Communication Center that operates on a 24-hour, seven day 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 Center provides dispatch for all calls for service to the Patrol Division.

Support Divisions

The Internal Affairs Division, Records Division, and Technical Services Division provide services to support law enforcement in the County. This includes investigation of questionable conduct by staff, maintaining records and documents of incidents reported to and investigated by the San Joaquin County Sheriff's Office, and maintaining fingerprint registration database to be shared with the Department of Justice.

Detective Division

The Sheriff's Detective Division staff includes Criminal Investigators, Coroner Investigators, Crime Scene Evidence Technicians, and the members of the Public Administrator's Office. These detectives conduct criminal investigations that are often lengthy and require specialized training and experience in the areas of child abuse and sexual assault, homicide, kidnapping, narcotics, domestic violence, elder abuse, burglary, fraud, grand theft, and other crimes. Evidence Technicians support investigators by photographing, collecting, and storing evidence from crime scenes; performing fingerprint identification; and processing applicants for various public agencies.

Coroner's Office

The San Joaquin County Coroner's Office is responsible for investigating approximately half of all deaths in the County. As Coroner, certain deaths as defined in the Health and Safety and Government Codes of the State of California receive investigation to determine cause. Each coroner investigation provides a death classification through the result of investigation and/or inspection or autopsy. The coroner investigation includes security and disposition of the decedent's remains and property.

Boating Safety Unit

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.

Unified Court Services Division

The San Joaquin County Sheriff Office's Unified Court Services Division provides court security for five County court facilities. Security for these facilities includes the transportation of in-custody defendants from the County Jail to the various county courthouses; management of in-custody defendants in temporary holding cells while they await their court proceedings; courtroom security as monitored by Court Bailiffs; entrance and perimeter screening of all citizens, clients, and/or employees coming into any of the five court facilities; and monitoring the overall security of each courthouse.

Civil Division

The Sheriff provides civil process service as required by state law, which includes court orders, general summons, various types of writs, restraining orders, and civil warrants of arrest. This activity includes garnishments, levies, evictions, and repossession of certain properties, which are often auctioned by the Civil Division at a later date.

Support Divisions

The Internal Affairs Division, (Criminal) Records Division, and Technical Services Division provide services to support law enforcement in the County. This includes investigation of questionable conduct by staff, maintaining records and documents of incidents reported to and investigated by the San Joaquin County Sheriff's Office, and maintaining fingerprint registration database to be shared with the Department of Justice.

City Police Departments

Six of the seven incorporated cities located in San Joaquin County operate their own full service police departments, they include; the cities of Escalon, Lodi, Manteca, Ripon, Stockton, and Tracy.

4.11.2.2 REGULATORY SETTING

State

All law enforcement agencies within the State of California are organized and operate in accordance with the applicable provisions of the California Penal Code. This code sets forth the authority, rules of conduct, and training for peace officers. Under state law, all sworn municipal and county officers are state peace officers.

California Code of Regulations Division 2

Division 2 of Title 13 of the California Code of Regulations (CCR) governs the operations of the California Highway Patrol.

Local

County and Cities General Plan and Safety Elements

Local planning policies related to public services and recreation are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that public services must be provided at the same time (or in advance of) need for that service. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for police protection services generally include language pertaining to the development of law enforcement programs to reduce and control crime, the planning of future law enforcement facilities concurrently with growth, and the prevention of crime through education. Many jurisdictions also have specific goals, such as a maintaining a certain ratio of sworn officers to citizens, reducing response times, or reducing the overall number of crimes in the community. Policies included in the County's and local jurisdictions' General Plans are listed below:

San Joaquin County General Plan

- The County shall seek to improve law enforcement service by minimizing non-contiguous growth and discouraging annexations which leave irregular borders or "islands."
- The standard for law enforcement shall be 1.5 line officers assigned to patrol duty per 1,000 residents in urban communities and one line officer assigned to patrol duty per 1,000 residents in the remaining unincorporated portions of the County.

- Development design should foster a sense of community and incorporate defensible space design concepts.

City of Escalon General Plan

- The City of Escalon shall conduct joint training exercises between local fi re and law enforcement personnel to develop coordinated action in fire suppression, traffic, and crowd control.

City of Lathrop General Plan

- The promotion of citizen awareness and preparedness for emergency/disaster situations or potential for the incidence of crime.

City of Lodi General Plan

- No applicable policies

City of Manteca General Plan

- The City shall endeavor through adequate staffing and patrol arrangements to maintain the minimum feasible police response times for police calls.
- The City shall provide police services to serve the existing and projected population.
- The City will establish the criteria for determining the circumstances under which police service will be enhanced.
- The Police Department shall continuously monitor response times and report annually on the results of the monitoring.
- The Planning Commission and City Engineer will review proposed residential developments to evaluate the accessibility for police patrols and emergency response.

City of Ripon General Plan

- The Ripon Police Department will continue to promote neighborhood security programs and provide crime prevention training for neighborhood groups and associations.
- The City will promote personal security when reviewing the design of development.
- Encourage the participation of local citizens in the Volunteers in Police Service (VIPS) Program, Police Reserves, and the Technical Reserves.
- The City will try, through adequate staffing and equipping, to maintain the minimum feasible police response times for police calls for service. Depending on available revenue and demographics, the City should use 1.5 sworn officers per 1,000 population as its 'target' ratio.
- The City will continuously monitor response times.

City of Stockton General Plan

- The City shall maintain an average response time of 5 minutes or less for priority one calls.
- The City shall maintain a minimum ratio of 1.5 sworn officers per 1,000 residents served.
- The City shall continue to plan for the location of branch police stations within newly developing areas of Stockton.
- The City shall promote public safety programs, including neighborhood watch, child identification and fingerprinting, and other public education efforts.
- The City shall continue to promote the use of building and site design features as a means for crime prevention and reduction.

City of Tracy General Plan

- Maintain adequate police staffing, performance levels and facilities to serve Tracy's existing population as well as any future growth.
- The City shall ensure that new development pays a fair and equitable amount to offset the capital costs for police service and expansion by collecting a public facilities impact fee.
- The City shall strive to continuously improve performance and efficiency in the Police Department.
- The City shall continue to provide mutual aid with the County Sheriff's Department when a situation exceeds the capabilities of either department.
- Law enforcement hazards shall be identified and mitigated during the project review and approval process.
- Physical site planning should be used as an effective means of preventing crime. This can be achieved by locating walkways, open spaces, landscaping, parking lots, parks, play areas, and other public spaces in areas that are visible from buildings and streets.
- Police sub-stations shall be constructed in new development areas in order to meet the City's response time requirements.
- Provide neighborhood security and crime prevention information and training to neighborhood groups and homeowners' associations.

4.11.2.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR,— SJCOG has determined that adoption and/or implementation of the 2014 RTP/SCS (including RTP policies, the SCS, and the transportation project list and financing plan) would result in significant impacts to police protection resources, if any of the following would occur:

- Create a substantial need within the region for construction of additional police stations.

Methodology

The analysis assesses the potential impacts to police facilities that could result from implementation of the proposed RTP/SCS. Impacts are assessed in terms of both land use and transportation impacts. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of police resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under the California Environmental Quality Act [CEQA]); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of police resources compares the existing conditions to the RTP/SCS conditions, as required by *State CEQA Guidelines* Section 15126.2(a). The known police resources located within the region were evaluated using the criteria set forth by the CHP, the San Joaquin County Sheriff's Office, and the *State CEQA Guidelines*.

Generally, with regard to impacts on police resources, the greater the change from existing conditions, the more significant the impact on the existing resources. The addition of new jobs, housing, and residents will affect existing police resources and can have significant local impacts.

The development of new transportation facilities may affect police resources, through direct effects by increasing the number of users on the road, and thus increasing the number of incidents which police officials must respond to. Further, as the population is expect to grow by 365,694 people, the potential for impacts exists.

Since this document analyzes impacts to police resources on a program level only, project-level analysis of impacts must be undertaken as appropriate.

Impacts and Mitigation Measures

Impact POLICE-1 Create a substantial need within the region for construction of additional police stations.

Police services are provided by several agencies within multiple jurisdictions. Depending upon the timing, location, and duration of construction activities, several of the proposed projects, including grade crossings, arterials, interchanges, and auxiliary lanes, as well as development project construction, could delay police vehicle response times or otherwise delay the response of police services. By closing off one or more lanes of a roadway, response times could be increased as police vehicles may have to take a longer route, due to construction activity. The closure of these lanes could potentially cause traffic delays and ultimately prevent access to calls for service. While these impacts would be brief in nature, they are potentially significant. As part of project specific environmental review, local agencies are required to determine the degree of impact to police services and mitigate any impacts in accordance with the county and city requirements to protect public safety.

Overall, project construction-related impacts to police vehicle response times and access could be reduced through adherence to road encroachment permits by the implementing agency. Traffic control plans

should be prepared as part of the construction mitigation strategy to further reduce impacts on traffic and police response vehicles.

By 2040, the Plan area will grow by approximately by 365,694 people, 92,839 jobs, and 100,186 households. Implementation of the proposed RTP/SCS will convert roughly 18,123 acres of undeveloped land to developed uses. Depending on the growth and housing patterns, existing facilities and services may become overextended during the lifetime of the Plan. In particular, the RTP/SCS includes a shift in housing patterns (from past RTPs) to emphasize development in urbanized areas. With the Plan, 3.16 percent of new development and 41 percent of new development would be multi-family/mixed use. This increase in development in urban areas could result in the need for additional facilities in these areas to ensure acceptable levels of service.

Public service standards, performance measures, and related policies are usually set in city and county general plans. To meet increased demand, existing facilities would likely need additional personnel and equipment to maintain adequate service levels. In some cases, depending on the pattern of development, it will be necessary to construct new facilities to maintain adequate response times, capital capacity, equipment, and personnel. Such construction could have impacts on aesthetics, air quality, cultural resources, geology, land use, noise, transportation, utilities, and other related environments.

Historically, local jurisdictions have accommodated increases in demand (with increased staff and facilities funded through general funds of each jurisdiction). New or expanded transportation facilities may increase the demand for emergency personnel and facilities potentially without increasing funding, resulting in a significant impact related to police protection services. Increased development would increase demand for police protection services; frequently tax revenues associated with development pays for increased services. The timing, siting, and project-specific details of individual development projects will dictate the necessity of increasing service in existing service areas or expanding service to new areas. In most cases, local jurisdictions will not grant building permits until public services such as police protection facilities are in place to serve the new development. Nonetheless, tax revenue is not always sufficient and therefore impacts would remain significant.

Therefore, the impacts on police services related to the land use changes and transportation improvements from implementation of the 2014 RTP/SCS are considered potentially significant for **Impact POLICE-1**. Mitigation is required. **Mitigation Measure POLICE-1** is described below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

POLICE-1: Implementing and local agencies to ensure adequate police services will be available to satisfy community service levels as needed. Implementing and Local agencies should ensure that the local police/sheriff's department will be able to continue to provide acceptable levels of service with implementation of each project.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts could be reduced to less than significant. As appropriate, SJCOG will encourage lead agencies to adopt this mitigation measure through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt this mitigation measure, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.11.2.4 CUMULATIVE EFFECTS

In general impacts police services would be confined to the region and would result from transportation projects and anticipated growth.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant.

4.11.2.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365,694 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban centers.

Since the No Project Alternative includes fewer transportation projects than the Plan, it would have a lesser impact in terms of additional transportation infrastructure which would most likely increase the number of users and incidents requiring police official's attention.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas which would help reduce response times, as most requests could be from concentrated urban areas. The No Project Alternative is more likely to permit sprawl development which would strain police resources due to the physical distances between developments. Under the No Project Alternative, the denser land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans.

The No Project impacts could be greater than the Plan impacts for **Impact POLICE-1** because of the dispersed development pattern could result in the need for additional facilities to be constructed to serve the more dispersed development pattern as it may take police officers longer to get to calls located in further out neighborhoods; however, more dense populations could result in increased crime. There would be no substantial cumulative impacts under either the No Project or Plan scenarios.

4.11.3 Schools

4.11.3.1 ENVIRONMENTAL SETTING

Educational Facilities

Several jurisdictions within San Joaquin County provide public education facilities and services to residents including elementary schools, middle schools, secondary schools, postsecondary schools, and colleges/universities, as well as special and adult education. Additional discussion of schools is provided in **Sections 4.3 Air Quality**, **4.8 Hazards and Hazardous Materials**, and **4.9 Land Use and Population**.

San Joaquin County's Office of Education

The San Joaquin County Superintendent of Schools (SCSOS), San Joaquin County's Office of Education, oversees, governs, and supports all of the San Joaquin County kindergarten through 12th grade (K–12) school districts. The Office of Education is a regional agency that provides educational leadership, resources, and services to assist the County's school districts.

During the 2012–2013 school year, SCSOS oversaw 14 school districts with more than 200 school sites and for the 2012–2013 school year had a student population of approximately 139,146 students, ranging from kindergarten to twelfth grade. Of the 14 school districts, Stockton Unified School District is the largest with approximately 39,000 students. Five of the districts are small, rural, one-school districts, with a student population between 173 to 315 students.

4.11.3.2 REGULATORY SETTING

State

California Government Code Section 65995

California Government Code Section 65995 is found in Title 7, Chapter 4.9 of the California Government Code. California Government Code Section 65995 authorizes school districts to collect impact fees from developers of new residential and commercial/industrial building space. Senate Bill (SB) 50 amended Government Code Section 65995 in 1998. Under the provisions of SB 50 schools can collect fees to offset costs associated with increasing school capacity as a result of development. The development associated with the proposed project would be subject to applicable fees determined by the local school districts per California Government Code Section 65995. The local school districts determine fees in accordance with California Government Code Section 65995 which can be adjusted every two years.

California Education Code

School facilities and services are subject to the rules and regulations of the California Education Code and governance of the State Board of Education (SBE). The SBE is the 11- member governing and policymaking body of the California Department of Education (CDE) that sets K–12 education policy in the areas of standards, instructional materials, assessment, and accountability. The CDE and the State Superintendent of Public Instruction are responsible for enforcing education law and regulations; and for continuing to reform and improve public elementary school, secondary school, and childcare programs, as well as adult education and some preschool programs. The CDE's mission is to provide leadership, assistance, oversight, and resources so that every Californian has access to an education that meets world-class standards. The core purpose of the CDE is to lead and support the continuous improvement of student achievement, with a specific focus on closing achievement gaps.

California Department of Education

The CDE is the government agency responsible for public education throughout the state. The department oversees funding, and student testing and achievement levels for all state schools. A sector of the CDE, the California State Board of Education is the governing and policy making sector responsible for education policies regarding standards, instructional materials, assessment, and accountability.

Leroy F. Green School Facilities Act of 1998 (Senate Bill (SB) 50)

The Leroy F. Greene School Facilities Act of 1998, Senate Bill (SB) 50, was signed into law on August 27, 1998. It placed a $9.2 billion State bond measure (Proposition 1A), which included grants for modernization of existing schools and construction of new schools, on ballot at the November 3, 1998 election. Under SB 50, a program for funding school facilities largely based on matching funds was created. Its construction grant provides funding on a 50/50 state and local match basis, while its modernization grant provides funding on a 60/40 basis. Districts that are unable to provide some, or all, of the local match requirement and area able to meet the financial hardship provisions may be eligible for additional state funding. In addition, SB 50 allows governing boards of school districts to establish fees to offset costs associated with school facilities made necessary by new construction. Pursuant to Government Code Section 65995, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project to less than significant levels.

Class Size Reduction Kindergarten-University Public Education Facilities Bond Act of 1998

Proposition 1A, the Class Size Reduction Kindergarten-University Public Education Facilities Bond Act of 1998 (Ed. Code, §§ 100400–100405) is a school construction funding measure that was approved by the voters on the November 3, 1998 ballot. The Act created the School Facility Program where eligible school districts may obtain state bond funds.

Local

School Districts

Although the California public school system is under the policy direction of the Legislature, the California Department of Education relies on local control for the management of school districts. In allocating resources among the schools of the district, school district governing boards and district administrators must follow the law, but also set the educational priorities for their schools.

County and City General Plans

Local planning policies related to education services are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that public services must be provided at the same time (or in advance of) need for that service. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below. The General Plan policies of the County and local jurisdictions are identified below:

San Joaquin County General Plan

- No applicable policies.

City of Escalon General Plan

- Developers shall prepare an infrastructure and public services assessment as part of each annexation and/or development application to determine infrastructure needs, feasibility, timing, and financing.

City of Lathrop General Plan

- No applicable policies.

City of Lodi General Plan

- No applicable policies.

City of Manteca General Plan

- The City shall cooperate with the Manteca Unified School District and others in locating and reserving appropriate sites for new neighborhood walking distance schools. Adequate facilities shall be planned to accommodate new residential development and endeavor to create neighborhood schools.

- The City shall cooperate with the Manteca Unified School District in their collection of school facility development fees from new development.

- Financing of new school facilities will be planned concurrent with new development.

- The City and Manteca Unified School District will work together to develop criteria for the designation of school sites and consider opportunities for reducing the cost of land for school facilities. The City will encourage the school district to comply with City standards in the design and landscaping of school facilities.

- The City will consider opportunities for joint-use of facilities with the school district. When feasible, a joint-use agreement will be pursued to maximize public use of facilities, minimize duplication of services provided, and facilitate shared financial and operational responsibilities.

- Schools must be located away from hazards of sensitive resource conservation areas, except where the proximity of resources may be of educational value and the protection of resources is reasonably assured.

City of Ripon General Plan

- No applicable policies.

City of Stockton General Plan

- The City shall coordinate with school districts to locate new schools in existing residential neighborhoods, the Village areas, and other newly developing areas where they are easily accessible by motorized vehicles, bicycles, pedestrians, and public transportation.

- The City shall support school districts in maximizing the use of developer fees and other funding options (Mello-Roos districts) to fund new construction.

- The City shall continue to work with school districts to monitor housing, population, and school enrollment trends in order to determine future enrollment needs. In particular, the City shall assess the anticipated housing and population growth for the Village areas during the specific plan development phase to determine the type of school facilities needed to support them.

- The City shall encourage school districts to site elementary schools within residential neighborhoods with a walking radius of approximately 1.5 miles. Elementary schools should be located where students need not cross major arterial or collector streets.

- To the extent allowed by state law, the City will require new projects to mitigate impacts on school facilities, which could occur through the use of developer fees. The City will also work with school districts, developers, and the public to evaluate alternatives to funding/providing adequate school facilities.

- The City will work with the school districts serving the planning area to evaluate the ability to expand or renovate school facilities within infill areas to provide adequate facilities and reduce issues related to the viability of infill development. The City will also work with school districts to evaluate alternative methods of providing school facilities in infill areas, such as smaller school sizes (lower capacity campuses spread through an area) on smaller campus land areas (evaluate multi-story facilities).

City of Tracy General Plan

- The City shall coordinate with the school districts serving the City of Tracy to ensure the provision of educational facilities sufficient for the existing and anticipated kindergarten through twelfth grade population, and shall work to ensure that school facilities that serve new development are available concurrent with the need, to the extent allowed by state law.

- The City shall provide the school districts with the opportunity to review proposed residential developments and make recommendations about the need for additional facilities based on school-child projections, existing school capacity, and access and traffic issues.

- Where possible, school facilities should be co-located with community parks and recreation facilities to encourage the joint use of facilities.

- School facilities shall be located close to the center of the population served by the school.

- Elementary schools should be located away from major streets to avoid vehicular noise and traffic hazards.

- School sites should be designed with adequate on-site pickup and drop-off areas to prevent school-related traffic congestion on the fronting and surrounding roadways.

- School sites should be located to have access to more than one street to avoid congestion on nearby streets.

- Direct, safe and convenient pedestrian and bicycle access should be provided between school sites and nearby residential neighborhoods to provide safe passage for students and teachers.

- The City shall strive to expand joint use programs with the school districts to allow the use of school sites for recreational purposes.

- The City, in cooperation with school districts, shall reserve land for purchase by the districts for the construction of new schools or the collection of school impact fees in accordance with state law.

4.11.3.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (RTP) (including RTP policies, the Sustainable Communities Strategy [SCS], and the transportation project list and financing plan) would result in significant impacts to educational facilities, if the following would occur:

- Create a substantial need within the region for construction of additional schools.

Methodology

The analysis assesses the potential impacts to education facilities that could result from implementation of the proposed RTP/SCS. Implementation of the 2014 RTP/SCS is analyzed at the regional level. Impacts are assessed in terms of both impacts that could result from transportation projects and changes in land use. By 2040, implementation of the proposed RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of educational resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing

conditions as required under the California Environmental Quality Act [CEQA]); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of education resources compares the existing conditions to the RTP conditions, as required by *State CEQA Guidelines* Section 15126.2(a). The known education resources located within the region were evaluated using the criteria set forth by the *State CEQA Guidelines*.

Generally, with regards to impacts on education resources, the greater the change from existing conditions, the more significant the impact on the existing resources. The addition of new housings and residents will affect existing education resources and can have significant local impacts.

The development of new housing units may affect education resources directly by increasing the number of residents and children in the area requiring education services. Further, as the population is expect to grow by 365,694 people the potential for impacts to education resources exists.

Since this document analyzes impacts to education resources on a program level only, project-level analysis of impacts must be undertaken as appropriate.

Impacts and Mitigation Measures

Impact ED-1 **Create a substantial need within the region for construction of additional schools.**

Population is anticipated to increase by approximately 365,692 people over the next 27 years (with or without the Plan), it is reasonable to assume some of this population increase would include school age children. The addition of approximately 60,273 single-family[1] units and approximately 42,126 multi-family[2] units could result in the addition of approximately 34,485 school-aged children over the 27-year horizon of the Plan.[3] The transportation investments and land use strategies in the 2014 RTP/SCS target development in urbanized portions of the region, such as Stockton, specifically near transit and other existing infrastructure. The addition of school aged children and associated effects on schools would occur over a 27-year period. As the effect would not be felt in urban or rural areas immediately, these

1 Single-family units include: Large and small lots, single-family detached structures, and mobile homes.

2 Multi-family units include: Multi-family attached structures and mixed-use buildings.

3 Assumes a multi family residence generation rate of 0.035 for elementary, 0.02 for middle and 0.27 for high school; and a single-family generation rate of 0.25 for elementary, 0.22 for middle and 0.10 for high school.

areas would have time to plan sufficiently for increases in student population. However, due to the large number of students that would need to be accommodated over the lifetime of the Plan it is expected that existing schools would not be sufficient to house the student population and, as a result, new schools would need to be constructed. Therefore, it is anticipated that this increase in population and associated school age children would result in a significant impact.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

EDU-1: Implementing and local agencies should undertake project-specific review of the impacts to educational facilities as part of project specific environmental review. For any identified impacts, project sponsors can and should ensure that the appropriate school district fees are paid in accordance with state law.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts would be reduced to less than significant upon payment of fees. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt mitigation measure EDU-1. However, as SJCOG cannot require implementation of this measure, impacts could remain significant and unavoidable.

4.11.3.4 CUMULATIVE EFFECTS

In general impacts to schools would be confined to the region and would result from transportation projects and anticipated growth.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None

Level of Significance After Mitigation

Less than significant.

4.11.3.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365,694 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban centers, which would result in greater consumption of vacant land (35,184 acres would be consumed under the No Project scenario as compared to 18,123 under the Plan).

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan (and therefore the same increase in school-age children). However, the Plan includes strategies to focus growth in urban centers which would place an increased burden on existing schools in urban areas as development increases, although development would be focused in areas with existing school infrastructure. The No Project Alternative would permit sprawl development which could require additional education resources to be built to serve new residential developments. Under the No Project Alternative, the dense land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans.

The Plan also includes transportation improvements that facilitate access to undeveloped lands, making those lands more attractive for development than under the No Project Alternative. However, the Plan includes policies to dissuade such encroachment on vacant lands. It is not clear which distribution (dispersed or compact) would result in greater impacts, as impacts would be depended on future school capacity which is unknown at this time. Therefore, impacts are anticipated to be similar. There would be no cumulative impacts to educational facilities under either the No Project or Plan scenarios.

4.11.4 RECREATION

This section describes the existing recreational resources within the region, identifies the regulatory framework with respect to regulations that address recreation resources, and evaluates the significance of impacts to recreation resources that could result from the proposed 2014 RTP/SCS. In addition, mitigation measures are identified as appropriate and feasible to reduce identified impacts.

4.11.4.1 ENVIRONMENTAL SETTING

Parks and Recreation

The diverse natural resources located in San Joaquin County provide a wide range of recreational opportunities for residents and tourists alike. Resources range from small neighborhood parks featuring playground equipment and sports fields to vast expanses of wilderness with hiking trails, water sports, and camping. In addition to parks for active recreation, San Joaquin County also has a diversity of open space areas. Currently, the County contains approximately 886 acres of mini, neighborhood, community, and regional parkland. (This does not include the County's incorporated cities' parkland, the 35 acres of the 6,500 acre San Joaquin River National Wildlife Refuge,[1] or any state park and recreation facilities.) These lands are governed by a variety of agencies, including municipal park departments, independent park districts, counties, cities, community service districts, and federal and state agencies. It should be noted that the County's incorporated cities operate their own parks and recreation department, as well as their own park and recreation facilities. Open Space and recreational lands are shown in **Figure 4-11.4-1 Resource Areas: Farmland, Habitat, Open Space, and Government Lands.**

Parks are classified into several subgroups: neighborhood parks, community parks, city parks, specialized recreation areas, state and federal recreation areas, and open space areas.

1 The majority of the San Joaquin River National Wildlife Refuge is located in Stanislaus County

Mini Park: Mini parks, also called "pocket" parks, include play lots and other recreational facilities serving an area less than a neighborhood in size. There is only one mini park in San Joaquin County, which is approximately 1-acre.[2]

Neighborhood Park: Neighborhood parks usually range in size from 5 to 15 acres, and are generally within walking distance of one's home. Neighborhood parks are areas for concentrated recreational activities for all age groups. They may contain areas for court and field sports and picnicking. Schools, with their playing fields, can often augment the recreation area of adjacent parks. Neighborhood parks in San Joaquin County account for about 40.5 acres.[3]

Community Park: Community parks serve larger areas and populations than neighborhood parks, and often provide special facilities such as swimming pools, tennis courts, and community centers. These parks generally have diverse activities, including areas not only for localized sports, but also for walking and jogging. Community parks should be within bicycling distance of one's home and served by a major street. Community parks in San Joaquin County account for about 35.4 acres.

Regional Park and Recreation Areas: Regional parks are generally large in size and provide recreational facilities and amenities, such as boat launching facilities, zoos, gardens, museums, sport fields, and amusement parks. These types of parks tend to be composed of large tracts of undeveloped land in order to protect and preserve the land's unique environmental, ecological, or scenic value. They are intended to serve people from more than one community and generally include more than 100 acres.[4]

State and Federal Recreation Areas: These are parks maintained by state or federal agencies and typically providing recreational opportunities like camping, hiking, bird watching, rafting, boating, and fishing. Many parts of the County have vast areas covered by state or federal parkland. **Figure 4.11.4-2, State and Regional Parks,** provides the location of these facilities in the County.

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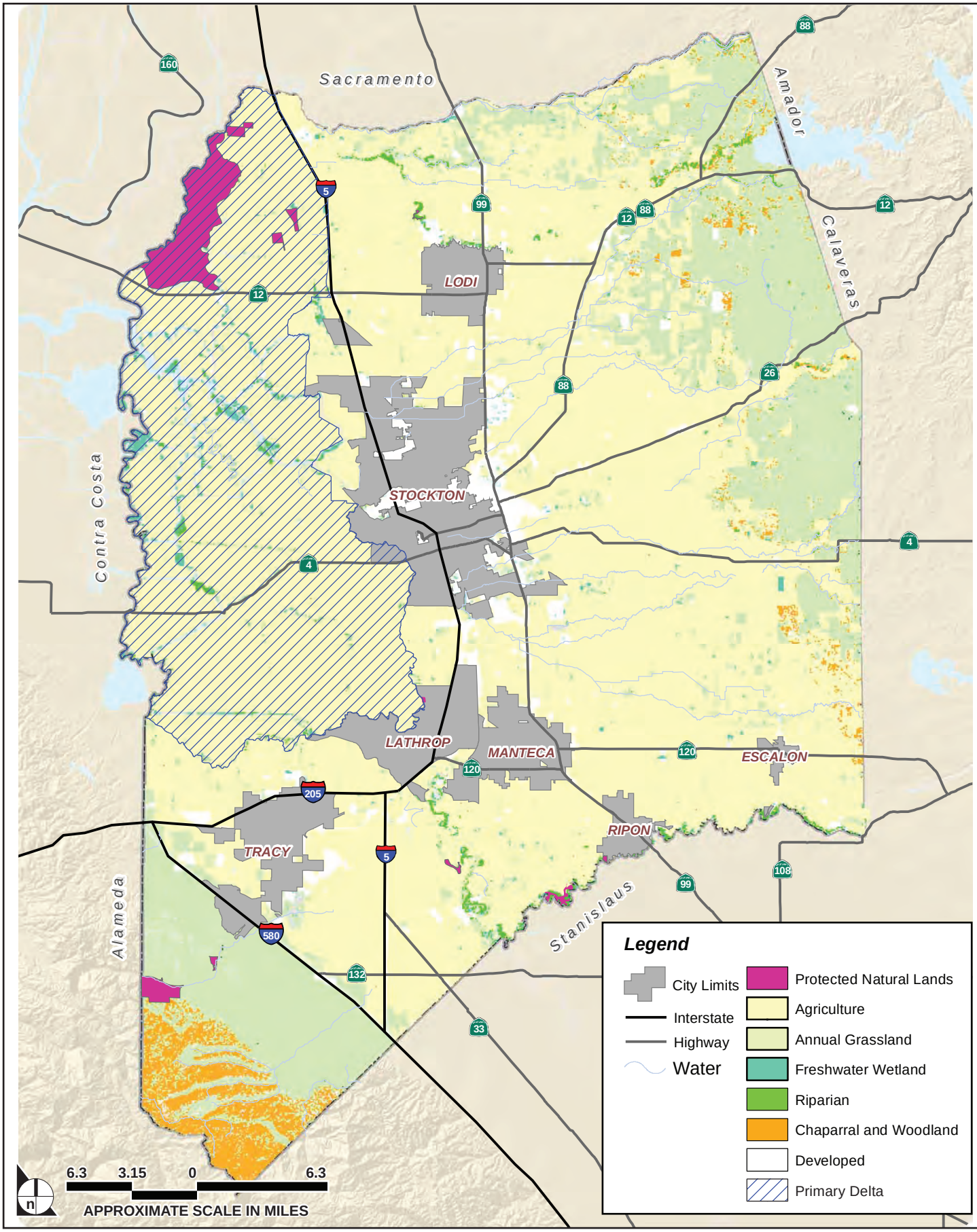

SOURCE: San Joaquin County General Plan Update, 2009

FIGURE **4.11.4-1**

Resource Areas: Farmland, Habitat Open Space, and Government Lands

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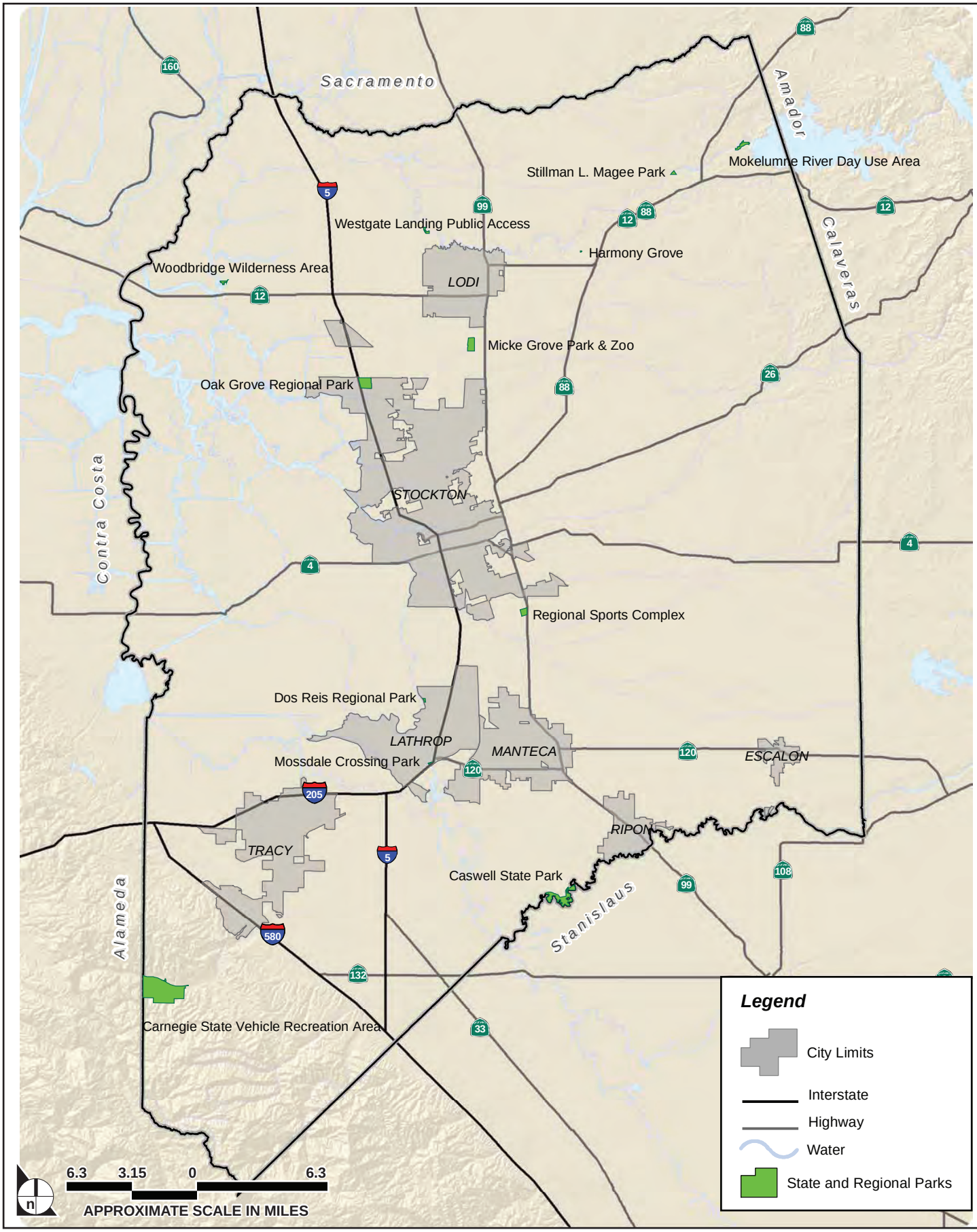

SOURCE: San Joaquin County General Plan Update, 2009

FIGURE **4.11.4-2**

State and Regional Parks

Open Space Areas: Open space refers to lands that are generally unimproved and used for resource conservation and/or the managed production of resources. Open space is comprised of both designated open space and "de facto" open space. Designated open space is land that has been left undeveloped by design. Other land is deemed open space not by design, but because the land is not involved in a productive use, or in the case of agricultural lands, the land is consumed by a productive use that contributes to the visual quality of the land or provides wildlife habitat.

Local Parks

Local parks are public recreation areas that serve a community, neighborhood, or smaller area. Local parks are designed for convenient access and can include mini, neighborhood, and community parks, and in smaller communities can include conjunctions with local school facilities. These types of parks are typically provided by cities, but may be provided by the County or a special district in an urban community. In addition to the local parks provided by the County's incorporated cities, the County provides a number of local parks including, three community parks, nine neighborhood parks, one mini park, and a ball field. One of the largest such parks, Mountain House Park is also located in the unincorporated area of the County.[5] **Table 4.11.4-1, San Joaquin County Community and Neighborhood Parks in Unincorporated Areas,** lists the local parks' location, activities associated with the park, and the acreage for each park.

Regional Parks

The County's regional parks are shown in **Figure 4.11-4-1, San Joaquin County Regional Parks.** The County owns and/or operates more than half of the regional parks. The location of most of the County's regional parks was determined on the basis of significant natural features, such as the oak groves at Micke Grove and Oak Grove parks. Many of the County's regional parks are also associated with rivers and water activities. **Table 4.11.4-2, San Joaquin County Regional Parks and Recreation Areas,** includes the 11 regional parks in the County which comprise 715 acres total.[6]

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Table 4.11.4-1
San Joaquin County Community and Neighborhood Parks in Unincorporated Areas

Park/Recreation Facility	Location	Amenities	Acreage
Mini Park			
West Jackson Park	Stockton	Picnic Tables	1
Neighborhood Park			
Boggs Tract Park and Center	Stockton	Community Center, ball field, basketball court, play area and day-use picnicking and restrooms	2.9
Garden Acres Park and Center	Stockton	Community Center, ball fields, basketball court, play area, day-use picnicking and restrooms	7.9
Madison Park	Stockton	Ball fields, play areas, day-use picnicking, restrooms and concession	4.4
Taft Park & Center	Stockton	Community Center, ball fields, basketball courts, play area, day-use picnicking and restrooms	11
Raymus Village Park	Manteca	Basketball court, ball field, play areas and day use picnicking	6.6
Larch Clover Park & Center	Tracy	Community Center, basketball court, play area, day-use picnicking and restrooms	4.2
Woodbridge Community Park	Woodbridge	Half-court basketball and play area	1.5
Neighborhood Park Subtotal			**40.0**
Community Park			
Eastside Community Park	Stockton	Ball fields, basketball court, play area and day-use picnicking	10
Gianone Park and Center	Stockton	Community Center, ball fields, play area, day-use picnicking and restrooms	15
Kennedy Park and Center	Stockton	Community Center, ball fields, basketball court, day-use picnicking, swimming pool and restrooms	17.6
Mountain House Community Park	Tracy	Ball fields, Tennis and Basketball Courts, multipurpose fields, play structures, walking trails, and picnic areas	82
Morada Park	Stockton	ball fields	5
Community Park Subtotal			**129.6**
Total Community and Neighborhood Parkland			**170.6**

Source: 2009 San Joaquin County General Plan Update, Recreation and Cultural Resources Element
Note: Some of the Mountain House Community Park amenities are proposed.

Table 4.11.4-2
San Joaquin County Regional Parks and Recreation Areas

Park/Recreation Facility	Operator	Location	Amenities	Acres
Micke Grove Regional Park	County	Lodi (off SR-99)	Oak tree grove; Zoo; Japanese Garden; large group picnic facilities; amusement park; the San Joaquin County Historical Museum; softball fields and children's playgrounds; a trail for the visually impaired; golf course, wedding and indoor rental facilities for up to 300 diners	258
Oak Grove Regional Park	County	Stockton (east of I-5 at Eight Mile Road)	Oak tree grove and trails; family and group picnic facilities; Oaks Nature Center; 500-seat outdoor amphitheater; 10-acre lake for fishing and paddleboats; golf course; children's playgrounds; youth group camping, indoor dining/meeting facilities for up to 50 persons, 18-hole "disc" golf course	179
Dos Reis Regional Park	County	west of Lathrop (off I-5);San Joaquin River	Boat launching, fishing, picnicking; RV camping; tent camping; horseshoe pits and a children's play area	9
Westgate Landing Public Access	County	Lodi (north of SR-12); Mokelumne River	R.V./tent campsites; fishing pier; overnight boat docking; picnic sites; and 0.5-mile of river frontage	20
Mossdale Crossing Regional Park	County	Lathrop Between Tracy and Manteca off I-5; San Joaquin River	Two-lane boat ramp with floating dock; picnic areas; children's playground	4
Harmony Grove Church	County	Lockeford (off SR-12)	Historical structure available for weddings and other special events	2
Regional Sports Complex	County and City of Stockton	Next to Stockton Metropolitan Airport	Four-field softball complex; four soccer fields; concession stands; picnic shelter	61
Stillman L. Magee Regional Park	County	Mackville Road north of Clements; Mokelumne River	Bank fishing area; access point for river rafters; swimming; picnic tables and barbeque	17
Mokelumne Day Use Area	East Bay Municipal Utility District	15 miles east Lodi (off SR-12); base of Camanche Dam	Picnicking, trails, fishing, swimming, rafting access; 1-mile river frontage	61
Woodbridge Wilderness Area	County	northwest of Lodi; Mokelumne River	Undeveloped; river access; fishing; 0.25-mile river frontage	22
Mountain House Old River Regional Park	Mountain House CSD	northwest of Tracy, Mountain House Planned Community	Walking trails along Delta, picnic areas, benches	82
Total Regional Parkland Acreage				**715**

Source: 2009 San Joaquin County General Plan Update, Recreation and Cultural Resources Element

Federal Recreation and Wildlife Areas

The San Joaquin River National Wildlife Refuge encompasses more than 6,500 acres of riparian woodlands, wetlands, and grasslands that host a diversity of wildlife native to California's Central Valley. Established in 1987 under the authority of the Endangered Species and Migratory Bird Conservation Acts, the refuge played a major role in the recovery of Aleutian cackling geese. The refuge includes 6,500 acres, predominantly in Stanislaus County; and an approximate 35-acre portion located in San Joaquin County. The United States Fish and Wildlife Service manages the refuge.[7] This refuge is further discussed in **Section 4.4, Biological Resources.**

State Recreation and Wildlife Areas

Three State wildlife facilities and two state parks are located in San Joaquin County. White Slough Wildlife Area includes 880 acres of man-made ditches, canals (burrow ponds), freshwater marshes, grassland/upland, and riparian habitat. Woodbridge Ecological Preserve, also known as Isenberg Crane Reserve, is managed as seasonal Sandhill Crane habitat and allows wildlife viewing with docent supervision in the northern site in addition to wildlife viewing via a car pullout overlook on the south site. The Corral Hollow Ecological Reserve, southwest of Tracy, is a 99-acre site composed of 30 percent riparian woodland and 70 percent grassland. It is host to the large flowered fiddleneck, a state and federally listed Endangered plant, in addition to several special status species. All areas are owned and managed by the State Department of Fish and Wildlife. These refuges are further discussed in **Section 4.4, Biological Resources.**

Caswell Memorial State Park is a 258-acre park located along the Stanislaus River near Ripon. The park protects riparian oak woodland and is home to several Endangered animal species, including the riparian brush rabbit, which is not known to occur anywhere else. Carnegie State Vehicular Recreation Area is located in the hills of southern Alameda and San Joaquin Counties and features diverse terrain, ranging from rolling hills to steep canyons, for use by off-road enthusiasts. Carnegie is administered by the California Department of Parks and Recreation.[8]

Open Space and Recreation Areas

Nearly 86 percent of San Joaquin County is "open space" of some type. Open space lands consist of farmland, grazing lands, and relatively natural watershed areas that include a variety of low-intensity uses such as rural residences and recreational facilities (e.g., the Delta). Other land has been dedicated as

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open space through conservation easements or by agencies and organizations for habitat conservation. Wetlands, riparian habitat, and other special habitat also provide areas of open space in the County. Certain areas in the Delta and in other parts of the County are significant resource areas because of their beauty and/or potential value for recreation. Several of the County's open space resource areas have been developed as regional parks. Open space and natural recreational resources are shown in **Figure 4.11.4-1,** above.[9]

The Delta

The California Delta, with half of its waterways in San Joaquin County, is a significant recreational asset in the County. Visitors to the Delta include local residents, residents from nearby communities, and many visitors from as far as the greater Bay Area and other parts of the state. The Delta provides a number of activities such as picnicking, swimming, and fishing, as well as nature study, which is an important passive recreational activity in the Delta, as well as in other areas of the County.[10]

Waterways

Waterways are a well-used recreational resource in San Joaquin County during the long, hot, and dry summer months. Waterway activities include fishing, boating, water skiing, swimming, hiking, nature study, and other passive activities. The Delta, the Stanislaus River, the San Joaquin River, the Mokelumne River, and the Camanche Reservoir are the primary water recreation areas in the County.

The Mokelumne River flows through the County from the Camanche Reservoir to the Delta. It is lined with riparian vegetation that provides habitat for many animals. Fishing, tubing, and rafting are popular recreation activities on the river.

The Camanche Reservoir, which extends into Amador and Calaveras Counties, provides recreation areas on both the north and south shores. The East Bay Municipal Utility District owns and operates the reservoir. Boating, fishing, swimming, windsurfing, water-skiing, jet skiing, camping, hiking, and picnicking are popular activities at the reservoir at the Comanche Recreation Area. The Mokelumne Day Use Area, also owned by the East Bay Municipal Utility District, provides a popular access point to the Mokelumne River and for visitors to the Mokelumne River Fish Hatchery.

The Stanislaus River is a narrow river lined with riparian vegetation that forms the boundary between Stanislaus and San Joaquin Counties. Flow on the river is controlled by a number of reservoirs further

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upstream, including New Melones Reservoir. Currently the only public recreation area on the river in the County is the Caswell Memorial State Park. The Army Corps of Engineers (USACE) manages additional Stanislaus River Parks, which include the McHenry Avenue Recreation Area, and offers a boat ramp, camping, and picnicking. As part of the New Melones Dam project, the USACE acquired flood and riparian easements along the Stanislaus River, as well as a few sites for recreational development. Most areas acquired by the USACE are undeveloped. They are located in the floodplain and are heavily vegetated. The Ripon River Park is a 30.5-acre park south of the City of Ripon owned by the USACE and managed by the City that includes restored riparian habitat on both sides of the Stanislaus River and a pedestrian/bike trail river crossing.

New Hogan Dam regulates flows on the Calaveras River into San Joaquin County. At Bellota, the major flow of the river is carried by Mormon Slough to Stockton where the Stockton Diverting Canal returns it to the Calaveras River proper and ultimately to the Delta. There is no formal public access along the Calaveras River in the County except for the levees on Mormon Slough below Bellota Dam.

The San Joaquin River divides into three channels as it enters the Delta, including: "Old River," "Middle River," and the "Main-stem." There are several habitat preserves located along the San Joaquin River. Two County parks, Dos Reis Regional Park and Mossdale Crossing Regional Park, provide recreational access to the San Joaquin River.[11]

County Park Standards

There is no minimum standard for dedication of parkland for San Joaquin County, although individual jurisdictions may have park standard (discussed under the Regulatory Framework below). The California State Subdivision Act limits the local park standard to 3.0 acres per 1,000 people, unless it can be shown that the amount of existing local parkland exceeds that amount. The National Recreational Park Association (NRPA) recommends 15-20 acres of regional parkland per 1,000 people. The County can acquire parklands through land dedication or offers by the owner or developer typically executed on a parcel map or by requiring the developer to pay an in-lieu fee in the amount of the cost of the improvements to acquire and construct the parkland.

Recreation land standards, such as the number of acres of parkland per 1,000 persons, provide a rough indication of recreation need and are helpful in planning the size and location of parks. Standards, however, should be used with caution since the use of the standard assumes a homogenous population

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throughout the community. Some user groups who lack the opportunity for recreation in other areas can be heavier users of parks, or some user groups may prefer urban parks over a natural setting.[12]

4.11.4.2 REGULATORY SETTING

Federal

US Department of Transportation Act

Section 4(f) of the US Department of Transportation Act of 1966 (US DOT Act) was enacted as a means of protecting publicly owned public parks, recreation areas, and wildlife/waterfowl refuges as well as historic sites of local, state or national significance, from conversion to transportation uses. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration that involve the use – or interference with use – of the following types of land:

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

This evaluation – called the Section 4(f) statement – must be sufficiently detailed to permit the US Secretary of Transportation to determine that:

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

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

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In August 2005, Section 4(f) was amended to simplify the process for approval of projects that have only minimal impacts on lands affected by Section 4(f). Under the new provisions, the US Secretary of Transportation may find such a minimal impact if consultation with the State Historic Preservation Officer (SHPO) results in a determination that a transportation project will have no adverse effect on the historic site or that there will be no historic properties affected by the proposed action. In this instance, analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete.

State

Quimby Act

The Quimby Act of 1975 (Gov. Code, § 66477) states that "the legislative body of a city or county may, by ordinance, require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative or parcel map." It should be noted that the Quimby Act only applies to the acquisition of new parkland and does not apply to the physical development of new park facilities or associated operations and maintenance costs. The Quimby Act effectively preserves open space needed to develop parkland and recreational facilities; however, the actual development of parks and other recreational facilities is subject to discretionary approval and is evaluated on a case-by-case basis with new residential development.

State Public Park Preservation Act of 1971

The primary instrument for protecting and preserving parkland is the State Public Park Preservation Act of 1971 (Pub. Resources Code, §§ 5400–5409). Under the Act, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

Mitigation Fee Act

The California Mitigation Fee Act, Government Code sections 66000, et seq., allows cities to establish fees to be imposed on development projects for the purpose of mitigating the impact of development on a city's ability to provide specified public facilities. In order to comply with the Mitigation Fee Act a City must follow the following primary requirements: (1) Make certain determinations regarding the purpose and use of a fee and establish a nexus or connection between a development project or class of project and the public improvement being financed with the fee; (2) Segregate fee revenue from the General Fund in order to avoid commingling of capital facilities fees and general funds; (3) For fees that have been in the possession of a City for five years or more and for which the dollars have not been spent or committed to a project, the City must make findings each fiscal year.

Local

General Plans

The most comprehensive land use planning, including that for recreational facilities is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. General plans contain goals and policies concerning topics that are mandated by state law or which the jurisdiction has chosen to include. Required topics are land use, circulation, housing, conservation, open space, noise, and safety. Other topics that local governments frequently choose to address are public facilities, parks and recreation, community design, and growth management, among others. City and county general plans must be consistent with each other. County general plans must cover areas not included by city general plans (i.e., unincorporated areas). The park and recreation policies from the County's and local jurisdictions general plans are listed below:

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- San Joaquin County shall continue to be a major developer and operator of regional parks and shall facilitate the development and operation of local parks.
- The criteria outlined in Table IV-5 shall be used for the development of parks.
- In providing regional recreation, the County shall emphasize activities and facilities that:
  - are best provided on the regional level;
  - need to be provided by a public agency; and
  - address the needs of the County's residents.
- In urban communities where a local park is designated on the General Plan 2010 Map, recreation development should begin when an operational authority is designated and funding for operations and maintenance is established.
- In the acquisition and development of recreation areas, the needs of the people to be served and accessibility of the site to those served, shall be considered.
- The County shall give special consideration to the recreational needs of the elderly, handicapped, youth, and people of low- and moderate-incomes in designing the layout, features, and programs for a park.
- Natural features shall be preserved in recreation areas, and opportunities to experience natural settings shall be provided.
- The County shall protect those resource areas identified in Figure IV-2as being significant for recreation.

- It shall be recognized that the value of some public land may lie in the preservation of natural or historic features with limited or no public uses permitted on the site.
- 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.
- Overuse and misuse of recreation areas shall be prevented.
- Recreational use of the County's waterways will be supported, and the County shall ensure adequate public access to waterways at selected locations.
- Water-related resources shall be protected for their importance to recreational uses.
- The recreational values of the Delta, the Mokelumne River, and the Stanislaus River shall be protected.
- The recreational potential, particularly for trails, of the Calaveras River, the San Joaquin River, the Stockton Diverting Canal, and water conveyor projects shall be recognized and studied. The potential for land use conflicts associated with public use of waterways (e.g., trespassing, littering, vandalism) should be assessed for selected recreation sites.

The County shall recognize the importance of recreation as a major industry by promoting its resources and encouraging tourism.

The County shall encourage other public agencies and the private sector to develop and operate recreational facilities in the County if consistent with other General Plan policies. Public/private cooperation in the provision of recreation facilities shall be supported. Public amenities (such as fishing or picnic areas) in or adjacent to private facilities may be considered, particularly if the private facility agrees to supervise and manage the public amenity.

The County shall continue to encourage and support the efforts of private, non-profit organizations in providing recreation programs in the County.

Scenic corridors along recreation travelways and scenic routes shall be protected from unsightly development.

City of Escalon General Plan

- The City shall provide parks at a minimum rate of 5.0 acres of park per 1,000 population, including 1.0 acre/1,000 population for mini parks, 3.0 acres/1,000 for neighborhood parks, and 1.0 acre/1,000 for regional parks. Neighborhood parks shall be at least 5 acres. Lighting and Landscape Districts shall be encouraged to ensure that the park facilities are adequately maintained.
- Parks shall be developed as growth and fiscal resources warrant, which respond to the needs of the City's diverse population.

- Develop and maintain parklands in accordance with the Parks Master Plan.
- The City will maximize opportunity for joint use of public land and facilities such as schools, stormwater ponding basins and other recreation areas under public jurisdiction suitable for recreation.
- The City will create and protect open space for the preservation of natural resources.
- The City will create and preserve open space for outdoor recreation.
- The City will create and maintain open space for public health and safety in areas which require special management or regulation.

City of Lathrop General Plan

- It is the policy of the City and the School Districts, functioning under a joint powers or other appropriate written agreement, to provide the quantity and quality of recreation opportunity necessary for individual enjoyment and to assure the physical, cultural, and spiritual benefit of recreation for all people of the community.
- The City and School Districts support the creation of a means to achieve a permanent and stable funding for local recreation services.
- The recreation program will encompass the needs of all age groups, concentrating on activities and experiences which people are mostly unable to provide for themselves and spanning the following range of active and passive recreation needs:
  - ***Big muscle activity***: organized sports, informal (free) play, swimming and physical education.
  - ***Creative play***: activities which engage the imagination of youth to build or create an individual experience from simple elements such as sand, water, wood, space, paving, turf, and a wide variety of natural and man-made objects.
  - ***Social activities***: experiences which offer the time and atmosphere for an appraisal of social values, with a sharing and interchange among people, and where little is required in the way of prescribed levels of performance and individual preparation.
  - ***Rhythms, music, and the performing arts***: solo opportunities of self-expression as well as group participation in the dance, drama, singing, or the playing of a musical instrument.
  - ***Hand-Intellect***: painting, sketching, sculpture, arts & crafts.
  - ***Mental-Intellect*****:** reading, writing, speaking, and learning.
  - ***Nature-Learning*****:** outdoor learning experiences involving birds, animals, vegetation, soils, water, weather and other elements of nature.
  - ***Service activities***: personal involvement for the satisfaction of others.

  - ***Relaxation***: used here as doing things which generally require little effort and resulting in a sense of calm and repose.

  - ***Solitude***: the opportunity to re-create through quiet and moments alone.

- The range of recreation opportunities listed above will be provided through the development of general and specialized areas and facilities at the neighborhood and community level throughout the urban area.

- The fulfillment of recreation needs will be accomplished through a coordination of effort and programming on the part of the City, local school districts, and charitable, service, religious, and civic organizations, which takes maximum advantage of fiscal and physical resources, and individual and group interest, leadership and talent within the community, both public and private.

- Through an ongoing coordinated effort, a "framework for cooperation" should be developed and maintained by the City and School Boards. This framework should clearly delineate the areas of responsibility to be retained by each jurisdiction. Examples of topics include fee structures, contracts for maintenance and operation and coordination and sponsorship of recreation programming.

- The City will encourage and, where appropriate, require the provision of recreation areas and facilities within residential areas and the community as a whole to meet the general and specialized needs of existing and future residents. The Recreation component of the Resource Management Element of the General Plan is intended to meet the criteria and standards required by the State Subdivision Map Act and by the Quimby Act for determining financial responsibilities of developers in meeting recreation needs of the community.

City of Lodi General Plan

- Provide and maintain park and recreation facilities for the entire community.

- Protect natural resource areas, native vegetation, scenic areas, open space areas, and parks from encroachment or destruction.

- Improve connectivity between parks and recreation facilities.

- Expand non-vehicular paths and trails and bikeways.

- Acquire and develop additional neighborhood and community parks to serve existing and future needs.

- Provide open space to meet recreation and storm drainage needs, at a ratio of 8 acres of open space per 1,000 new residents. At least 4 acres must be constructed for park and recreation uses only. Drainage basins should be constructed as distinct facilities, as opposed to dual-functioning park and drainage basin facilities.

- Pursue the development of park and recreation facilities within a 0.25-mile walking distance of all residences.

- Ensure that parks are visible and accessible from the street, welcoming the surrounding neighborhood and Citywide users.

- Update the City's Open Space and Recreation Master Plan, as necessary to:

  - Arrange a distribution of open spaces across all neighborhoods in the City;

  - Ensure that parks are visible and accessible from the street, to the surrounding neighborhood, and Citywide users; and

  - Provide a variety of open spaces and facilities to serve the needs of the community, ensuring a balance between indoor and outdoor organized sports and other recreation needs, including passive and leisure activities.

  - Continue working with the Lodi Unified School District to share use of school and City park and recreation facilities through a mutually beneficial joint use agreement.

  - Work with developers of proposed development projects to provide parks and trails, as well as linkages to existing parks and trails.

  - Coordinate with the Woodbridge Irrigation District to develop a recreation trail for walking, jogging, and biking along the canal right-of-way.

  - Support improvements along the Mokelumne River in consultation and cooperation with the County and with creek restoration and design professionals.

- Improve accessibility to the Mokelumne River and Lodi Lake Wilderness Area with walking and biking trails. Site park use and new facilities and trails in Lodi Lake Park such that they will not degrade or destroy riparian or sensitive habitat areas.

- Encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation, and ensure the maximum number and variety of well-adapted plants are maintained.

- Encourage retention of mature trees and woodlands to the maximum extent possible. The City shall regulate the removal of trees that are defined as "heritage trees."

- Identify and discourage the removal of significant trees on private and public property by establishing a tree inventory and tree management ordinance. Where removal is required, the City shall require a two-for-one replacement or transplantation.

- Review Infrastructure needs for existing and new recreational facilities, and where appropriate, identify required improvements in the City's Capital Improvement Program.

- Renovate the Grape Bowl in order to increase use and revenue generation.

- Ensure safety of users and security of facilities through lighting, signage, fencing, and landscaping, as appropriate and feasible.

- Continue to provide parks and recreation services to all residents within the Lodi Unified School District service area north of Eight Mile Road. Expand visitor and non-resident fee-based programs to ensure that non-residents pay their share of park maintenance and improvement costs.

- Promote the use of the City's existing and planned Special Use park and recreation facilities for both local resident use and for visitor attractions, such as athletic tournaments.

- Require master planned residential communities to dedicate parkland consistent with General Plan standards. In-lieu fees will only be acceptable where an exemption from providing a neighborhood park facility would not adversely affect local residents because an existing park is nearby.

- Address park dedication and new development impact fees as part of the Zoning Ordinance and Subdivision Regulations Update, to ensure compliance with the General Plan park and open space standard.

- Seek out new and protected funding sources in order to maintain and expand park inventory.

City of Manteca General Plan

- The City shall expand the community and neighborhood park system with the goal of providing neighborhood park facilities within reasonable walking distance of all City residential areas.

- The City shall use joint development of park and drainage detention basins in the development of neighborhood parks.

- The City shall cooperate with the Manteca Unified School District in opportunities for joint-use of school and park and recreational facilities.

- City park acquisition and development efforts shall be based on a goal of 5 acres of developed neighborhood and community parkland per 1,000 residents within the City limits. The distribution of land between neighborhood and community parks shall be determined within the Parks and Recreation Master Plan.

- Neighborhood parks shall conform to the following general guidelines (specific details and standards to be determined within the Parks and Recreation Master Plan):

  – The typical minimum size shall be set to support active and passive recreation activities.

  – The typical service area for a neighborhood park is an approximately 0.25-mile walking distance.

  – Neighborhood parks shall include a turf area above the basin flood line of sufficient area to be used for playgrounds, sports, picnic areas, and other recreational facilities.

- The City shall aggressively pursue state and County funding to supplement City revenues to the extent such funding is available.

- The City shall endeavor to identify, acquire, and develop one or more community parks as defined in the Parks and Recreation Master Plan.

- All new residential development will be required to pay a park acquisition and improvement fee, based on providing 5 acres per 1,000 residents, to fund system-wide improvements.

- The City shall require the provision of private open space and recreational facilities as part of new residential developments.

- The City shall not discourage the expansion of private commercial recreational facilities.

- The City shall develop a convenient system of pedestrian sidewalks and pathways linking City parks, major open space areas, and the downtown core.

- The City shall adopt a Bicycle Route Master Plan and develop a bicycle route system linking areas, schools, public facilities, the downtown core, and neighborhoods.

City of Ripon General Plan

- City park acquisition, dedication, and development efforts will be based on a minimum standard of 3 to 5 acres of community and neighborhood park land per 60 to 80 acres residential or 1,000 population. This standard is separate and exclusive of school site acreage within the City limits.

- Pursue state and County funding to augment City revenue to the extent such funding is available.

- Continue to impose park development fees on all new residential development.

- Promote and encourage the preservation of open space areas along the Stanislaus River and maximize its potential for public enjoyment.

- The City will continue to explore leasing of USACE fee title lands along the Stanislaus River, and other lands, which may be available for public recreational purposes.

- Encourage continued use of school facilities for City-sponsored recreation programs.

- The City's Parks and Recreation Commission will survey community attitudes and preferences for recreational programs.

- The City's Parks and Recreation Commission will annually update statistics on participation in the various City recreation programs and use of City recreation facilities.

City of Stockton General Plan

- The City shall develop and provide facilities and programs to address the diverse recreation needs of Stockton residents, including various age groups, and income levels. Facilities shall be developed in compliance with all applicable regulations designed to address public safety and environmental impacts that may result through the construction, operation, and maintenance of these facilities.

- The City shall ensure the continued maintenance and improvement of City-owned recreational facilities and require new development and existing residents to participate in alternate maintenance.

- The City shall ensure that park and recreation facilities be provided at a level that meets the standards (net acres/1,000 residents, minimum net acres/park, service radius) for neighborhood parks, community parks, and regional parks.

- The City shall strive for adequate funding to meet the City's park standards through development fees and state, federal, and local grants to construct new recreational facilities.

- The City shall require that new parks be located and designed in such a way as to facilitate their security and policing.

- Whenever possible, the City shall develop neighborhood parks adjacent to elementary and middle schools, subject to the discretion of the Director of Parks and Recreation, and develop shared facilities as feasible.

- The City shall design community parks to meet the recreational needs of large sections of the community, such as a Village area. These parks should allow for larger group activities and recreational activities not suited for neighborhood parks. Park land directly adjacent to private property shall be separated from such property by a 6-foot-high (minimum) masonry wall located on the private property. Community parks may include, but are not limited to the following features:

  – Sports fields (baseball/softball and soccer) for practice and league activities

  – Tennis court(s)

  – Basketball court(s)

  – Handball court(s)

  – Playground and tot lot

  – Group picnic area

  – Walking/jogging paths

  – Restroom facilities

  – Sports lighting

- Ornamental security lighting

- The City shall design neighborhood parks to serve as both the recreational and social focus of the neighborhood. Neighborhood parks should be assessable to the surrounding neighborhood through the use of bikeways, trails, sidewalks, or local residential streets. Neighborhood parks may include, but are not limited to the following features:

  – Open grassy area for informal sports activities (e.g., soccer)

  – Basketball court(s)

  – Tennis court(s)

  - Playground and tot lot
  - Picnic tables and small group picnic shelter
  - Walking/jogging paths
  - Ornamental security lighting

- Subject to the discretion of the Director of Parks and Recreation or appointed representative, neighborhood parks shall be bounded by public streets on all sides with the exception allowed on one side when a public elementary school is adjacent to the park site. Parkland directly adjacent to private property shall be separated from such property by an 8-foot-high (minimum) masonry wall located on the private property.

- The City shall locate new community and regional parks adjacent to an arterial or collector street so they are bordered by public streets, except where they are adjacent to another public facility.

- The City will evaluate park development opportunities to ensure that access to recreational facilities and programs are balanced across the City. This will include a focus on development of park within the existing, developed portions of the City.

- The City shall renovate existing downtown parks to encourage positive use and to discourage anti-social activities.

- The City shall evaluate forming a Citywide park maintenance assessment district.

- The City shall pursue funding mechanisms to provide for the long-term maintenance and development of surplus publicly owned property to be used as public park sites.

- The City shall ensure that community centers are provided at a level that meets the City standards.

- Whenever possible, the City shall develop joint use facilities that combine community center functions with schools.

- The City shall construct bikeways and trails in existing public areas wherever feasible (i.e., Calaveras River path)

- The City shall pursue alternative funding mechanisms to acquire, develop, and maintain regional park areas identified in the Land Use Diagram.

- The City shall encourage developers to provide developed and maintained parks and open space including, but not limited to: greenbelts (including along levees), pocket parks, paseos, trails, medians, land landscaped street right-of-ways. Some of this open space may be credited towards meeting a portion of the recreation standards as defined in guidelines prepared by the City of Parks and Recreation Department.

- The City shall require developers to improve utility easement property as usable public open space, where feasible. Consistent with RW-3.7 (Credit for Common Open Space Areas and Detention Basins), and subject to the discretion of the Parks and Recreation Director or appointed

representative, a portion of such land could be credited toward meeting the RW-2.1 (City Park and Recreation Standards) standards if improved as parkland; however, it would not be eligible for parkland fee reimbursement.

- Primarily for master planned communities, the City may allow a maximum 30 percent credit toward parkland for usable acreage in detention basins, green belts and pocket parks subject to the discretion of the Parks and Recreation Director, or designated representative, and provided that the improvements are fully accessible to the general public. The 30 percent portion is calculated based from the parkland acreage dedication requirement as described in RW-2.1 1 (City Park and Recreation Standards) and compared with the amount of open space acreage proposed. Such proposed open space shall not include acreage/areas used to comply with the planned development 20 percent open space requirement as stated in Section 16.350.030 of the Development Code.

- The City shall promote the use of City parks and community centers for child care/youth and family programs, including programs for after school, holiday, and vacation periods.

- The City shall participate with other public agencies and private non-profit organizations to sponsor specialized recreation programs and events such as juvenile diversion and family oriented activities.

- The City shall provide opportunities for lower income families and individuals to participate in City-sponsored recreation and park programs.

- The City shall encourage commercial recreation businesses and non-profit organizations to provide opportunities for lower-income families to participate in the organizations' activities and services.

- The City shall provide recreational programs and services that emphasize positive educational and social influences to Stockton youth.

- The City shall provide and promote recreational services and programs that reflect the cultural diversity of the community.

- The City shall endeavor to preserve and restore the natural values of the San Joaquin and Calaveras Rivers, the Delta, and other local waterways, and incorporate them in the City's parks, trails, and open space system.

- The City shall investigate funding mechanisms to acquire and improve public access to and along waterways.

- The City shall design waterway and trail corridors to meet the recreational needs of the community, while maximizing public safety and access concerns. This includes locating trail corridors to ensure visibility along public roadways, where appropriate.

- The City shall ensure that existing park maintenance activities incorporate applicable trail maintenance activities necessary to address public safety issues along City-owned trail areas. Trail maintenance activities shall be conducted in a manner consistent with all applicable environmental regulations and shall ensure emergency vehicle access along portions of the trail corridor where appropriate. Trail maintenance measures shall include, but not be limited to, vegetation or brush clearing and signage prohibiting inappropriate uses.

- The City shall implement a variety of public safety measures to address crime-related issues along City-owned trail areas. Public safety measures shall include, but not be limited to, active policing using pedestrian, bicycling, or equestrian patrols.

City of Tracy General Plan

- To the extent feasible, the City's park system shall include the following types of parks:
  - Mini-Parks
    - Definition – Small sized parks that provide recreation activities for a specific neighborhood.
    - Service Area – 0.5-mile radius
    - Size – Typically 1 to 5 acres (no smaller than 1 acre)
  - Neighborhood Parks
    - Definition – Medium sized parks that provide basic recreational activities for one or more neighborhoods. Typical neighborhood park facilities may be included as a portion of a larger community park.
    - Service Area – 0.5- to 0.75-mile radius
    - Size – Typically 5 to 15 acres
  - Community Parks
    - Definition – Large parks that include a mix of passive and active recreation areas that serve the entire City or a large portion of the City. A community park should include, but not be limited to, the facilities that are typically found at neighborhood and mini parks as well as specialized facilities such as amphitheaters and skate parks.
    - Service Area – Minimum 2 mile radius
    - Size – Generally 15 acres or larger
  - Regional Parks
    - Definition – A large park that serves the open space and recreation needs for all users of the City and the Planning Area. Regional parks contain active and passive recreation areas and may also include natural open space.
    - Service Area – Entire City
    - Size – Greater than 50 acres
- The City shall provide a diversity of passive and active recreational amenities that are geographically distributed throughout the City.

- The City of Tracy shall continue to expand recreational facilities such as athletic fields and build new recreational facilities, such as swimming pools, skate parks, and recreation centers.

- The City should provide non-traditional features in parks to address specialized needs and interests. Non-traditional features, which include activities that appeal to a smaller segment of the community, should be determined on a neighborhood- or community-wide basis. Examples of non-traditional features include bocce ball courts and cricket fields, whereas traditional features include baseball fields and picnic tables.

- The City should use existing natural and man-made elements, such as hillsides, creeks, channels, and railroad corridors where appropriate to enhance public open space and park facilities.

- Golf courses shall be designed to minimize water, energy and chemical (e.g., pesticides and fertilizer) usage, preserve wildlife habitat, and incorporate native plants and drought resistant turf.

- Additional or expanded parks in already developed areas shall be encouraged.

- The City shall create a system of recreational corridors, such as linear parks and bike and pedestrian trails that link key destinations in the City including parks and recreational facilities, the Downtown, the multimodal transit station, Village Centers and the ACE train station.

- The City shall seek opportunities to expand existing parks or build new parks in already developed areas of the City.

- The City of Tracy shall pursue joint planning, design and operation of parks with other public facilities, such as schools.

- The City shall consider increasing the parks standard of 4 acres per 1,000 population to 5 acres per 1,000 population and require that new developments provide new park acreage or in-lieu fees at this ratio.

- All land dedicated for parks shall be of a shape and size suitable for parks. Land containing underground or overhead utilities, unsuitable topography, contamination or other factors that restrict the usability of the land shall not be credited against dedication requirements.

- Golf courses shall not be counted towards any park acreage that new development is required to provide.

- New neighborhoods should be designed so that parks are located no more than 0.25 mile from any home, in approximately the geographic center of the neighborhood and, if possible, next to existing parks or park sites in adjacent neighborhoods or schools.

- New projects should be designed so that residents have direct pedestrian and bike access between homes and parks.

- The City shall ensure that parks and recreational facilities serving new development are available concurrently with need.

- The City shall pursue the conversion of underutilized rail corridors into multi-use trails.

- All development projects should provide linkages to the regional bike and trail system and circulation within the development project site, wherever feasible.
- The City shall pursue the completion of all trail systems designated in the Bikeways Master Plan.
- The City shall partner with San Joaquin County to coordinate regional trail linkages.

Recreation and Parks Master Plans

These plans outline projected needs and strategies for fulfilling those needs. The main purpose of the plans is to provide guidance for addressing preservation, use, development, and administration of recreation facilities. These policy and action documents ensure the preservation of the naturalistic environment, while providing developments to facilitate human enjoyment of the parks and recreation areas. Plans can target goals and future actions for a specific park or be generalized to a collection of parks in a larger system. Several cities located in the County have developed Recreation and Park Master Plans, including the City of Tracy.

4.11.4.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR SJCOG has determined that adoption of the proposed 2014 RTP/SCS (including RTP policies, the SCS and transportation project list and financing plan) would result in significant impacts to recreational resources, if either of the following could occur:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facilities would occur; and/or
- Require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the 2014 RTP/SCS on recreational facilities in the region. The 2014 RTP/SCS transportation projects and growth patterns are regional, cumulative, and long-term in nature, and provide a conservative estimate of potential environmental impacts.

The analysis assesses the potential impacts to recreational resources that could result from implementation of the proposed 2014 RTP/SCS. By 2040, implementation of the proposed 2014 RTP/SCS will result in a land use pattern and transportation network that is different from existing conditions and that would affect recreation resources.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that, too, is included in the project analysis. Although a similar level of development is anticipated even without the RTP, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the programmatic EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of recreational facilities includes a comparison between the expected future conditions with the plan and the expected future conditions if no plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however, it provides a meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of recreational facilities impacts compares the existing conditions to the RTP/SCS conditions, as required by *California Environmental Quality Act (CEQA) Guidelines* Section 15126.2(a). The known recreational facilities located within the region were evaluated using the criteria set forth by the San Joaquin County General Plan Update, Recreation and Cultural Resources Element, and the *State CEQA Guidelines*.

As noted above, areas within the region contain recreational facilities. Generally, with regard to recreational impacts, the greater the increase in population, the more significant the impact to the recreational facilities. As the area's population continues to grow, the County's recreational facilities will be used more often and by more people.

The development of new transportation facilities may also affect recreational facilities, through indirect effects, including traversing recreational lands. While the region contains a fair number of recreational facilities; additional growth will lead to wear and tear on these facilities, therefore, the potential for impacts to recreational facilities is significant.

Since this document analyzes impacts to recreational facilities on a program level only, project-level analysis of impacts must be undertaken as appropriate.

Impacts and Mitigation Measures

Impact REC-1 **Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facilities would occur.**

The population of San Joaquin County will grow by approximately 365,692 people by 2040. Implementation of the 2040 RTP/SCS will consume roughly 18,123 acres of agricultural/open space/vacant land. Currently, County local and regional parks comprise approximately 886 acres of parkland, in addition to the 35 acres of the 6,500 acre San Joaquin River National Wildlife Refuge, the 1,351 acres of state wildlife areas, including the While Slough Wildlife Area, the Woodbridge Ecological Preserve, and the Corral Hollow Ecological Preserve, and the 1,758 acres of State Parks, including Caswell Memorial Park, and Carnegie State Vehicular Recreation Area. **Figure 4.11-4-1, Resource Areas: Farmland, Habitat, Open Space, and Government Lands,** illustrate the various types of areas in the County, including open space. Depending on the growth and housing patterns, some parks and recreation facilities may become overused, particularly in urban areas where parks many not be sufficient to serve the current population. In these cases, additional facilities would be necessary to ensure acceptable levels of service over the lifetime of the Plan.

San Joaquin County contains approximately 4,029 acres of dedicated open space and parkland exclusive of parks within individual jurisdictions. As discussed above, the proposed 2014 RTP/SCS anticipates an increase of approximately 365,692 people. As the RTP/SCS would consume 18,123 acres of vacant land, some portion of the land consumed could be open space.

Transit and some roadway improvements included in the 2014 RTP/SCS are generally located in urbanized areas, and therefore, are not anticipated to result in significant impacts to vacant/undisturbed lands or large tracts of land designated as open space. Although such projects could impact local recreational facilities such as local parks, gymnasiums, swimming pools, etc.).

However, as discussed above, the combination of development and transportation projects associated with the 2014 RTP/SCS would consume 18,123 acres of vacant lands. Therefore, without increasing the amount of open space and parkland, implementation of the proposed RTP/SCS could cause acres of parkland and open space per capita to decrease and could result in the loss of open space lands. Most local jurisdictions have their own goals and standards for acceptable amounts of parkland per capita and strive to ensure that new developments make adequate provisions for new parkland. As discussed in

Section 3.0, Project Description, SJCOG does not have land use authority and as such cannot require local jurisdictions to amend local plans or add additional park lands.

Therefore, impacts to neighborhood and regional parks and other recreational facilities related to land use and transportation changes resulting from implementation of the 2014 RTP/SCS are considered potentially significant for **Impact REC-1.** Mitigation is required; see **Mitigation Measure REC-1** through **REC-4** below.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

REC-1: Local jurisdictions should explore multiple use spaces and redevelopment in areas where it will provide more opportunities for recreational uses and access to natural areas close to the urban core.

REC-2: Local jurisdictions should work as partners to address regional outdoor recreation needs and to acquire the necessary funding for the implementation of their plans and programs. This should be done, in part, by consulting with agencies and organizations that have active open space work plans.

Level of Significance After Mitigation

Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures REC-1** and **REC-2**, impacts would remain significant and unavoidable.

Impact REC-2 **Require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.**

By 2040, the Plan area will grow by approximately 365,692 people. Areas within the County currently experience a deficiency of park space and would require additional parks to maintain and improve parks to people ratios. Construction and operation of additional parks and recreational facilities could have impacts on aesthetics (including night lighting), air quality, cultural resources, geology, land use, noise, transportation, utilities, and other issues. However, projects subject to CEQA review would be required to mitigate any significant environmental impacts as applicable.

It is anticipated that the 2014 RTP/SCS would result in substantial demand for new facilities and that such facilities would have the potential to physically effect the surrounding environment.

Therefore, impacts from additional recreation facilities on the surrounding environment related to the 2014 RTP/SCS are considered potentially significant for **Impact REC-2.** Mitigation is required; see **Mitigation Measure REC-3** below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

REC-3: Implementing agencies for all park and recreation projects should ensure that all feasible mitigation measures are identified and implemented in order to minimize construction and operation- related impacts to the surrounding environment.

Level of Significance After Mitigation

If the implementing agencies adopt this mitigation measure, impacts would be reduced to less than significant. However, because SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation, impacts could remain significant and unavoidable.

4.11.4.4 CUMULATIVE EFFECTS

To the extent that the Plan would encourage development on the periphery of the County – on the border with Sacramento, Stanislaus, Amador, Calaveras, Contra Costa, and Alameda County, it could increase demand for recreation facilities in the surrounding Counties. Similarly, development on the periphery of these other counties would result in demand for recreation facilities in San Joaquin County. In addition, given the natural resources in San Joaquin County, any development in other counties will tend to increase demand for recreation facilities with statewide appeal (such as trails in the Sierra's and other facilities in the County).. Both the Plan and No Project Alternative would contribute to a loss of recreational lands in the SJCOG area. The No Project Alternative does not include strategies to focus growth within urban areas, which could result in sprawl and the need for additional recreation facilities in rural and suburban areas. This would lead to a loss of open space and additional construction impacts to the surrounding environment as compared to the Plan, which focuses growth in urban areas. Therefore, cumulative impacts from the No Project Alternative would be greater than that of the Plan

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures REC-1** through **REC-3**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, and SJCOG has no land use authority or expertise in the area of recreational planning, impacts could remain significant and unavoidable.

4.11.4.5 COMPARISON WITH THE NO PROJECT ALTERNATIVE

Under the No Project Alternative, the population of San Joaquin County would still grow by approximately 365,692 persons through 2040; however, no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban areas, which would result in greater consumption of open space areas (35,184 acres would be consumed under the No Project scenario as compared to 18,123 under the Plan).

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan but with development occurring in a more dispersed pattern. Therefore, demand for recreational opportunities would be more dispersed and not focused in urban areas. The No Project Alternative would permit sprawl development which could require additional park and recreation facilities to be built close by to service the new residential development. Under the No Project Alternative, the urban land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans.

The Plan also includes transportation improvements that could facilitate access to undeveloped lands, making those lands more attractive for development than under the No Project Alternative. It is anticipated that the land use planning strategies included in the Plan will minimize consumption of

vacant, open space/recreation and agricultural lands compared to the No Project Alternative. Impacts of the No Project Alternative would be greater than the Plan for **Impact REC-2** because of the increased consumption of open space and vacant land and the more dispersed growth pattern resulting in more demand for recreational facilities in outlying areas. Although the Plan would increase demand for recreation facilities in urban areas, that may be harder to meet as land prices and development may preclude sufficient development of recreation facilities. It is anticipated that the No Project Alternative would have less impact on existing urban parks and recreational facilities (**Impact REC-1**) because of fewer transportation projects and a more dispersed growth pattern. Cumulative impacts of the No project Alternative on recreation resources would be similar to the Plan, except that with a more dispersed growth pattern, more development could occur closer to other counties overlapping with their demands for recreation in adjacent counties and San Joaquin County.

4.11.5 Solid Waste

4.11.5.1 ENVIRONMENTAL SETTING

In 2012, San Joaquin County residents produced a total of 1,207,245 tons of solid waste, compared to the state's total waste of 29,388,609 tons. In 2012, San Joaquin County generated less solid waste than in 2002 by approximately 787,161 tons.[1] The County was responsible for 4 percent of the state's total solid waste tonnage.[2]

San Joaquin County Solid Waste Division

The San Joaquin County Solid Waste Division (SJCSWD) has jurisdiction over three active landfills. The majority of people in urban areas within San Joaquin County have curbside trash collection. Private waste haulers are contracted, under a franchise system, to provide this service to residents living within the County. Incorporated cities negotiate their own hauling contracts to provide trash collection. Waste collection in remote areas of the County is provided through bin sites and transfer stations.

Landfills

A sanitary landfill is a site for the disposal of waste materials by burial. It is the oldest form of waste treatment and has been the most common methods of organized waste disposal. In addition, San Joaquin County landfills fulfill other waste management purposes, such as the temporary storage, consolidation, recycling, and transfer.

All County landfills have areas for diversion as well. Metals, cardboard, green and wood waste, electronic waste, concrete, and asphalt are materials that can be reused or recycled. The Division's goal is to divert as much material as possible from landfill burial to prolong the landfill's life.

After loads are deposited, bulldozers are used to spread and compact the waste on the working face. Before leaving the landfill, all vehicles return to the gatehouse area in order to be weighed without their load. As a result of the weighing process, daily incoming waste tonnage can be calculated and recorded. In addition to standard trash trucks and pick-up trucks and trailers, roll-off trucks (with a 20, 30, or 40 cubic yard bin) can also dispose material at local landfills.

Compacted waste is "covered" each day with "daily cover" including dirt, tarps, and other alternative materials.

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1 Cal Recycle. Land Fill Tonnage Data, http://www.calrecycle.ca.gov/SWFacilities/Landfills/tonnages/ (2013).

2 Cal Recycle. Land Fill Tonnage Data, http://www.calrecycle.ca.gov/SWFacilities/Landfills/tonnages/ (2013).

Table 4.11.5-1, Active Solid Waste Landfills in San Joaquin County, provides information on active solid waste landfills in the County.

Table 4.11.5-1
Active Solid Waste Landfills in San Joaquin County

Landfill	Location	Projected Closure Date	Max. Daily Disposal (tons/day)	Max. Capacity (cubic yards)	Remaining Capacity (cubic yards)
Foothill Sanitary Landfill	6484 North Waverly Road Linden, CA 95236	12/31/2082	1,500	138,000,000	125,000,000
Forward Landfill, Inc.	9999 S. Austin Road Manteca, CA 95336	1/1/2020	8,668	51,040,000	23,100,000
North County Landfill & Recycling Center	17720 East Harney Lane Lodi, CA 95240	12/31/2048	825	41,200,000	35,400,000

Source: Cal Recycle Facility Site/Search, http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, (2014).

Transfer Stations

Similar to the landfills, transfer stations accept trash for disposal. County transfer stations, located in primarily urban areas, accept waste from both residential self-haulers as well as commercial refuse haulers. These facilities collect material which is then "transferred" to the nearest landfill site. While not as all-inclusive as a landfill, transfer stations provide a broad collection opportunity for local residents.

Table 4.11.5-2, Active Transfer Stations in San Joaquin County, provides information on active transfer stations in the County.

Waste Diversion and Recycling

The California Integrated Waste Management Act requires every city and county in the state, as part of the Countrywide Integrated Waste Management Plan, to prepare a Source Reduction and Recycling Element that identifies how each jurisdiction would meet the mandatory state waste diversion goals of 25 percent by the year 1995 and 50 percent by the year 2000. CalRecycle produces a yearly Diversion/Disposal Progress Report for each county and the applicable local jurisdictions. For 2011 (the most current data available), none of the jurisdictions in San Joaquin County met the required diversion rate as explained under AB 939 for either population or employment disposal.[3]

[3] Cal Recycle, Countywide Jurisdiction Diversion/Disposal Progress Report, http://www.calrecycle.ca.gov/LGCentral/Reports/jurisdiction/diversiondisposal.aspx, (2013).

Table 4.11.5-2
Active Transfer Stations in San Joaquin County

Transfer Station	Location	Max. Permitted Throughout (tons/day)	Permitted Capacity (cubic yards)
Lovelace Transfer Station	2323 Lovelace Road Manteca, CA 95336	1,300	-
Central Valley Waste Services	1333 East Turner Road Lodi, CA 95240	1,700	2,914,286
East Stockton Recycling and Transfer Station	2435 East Weber Avenue Stockton, CA 95205	1,000	17,288
USA Waste of California, Inc.	1240 Navy Drive Stockton, CA 95206	300	-
Forward Resource Recovery Facility	9999 N. Austin Road Manteca, CA 95336	4,180	-
Tracy Material Recovery & T. S.	30703 S. Macarthur Drive Tracy, CA 95376	1,800	10,305
Recology Stockton	250 Port Road 23 Stockton, CA 95203	Unit 03: 500 Unit 04: 1,500	Unit 03: 35,000 Unit 04: 200,000

Source: Cal Recycle Facility Site/Search, http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, (2014).

4.11.5.2 REGULATORY FRAMEWORK

Federal

Federal Agencies and Regulations

40 CFR, Part 258 Subtitle D of the Resource Conservation and Recovery Act (RCRA) establishes minimum location standards for siting municipal solid waste landfills. Because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the United States Environmental Protection Agency (USEPA) delegated the enforcement responsibility to the State of California.

State

California Integrated Waste Management Act

As many of the landfills in the state are approaching capacity and the siting of new landfills becomes increasingly difficult, the need for source reduction, recycling, and composting has become readily apparent. In response to this increasing solid waste problem, in September 1989 the state assembly passed Assembly Bill 989, known as the California Integrated Waste Management Act. This statute emphasizes

conservation of natural resources through the reduction, recycling and reuse of solid waste. Assembly Bill 989 required cities and counties in the state to divert 25 percent of their solid waste stream from landfills by 1995 and 50 percent by year 2000, or face potential fines of millions of dollars per year. On June 30, 2008, State Assembly Amended Senate Bill 1252 to include further waste diversion goals of 60 percent by the year 2015 and 75 percent by the year 2025.[4] The California Integrated Waste Management Act also requires that all cities conduct a Solid Waste Generation Study and prepare a Source Reduction Recycling Element.

Title 24 Building Standards Code

The California Energy Commission first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. The latest revisions were adopted in 2008 and became effective on January 1, 2010.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality.

Assembly Bill 939

In 1989, Assembly Bill (AB) 939 established the current organization, structure, and mission of CalRecycle. The purpose was to direct attention to the increasing waste stream and decreasing landfill capacity, and to mandate a reduction of waste being disposed. All jurisdictions were required to meet diversion goals of 25 percent by 1995 and 50 percent by the year 2000. A disposal reporting system was established with CalRecycle oversight, facility and program planning was required, and cities and counties began to address waste problems.

Senate Bill 1016

Senate Bill (SB) 1016 created a change in how diversion rates are computed. The new per capita disposal and goal measurement system moves the emphasis from an estimated diversion measurement number to

4 California Integrated Waste Management Board, *Senate Bill 1252 Amendment.* June 30, 2008.

using an actual disposal measurement number as a factor, along with evaluating program implementation efforts.

Assembly Bill 2020 – The California Bottle Bill

AB 2020 took effect in 1987 as litter prevention legislation. At present, the minimum refund value established for each type of eligible beverage container is 5 cents for each container under 24 ounces and 10 cents for each container 24 ounces or greater.

Assembly Bill 1305 – Recycled Newsprint Act

Passed in 1989, AB 1305 requires major newsprint consumers, such as newspapers, to use 25 percent recycled newsprint, and 50 percent by the year 2000. Currently, at least 50 percent of the newsprint used by printers and publishers in California must contain a minimum of 40 percent post- consumer paper fiber.

Senate Bill 20 – Electronic Waste "E-Waste" Recycling

SB 20 was signed in September of 2003 and it establishes a system to recycle computers, TVs, and other video display devices (known as Electronic Waste) when they reach their end-of-life. Fees are collected from consumers at point of purchase to fund recycling programs.

Assembly Bill 2901 – Cell Phone Recycling

AB 2901 was signed into law on September 29, 2004. It requires all cell phone retailers to take back used cell phones for recycling at no charge to the customer.

The California Universal Waste Law

Adopted in 2006 Universal wastes are hazardous wastes generated by a wide variety of people. Examples of these wastes are batteries, fluorescent tubes, and some electronic devices, that contain mercury, lead, cadmium, copper, and other substances hazardous to humans and the environment.

Universal waste cannot be thrown away in solid waste landfills. Rather, universal wastes can be recycled. Recycling requirements are less stringent than those of other hazardous wastes to encourage recycling and recovery of valuable metals.

Assembly Bill 2449 – Plastic Bag Recycling

Adopted in 2007, AB 2449 requires all California grocery stores to take back and recycle plastic grocery bags. The bill also requires retailers to provide consumers with a bag reuse opportunity by providing reusable bags which can be purchased and used in lieu of disposable ones.

Local

County and City General Plans

The County addresses the area's solid waste requirements within its General Plan Public Services and Utilities Section. This section describes existing solid waste and hazardous waste facilities and disposal practices within unincorporated San Joaquin County. Similar to the County, many local jurisdictions include solid waste policies within their General Plan. Solid and hazardous waste handling operations are critical to the health and safety of County residents and are an important consideration for developers, decision makers, and the public, relative to land use decisions. The policies related to solid waste disposal from each jurisdiction are included below

San Joaquin County General Plan

- Waste collection shall be mandatory in all Urban and Rural Communities of San Joaquin County.
- The County shall promote the maximum use of solid waste source reduction, recycling, composting, and environmentally safe transformation of wastes.
- Solid waste disposal facilities shall not cause contamination of surface or groundwaters, as measured by state standards.
- New sanitary landfills shall be located outside of:

  (a) Urban or Rural Communities;

  (b) a 100-year floodplain;

  (c) view from a scenic route;

  (d) areas of significant extractive or vegetative resources; and

  (e) at least 10,000 feet from a Stockton Metropolitan Airport runway.
- Solid waste collection and transfer facilities shall be located close to the areas they serve.
- Solid waste collection and transfer facilities shall be located close to the areas they serve.
- The County's Waste Management Plan shall be the basis for solid waste collection and disposal.

- All development shall be consistent with the County's Waste Management Plans.

City of Escalon General Plan

- Maintain innovative solid waste service and programs.
- The City's Capital Improvement Program shall be adequate to meet future growth and development.

City of Lathrop General Plan

- The Comprehensive General Plan for Lathrop (1991) does not identify specific goals for solid waste management other than the City will follow the County Solid Waste Management Plan.

City of Lodi General Plan

- Provide infrastructure—including water, sewer, stormwater, and solid waste/recycling systems—that is designed and timed to be consistent with projected capacity requirements and development phasing.
- Continue to improve waste diversion rates through recycling and resource conservation measures. Support waste reduction and recycling programs through public education.

City of Manteca General Plan

- Residential recycling picked up on a bi-weekly schedule
- Residential bi-weekly curbside pickup of compost materials
- Leaf and Christmas tree pick up
- Oil collection containers picked up on a weekly basis
- Commercial recycling
- Household Hazardous Waste collection
- Provide for the implementation and enforcement of the provisions for the Source Reduction and Recycling Element, as mandated by the State.
- Maintain efficient, effective and, economical solid waste services for the residents, businesses, and visitors to Manteca with the following policies:
- The City will implement and enforce the provisions of its Source Reduction and Recycling Element.
- The City shall support the continued use of the Lovelace Transfer Station on Lovelace Road, between Union Road and Airport Way, for the processing and shipping of solid waste materials.

City of Ripon General Plan

The City of Ripon General Plan 2040 does not identify specific goals for solid waste management.

City of Stockton General Plan

- The City shall promote the maximum feasible use of solid waste reduction, recycling, and composting of wastes and strive to reduce commercial and industrial waste on an annual basis.
- The City shall continue to require recycling in public and private operations to reduce demand for solid waste disposal capacity.
- The City should use recycled materials and products where economically feasible.
- The City should use recycled materials and products where economically feasible.
- Recycling of Hazardous Materials-The City shall require the proper disposal and recycling of hazardous materials.
- Recycling of Construction Materials-The City shall require the recycling of construction debris.
- Development Requirements-The City shall ensure that all new development has appropriate provisions for solid waste storage, handling, and collection pickup.

City of Tracy General Plan

- Reduction in the volume of solid waste.
- The City shall strive to meet or exceed the State's goal of diverting 50 percent of all solid waste from landfills.
- The City shall encourage local business to expand their recycling efforts and to reduce packaging of products manufactured in the city.
- Public buildings shall be designed or improved with on-site storage facilities for recycled materials.
- Salvage and reuse of construction and demolition materials and debris is encouraged at all construction projects in the city.
- The City shall encourage the use of post-consumer recycled paper and other recycled materials in all City operations.
- Residential, industrial, commercial, and retail buildings should be designated or improved to accommodate an increase in the amount and type of recycled materials.

4.11.5.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS Regional Transportation Plan (RTP) (including RTP policies, Sustainable Communities Strategies [SCS], and transportation project list and financing plan) would result in significant impacts to the County's solid waste capacity, if any of the following would occur:

- Generate a substantial increase in the amount of solid waste that exceeds the region's available landfills' capacity to handle and dispose of the waste.

Methodology

The following analysis evaluates solid waste disposal and transfer facilities that could be affected by the implementation of the projects, programs, and policies identified in the RTP/SCS. Impacts to these facilities were evaluated with San Joaquin County data related to projected population, housing, and employment growth. The methodology for determining the significance of these impacts applies the significance criteria above to the expected future (2040) demand for solid waste disposal and compares future demand with the RTP/SCS to the existing capacity.

Both short-term construction related impacts and long-term or permanent impacts from new facilities and development resulting from implementation of the RTP are discussed below. The following analysis is programmatic in nature and project specific impacts may vary and appropriate mitigation measures must be developed on a project-by-project basis as applicable.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of solid waste includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under the California Environmental Quality Act [CEQA]); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The following analysis evaluates solid waste disposal and transfer facilities that could be affected by the implementation of the projects, programs, and policies identified in the Plan. Impacts to these facilities were evaluated with data related to projected population, housing, and employment growth and available data on public services. The methodology for determining the significance of these impacts applies the significance criteria above to the expected future (2040) demand for solid waste disposal and compares future demand with the Plan to the existing capacity. Implementation of the 2014 RTP/SCS will affect solid waste facilities. Expected significant cumulative impacts include a considerable increase in demand for solid waste disposal facilities.

Both short-term construction related impacts and long-term or permanent impacts from new facilities potentially would result from implementation of the Plan. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2014 RTP/SCS. Indirect, cumulative impacts from implementation of the Plan, in combination with increases in growth and development, are also identified. It should be noted, however, that project specific impacts may vary and appropriate mitigation measures would need to be developed on a project-by-project basis.

Impacts and Mitigation Measures

Impact SWASTE-1 **Generate a substantial increase in the amount of solid waste that exceeds the region's available landfills' capacity to handle and dispose of the waste.**

Construction of the transportation projects proposed as part of the RTP/SCS would generate solid waste from grading and excavation activities as well as demolition debris from removal of existing structures. Construction of urban development to accommodate the anticipated population growth would be expected to generate similar solid waste debris. The three landfills located in San Joaquin County, listed in **Table 4.11.5-1**, function at or below their permitted capacity. The planned transportation projects would not produce a significant amount of construction waste such that the local landfills would be significantly impacted. Construction of development projects in tandem with population growth would

likely generate substantial amounts of solid waste. Under the California Green Building Code described above, construction waste diversion of 50 percent is required during most new construction projects. In addition, the waste diversion rates are anticipated to increase over time reducing the amount of construction waste further. Therefore, the solid waste generated from construction projects would not be significant. Mitigation measures would further reduce this impact.

Operation of some of the proposed transportation facilities may generate solid waste such as from garbage cans are bus stations or roadside waste. The solid waste generated would be minimal and not significantly impact landfill capacity.

The population of San Joaquin County is projected to increase by 365,692 persons or 52 percent from 2012 to 2040. The California Department of Resources Recycling and Recovery (CalRecycle) estimated that the average resident in California disposes of 4.3 pounds of trash per day and the average employee disposes of 10.8 pounds of trash per day as of 2012. From 1989 to 2012, solid waste generation per employee and resident in California has reduced by approximately half.[5] Assuming that San Joaquin County meets the AB 939 diversion rate of 50 percent and has a similar generation rate, this equates to approximately 2.1 pounds of trash per day for residences and 5.4 pounds of trash per day for employees in 2012.

The projected generation rates of 2.1 pounds of trash per resident and 3.5 pounds of trash per day for employees were used to calculate the solid waste generated in 2040. Assuming a diversion of 50 percent, the adjusted waste generated per day in San Joaquin County under RTP/SCS conditions would be 824 tons, as indicated in **Table 4.11.5-3, Solid Waste Generated in San Joaquin County**. In comparison, the adjusted waste generated per day in San Joaquin County in 2012 was 1,316 tons. The decrease in solid waste generated is attributed to a decrease in packaging and the increase in cultural awareness that solid waste disposal is an ongoing problem.

Forward Landfill is planned for expansion which would increase the capacity by 32 million cubic yards and change the closure date from 2020 to 2039.[6] The maximum daily disposal for the three landfills in San Joaquin County is calculated to be 10,993 tons/day. Therefore, the projected solid waste produced in 2040 would be accommodated by the existing landfills with the planned expansion of Forward Landfill. In the event the Forward Landfill expansion is not constructed, the remaining two landfills have a daily disposal of 2,325 tons/day which would accommodate the projected solid waste disposal of 824 tons/day granted diversion rates are a minimum of 50 percent. Therefore, there would be capacity at the two

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5 California Statewide per Resident, per Employee, and Total Disposed Since 1989. 2012. http://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/disposal.htm

6 San Joaquin County Community Development Department. 2012. Forward Landfill Expansion DEIR SCH# 2008052024. September.

landfills to accommodate the anticipated solid waste generated in 2040. In addition, implementing and local agencies shall encourage diversion of solid waste such as recycling and composting programs.

Table 4.11.5-3
Solid Waste Generated in San Joaquin County

Year	Number of People [b]	Solid Waste Generation Rate	Solid Waste Generated (tons/day)	Adjusted Solid Waste Generated (tons/day)*
Population				
2012	704,794	4.3 [a]	1,515	758
2040	1,070,486	2.1** [b]	1,124	562
Employment				
2012	206,900	10.8 [a]	1,117	559
2040	299,717	3.5 [b]	525	262
Population and Employment				
2012 Total			**2,633**	**1,316**
2040 Total			**1,649**	**824**

* *Assuming a diversion of 50 percent to achieve state standards.*
** *Derived from solid waste generated per household.*
Source:
[a] *California Statewide per Resident, per Employee, and Total Disposed Since 1989. 2012. http://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/disposal.htm*
[b] *San Joaquin County 2013*

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less than significant.

4.11.5.4 CUMULATIVE EFFECTS

The 2014 RTP/SCS includes transportation projects and development in the County. The Plan targets growth and development in urbanized areas. While all of these areas are currently served by landfills, landfill space is a finite resource. As population increase across the state, it is expected that additional

demands will be placed on landfills with remaining capacity both from inside San Joaquin County and from nearby areas such as counties in the Bay Area. The increased demand on landfill capacity could result in the need to truck waste long distances. As a result, the 2014 RTP/SCS would result in a cumulatively considerable increase in solid waste.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measure

SWASTE-1: The implementing agency should undertake project-level review as necessary to provide CEQA clearance for new landfills, or expansion of existing landfills if possible.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt **Mitigation Measure SWASTE-1**, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt **Mitigation Measure SWASTE-1**. However, as SJCOG cannot require implementation of this measure, impacts could remain significant and unavoidable.

4.11.5.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365,692 people from 2012 to 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban areas.

Since the No Project Alternative includes fewer transportation and development projects than the Plan, it would have a lesser impact on solid waste generated from construction of transportation projects. The more compact growth pattern of the Plan would likely generate less solid waste than the more dispersed pattern of the No Project Alternative (as in general les solid waste is generated by infill/compact development). However, as the growth strategies included in the RTP/SCS would not occur with the No Project Alternative, longer distances could occur between development and landfill facilities and/or

garbage collection would require that collection trucks travel greater distances to collect waste from the more distributed land use pattern.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas which would help reduce the impact to solid waste facilities for the reasons described above. Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Therefore, impacts would be greater under the No Project Alternative.

4.11.6.1 ENVIRONMENTAL SETTING

Oil

The primary energy source for the US is petroleum (also referred to as "oil"), which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily since 1983; as of 2011, world consumption of oil had reached 89 million barrels per day.[1] The world supply of oil is anticipated to peak (i.e., reach the point of maximum production) sometime between now and 2040, before beginning a terminal decline that will put a significant strain on the economy if not anticipated and mitigated. However, the timing of the peak depends on multiple, uncertain factors that will affect how quickly remaining oil is consumed, such as the amount of oil that still remains in the ground; how much of the amount in the ground can be extracted and produced based on technological, economic, and environmental feasibility; and future demand for oil.

The US, with approximately 5 percent of the world's population, accounts for just fewer than 22 percent of world oil consumption, roughly 19 million barrels per day.[2] US oil production peaked around 1970 and has been declining ever since. As a result, the US imported about 80 percent of its oil in 2012. The US transportation sector is heavily dependent on oil and in 2011 represented about 71 percent of US petroleum consumption.[3]

California's transportation sector is equally dependent upon oil, with petroleum-based fuels currently providing nearly all (96 percent) of California's transportation energy needs.[4] Furthermore, in 2010 Californians consumed over 18 billion gallons of gasoline and diesel fuel, resulting in the estimated emission of over 200 million metric tons of greenhouse gas equivalence. According to the latest inventory of statewide greenhouse gas emissions values, in 2008 the transportation sector represented 36 percent of statewide greenhouse gas emissions.[5]

1 International Energy Agency, http://www.iea.org/aboutus/faqs/oil/, 2013.

2 US Energy Information Administration, http://www.eia.gov/tools/faqs/faq.cfm?id=33&t=6, 2013.

3 US Energy Information Administration, http://www.eia.gov/totalenergy/data/annual/index.cfm#petroleum, 2013.

4 The California Energy Commission, http://energyalmanac.ca.gov/petroleum/, 2013.

5 California Energy Commission, http://www.energy.ca.gov/transportation/, 2013.

Between 2009 and 2030, the state's population will increase at an annual compound average rate of 1.1 percent, compared with a growth rate of 2.9 percent in real personal income over the same period. These growth rates will result in substantial increases in travel demand for California.[6]

According to the California Energy Commission's (CEC's) Transportation Energy Forecasts and Analyses for the 2011 Integrated Policy Report, while the number of alternative fuel vehicles on the road in California has increased at rates substantially higher than growth rates for gasoline vehicles (from 2001-2009), the total number of alternative fuel vehicles in California is still small compared to the number of gasoline and diesel vehicles. In 2009 the California Department of Motor Vehicles (DMV) registered, 25,240,074 light-duty gasoline vehicles, 462,936 light duty diesel vehicles, 384,567 light duty hybrid vehicles, 409,636 light-duty flex fuel vehicles, 15,031 light duty electric vehicles, and 24,819 light duty natural gas vehicles.[7]

Forecasts for petroleum consumption show a drop in gasoline consumption due to several variables including the increase in gasoline prices and the improvement of hybrid and alternative fuel technologies. The CEC forecasts that between 2009 and 2030 total annual gasoline consumption in California will fall 14.31 percent in the low-demand case to 14.09 billion gallons, largely as a result of higher fuel prices, efficiency gains, and competing fuel technologies. In the high-demand case, the recovering economy and lower relative prices lead to a gasoline demand of 15.32 billion gallons of gasoline in 2030, 3.6 percent above 2009 levels.

Finally, the report highlights the California Vehicle Survey's findings which found that vehicle miles traveled (VMT) were impacted by the distance to work and availability of transit. Therefore, changes in land-use patterns that reduce the distance between locations of job and residence, and increase the availability of urban transit, will reduce vehicle miles traveled and transportation fuel consumption per capita.

Similar to California and the US as a whole, San Joaquin County relies primarily on oil to meet its transportation needs. Motor vehicles are the largest consumer of fuels in the region's transportation sector. After gasoline, diesel fuel is the most utilized transportation energy source. The primary consumers of diesel fuel in the transportation sector are heavy-duty trucks, with medium-duty trucks, buses, light-duty passenger cars, and railway locomotives accounting for remaining diesel fuel consumption.

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6 California Energy Commission, 2010 Transportation Energy Forecasts and Analyses for the 2009 Integrated Policy Report, 2013.

7 California Energy Commission, Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report. http://www.energy.ca.gov/2011publications/CEC-600-2011-007/CEC-600-2011-007-SD.pdf. 2011.

Alternative fuels are defined as fuels not derived from petroleum, such as natural gas, ethanol, and electricity. However, like petroleum, alternative fuels like natural gas and ethanol (which are primarily composed of diesel fuel) are also nonrenewable, finite resources. Electricity is also considered nonrenewable when generated from natural gas or coal, but considered renewable when generated from sources like solar, hydroelectric, or wind energy. Most alternative fuel facilities in the region supply compressed natural gas (CNG) or electricity. The region's limited alternative fuel infrastructure severely constrains the use of alternative fuel passenger vehicles.

Although average fuel efficiency for autos and trucks has experienced some improvements during the last quarter century, fuel consumption associated with the large increase in VMT has exceeded the fuel consumption reductions achieved by improved efficiency, and the total amount of annual fuel consumption has continued to increase. The equipment and vehicles involved in the construction of transportation infrastructure (i.e., roadway and highway improvements; rail lines; etc.) also consume energy. Currently, construction equipment and vehicles are generally dependent on petroleum-based fuels.

Electricity

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. In 2011, approximately 70 percent of the electrical power needed to meet California's demand was produced in the state. Approximately 10 percent of its electricity demand was imported from the Pacific Northwest and 20 percent from the Southwest.[8] In 2010, California's electricity was derived from natural gas (53.4 percent), large hydroelectric resources (14.6 percent), coal (1.7 percent), nuclear sources (15.7 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (14.6 percent).[9]

Total statewide electricity consumption increased from 228,473 gigawatt-hours (GWh) in 1990 to 264,230 GWh in 2000, which is an estimated annual growth rate of 1.46 percent. The statewide electricity consumption in 2010 was 272,300 GWh, reflecting an annual growth rate of 2.07 percent between 1990 and 2010. The CEC has forecasted a 1.20 percent electricity statewide increase from 2010 to 2020.[10] Electricity is provided to San Joaquin County customers by Pacific Gas and Electric Company (PG&E).

8 California Energy Commission, http://energyalmanac.ca.gov/electricity/, 2013.

9 California Energy Commission, http://www.energyalmanac.ca.gov/overview/energy_sources.html, 2013.

10 California Energy Commission, 2011 Integrated Energy Commission Report, 2013.

San Joaquin County consumed 5,561 million kWh (5,561 GWh) in 2010, less than 1 percent of the state's total.[11]

Peak electricity demand, expressed in megawatts (MWh), measures the largest electric power requirement during a specified period, usually integrated over 1 hour. A single MWh is enough power to meet the expected electricity needs of 1,000 typical California homes. Peak demand is important in evaluating system reliability, determining congestion points on the electrical grid, and identifying potential areas where additional transmission, distribution, and generation facilities may be needed. California's peak demand typically occurs in August between 3:00 PM and 5:00 PM. High temperatures lead to increased use of air conditioning, which in combination with industrial loads, commercial lighting, and office equipment comprise the major demand for electricity consumption in the peak demand period in the state. In 2015, mid-peak electricity demand for California is predicted to be about 65,701 MWh. [12]

Natural Gas

The state produces approximately 12 percent of its natural gas, while obtaining 22 percent from Canada and 23 percent from the Rockies and 42 percent the Southwest.[13] Natural gas supplies are derived from underground sources and brought to the surface at gas wells. Once it is extracted, gas is purified and the odorant that allows gas leaks to be detected is added to the normally odorless gas. Natural gas suppliers then send the gas into transmission pipelines, which are usually buried underground. Compressors propel the gas through the pipeline system, which delivers it to homes and businesses.

Total statewide end-user natural gas consumption increased from 12,893 million therms in 1990 to 123,913 million therms in in 2000, which is an estimated annual growth rate of 0.76 percent. The statewide end-user natural gas consumption in 2010 was 12,162 million therms in 2010, reflecting an annual decrease of 0.58 percent between 1990 and 2010. The CEC has forecast a 0.67 percent electricity statewide increase in end-user natural gas from 2010 to 2020.[14] Natural gas is provided to San Joaquin County

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11 California Energy Commission. 2011. Electricity Consumption by County: San Joaquin County. http://www.ecdms.energy.ca.gov/elecbycounty.aspx. accessed on December 11, 2013.

12 California Energy Commission, Preliminary California Energy Demand Forecast 2012-2022. http://www.energy.ca.gov/2011publications/CEC-200-2011-011/CEC-200-2011-011-SD.pdf. 2011,

13 California Energy Commission, http://energyalmanac.ca.gov/overview/energy_sources.html, 2013.

14 California Energy Commission, 2011 Integrated Energy Commission Report, http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf. 2013.

customers by PG&E. In 2010, San Joaquin County consumed 199 million therms of natural gas, roughly 1.6 percent of the state total.[15]

Energy Conservation and Global Climate Change

The consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with construction activities and the operation of passenger, public transit, and commercial vehicles results in greenhouse gas (GHG) emissions that cause global climate change. In addition, alternative fuels like natural gas (including compressed natural gas [CNG] and liquid natural gas [LNG]), ethanol, and electricity (unless derived from solar, wind, nuclear, or another energy source that does not produce carbon emissions) also result in GHG emissions and contribute to global climate change. These issues are more thoroughly discussed in **Section 4.7, Greenhouse Gasses.**

Renewable and Alternative Energy Sources

Renewable Energy

Electricity supply reliability depends, in part, on the diversity of energy sources. In 1978, congress passed the Public Utilities Regulatory Policies Act (PURPA). The act defines facilities that use alternative or renewable energy sources as "qualifying facilities." It provides financial incentives for their installation and requires utilities to sign long-term power purchase contracts with qualifying facilities. Original provisions of PURPA encouraged the construction of biomass-to-energy facilities, which use materials such as agricultural and wood waste as fuel for energy production.

The California Public Utilities Commission (CPUC) has adopted contract incentives to assist qualifying facilities. Currently there are no utility scale solar or wind projects in San Joaquin County. A small wind farm that generated 1.5 MW is located to the south of the City of Tracy owned by Teichert Aggregates.[16] There are two operational biomass power plants located in San Joaquin County, the Tracy Biomass Plant (19.4 MW) and the DTE Stockton plant (45 MW). An additional biomass power plant (Air Products Stockton Biomass Power) located in Stockton is idle currently but could generate 45 MW.[17]

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15 California Energy Commission, 2011. Gas Consumption by County: San Joaquin County. http://www.ecdms.energy.ca.gov/gasbycounty.aspx, accessed December 11, 2013.

16 Open EI. Map of Wind Farms/Data. http://www.afdc.energy.gov/locator/stations/

17 University of California. California Biomass Power Plants. http://ucanr.edu/sites/WoodyBiomass/Woody_Biomass_Utilization_2/California_Biomass_Power_Plants/

Alternative Fuels

Alternative fuels, as defined by the Energy Policy Act of 1992, include ethanol, natural gas, propane, hydrogen, biodiesel, electricity, methanol, and p-series fuels. These fuels are being used worldwide in a variety of vehicle applications.[18] Use of these fuels for transportation can generally reduce air pollutant emissions and can be domestically produced and derived from renewable sources. The Energy Policy Act of 2005 further directed the Department of Energy to carry out a study to plan for the transition from petroleum to hydrogen in a significant percentage of vehicles sold by 2020. Alternative fuel stations within San Joaquin County are shown in **Table 4.11.6-1.** As shown, there are 20 alternative fueling stations within the County.

Table 4.11.6-1
Alternative Fuel Stations

Company/Location	Address	Type
Car charging	22769 Bender Road Acampo, CA 95220	Electric
U-Haul	450 North Cherokee Lane Lodi, CA 95240	Propane
Lodi City Hall	221 West Pine Street Lodi, CA 95240	Electric
Lodi Public Library	201 West Locust Street Lodi, CA 95240	Electric
City of Lodi – Finance Department	310 West Elm St Lodi, CA 95240	Electric
Lodi Downtown Parking Structure	50 North Sacramento St Lodi, CA 95240	Electric
Hutchins Street Square Community Center	125 South Hutchins St Lodi, CA 95240	Electric
Lodi Animals Service and Shelter	1345 West Kettlemen Lane Lodi, CA 95242	Electric
Stockton Nissan	3077 East Hammer Lane Stockton, CA 95212	Electric
Walgreens - #10480	7850 West Lane Stockton, CA 95210	Electric
U-Haul	7701 Tam O'Shanter Drive Stockton, CA 95210	Propane
PG&E Stockton Service Center	4040 West Lane Stockton, CA 95204	CNG
U-Haul	2701 North Wilson Way Stockton, CA 95205	Propane
Shell	620 West Charter Way Stockton, CA 95206	Propane

18 US Department of Energy, Alternative Fuels Data Center, January 2014 from http://www.eere.energy.gov/afdc/fuels/index.html.

Company/Location	Address	Type
Campora Propane Service	2525 East Mariposa Road Stockton, CA 95205	Propane
Shell – Pearson Fuels	4469 Escalon Bellota Road Farmington, CA 95236	Ethanol
Kamp's Propane	1929 East Moffat Blvd Manteca, CA 95336	Propane
Tracy Nissan	3195 North Naglee Road Tracy, CA 95304	Electric
MCH Electric Warehouse	4923 West 11th Street Tracy, CA 95304	Electric
City of Ripon	339 Doak Blvd Ripon, CA 95366	CNG

Source: US Department of Energy 2014

The following descriptions of alternative fuels are from the United States Department of Energy's Alternative Fuels Data Center website.

Ethanol. Ethanol is a clear, colorless liquid. Blends of at least 85 percent ethanol are considered alternative fuels under the Energy Policy Act E85. A blend of 85 percent ethanol and 15 percent gasoline is used in flexible fuel vehicles (FFVs) that are currently offered by most major auto manufacturers. FFVs can run on gasoline, E85, or any combination of the two and qualify as alternative fuel vehicles under Energy Policy Act regulations.

Natural Gas. Natural gas is a mixture of hydrocarbons—mainly methane (CH_4)—and is produced either from gas wells or in conjunction with crude oil production. The interest in natural gas as an alternative fuel for automobiles stems mainly from its clean burning qualities, its domestic resource base, and its commercial availability to end users. Because of the gaseous nature of this fuel, it must be stored onboard a vehicle in either a compressed gaseous state (CNG) or in a liquefied state (LNG).

Propane. Propane is produced as a by-product of natural gas processing and petroleum refining. Propane or liquefied petroleum gas (LPG) is a popular alternative fuel choice for vehicles because there is already an infrastructure of pipelines, processing facilities, and storage for its efficient distribution.

Hydrogen. Hydrogen is the simplest and lightest fuel is hydrogen gas (H_2). Hydrogen is in a gaseous state at atmospheric pressure and ambient temperatures. Hydrogen is being explored for use in combustion engines and fuel cell electric vehicles. The ability to create hydrogen from a variety of resources and its clean-burning properties make it a desirable alternative fuel. Although there is no significant transportation distribution system currently for hydrogen transportation use, hydrogen could

be transported and delivered using the established hydrogen infrastructure; for significant market penetration, the infrastructure will need further development.

Biodiesel. Biodiesel is a domestically produced, renewable fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is safe, biodegradable, and reduces serious air pollutants such as particulates, carbon monoxide, hydrocarbons, and air toxics. According to the US Department of Energy, pure biodiesel (B100) is considered an alternative fuel under Energy Policy Act. Lower-level biodiesel blends are not considered alternative fuels, but covered fleets can earn one Energy Policy Act credit for every 450 gallons of B100 purchased for use in blends of 20 percent or higher.

Electricity. Electricity can be used as a transportation fuel to power battery electric and fuel cell vehicles. When used to power electric vehicles or EVs, electricity is stored in an energy storage device such as a battery. Fuel cell vehicles use electricity produced from an electrochemical reaction that takes place when hydrogen and oxygen are combined in the fuel cell "stack." The production of electricity using fuel cells takes place without combustion or pollution and leaves only two byproducts: heat and water. As of October 2012, approximately one-quarter of all personal electric vehicles sold in the nation were purchased by California drivers. [19]

Electric vehicles have several different charging systems: 120 volt, 240 volt, direct current, and inductive charging. An electric vehicle that accepts 120-volt power can do so from any standard electrical outlet with a 12- or 16-amp dedicated branch circuit (with no other receptacles or loads on the circuit). A 240-volt system requires the installation of a home charging station and is available at most public charging stations. Direct current (DC) fast charging equipment (480 volt) provides 50 kW to the battery. This option enables charging along heavy traffic corridors and at public stations. Inductive charging equipment was installed for all electric vehicles in the early 1990s, such as the GM/Saturn EV-1, Toyota RAV4 EV, and the Chevy S10, and is still being used in certain areas. Some companies are working on inductive charging options for future electric drive vehicles. The most common types of electric vehicles use either 120-volt or 240-volt electrical systems.

The US Department of Energy's Advanced Vehicle Testing Activity (AVTA) promotes the use of electric vehicles in commercial fleets in the United States. During 1996, AVTA requested and received proposals from interested groups to become qualified vehicle testers (QVT). Southern California Edison (SCE) headed one QVT. According to SCE, California's approximately 20,000 megawatts of excess off-peak

[19] San Joaquin Valley Plug in Electric Vehicle Readiness Plan California Center for Sustainable Energy. http://energycenter.org/sites/default/files/docs/nav/programs/pev-planning/San_Joaquin_Valley_PEV_Readiness_Planning_Guide.pdf 2013.

(nighttime) electricity capacity would allow the charging of millions of electro-drive technologies without the need for new power generation facilities.

Methanol. Methanol, also known as wood alcohol, can be used as an alternative fuel in flexible fuel vehicles that run on M85 (a blend of 85 percent methanol and 15 percent gasoline). However, it is not commonly used because automakers are no longer supplying methanol-powered vehicles. Today most of the world's methanol is produced by a process using natural gas as a feedstock. However, the ability to produce methanol from non-petroleum feedstocks, such as coal or biomass, is of interest for reducing petroleum imports.

P-Series fuel. P-Series fuel is a unique blend of natural gas liquids (pentanes plus), ethanol, and the biomass-derived co-solvent methyltetrahydrofuran (MeTHF). P-Series fuels are clear, colorless, 89 to 93 octane, liquid blends that are formulated to be used in flexible fuel vehicles (FFV's). P-Series are designed to be used alone or freely mixed with gasoline in any proportion inside the FFV's gas tank. These fuels are not currently being produced in large quantities and are not widely used.

4.11.6.2 REGULATORY FRAMEWORK

Federal

Public Utility Regulatory Policies Act of 1978 (Public Law 95-617).

The Public Utility Regulatory Policies Act of 1978 (PURPA) was passed in response to the unstable energy climate of the late 1970s. PURPA sought to promote conservation of electric energy. Additionally, PURPA created a new class of nonutility generators, small power producers, from which, along with qualified cogenerators, utilities are required to buy power.

PURPA was in part intended to augment electric utility generation with more efficiently produced electricity and to provide equitable rates to electric consumers. Utility companies are required to buy all electricity from "Qfs" (qualifying facilities) at avoided cost (avoided costs are the incremental savings associated with not having to produce additional units of electricity). PURPA expanded participation of nonutility generators in the electricity market, and demonstrated that electricity from nonutility generators could successfully be integrated with a utility's own supply. PURPA requires utilities to buy whatever power is produced by Qfs (usually cogeneration or renewable energy). Utilities want these provisions repealed, critics argue that it will decrease competition and impede development of the renewable energy industry. The Fuel Use Act (FUA) of 1978 (repealed in 1987) also helped Qfs become established. Under FUA, utilities were not allowed to use natural gas to fuel new generating technologies but Qfs which were by definition not utilities, were able to take advantage of abundant natural gas and

abundant new technologies (such as combined cycle). The technologies lowered the financial threshold for entrance into the electricity generation business as well as shortened the lead time for constructing new plants.

Energy Policy Act of 2005

On August 8, 2005, President George W. Bush signed the National Energy Policy Act of 2005 into law. This comprehensive energy legislation contains several electricity-related provisions that aim to:

- Help ensure that consumers receive electricity over a dependable, modern infrastructure;
- Remove outdated obstacles to investment in electricity transmission lines;
- Make electric reliability standards mandatory instead of optional; and
- Give federal officials the authority to site new power lines in DOE-designated national corridors in certain limited circumstances

Clean Air Act

Section 211(o) of the Clean Air Act (the Act), as amended by the Energy Policy Act of 2005, requires the Administrator of the EPA to annually determine a renewable fuel standard (RFS) which is applicable to refiners, importers and certain blenders of gasoline, and publish the standard in the Federal Register by November 30 of each year. On the basis of this standard, each obligated party determines the volume of renewable fuel that it must ensure is consumed as motor vehicle fuel. This standard is calculated as a percentage, by dividing the amount of renewable fuel that the Act requires to be blended into gasoline for a given year by the amount of gasoline expected to be used during that year, including certain adjustments specified by the Act. The notice, published in November of 2011, included an RFS of 8.01 percent for 2011.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted August 10, 2005, authorizes the federal surface transportation programs for highways, highway safety, and transit. SAFETEA-LU addresses the many challenges facing our transportation system today—challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment—as well as laying the groundwork for addressing future challenges. SAFETEA-LU promotes more efficient and effective federal surface transportation programs by focusing on transportation issues of national significance,

while giving state and local transportation decision makers more flexibility for solving transportation problems in their communities.

The Moving Ahead for Progress in the 21st Century Act

On July 6, 2012, President Obama signed into law the Moving Ahead for Progress in the 21st Century Act (MAP-21). MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the US transportation system. MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established by its predecessor acts. Beginning October 1, 2012, the existing National Highway System (NHS) has been expanded to include all Principal Arterials (i.e., Functional Classifications 1, 2, and 3) to the new Enhanced NHS. The additional Principal Arterials will be eligible for National Highway Performance Programming funding.

In MAP-21, the metropolitan and statewide transportation planning processes are continued and enhanced to incorporate performance goals, measures, and targets into the process of identifying needed transportation improvements and project selection.

State

California Energy Commission

The California Energy Commission is the state's primary energy policy and planning agency. Created by the Legislature in 1974 and located in Sacramento, six basic responsibilities guide the Energy Commission as it sets state energy policy:

- Forecasting future energy needs;
- Promoting energy efficiency and conservation by setting the state's appliance and building efficiency standards;
- Supporting public interest energy research that advances energy science and technology through research, development and demonstration programs;
- Developing renewable energy resources and alternative renewable energy technologies for buildings, industry and transportation;
- Licensing thermal power plants 50 megawatts or larger;
- Planning for and directing state response to energy emergencies.

State of California Integrated Energy Policy Report

In 2002, the Legislature reconstituted the state's responsibility to develop an integrated energy plan for electricity, natural gas, and transportation fuels. The CEC adopts and transmits to the Governor and Legislature a report of findings every two years and updates the report every other year. At a Special Business Meeting on November 12, 2003, the CEC adopted the 2003 Integrated Energy Policy Report. These reports make recommendations to increase California's energy supplies, reduce energy demand, broaden the range of alternatives to conventional energy sources, and improve the state's energy delivery infrastructure.

California Strategy to Reduce Petroleum Dependence

California Strategy to Reduce Petroleum Dependence (Assembly Bill [AB] 2076) (Chapter 936, Statutes of 2000) requires the CEC and the Air Resources Board (ARB) to develop and submit to the Legislature a strategy to reduce petroleum dependence in California. The statute requires the strategy to include goals for reducing the rate of growth in the demand for petroleum fuels. In addition, the strategy is required to include recommendations to increase transportation energy efficiency as well as the use of nonpetroleum fuels and advanced transportation technologies including alternative fuel vehicles, hybrid vehicles, and high-fuel efficiency vehicles.

The strategy, Reducing California's Petroleum Dependence, was adopted by the CEC and ARB in 2003. The strategy recommends that California reduce on-road gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and SUVs; and increase the use of nonpetroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Alternative Fuels Plan Assembly Bill 1007

Alternative Fuels Plan Assembly Bill 1007 (AB 1007) requires the CEC to prepare a state plan to increase the use of alternative fuels in California. The plan shall include an evaluation of alternative fuels for emissions or criteria air pollutants, air toxics, GHGs, water pollutants, and other harmful substances, and their impacts on petroleum consumption. The plan shall set goals for increased alternative fuel use in the state for the years 2012, 2017, and 2022 and recommend policies to ensure the alternative fuel goals are attained, including standards on transportation fuels and vehicle and policy mechanisms to ensure vehicles operating on alternative fuels use those fuels to the maximum extent feasible. The plan was adopted in December 2007.

Bio-energy Action Plan – Executive Order S-06-06

Executive Order #S-06-06 establishes targets for the use and production of bio-fuels and bio-power and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bio-energy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its bio-fuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The executive order also calls for the state to meet a target for use of biomass electricity.

Governor's Low Carbon Fuel Standard (Executive Order S-01-07)

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard shall be incorporated into the State Alternative Fuels Plan required by AB 1007 and is one of the proposed discrete early action GHG reduction measures identified by ARB pursuant to AB 32.

California Building Energy Efficiency Standards: Title 24

California established statewide building energy standards following legislative action. The legislation required the standards to:

- Be cost effective;
- Be based on the building life cycle; and
- Include both prescriptive and performance-based approaches.

The standards have been periodically updated as technology and design have evolved. Generally, the standards are updated every three years. As a result of AB 970, passed in the fall of 2000 in response to the state's electricity crisis, an emergency update of the Standards went into effect in June 2001. The Commission then initiated an immediate follow-on proceeding to consider and adopt updated Standards that could not be completed during the emergency proceeding. The 2005 Building Energy Efficiency Standards were adopted in November 2003, took effect October 1, 2005. The Energy Commission adopted the latest Building Energy Efficiency Standards in May 2012. The new 2013 Building Energy Efficiency Standards will go into effect on July 1, 2014.

Title 24 of the California Code of Regulations comprises the state Building Standards Code. Part 6 of Title 24 is the California Energy Code, which includes the building energy efficiency standards. The standards

include provisions applicable to all buildings, residential and non-residential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include mandatory requirements for efficiency and design of the following types of systems, equipment, and appliances:

- Air conditioning systems
- Heat pumps
- Water chillers
- Gas- and oil-fired boilers
- Cooling equipment
- Water heaters and equipment
- Pool and spa heaters and equipment
- Gas-fired equipment including furnaces and stoves/ovens
- Windows and exterior doors
- Joints and other building structure openings (envelope)
- Insulation and cool roofs
- Lighting control devices.

The standards include additional mandatory requirements for space conditioning (cooling and heating), water heating and indoor and outdoor lighting systems and equipment in non-residential, high-rise residential, and hotel or motel buildings.

Senate Bill 107, Renewable Energy Procurement

This law requires investor owned utilities such as Pacific Gas and Electric and Southern California Edison to have 20 percent of its electricity come from renewable sources by 2010. Previously, state law required that this target be achieved by 2017.

California Solar Initiative

On January 12, 2006, the California Public Utilities Commission (CPUC) approved the California Solar Initiative (R.04- 03-017), which provides $2.9 billion in incentives between 2007 and 2017. The CPUC will oversee a $2.5 billion program for commercial and existing residential customers, funded through

revenues and collected from gas and electric utility distribution rates. Furthermore, the CEC will manage $350 million targeted for new residential building construction, utilizing funds already allocated to the CEC to foster renewable projects between 2007 and 2011.

On March 2, 2006, the CPUC opened a proceeding to develop rules and procedures for the California Solar Initiative and to continue consideration of policies for the development of cost-effective, clean, and reliable distributed generation (DG). On August 21, 2006, the Governor signed Senate Bill (SB) 1, which directs the CPUC and the Energy Commission to implement the CSI program consistent with specific requirements and budget limits set forth in the legislation and directs the CPUC and the Energy Commission to create 3,000 megawatts of new, solar-produced electricity by 2017.

The PUC has a rulemaking in progress to reconcile its decisions with SB 1, and it also continues to hold public workshops to continue designing program elements.

Current incentives provide an upfront, capacity-based payment for a new system. The CSI incentive system will change in 2007 when it moves to performance-based payments. In its August 24, 2006, decision, the CPUC shifted the program from volume-based to performance-based incentives and clarified many elements of the program's design and administration.

California Environmental Quality Act Guidelines Appendix F: Energy Conservation

The *California Environmental Quality Act (CEQA) Guidelines* Appendix F provides a goal of conserving energy in the state of California. The appendix indicates the following methods to achieve this goal: (1) decreasing overall per capita energy consumption, (2) decreasing reliance on natural gas and oil, and (3) increasing reliance on renewable energy sources.

Local

County and City General Plans

Local jurisdictions may include a section that provides information on existing utilities, often focusing on natural gas, and electric services. Utilities are important service providers that support the expansion of the region's economic base, serve available developable land, and maintain or increase infrastructure capacity. The policies related to utilities from each jurisdiction are included below.

San Joaquin County General Plan

- Urban sprawl shall be discouraged in favor of compact communities, as a means of promoting an energy-efficient land use pattern.

- Land use planning shall promote the use of public transportation, bicycles, and other alternatives to the personal automobile.

- Employment opportunities shall be encouraged in the vicinity of residential areas of urban communities, to reduce commute-related travel.

- Energy conservation measures, such as insulation and weather-stripping, shall be promoted in existing residential structures.

- Energy efficiency of industrial processes shall be supported.

- Review of County Energy Consumption. The County shall renew its own energy consumption performance and develop programs to increase its energy efficiency. (Public Works, General Services)

City of Escalon General Plan

- The Escalon General Plan (2005) has no specific goals and policies pertaining to utilities, oil, or gas facilities.

City of Lathrop General Plan

- The Comprehensive General Plan for Lathrop (1991) has no specific goals and policies pertaining to utilities, oil, or gas facilities.

City of Lodi General Plan

- Provide infrastructure—including water, sewer, stormwater, and solid waste/recycling systems—that is designed and timed to be consistent with projected capacity requirements and development phasing.

- Promote conservation of resources in order to reduce the load on existing and planned infrastructure capacity, and to preserve existing environmental resources.

City of Manteca General Plan

- The city shall ensure adequate, reliable electric service is available to all users.

City of Ripon General Plan

- The City of Ripon General Plan (2040) has no specific goals and policies pertaining to utilities, oil, or gas facilities.

City of Stockton General Plan

- To provide adequate gas and electric services for city residents through coordinating with gas and electricity providers in planning the expansion of facilities to meet future needs as well as to minimize environmental and other impacts.

City of Tracy General Plan

- The City of Tracy General Plan (2005) has no specific goals and policies pertaining to utilities, oil, or gas facilities.

4.11.6.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including RTP policies, Sustainable Communities Strategy [SCS], and transportation project list and financing plan) would result in significant energy impacts, if any of the following would occur:

- Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other nonrenewable energy types between the current conditions and 2040 in a wasteful manner.
- Use substantial amounts of electricity and natural gas, thereby requiring the construction of new facilities and sources of energy or major improvements to local infrastructure.
- Uncover and potentially server underground utility lines.

Methodology

Estimated energy consumption in 2040 is expected to represent the most conservative (i.e., highest energy consumption of any year in the Plan) because population and employment are projected to be higher in this year than in any earlier year and future conservation efforts cannot be fully quantified at this time. No estimate is made of the impact of energy efficiency and conservation measures which are likely to be adopted, resulting in energy consumption lower than that projected in this section.

Gasoline consumption in 2012 for San Joaquin County was used as the existing use and was generated from modeling. Expected future transportation gasoline consumption for the year 2040, was determined from modeling which provides estimated vehicular fuel consumption for the RTP/SCS.

The electricity and natural gas use for San Joaquin County for 2012 was obtained from the CEC.[20, 21] The combined electricity and natural gas use was estimated by SJCOG based on standard energy consumption factors.

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20 California Energy Commission. 2011. Electricity Consumption by County: San Joaquin County. http://www.ecdms.energy.ca.gov/elecbycounty.aspx. Accessed on December 11, 2013.

21 California Energy Commission, 2011. Gas Consumption by County: San Joaquin County. http://www.ecdms.energy.ca.gov/gasbycounty.aspx, accessed December 11, 2013.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of energy resources includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The methodology for determining the significance of energy impacts compares existing conditions to the expected future energy consumption with the Plan. The criteria above were applied to compare current energy usage to expected future (2040) Plan conditions.

Implementation of the 2014 RTP/SCS would affect the use of energy resources in San Joaquin County. The analysis of these impacts is programmatic at the regional level. The Plan would result in energy impacts as a result of the following: energy demands for construction of transportation projects and development; energy demands for operation of the regional transportation system and the growing energy demand from growth associated with implementation of the 2014 RTP/SCS. Project-specific impacts vary and appropriate mitigation measures would need to be developed on a project-by-project basis, as appropriate.

Impact and Mitigation Measures

Impact ENERGY-1 **Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other nonrenewable energy types between the current conditions and 2040 in a wasteful manner.**

Regional growth planned as part of the 2014 RTP/SCS would result in new development. Construction activities related to transportation improvements and population growth would require the use of diesel-powered heavy equipment and diesel generators. This would increase the use of diesel fuel in San Joaquin County. Some activities would require the use of battery-powered equipment or connection to the electricity grid which would increase the use of electricity produced from nonrenewable sources.

The population growth in the region would increase the number of vehicle trips taken every day in addition to an increase in public transportation trips. Although the vehicle trips in San Joaquin County would increase, the vehicles would be more efficient reducing gasoline consumption. To further reduce the gasoline consumption from vehicle trips, public transit options would be emphasized as part of the RTP/SCS including more bus routes, bicycle lanes and facilities, alternative fuel vehicle incentives, and pedestrian facilities. The increase in public transit options such as more bus routes and buses would be operated by electricity, diesel, or natural gas fuel would also contribute to energy reductions. **Table 4.11.6-2** summarizes the expected gasoline consumption changes between 2013 and 2040 with the investments in the RTP/SCS and without (the No Project Alternative).

Table 4.11.6-2
Gasoline Consumption

Scenario	Vehicle Miles Travelled (billions of miles)	Gasoline Consumption (million gallons)
Existing (2012)	6.48	321
RTP Plan (2040)	10.44	488
No Build (2040)	10.51	491

Source: SJCOG 2014

The population in San Joaquin County is expected to increase by 52 percent between 2012 and 2040.[22] Based **Table 4.11.6-2** gasoline consumption would increase 52 percent by 2040. Diesel use would be expected to increase similarly to gasoline consumption. As discussed above, vehicle use would reduce as transit options become more prevalent. In addition, vehicles in 2040 are expected to be more efficient and

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use less gasoline overall. The increase in diesel would occur due to the increase in truck and other diesel-powered vehicles.

The anticipated housing associated population growth would generate additional demand for electricity and natural gas. As indicated in **Table 4.11.6-3**, forecast urban development and growth that would be accommodated by the transportation investments and land use strategies in the RTP/SCS would result in more overall use of energy resources in 2040 than in 2012.

Table 4.11.6-3
Residential and Commercial Electricity and Natural Gas Consumption

Year	Electricity Consumption (MWh)	Natural Gas Consumption (MMBtu)
Existing (2013)	2,828,793	10,805,701
RTP Plan (2040)	4,464,775	15,240,316
No Build (2040)	4,594,503	16,145,926

Source: Impact Sciences 2014
MMBtu = million British thermal units.

Other sources of energy use include the agricultural and industrial sector. Similar to the analyses presented above, energy use associated with these sectors is expected to increase, however, as regulations (such as Title 24) continue to require more efficient development and overall awareness of the need for energy conservation it is expected that energy consumption related to these sectors would not increase directly in proportion to population or the number of jobs.

Although, higher efficiency development is anticipated additional sources for electricity generation and natural gas would need to be pursued to accommodate demand. Sources of energy other than fossil fuels will need to be pursued to provide energy supplies to meet the growing demands. With the construction of higher efficiency buildings and increase in renewable energy supplies in accordance with the California Renewables Portfolio Standard (RPS) Program, the anticipated energy use to support population growth would not be excessive. It is beyond the scope of this analysis to project how increased energy demand will be met, but it is anticipated that public and private energy providers should continue their current long-range planning processes to assure that there is no shortfall. A variety of energy sources are being pursued, and recent state actions (see Regulatory Setting) should help to meet the growth in energy demand while minimizing associated environmental impact and reducing dependence on fossil fuels. The 2014 RTP/SCS's emphasis on compact land use and growth patterns that facilitate transit and non-motorized transportation are anticipated to result in less energy consumption

than if no plan were in place. Nonetheless, an increase in energy resources will be necessary to support the growing population.

The use of energy as a result of implementation of the RTP/SCS would significantly increase energy demand. However, with increased focus on conservation and energy-efficient appliances and equipment, it is anticipated that energy use would become more become much efficient. Nonetheless, energy use would increase substantially and therefore increased energy consumption would be potentially significant at the regional level for **Impact ENERGY-1.**

Level of Significance Before Mitigation

The 2014 RTP/SCS would result in a more efficient land use pattern and would reduce per capita VMT and per capita energy use. Nonetheless, some waste of energy is likely to occur and therefore this impact would be potentially significant for **Impact ENERGY-1.**

Mitigation Measures

ENERGY-1: Implementing and local agencies should implement energy saving policies and projects that incorporate renewable and alternative energy to the maximum extent feasible.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts of the 2014 RTP/SCS could be reduced, although not to a less than significant level as substantial energy use would occur. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures ENERGY-1**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt this measure through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt this mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact ENERGY-2 **Use substantial amounts of electricity and natural gas, thereby requiring the construction of new facilities and new sources of energy or major improvements to local infrastructure.**

The population growth and transportation improvements included in the RTP/SCS would result in substantial increase in electricity and natural gas demand due to increased population (see **Impact ENERGY-1**, above). As a result, it is expected that, new facilities would be required to produce and deliver energy to the San Joaquin region. Expansion of existing facilities and construction of new facilities

to generate electricity may be required. In addition, construction of new transmission lines and substations may be necessary. The RPS Program recommends that utility scale renewable energy represent 33 percent of the state's electricity mix by 2020. Therefore, new generation facilities would include renewable and nonrenewable electricity production and depending on the type of facility, size, and location would result in different impacts. Construction of the facilities would have a variety of short-term impacts ranging from aesthetics, air quality, biological resources, GHG emissions, hazards and hazardous materials, and hydrology and water quality, noise, and transportation. Operation of the facilities may also result in transportation, noise, and air quality impacts.

The additional demand for natural gas may also require new supply and construction of conveyance and distribution infrastructure. The potential short-term impacts from construction of conveyance and distribution facilities for natural gas would be similar to construction of the electricity generation and transmission facilities described above. In addition, the operation of the facilities would have similar impacts as described above.

Therefore, implementation of the RTP/SCS would result in potentially significant impacts related to construction of new facilities, transmission, and distribution of energy for **Impact ENERGY-2**.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

ENERGY-2: Implementing and local agencies should streamline permitting and provide public information to facilitate accelerated construction of geothermal, solar and wind power generation facilities and transmission line improvements.

ENERGY-3: Utilities should increase capacity of existing transmission lines to meet forecast demand that supports sustainable growth, where feasible and appropriate in coordination with local planning agencies.

ENERGY-4: SJCOG should continue to consider energy uncertainty impacts prior to the development of the next RTP/SCS. Topics that should be considered include:

- How the price and availability of transportation fuels affects revenues and demand;
- How increases in fuel efficiency could affect revenues and emissions;

- How the cost of commuting and personal travel affects mode choice and growth patterns;
- How the cost of goods movement affects international trade and employment; or
- How the escalation of fuel prices affects the cost of infrastructure construction, maintenance and operation.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measure, energy related impacts of the 2014 RTP/SCS could be reduced, although not to a less than significant level as substantial energy use would occur under the Plan compared to existing conditions. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures ENERGY-2** through **ENERGY-4**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact ENERGY-3 Uncover and potentially sever underground utility lines.

Several transportation projects in the RTP/SCS, such as roadway expansions and new roadways would require ground disturbance. Ground disturbing activities are also expected as a result of new development that would occur over the lifetime of the plan. During groundbreaking activities, the potential exists to encounter and potentially sever underground utility lines. Much of the anticipated construction would occur along existing transportation arteries or adjacent to existing utility infrastructure, increasing the chance of encountering and damaging underground utilities. Within urban areas, there would be a higher density of existing utility lines. Construction activities would have a higher probability of encountering utilities lines and severing them. As part of the process to approve and move forward with construction of a project, local agencies normally require the identification of the location of existing utility lines to avoid damage. However, the potential to sever utility lines remains potentially significant.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

ENERGY-5 Implementing and local agencies should coordinate with local utility providers while implementing local projects.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts of the 2014 RTP/SCS could be reduced to a less than significant level. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure ENERGY-5**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt this measure through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt this mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.11.6.4 CUMULATIVE EFFECTS

The increase in energy demand that is anticipated to occur as population increases in San Joaquin County area would contribute cumulatively to the worldwide increase in energy consumption. The world population is anticipated to continue to grow throughout the implementation period of the RTP/SCS. The areas of primary growth include most of Africa, excluding Southern Africa, and Asian countries. In general, the least developed countries will experience the fastest growing population.[23] Many third world countries are adopting western lifestyles which include personal automobiles, use of energy in the home, and production of goods. Therefore, demand for petroleum has increased worldwide. Petroleum is a finite resource that requires extraction, refinement, conveyance, and distribution. The use of petroleum as fuel globally would result in significant impacts from extraction as well as from construction and operation of energy facilities. Although the San Joaquin County in accordance with state law will require the implementation a variety of energy efficiency measures to decrease energy consumption as a means to reduce GHG emissions, implementation of the RTP/SCS would result in a cumulative considerable increase in energy consumption**.**

Level of Significance Before Mitigation

Potentially significant.

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23 United Nations. 2004/2012 update. Economic and Social Affairs: World Population to 2300.

Mitigation Measures

Refer to **Mitigation Measures ENERGY-1** through **ENERGY-5**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts could be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.11.6.5 COMPARISON WITH NO PROJECT ANALYSIS

In the No Project Alternative, the population of the region would still grow by close to 365,692 people from 2012 to 2040; however, no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban areas.

Since the No Project Alternative includes fewer transportation and development projects than the Plan, it would have more of an impact from the need to expand or construct new energy facilities to serve the anticipated sprawl accompanying population growth in the region due to less emphasis on urban areas. In addition, since fewer public transit options would be available than under the RTP/SCS, use of petroleum fuel for personal vehicles would be greater, as shown in **Table 4.11.6-2**.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas which would help reduce the number of new energy facilities or expansion of existing facilities that need to be constructed. This is because the urban areas would be higher density and therefore more efficient than the same population spread out throughout the region. Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Therefore, growth under the No Project Alternative would have a higher energy demand as shown in **Table 4.11.6-3.** It is also possible that increased density in urban areas could put additional pressure on energy providers to increase capacity to these areas result in additional

impacts. However, as in general, energy use would be more efficient (on a per capita basis), with the Plan, impacts would be greater with the No Project Alternative.

4.11.7.1 ENVIRONMENTAL SETTING

The primary wastewater treatment plants located in San Joaquin County are listed in **Table 4.11.7-1, Wastewater Flows and Capacity of Treatment Facilities in the SJCOG Region.** Most rural areas have no sanitary sewer system and rely on on-site wastewater treatment systems (septic tank systems).

Table 4.11.7-1
Wastewater Flows and Capacity of Treatment Facilities in the SJCOG Region.

Responsible Agency	Wastewater Facility	Current Flow (mgd)	Capacity Flow (mgd)
City of Stockton	Stockton Regional Wastewater Control Facility [a]	28.6	55.0
City of Lodi	White Slough Water Pollution Control Facility [b, c]	6.3	8.5
City of Tracy	City of Tracy Wastewater Treatment Plant [d]	10.8*	10.8 [1]
City of Manteca	City of Manteca Wastewater Treatment Plant [e]	6.50	9.87 [2]
City of Ripon	City of Ripon Wastewater Facility [f]	1.0	1.4
City of Escalon	City of Escalon Wastewater Treatment Plant [g]	0.65*	0.65
City of Riverbank	City of Riverbank Wastewater Treatment Plant [h]	1.82	7.90
City of Lathrop	City of Lathrop Wastewater Recycling Plant [i]	0.75*	0.75
Linden Community	Linden [j]	0.72*	0.72
Lockeford Community Services District	Lockeford [k]	0.3*	0.3
Woodbridge Sanitary District	Woodbridge [l]	0.27	0.5
Mountain House Community Service District	Mountain House [m]	5.4*	5.4
	Total	**63.11**	**101.07**
	Total with Planned Expansions	**63.11**	**113.90**

Note:
[1] *Plans to expand to 16.0 mgd, improvements to be fully completed in 2016.*
[2] *Plans to expand to 17.5 mgd, improvements expected to be completed in 2014.*
* *Assuming maximum flows*
[a] *City of Stockton. 2013. Notice of Preparation of a Draft EIR for the Proposed City of Stockton RWCF Capital Improvement and Energy Management Plan, Phase 2 Improvements. http://www.stocktongov.com/files/Stockton_CIEMP_NOP_Final_10.21.13.pdf*
[b] *City of Lodi. 2006. White Slough Water Pollution Control Facility. http://www.lodi.gov/public_works/wastewater_treatment_plant.html*
[c] *West Yost Associates. 2008. White Slough Water Pollution Control Facility Expansion/Upgrade. http://www.westyost.com/project/white-slough-water-pollution-control-facility-expansionupgrade*
[d] *RWQCB. 2007. City of Tracy Wastewater Treatment Plant, http://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/0705/tracy/tracy-stfrpt.pdf*
[e] *City of Manteca. Utility Information. http://www.ci.manteca.ca.us/pwt/util/index.asp*
[f] *City of Ripon. Public Works Department. http://www.cityofripon.org/departments/Staff-PublicWorks.html#wastewater*
[g] *City of Escalon. Sewer Department. http://cityofescalon.org/departments/public-works/sewer-department/*
[h] *Downtown Specific Plan FEIR.2013. http://www.riverbank.org/Depts/DevelopmentServices/pages/DowntownSPFEIRCertified%2003-25-2013.pdf. March.*
[I] *City of Lathrop Wastewater Treatment Facility. 2011. http://www.ci.lathrop.ca.us/pwd/utilities/sewer.aspx*
[j] *San Joaquin County General Plan. 1992. http://www.sjgov.org/commdev/cgi-bin/cdyn.exe?grp=planning&htm=generalplan*
[k] *Lockeford Community Services District WWTP. 2007. http://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/0712/lockeford/lockeford_info.pdf*
[l] *Final MSR and Sphere Plan. 2009. http://www.sjgov.org/lafco/municipal_service_reviews_adopte.htm*
[m] *Mountain House Community Services District – Wastewater Treatment Facility. 2007. http://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/0705/mtn_house/mhcsd-buff.pdf*

Stockton Regional Wastewater Capacity Facility

The Stockton Regional Wastewater Capacity Facility (RWCF) provides wastewater treatment for the City of Stockton, the Port of Stockton, and the surrounding urbanized areas in San Joaquin County. The RWCF is a tertiary treatment plant that is discharged into the Delta. The plant currently treats approximately 28.6 million gallons per day (mgd) of wastewater, and has been rated with a capacity of approximately 55 mgd. The RWCF was originally constructed in 1922.

White Slough Water Pollution Control Facility

The City of Lodi operates the White Slough Water Pollution Control Facility (White Slough) and a 790-acre agricultural reuse and biosolids application area. The treatment process at White Slough includes tertiary filtration and ultraviolet light disinfection. The plant currently treats approximately 6.3 mgd of wastewater, and has been rated with a capacity of approximately 8.5 mgd. White Slough was constructed in 1966 and replaced the existing wastewater facility that was built in 1923.

City of Tracy Wastewater Treatment Plant

The City of Tracy owns and operates the Tracy Wastewater Treatment Plant (WWTP). The plant discharges secondary treated wastewater to Old River, located within the Sacramento-San Joaquin Delta, a water of the United States. Domestic wastewater collected via the City's wastewater collection system, as well as industrial food processing wastewater from Leprino Food Company (Leprino) through a segregated industrial wastewater pipeline is given tertiary treatment. Leprino is permitted to discharge up to 0.85 mgd. The Tracy WWTP is composed of a main treatment facility and an industrial facility. The WWTP is currently under construction to increase capacity. The plant increased capacity from 9 mgd to 10.8 in 2008. Additional improvements to increase capacity from 10.8 mgd to 16 mgd are expected to occur from October 2012 to November 2016.

City of Manteca Wastewater Treatment Plant

The City of Manteca WWTP serves the City of Manteca, City of Lathrop, and Raymus Village in San Joaquin County. The plant currently treats approximately 6.5 mgd of wastewater, and has been rated with a capacity of approximately 9.87 mgd. An expansion is planned to provide a total of 17.5 mgd of treatment capacity. The WWTP provides tertiary treatment to wastewater. The undisinfected effluent is either stored for agricultural irrigation or reused directly to agricultural fields. Disinfected tertiary level treated effluent is discharged into the San Joaquin River.

City of Ripon Wastewater Treatment Facility

The City of Ripon Wastewater Treatment Facility (WWTF) serves the City of Ripon. The facility currently treats approximately 1.0 mgd of wastewater, and has been rated with a capacity of approximately 1.4 mgd. The treated effluent is disposed of into 40 acres of ponds located to the west of the treatment ponds.

City of Escalon Wastewater Treatment Facility

The City of Escalon WWTF serves the City of Escalon. The plant currently has a capacity to treat approximately 0.65 mgd of wastewater.

City of Riverbank Wastewater Treatment Facility

The City of Riverbank WWTF serves the City of Riverbank. The facility currently treats approximately 1.82 mgd of wastewater, and has been rated with a capacity of approximately 7.9 mgd.

City of Lathrop Wastewater Recycling Plant

The City of Lathrop Wastewater Recycling Plant (WRP) serves the City of Lathrop. The plant currently treats approximately 0.75 mgd of wastewater.

Linden Wastewater Treatment Facility

The Linden WWTP serves the community of Linden. The plant currently has a capacity to treat approximately 0.72 mgd. The WWTP consists of an aeration pond, stabilization ponds, and four evaporation and percolation ponds.

Lockeford Wastewater Treatment Facility

The Lockeford WWTF is owned and managed by the Lockeford Community Services District which services the Lockeford Community. The plant currently treats approximately 0.3 mgd of wastewater. The Lockeford WWTF includes a treatment pond and three wastewater storage ponds which treat and store the incoming wastewater. The treated water is then sent off-site to one of the two Land Application Areas which also have storage ponds.

Woodbridge Wastewater Treatment Facility

The Woodbridge WWTF is operated by the Woodbridge Sanitary District and serves the Woodbridge community. The facility currently treats approximately 0.27 mgd of wastewater, and has been rated with

a capacity of approximately 0.5 mgd. The Woodbridge WWTF is located along the banks of Mokelumne River. The facility was completed in 1949 and upgraded in 1972.

Mountain House Wastewater Treatment Facility

The Mountain House WWTF is operated by the Mountain House Community Service District and serves the Mountain House community. The plant has been rated with a capacity of approximately 0.54 mgd. The effluent is discharged into the Old River. The Mountain House WWTF was completed in 2007.

4.11.7.2 REGULATORY FRAMEWORK

Federal

Clean Water Act/National Pollutant Discharge Elimination System Permits

The Clean Water Act (CWA) (*33 United States Code* Section 1251 et seq.*)* is the cornerstone of water quality protection in the United States. The statute employs a variety of regulatory and on-regulatory tools to sharply reduce direct pollutants discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

The CWA regulates discharges from "non-point source" and traditional "point source" facilities, such as municipal sewage plants and industrial facilities. The CWA makes it illegal to discharge pollutants from a point source to the waters of the United States. CWA Section 402 creates the National Pollutant Discharge Elimination System (NPDES) regulatory program. Point sources must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). NPDES permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, storm water associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than 1 acre, mining operations, and animal feedlots and aquaculture facilities above certain thresholds.

All so-called "indirect" dischargers are not required to obtain NPDES permits. An indirect discharger is one that sends its wastewater into a city sewer system, so it eventually goes to a sewage treatment plant. Although not regulated under NPDES, "indirect" discharges are covered by the CWA "pretreatment" program. "Indirect" dischargers send their wastewater into a city sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering surface water.

National Pretreatment Program

The National Pretreatment Program is an extension of NPDES regulatory program. The National Pretreatment Program is a cooperative effort of federal, state, and local regulatory environmental agencies established to protect water quality. The program is designed to reduce the level of pollutants discharged by industry and other non-domestic wastewater sources into municipal sewer systems, and thereby, reduce the amount of pollutants released into the environment through wastewater. The objectives of the program are to protect Publicly Owned Treatment Works (POTW) from pollutants that may interfere with plant operation, to prevent pollutants that may pass through untreated from being introduced into the POTW, and to improve opportunities for the POTW to reuse wastewater and sludges that are generated.

The term "pretreatment" refers to the requirement that non-domestic sources discharging wastewater to POTW control their discharges, and meet limits established by EPA, the state or local authority on the amount of pollutants allowed to be discharged. The control of the pollutants may necessitate treatment prior to discharge to the POTW (therefore the term "pretreatment"). Limits may be met by the non-domestic source through pollution prevention techniques (product substitution recycle and reuse of materials) or treatment of the wastewater

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) ensures the quality of Americans' drinking water. The law requires actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs and groundwater wells, and applies to public water systems serving 25 or more people. It authorizes the Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants. In addition, it oversees the states, municipalities, and water suppliers that implement the standards.

US Environmental Protection Agency (USEPA) standards are developed as a Maximum Contaminant Level (MCL) for each chemical or microbe. The MCL is the concentration that is not anticipated to produce adverse health effects after a lifetime of exposure, based upon toxicity data and risk assessment principles. EPA's goal in setting MCLs is to assure that even small violations for a period of time do not pose significant risk to the public's health over the long run. National Primary Drinking Water Regulations ("NPDWRs," or "primary standards") are legally enforceable standards that limit the levels of contaminants in drinking water supplied by public water systems.

Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking

water. USEPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act acts in cooperation with the CWA to establish the State Water Resources Control Board (SWRCB). The SWRCB is divided into nine regions, each overseen by a Regional Water Quality Control Board (RWQCB). The SWRCB, and thus each RWQCB, is responsible for protecting California's surface waters and groundwater supplies.

The Porter-Cologne Water Quality Control Act develops Basin Plans that designate the beneficial uses of California's rivers and groundwater basins. The Basin Plans also establish narrative and numerical water quality objectives for those waters. Basin Plans are updated every three years and provide the basis of determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Water Quality Control Act is also responsible for implementing CWA Sections 401-402 and 303(d) to SWRCB and RWQCBs.

The State Water Resources Control Board

The State Water Resources Control Board's (SWRCB) mission is to preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations[1]. The SWRCB was formed in 1967 and consists of five full time staff, which are appointed to a four-year term by the Governor and confirmed by the Senate. There are nine Regional Water Quality Control Boards, who develop and enforce water quality objectives and implementation plans that will best protect the beneficial use of the state's waters, recognizing local differences in climate, topography, geology, and hydrology. Each Regional Board has seven part-time members who are also appointed by the Governor and confirmed by the Senate. Regional Boards develop "basin plans" for their hydrologic areas, govern requirements/issue waste discharge permits, take enforcement action against violators, and monitor water quality. The task of protecting and enforcing the many uses of water, including the needs of industry, agriculture, municipal districts, and the environment is an ongoing challenge for the SWRCB[2].

1 California State Water Resources Control Board www.waterboards.ca.gov/about_us/, 2013

2 California State Water Resources Control Board www.waterboards.ca.gov/about_us/, 2013

California Water Code

The California Water Code contains provisions that control almost every consideration of water and its use. Division 2 of the California Water Code provides that the State Water Resources Control Board (SWRCB) shall consider and act upon all applications for permits to appropriate waters. Division 6 of the California Water Code controls conservation, development, and utilization of the state water resources, while Division 7 addresses water quality protection and management.

The California Department of Public Health

The California Department of Public Health (DPH) implements the SDWA. In addition, it oversees the operational permitting and regulatory oversight of public water systems. DPH requires public water systems to perform routine monitoring for regulated contaminants that may be present in their drinking water supply. To meet water quality standards and comply with regulations, a water system with a contaminant exceeding an MCL must notify the public and remove the source from service or initiate a process and schedule to install treatment for removing the contaminant. Health violations occur when the contaminant amount exceeds the safety standard (MCL) or when water is not treated properly. In California, compliance is usually determined at the wellhead or the surface water intake. Monitoring violations involve failure to conduct or to report in a timely fashion the results of required monitoring.

In addition, DPH conducts water source assessments, oversees water recycling projects, permits water treatment devices, certifies water system employees, promotes water system security, and administers grants under the State Revolving Fund and state bonds for water system improvements.

Local

County and City General Plans

Most local planning jurisdictions incorporate a wastewater section in their General Plan. The purpose of this section is to summarize existing information regarding wastewater collection systems, treatment, and disposal facilities within the planning area. Often, the section provides an overview of current treatment capacities, flow history, treatment processes, reclamation policies, current number of connections to the system, and the general condition of the infrastructure. The wastewater policies of each local jurisdiction is included below.

San Joaquin County General Plan

- The County shall encourage wastewater reclamation efforts.

- The County shall continue to enforce its water quality regulations.
- The County shall continue to support state and federal programs for improving and maintaining water quality.
- The County shall actively support efforts to eliminate sources of pollution and clean-up efforts of the County's waterways and groundwater.
- Facilities and uses which cause water pollution shall not be permitted over substantial aquifer recharge areas or adjacent to waterways or reservoirs without adequate safeguards.

City of Escalon General Plan

- Developers shall prepare an infrastructure and public services assessment as part of each annexation and/or development application to determine infrastructure needs, feasibility, timing, and financing.
- New development shall demonstrate that adequate sewerage capacity and sewage treatment capacity exist prior to development or that conditions of project approval will ensure adequate capacity will be created as part of the project prior to the issuance of building permits. Conditions may include installation of necessary facilities or other methods acceptable to the City.
- The City shall require industrial sewage pretreatment for dischargers that have high biological treatment demands. Water conservation measures should also be encouraged for industrial, commercial and residential uses to preserve hydraulic capacity at the treatment plant and to reduce impacts to the sewerage system.
- The City shall require the connection of existing and new business, residents, and industries to the City's water and sewer system. The City shall establish fees, which enable it to recover the costs of such connection.
- Conditions of approval shall be implemented with each development to assure that the necessary sewer collection facility is in place and/or wastewater treatment plant capacity is available prior to issuance of a building permit.

City of Lathrop General Plan

The City of Lathrop General Plan (1991) does not include any wastewater policies.

City of Lodi General Plan

- Provide infrastructure—including water, sewer, stormwater, and solid waste/recycling systems—that is designed and timed to be consistent with projected capacity requirements and development phasing.
- Ensure that public facilities and infrastructure— including water supply, sewer, and stormwater facilities—are designed to meet projected capacity requirements to avoid the need for future replacement and upsizing, pursuant to the General Plan and relevant master planning.

- Coordinate extension of sewer service, water service, and stormwater facilities into new growth areas concurrent with development phasing. Decline requests for extension of water and sewer lines beyond the city limit prior to the relevant development phase and approve development plans and water system extension only when a dependable and adequate water supply for the development is assured.

- Develop new facilities and rehabilitate existing facilities as needed to serve existing development and expected development, in accordance with the General Plan and relevant infrastructure master plans.

- Prepare master plan documents as necessary during the planning period to address the infrastructure needs of existing and projected growth, and to determine appropriate infrastructure provision for each phase. Existing master plan documents should be used until new master plans are developed, and updates should occur as follows:

  – A sanitary sewer system master plan should be undertaken soon after General Plan adoption. In particular, this master plan should address how to best provide sewer service for the growth on the east side of the city and for infill development, and to determine if additional wastewater flows will need to be diverted into the proposed South Wastewater Trunk Line.

- Explore a program of complete wastewater reclamation and reuse at the White Slough Water Pollution Control Facility.

- Encourage the use of tertiary treated wastewater for irrigation of agricultural lands, large landscaped areas, and recreation/open space areas within close proximity to the White Slough Water Pollution Control Facility.

City of Manteca General Plan

- Ensure wastewater collection and treatment for all development in the City and the safe disposal of wastes.

- The City will maintain capacity to process combined residential, commercial, and industrial flow.

- The City shall develop new sewage treatment and trunk line capacity as necessary to serve new development.

- City sewer services will not be extended to unincorporated areas, except in extraordinary circumstances. Existing commitments for sewer service outside the city limits shall continue to be honored.

- Development of individual septic systems may be allowed only where the City makes a finding that it cannot feasibly provide public sewer service, and such systems shall only be used until such time as

- City sewer service becomes available. Such systems shall meet the minimum standards of the San Joaquin County Health Department.

- The City shall establish and maintain a growth management plan to ensure the development of a balanced mix of residential, commercial, industrial, and public land uses.

- Ensure that all new development provides for and funds a fair share of the costs for adequate sewer distribution, including line extensions, easements, and plant expansions.

- The City will maintain the ability to handle peak discharge flow while meeting State Regional Water Quality Control Board Standards as established in the current NPDES Permit.

- The City shall update the Public Facilities Implementation Plan regarding wastewater collection and treatment every five years. The update shall be reviewed annually for adequacy and consistency with the General Plan.

- The City will require all sewage generators within its service area to connect to the City's system, except those areas where on-site treatment and disposal facilities are deemed appropriate.

- The City will encourage and permit an industrial pretreatment program for business parks and other industrial uses in accordance with state and federal requirements.

- The City will investigate methods of improving the quality of the effluent from the City plant and will investigate options for reuse of treated wastewater. The recycled wastewater will be used for irrigation of public recreation lands, restoration of wetland areas, and irrigation of landscaped areas.

- The City will promote reduced wastewater system demand through efficient water use by:

  - requiring water conserving design and equipment in new construction,

  - encouraging retrofitting with water conserving devices,

  - designing wastewater systems to minimize inflow and infiltration to the extent economically feasible; and

  - maintaining a Citywide map of all sewer collection system components and monitoring the condition of the system on a regular basis.

City of Ripon General Plan

- Require residential and commercial development to connect to City water, non-potable water, wastewater treatment and storm drainage systems.

- Industrial, mixed use and highway service development may install on site water, non-potable water, wastewater treatment and storm drainage systems if approved by the City Engineer and City Council.

- The City shall ensure that new development provides necessary infrastructure to develop residential projects that will meet the needs of the community, including schools, irrigation and drainage facilities and water wells.

City of Stockton General Plan

- To ensure the provision of adequate facilities and services that maintain service levels are adequately funded and allocated strategically.

- The City shall give priority to providing services to existing urban areas in order to prevent the deterioration of existing levels-of-service.

- The City shall not expand the Urban Service Area without ensuring adequate funding for services and facilities for newly expanding areas.

- The City shall not expand the Urban Service Area without ensuring adequate funding for services and facilities for newly expanding areas.

- The City shall ensure that proposed developments do not create substantial adverse impacts on existing infrastructure and that the necessary infrastructure will be in place to support the development.

- The City shall continue to utilize developer fees, the City's public facilities fees, and other methods (i.e., grant funding and assessment districts) to finance public facility design, construction, operation, and maintenance.

- The City shall encourage governmental and quasi-public agencies to locate their major facilities and concentrations of employment (e.g., administrative offices) in the downtown area.

- The City shall review development proposals for their impacts on infrastructure (i.e., sewer, water, fire stations, libraries, streets) and require appropriate mitigation measures if development reduces service levels.

- During the development review process, the City shall not approve new development unless the following guidelines are met:

  - The applicant provides acceptable documentation demonstrating infrastructure capacity will be available to serve the project prior to occupancy;

  - The applicant can demonstrate that all necessary infrastructure to serve the project is adequately financed and will be installed prior to occupancy;

  - Infrastructure improvements are consistent with City or other service provider's infrastructure master plans; and;

  - Infrastructure improvements incorporate a range of feasible measures that can be implemented to reduce all public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required improvement.

- Performance criteria for water, wastewater, and stormwater facility shall be set forth in an adopted citywide master plan for each utility.

City of Tracy General Plan

- The City shall maintain wastewater conveyance, treatment and disposal infrastructure in good working condition in order to supply municipal sewer service to the City's residents and businesses.

- The City shall expand the existing wastewater treatment plant to the extent possible or pursue a single new west side facility instead of building new facilities at multiple locations to meet future needs.

- New habitable structures located within the City limits shall connect to the public wastewater collection system.

- Areas used for the land application of treated effluent may also be used for agriculture.

- Wastewater collection and treatment facilities shall be designed to serve expected buildout of the areas served by these facilities but constructed in phases to reduce initial and overall costs.

- The City shall construct new wastewater trunk lines as needed. Individual development projects shall be responsible for construction of all collection lines other than trunk lines.

- The approval of new development shall be conditioned on the availability of sufficient capacity in the wastewater collection and treatment system to serve the project.

- "Package" treatment plants shall not be allowed in the City.

- New development shall fully fund the cost of new wastewater treatment and disposal facilities.

- Prior to any development approvals within an Urban Reserve, the City shall complete new wastewater master planning and wastewater treatment and disposal studies, particularly for the west side of the city. These studies are to be funded by proponents of new development and must show how adequate wastewater treatment will be provided to the Urban Reserve in question.

- New wastewater treatment plants should be located to allow for distribution of recycled water to application areas by gravity flow where feasible.

- The City should consider integrating public facilities and wastewater reclamation sites with agricultural and open space preservation programs where possible.

- Biosolid disposal shall be managed so as to minimize impacts to the environment and public health.

- The City shall provide recycled water systems, including pipelines, pump stations and storage facilities, to serve primarily City-owned facilities, schools and parks as funding becomes available.

- Recycled water piping systems ("purple pipe") shall be constructed as appropriate in all new development projects to facilitate the distribution and use of recycled water. The specific location and size of the recycled water system shall be determined during the development review process.

- Recycled water shall be used for all public properties and large private open spaces or common areas to the extent feasible.

- To the extent feasible, recycled water should be utilized for non-potable uses, such as landscape irrigation, dust control, industrial uses, cooling water and irrigation of agricultural lands.

4.11.7.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed 2014 RTP/SCS (including RTP policies, the Sustainable Communities Strategy [SCS], and transportation project list and financing plan) would result in significant impacts to the County's wastewater, if any of the following would occur:

- Exceed the capacity of existing or planned wastewater treatment systems.

Methodology

Project impacts are evaluated according to the above standards of significance by utilizing information on existing wastewater systems infrastructure in San Joaquin County. The methodology for determining the significance of these impacts applies the significance criteria above to the expected future (2040) demand for wastewater facilities and compares future demand with the RTP/SCS to the existing capacity.

Both short-term construction related impacts and long-term or permanent impacts from new facilities resulting from implementation of the RTP/SCS are discussed below. In addition, descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the RTP/SCS. Indirect, cumulative impacts from implementation of the RTP/SCS, in combination with increases in growth and development, are also identified. It should be noted, however, that project specific impacts may vary and appropriate mitigation measures would need to be developed on a project-by-project basis.

Cumulative Analysis

The RTP/SCS addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP/SCS, the Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP/SCS. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with No Project Alternative

The analysis of wastewater impacts includes a comparison of the expected future conditions with the RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under the California Environmental Quality Act [CEQA]); however, it provides meaningful perspective on the effects of the RTP/SCS.

Determination of Significance

The determination of significance for wastewater impacts compares the existing capacity of wastewater systems to the expected demand in future plan conditions.

Impacts and Mitigation Measures

Impact WW-1 Exceed the capacity of existing or planned wastewater treatment systems.

This impact concerns potential impacts to wastewater treatment systems. Wastewater generation rates are closely tied to population growth. The total population of San Joaquin County is expected to grow by approximately 365,694 persons or 52 percent by from 2012 to 2040, thus wastewater generation could increase by up to 52 percent, however, water conservation is likely to substantially reduce increases in wastewater.[3] **Table 4.11.7-1,** above, provides the current flows and capacity flows of the wastewater treatment plants located in San Joaquin County. As shown, the wastewater treatment plants in San Joaquin County have approximately 101.07 mgd of flow capacity. Based on the current flows, the wastewater treatment plants are operating at approximately 62 percent capacity. Consequently, there is a remaining capacity of approximately 38 percent which would not accommodate the wastewater flows produced by the 52 percent growth in population. Some expansions are currently planned for two of the wastewater treatment plants to be completed in the next couple years. With the planned expansions, there would be a remaining capacity of 45 percent. New or expanded wastewater treatment plants would be required which would be a potentially significant impact.

The projected development would increase demand for wastewater treatment facilities. The proposed development projects would either be accommodated by existing infrastructure, or project proponents would be required to make wastewater infrastructure improvements by local ordinances and state regulations. In less developed areas of the region, new housing and employment developments would require additional wastewater infrastructure and control measures to minimize additional wastewater

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generation. The higher density development proposed as part of the RTP/SCS could require construction of wastewater infrastructure with greater conveyance capacity, which would have a potentially significant impact.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Implement **Mitigation Measures WAT-9** through **WAT-19**.

WW-1: Implementing and local agencies should coordinate with local wastewater treatment providers while implementing local projects.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts of the 2014 RTP/SCS would be reduced, although not to a less than significant level as higher density and increases in population would result in a need for additional wastewater conveyance infrastructure. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measure WW-1**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage implementing agencies to adopt these measures through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt these mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

4.11.7.4 CUMULATIVE EFFECTS

The 2014 RTP/SCS includes transportation projects and development in the region. The Plan targets growth in urban areas. However, the RTP also includes new development in areas outside the urban cores that could result in additional demand for wastewater outside the region. As a result, the 2014 RTP/SCS would result in a cumulatively considerable impact related to wastewater capacity.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measure WW-1**, above.

Level of Significance After Mitigation

If the implementing agency adopts this mitigation measure, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.11.7.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SJCOG region would still grow by close to 365,692 people from 2012 to 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban areas.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan; however, the Plan includes strategies to focus growth in urban areas, which would help reduce construction of new wastewater treatment facilities because of more efficient use of water (and thus less generation of wastewater). The more dispersed development pattern of the No Project Alternative would result in greater water consumption – likely as a result of more landscaping associated with single-family development as compared to multi-family homes. The additional water used on landscaping generally does not become wastewater; nonetheless, the No Project's distributed growth pattern would tend to use more water, which could generate more wastewater. It is expected that expansion of existing facilities or construction of new facilities would be necessary under the Plan to accommodate increases in population in urban areas. In addition, under the Plan a more concentrated growth pattern could result in the existing wastewater collection system being inadequate (sewer lines could be too small). Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Construction of new wastewater treatment facilities would occur under the No Project Alternative to service the more dispersed growth pattern. Therefore, impacts would be similar with the No Project alternative than with the Plan. With a more dispersed growth pattern, existing sewer lines would not be

as impacted, although new sewer lines would be expected to be needed to serve the more dispersed growth pattern. Similarly to the Plan, the No Project Alternative would impact wastewater facilities in San Joaquin County and would not contribute substantially to cumulative impacts outside the region.

4.12 TRANSPORTATION

This section describes the current transportation system in the region, discusses the potential impacts of the 2014 RTP/SCS (including the Sustainable Communities Strategies) on transportation. It also identifies mitigation measures for the impacts as feasible and appropriate, and identifies residual impacts.

4.12.1 ENVIRONMENTAL SETTING

The environmental setting is an assessment of existing conditions relevant to transportation. It includes a description of the highway and street system, the public transit system and services as well as "active mode" (walking and biking) facilities. San Joaquin's airports and goods movement systems (rail, truck, port, and air) are also essential parts of the regional transportation network and the Regional Transportation Plan (RTP). This section also includes baseline data on the use of these transportation networks.

San Joaquin's existing regional transportation networks and facilities include an intermodal system consisting of a state and interstate highway system, an inland port, bike and bus routes, rail, including passenger and freight, and commercial passenger airline service. Figures highlighting these facilities, locations, and routes are included in the 2014 RTP/SCS in Appendix L Modal Discussion.

Physical Setting

San Joaquin County has a transportation system designed to meet the multiple needs of residents and businesses. The County is strategically positioned and provides key routes and linkages for the movement of goods throughout California and the rest of the United States. The County has one of the few deep-water ports within the State at the Port of Stockton, an airport that serves international markets, key highway corridors, and the hub for a number of major railroads. Given its location, San Joaquin County serves as a major transportation center not only for warehousing and distribution activities, but also as a source of more affordable housing for employees working in the Bay Area.

Several major routes traverse the County and provide important links for employees and goods to other parts of California, such as the Bay Area and Sacramento. These major routes include Interstates I-5, 205, and 580, as well as State Routes 99, 120, 12 and 4. In addition, the I-205/I-580 corridor serves as a major gateway between the Bay Area/Silicon Valley and the County.

The County also has six airports open to the public that offer a variety of aviation services. Stockton Metropolitan Airport offers general aviation services along with commercial passenger service to Las Vegas, Nevada.

A number of rail lines traverse the County and provide services for both passengers and freight. A partnership between the Union Pacific and the Burlington Northern and Santa Fe (BNSF) Corporation operates an intermodal shipping yard providing a key connection for truck-rail freight movement. Amtrak provides passenger service to the County, while Altamont Commuter Express (ACE) provides direct commuter rail service to Silicon Valley (with stops in Stockton, Lathrop, Manteca, and Tracy).

Regional public transit is provided by San Joaquin Regional Transit District (SJRTD) bus service. The SJRTD offers fixed-route buses, intercity buses, interregional buses, and dial-a-ride services. Local bus services are provided by transit operators in most of the local jurisdictions throughout the County. Bicycle routes in many areas provide additional transit alternatives.

Commute Patterns and Travel Characteristics

San Joaquin County's location in California's Central Valley has made the County a major center for distribution. Economic growth, both within the County and in areas such as Silicon Valley, Stanislaus County, and Sacramento, has led to increased commuter and freight traffic between the County and these regions. Of the 233,200 residents representing the employed workforce, approximately 114,610 commute outside of the region to their employment site.

Many work related daily trips are made in automobiles with origins beginning and ending in San Joaquin County. There are 199,735 jobs in San Joaquin County. Of those, 118,125 are occupied by San Joaquin County residents. The number of employed San Joaquin County residents that commute outside of the region for work is 115,360. Of the jobs in San Joaquin County, 81,125 are filled by people residing outside of the region. Of the employed San Joaquin County residents, 36,890 car or vanpool to work on a daily basis. Other modes of travel (e.g., bus, fixed rail, motorcycle, and biking) account for 13,308 daily trips to work. Although carpooling and vanpooling represents 15.8 percent of all daily work related trips, 78.5 percent of all daily work related trips are made by a single occupancy vehicle. While, public transit, such as local and interregional bus lines, accounts for approximately 1.4 percent of commute trips in the County and walking and biking account for 1 and 3 percent, respectively.[1]

While public transit accounts for only a small percentage of daily trips, use of public transit had been growing until the economic recession of 2008. Transit service provision had been increasing since 2004, but the current recession has delayed implementation of continued planned increases. Air travel has continued to be important in the County. Commercial passenger air service was reestablished at Stockton Metropolitan Airport in June of 2006, which also provides air cargo services. Business air travel has

1 SJCOG, 2014.

increased at the Tracy Airport, and several of the other airports have experienced a strong demand for hangars and other general aviation services and facilities.

County Highways and Roadways

San Joaquin County has an established network of roadways that serve the transportation needs of residents, visitors, and businesses. There are six major freeways and highways in the area: I-5, I- 205, State Route (SR)-99, SR-4, SR-12, and SR-120. Interstate (I)-5 and SR-99 are the major north-south routes that lead north to Sacramento and south to Stanislaus County and the rest of the San Joaquin Valley. SR-12, SR-4, and SR-120 are east-west routes connecting between I-5 and SR-99 and beyond. Interstate 205 runs westward from I-5 and connects with I-580, which continues over the Altamont Pass and into the Bay Area.

To evaluate the functioning of the transportation system, the concept of Level of Service (LOS) is used to measure how well traffic flows on roadways. LOS A reflects uncongested vehicle operation and the free flow of traffic. At the other end, LOS F experiences long delays and severe congestion. **Table 4.12-1** summarizes the LOS definitions for roadways. Performance measures related to LOS are reported later in this chapter.

Table 4.12-1
Level of Service (LOS) Definitions/Characteristics

LOS	DESCRIPTION
A	Free flow conditions; individual users are virtually unaffected by the presence of other vehicles.
B	Stable flow, but the presence of other vehicles in the traffic stream becomes noticeable.
C	Stable flow, but the operation of individual users becomes affected by interaction with other vehicles.
D	Stable flow, but higher density with maneuverability restricted by congestion and reduced travel speed.
E	Operating conditions at or near the capacity level.
F	Represents forced or a breakdown in traffic flow.

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

Railroads

Rail lines in San Joaquin County are used for both passenger and freight services. Several major railways stretch through large portions of the County, including the Union Pacific and BNSF Railroads. Stockton serves as a hub for many of these railways and acts as a major distribution center for freight shipped to locations throughout California and the United States.

The Altamont Corridor Express (ACE), formerly the Altamont Commuter Express, is a commuter rail service in California connecting Stockton with San Jose. It is named for the Altamont Pass, an area through which it travels. The service commenced on October 19, 1998, with two trains daily in each direction (weekdays only). The frequency was increased in November 2009 to three trains daily in each direction and then increased to four trains daily in each direction in September 2012. There are 10 stops along its 86 miles route; present travel time is about 2 hours and 10 minutes from end-to-end. The tracks are owned by Union Pacific. The ACE transit service uses Bombardier Bi-Level Coaches and "MPI F40PH-3C" locomotives. It is managed by the San Joaquin Regional Rail Commission. ACE is exploring the possibility of expanding service into the central valley between Modesto and Sacramento line as well as Stockton and Pittsburg.

Within the RTP/Sustainable Communities Strategy (SCS), approximately $257 million (51 percent) of the total passenger rail transit operations and $366 million (63 percent) of the total passenger rail transit capital investments are targeted to expanding the system.

Airports

San Joaquin County has six public airports that serve a variety of needs including air cargo, agricultural shipping, crop-dusting, passenger and corporate flights, flight training, and recreation uses. These airports are:

- Kingdon Executive Airport—Lodi
- Lind's Airport—Lodi
- Lodi (Precissi) Airpark
- New Jerusalem Airport—Vernalis
- Stockton Metropolitan Airport—Stockton
- Tracy Municipal Airport—Tracy

Stockton Metropolitan, Tracy Municipal, and New Jerusalem (outside Tracy) are all public airports while Lind's Airport, the Precissi Airpark, and the Kingdon Airpark are privately owned. Stockton Metropolitan Airport is the largest airport in the County, offering limited passenger service to Las Vegas via Allegiant Air. In addition to Las Vegas, Stockton Municipal Airport has commercial service to Hawaii. The Tracy Municipal Airport is used for general aviation such as business flights, flight training, and recreation uses. While Lind's Airport in Lodi is privately owned, it is one of the most active public access airports in the County. The airport accommodates general aviation aircraft, including business jets. The

remaining airports are used for small aircraft including business flights and crop-dusting activities. There exists a great demand for aircraft hangar space at both Lodi and Tracy airports.

Bus Transit

The SJRTD provides bus service throughout the County with the Hopper service. The Hopper provides fixed-route service to the cities of Stockton, Lathrop, and Manteca as well as to the community of French Camp. Additional intercity bus lines provide service to Tracy. SJRTD also offers dial-a-ride services for both the general public and for the elderly/disabled throughout the County. These dial-a-ride services provide transportation seven days a week during nontraditional bus hours in rural areas not served by fixed-route lines. The dial-a-ride programs provide connection services to fixed-route lines and to passenger rail (such as ACE and Amtrak).

SJRTD's Interregional Commuter Service offers bus service to passengers traveling to Alameda, Contra Costa, Santa Clara, and Sacramento counties, including feeder service to BART for employees working in San Francisco and the East Bay. The SJRTD intercity route 91 connects Ripon, Manteca, and Stockton and routes 26 and 90 connect Tracy, Lathrop, French Camp, and Stockton. Routes 93 and 23 link Stockton to Lodi. The interregional service is designed to meet the needs of commuters who travel distances greater than 50 miles one way. Greyhound and Amtrak also provide interregional bus service.

Lodi's Grapeline, the Tracy Tracer, Manteca Transit, and smaller transit services in the cities of Escalon (eTrans) and Ripon (Blossom Express) also provide bus service. The combination of services supports local transit systems, bus rapid transit, intercity and interregional bus transit services, and needed services such as demand response for both those who are in need of transit for medical purposes and those in the rural areas of the County. Of the total $3.5 billion in transit investments, 64 percent is targeted to maintaining the existing transit system with 36 percent targeted to system expansion.

Other Transportation

The Port of Stockton is the second largest inland seaport on the West Coast. The port is located on the Stockton Deep Water Ship Channel, 75 nautical miles east from the Golden Gate Bridge. The Port is 1 mile from I-5, and is near interconnecting major highway systems. Rail service for the Port is provided by two transcontinental railroads: the Union Pacific and the BNSF. The port serves as a major transportation center that encompasses a 600-acre operating area and can handle approximately 70 percent of all container ship types. The Port has berthing space for 10 vessels, 500,000 square feet of dockside transit sheds and shipside rail trackage, and 2.7 million square feet of warehousing for both dry bulk and general cargoes (including steel). Each warehouse is served by rail.

The County of San Joaquin prepared a bicycle master plan in 2010 and many local agencies have developed Class I, II or III bicycle facilities to serve bicycle travel. Most agencies including the County and the City of Stockton have long-range plans defining an envisioned future bicycle system. The total investment in active transportation infrastructure provides for over 800 miles of new Class 1, 2, and 3 bicycle lanes throughout San Joaquin County. An additional 6 percent of the funds are identified for active transportation non-infrastructure investments. These projects include education, encouragement, and enforcement programs in support of walking and bicycling as well as planning and transit integration projects.

Local Transportation Systems

The following provides a discussion of the existing transportation services in the cities in San Joaquin County. This includes major roadways, highways, rail service, public transit, and bikeways.

Escalon

Escalon, located toward the southeastern edge of the County, is centered at the intersection of SR-120, which runs east-west, and Escalon-Bellota Road/McHenry Avenue, which runs north-south. Passing through the City in a northwest-southeast direction is the BNSF railroad, which carries both freight and Amtrak passenger trains; these trains do not make regularly scheduled stops in the City.

SR-120 and Escalon-Bellota/McHenry serve as Escalon's main arterials. Escalon is primarily a city with rural character. The City operates eTrans flexible fixed-route and demand responsive services. This service also meets the Modesto Area Express (MAX) and Stanislaus Regional Transit (StaRT) services three times per day. A park-n-ride lot is located in Escalon as part of SJRTD's San Joaquin Commuter service to Livermore Labs and for SJRTD's Hopper deviated fixed route service that goes to Manteca, Lathrop, and French Camp.

Lathrop

Lathrop is located at a regional crossroads of freeway, rail, air, and local street systems in the south central section of San Joaquin County. Passing through or near the City are I-5 and I-205, SR-120 and SR-99, as well as transcontinental lines for both the Southern Pacific and Union Pacific Railroads. All intersections of railroads and public roads in Lathrop are protected by automatic signals.

Urban development in the City lies primarily between I-5 and the Union Pacific Railroads which traverse the City in a north-south direction, but which curve toward the west in an area south of the City. Current east-west arterials include Roth Road, Lathrop Road, and Louise Avenue. Major north-south arterials are

Harlan Road (along I-5) and Seventh Street (between Lathrop Road and Louise Avenue). SJRTD buses provide public transit between the City and surrounding communities. The ACE station on Yosemite Avenue provides access to three roundtrip commuter trains to destinations in Silicon Valley.

Lodi

The dominant transportation feature in Lodi is SR-99, which passes through the City's eastern boundary, northward to Sacramento and southward to Stockton (and the rest of the County). Intersecting with SR-99 is SR-12/Kettleman Lane, a major east-west road providing access to Fairfield in the west, and to eastern San Joaquin County and the Sierra Nevada Mountains in the east. Two rail services operate lines which pass through Lodi, though these do not serve the City directly. Southern Pacific Railroad (SPRR) Company operates a north-south line west of SR-99, as well as two lines which intersect the north-south line at Lockeford and Sacramento Streets. The Central California Traction Company also operates a north-south line along the City's eastern edge that connects with SPRR's north-south line, via a branch along Lodi Avenue.

Lodi's street system follows a grid pattern with major north-south arterials that include Lower Sacramento Road, Ham Lane, Hutchins Street, Church Street, Stockton Street, Central Avenue, and Cherokee Lane. East-west arterials include Turner Road, Lockeford Street, Elm Street, Pine Street, Lodi Avenue, Kettleman Lane (SR-12), and Harney Lane. Public transit is provided through Lodi's Grapeline Fixed Route and Dial-A-Ride service. The bus service is available to the general public and serves Lodi and outlying areas with five routes. Additional service is provided by SJRTD's Intercity Route 23. The SJRTD Hopper route 93 also provides serviced from Lodi to Stockton. The SJRTD Interregional Commuter Services and Greyhound Bus Lines connect Lodi with Sacramento and other areas in and around the County.

Manteca

SR-99, which curves along the City's eastern border, and SR-120, dominates Manteca's circulation system. SR-120 provides access to nearby I-5, approximately 4 miles to the west. Within the Manteca planning area, SR-99 has interchanges at SR-120, East Yosemite Avenue, Lathrop Road, and French Camp Road. Between I-5 and SR-99, SR-120 has interchanges at Airport Way and Manteca Road. Major north-south arterials in the Manteca planning area are Airport Way, Union Road, Manteca Road, Austin Road, and Jack Tone Road. Major east-west arterials include Lathrop Road and Louise Avenue (which also serve as arterials in the City of Lathrop), as well as West Yosemite Avenue, Woodward Avenue, and West Ripon Road.

Manteca Transit began intra-city operations on November 1, 2006. The current fleet consists of five cutaway buses, and includes two fixed routes and Dial-A-Ride services. Within the City of Manteca, SJRTD intercity route 91 and Hopper route 27 connects Manteca with Ripon and Stockton.

Two rail lines run through Manteca. The SPRR line runs diagonally from northwest to southeast, and the Tidewater Southern line parallels the SPRR line through town, but then connects with the main Union Pacific line at French Camp in the north. The passing of trains on these tracks often lead to the obstruction of vehicular traffic on major roads in the City. The City is also served by the ACE commuter rail system with a station just across the border from Manteca on Yosemite Avenue in Lathrop.

Ripon

SR-99 and the SPRR, which pass through the center of town diagonally from northwest to southeast, bisect Ripon's circulation system. Partial interchanges exist at Second Street and Wilma Avenue. Northwest of the City, at the Jack Tone Road overpass, there is a complete interchange, providing access to both the northbound and southbound directions of SR-99. There is a mainline railroad crossing at Jack Tone Road, and one spur track crosses a City street in the industrial area.

The Stanislaus River defines the City's southern edge and the only access across the river in or near the City is via the SR-99 bridge. In addition to SR-99, access to Ripon from the west is provided by West Main Street (West Ripon Road), from the east by Milgeo Avenue, and from the north by Stockton Avenue (North Ripon Road) and Manley Road. Jack Tone Road, north of West Main Street, is an arterial roadway. Other portions of Jack Tone Road, Main Street, Second Street, and Stockton Avenue serve as minor arterials.

The City of Ripon does not operate a City bus service, but does operate a City van driven by volunteers for local, special, or regional trips (dial-a-ride). However, SJRTD Hopper route 91 connects Manteca and Ripon to Stockton.

Stockton

Stockton's circulation system is the most extensive in the County. The Central Valley's two main north-south routes, I-5 and SR-99, pass through Stockton. In addition, SR-4, SR-26, and SR-88 also pass through the City in an east-west direction. SR-4, known as Charter Way, is Stockton's major east-west link between I-5 and SR-99. Other major east-west arterials in Stockton include Eight Mile Road, Hammer Lane, Benjamin Holt Drive, March Lane, Harding Way, and Oak Street. Major north-south arterials include Thornton Road, Pershing Avenue, El Dorado/Center Street, West Lane, and Airport Way.

Several major railroads converge in Stockton, including the BNSF, Southern Pacific, and Union Pacific Railroads, as well as four local rail companies. Stockton is also served by Amtrak rail passenger trains on a line between Oakland and Bakersfield, and by ACE, which provides service from Stockton to San Jose three times daily.

Public transportation in Stockton is provided by SJRTD, which serves the City and the surrounding unincorporated areas. SJRTD provides 40 fixed bus routes and a dial-a-ride demand response service. The fixed-route service provides connections throughout Stockton and San Joaquin County including links to major employers, colleges, hospitals, and downtown Stockton. SJRTD also provides dial-a-ride service for the elderly and handicapped. The recently completed SJRTD Downtown Transit Center marked the establishment of the Metro Express Service, a form of Bus Rapid Transit (BRT) that operates along the Pacific Avenue Corridor.

Tracy

Tracy is located within a triangle made by three interstate highways: I-205 on the north, I-5 on the east, and I-580 from the west to the southeast. Interstates 205 and 580 merge just west of the Alameda/San Joaquin County line, and comprise a major east-west corridor to the Bay Area. Access to Tracy from I-580 is provided at Corral Hollow Road, Patterson Pass Road, and Chrisman Road. Access to the City from I-205 is provided at Patterson Pass Road, Eleventh Street, Grant Line Road, Tracy Boulevard, and MacArthur Drive. Major north-south arterials in the Tracy planning area include Corral Hollow Road, Tracy Boulevard, and MacArthur Drive. East-west arterials include Grant Line Road and Eleventh Street.

Southern Pacific operates two rail lines which cross in an "X" formation at MacArthur Drive, just south of Eleventh Street. Union Pacific operates a third line that runs parallel to Linne Road, south of Tracy. This line then bends up toward the northeast intersecting with the northwest-southeast SPRR line at the Tracy Army Defense Depot.

Public transit is provided through Tracy's Tracer Fixed Route and Paratransit service. The bus service is available to the general public and services Tracy with two routes. SJRTD Hopper route 90 services the city with connection between Stockton, Lathrop, and Tracy. SJRTD intercity route 26 provides service connecting the cities of Lathrop, Ripon, Stockton, Tracy, and Manteca.

Additional intercity and regional service is provided by SJRTD's General Public Dial-A-Ride, Elderly and Handicapped Dial-A-Ride, the San Joaquin Commuter inter-regional bus service**,** Greyhound Bus Lines, and Amtrak. Commuter rail transportation to San Jose and the rest of Silicon Valley as well as Lathrop, Manteca, and Stockton is provided by ACE. From the station on Tracy Boulevard, ACE provides service of three roundtrips daily.

4.12.2 REGULATORY SETTING

Federal

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is implemented by regulations included in the Code of Federal Regulations (40 CFR § 1500 *et seq.*), which require careful consideration of the harmful effects of federal actions or plans, including projects that receive federal funds, if they may have a significant adverse effect on the environment. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. While NEPA compliance is not required for the project, NEPA compliance will be required for transportation improvement projects that will be financed using federal funds. Some development projects (such as low-income housing) also use federal funds and are subject to NEPA. The regulations also require projects requiring NEPA review to seek to avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, and Moving Ahead for Progress in the 21st Century

In 2005, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law. The Act provides guaranteed funding for highways, highway safety, and public transportation totaling $244.1 billion, representing the largest surface transportation investment ever. The Act followed two bills that highlighted surface transportation funding needs—the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21), which shaped the highway program to meet changing transportation needs throughout the nation. SAFETEA-LU addresses challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment. SAFETEA-LU also gives state and local transportation agencies more flexibility to solve transportation problems. SAFETEA-LU expired in 2009 but Congress extended the legislation; the most recent extension is known as Moving Ahead for Progress in the 21st Century (MAP-21). MAP-21 reauthorizes most SAFETEA-LU highway, transit and Safety programs through September 2014.

MAP-21 funds surface transportation programs at over $105 billion for fiscal years (FY) 2013 and 2014. It is intended to create a streamlined, performance-based, and multimodal program to address challenges facing the US transportation system. These challenges include improving safety, maintaining

infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies first established under ISTEA in 1991.

US Department of Homeland Security

US Department of Homeland Security (DHS) is charged with the responsibility of protecting the territory of the United States from terrorist attacks and responding to natural disasters. The department was established on November 25, 2002, by the Homeland Security Act of 2002. The primary mission of the Department is to (1) prevent terrorist attacks within the United States; (2) reduce the vulnerability of the United States to terrorism; and (3) minimize the damage, and assist in the recovery, from terrorist attacks that do occur within the United States.

Federal Emergency Management Agency

In March 2003, The Federal Emergency Management Agency (FEMA) became a department of the DHS. The primary mission of FEMA is to reduce the loss of life and property and protect the nation from all hazards, including natural disasters, acts of terrorism, and other human-made disasters, by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

National Response Framework

The National Response Framework (NRF) presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident response. The National Response Plan was replaced by the NRF effective March 22, 2008.

Transportation Security Administration

The Transportation Security Administration (TSA) is a component of the DHS and is responsible for security of the nation's transportation systems. With state, local, and regional partners, the TSA oversees security for highways, railroads, buses, mass transit systems, and ports. A vast majority of its resources are dedicated to aviation security and especially screening passengers and baggage.

The Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (DMA 2000) provides an opportunity for states, Tribes, and local governments to take a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 by adding Section 322 – Mitigation Planning. Section 322 placed new emphasis on mitigation planning requiring governments to develop and submit mitigation plans as a condition of receiving any funding from the Hazard Mitigation Grant Program (HMGP) project grants. This Act reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities.

National Incident Management System/Standardized Emergency Management System

The National Incident Management System/Standardized Emergency Management System (NIMS) is a tool for states, counties, and local jurisdictions to respond to catastrophic events through better communication and coordination. NIMS provides a consistent nationwide template to enable federal, state, local, and tribal governments and private sector and non-governmental 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.

California has a similar management system called the Standard Emergency Management System (SEMS) which is mandated under California Government Code Section §8607(a). State of California Executive Order S205 requires the state to integrate, to the extent appropriate, the NIMS, into the state's SEMS.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) defines a significant impact on the environment as a substantial, or potentially substantial, adverse change in the physical conditions within the area affected by the project. Land use is a required impact assessment category under CEQA. CEQA documents generally evaluate land use in terms of compatibility with the existing land uses and consistency with local general plans and other local land use controls (zoning, specific plans, etc.).

California Transportation Commission Regional Transportation Plan Guidelines

Under Government Code Section 14522, the CTC is authorized to prepare guidelines to assist in the preparation of RTPs. The CTC's RTP guidelines suggest that projections used in the development of an RTP should be based upon available data (such as from the Bureau of the Census), use acceptable

forecasting methodologies, and be consistent with the Department of Finance baseline projections for the region. The guidelines further state that the RTP should identify and discuss any differences between the agency projections and those of the Department of Finance.

The most recent update to the RTP guidelines was published in 2010, and includes new provisions for complying with Senate Bill 375 (see below), as well as new guidelines for regional travel demand modeling. The regional travel demand model guidelines are "scaled" to different sizes of metropolitan planning organizations (MPOs). SJCOG is included in the "D" grouping of the MPOs that have populations of between 500,000 and 1 million. The guidelines for regional travel demand modeling for the "D" group, and include (among many other things) detailed guidelines and standards for validation and sensitivity testing of the model.

Senate Bill 375

Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375) requires MPOs to prepare a Sustainable Communities Strategy (SCS) that demonstrates how the region will meet its greenhouse gas (GHG) reduction targets through integrated land use, housing and transportation planning. Specifically, the SCS must identify a transportation network that is integrated with the forecasted development pattern for the plan area and will reduce GHG emissions from automobiles and light trucks in accordance with targets set by the California Air Resources Board. The targets for SJCOG (along with other San Joaquin Valley MPOs) are a 5 percent reduction in per capita GHG emissions by 2020, and a 10 percent reduction by 2035, in both cases compared with 2005 levels.

Senate Bill 743

SB 743 was enacted in 2013 enacted in 2013 (SB 743) will become effective in July will limit the use of level of service be a criterion for impact identification under CEQA. Key SB 743 language includes the following:

> *(b)(1) The Office of Planning and Research shall prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed revisions to the guidelines adopted pursuant to Section 21083 establishing criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, the office shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section.*

> *(2) Upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any.*

As indicated in section (b) (1), Office of Planning and Research (OPR) is required to prepare revisions to the *State CEQA Guidelines* establishing new significance criteria within transit priority areas. In section (2), the statute states that upon certification of those guidelines, LOS may no longer be used except if specifically identified in the guidelines. OPR has indicated that maintaining LOS would not "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" as required by the statute. Thus it seems possible that LOS (as the sole basis for an impact finding) could be eliminated from CEQA analysis of projects after July 2014.

California Department of Transportation (Caltrans)

Caltrans, in conjunction with the California Highway Patrol (CHP), develops, maintains, and operates the State Highway System within San Joaquin County. San Joaquin lies within District 6, which is headquartered in Fresno.

California Emergency Management Agency

The California Emergency Management Agency (EMA) is responsible for assuring the state's readiness to respond to and recover from natural, human-made, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response, and recovery efforts. The EMA serves as the central contact point in the state for any emergency or imminent disaster. It coordinates the notification of appropriate state administering agencies that may be required to respond, as well as the emergency activities of all state agencies in the event of an emergency. In doing so, the EMA does not focus on security specifically, but rather more broadly on addressing all potential incidents that could affect the state, such as earthquakes, fires, floods, and terrorist attacks. Furthermore, EMA coordinates with federal agencies, such as the DHS and FEMA, as well as other state and local agencies such as the CHP. California's vision, mission, and principles for emergency management, as well as goals and objectives are located in its publication "Strategic Plan 2010–2015 – Keeping California Safe."

California Congestion Management Program

The Congestion Management Program (CMP) is the State mandated program (Government Code 65089) aimed at reducing congestion on highways and roads in California. The CMP establishes a designated roadway network of regional significance, roadway service standards, multi-modal performance

standards and a land use analysis element to identify and mitigate multijurisdictional transportation impacts resulting from local land use decisions. Federal, State and local transportation funding is contingent upon local agency compliance with the CMP. SJCOG is the designated Congestion Management Agency for San Joaquin County.

Local

2011 Regional Transportation Plan

The 2011 Regional Transportation Plan (2011 RTP) was the last regional transportation plan adopted by SJCOG. As a foundation for this RTP, many of the policies and strategies from the 2011 RTP remain relevant and have been carried forward. RTP/SCS changes to the policies and strategies in the 2011 RTP were primarily made to ensure consistency of the RTP/SCS with SB 375 and to delete strategies that were completed since the 2011 RTP. Upon approval, the 2014 RTP/SCS will supersede all of the policies and strategies in the 2011 RTP. Therefore, the specific policies and strategies contained in the 2011 RTP are not included in this analysis.

Local Agency General Plans

State law requires cities and counties to adopt general plans, which must incorporate a transportation element. A general plan's transportation element describes the acceptable operating standards, levels of service, roadway classifications, and transportation related goals and policies of the city or county. Transportation elements also typically address public transit, bicycle, and pedestrian facilities; by law, the transportation element must be compatible with the General Plan land element and must not conflict with any plan element. The performance measures used for evaluation of the RTP in this document are intended to supplement local standards by focusing explicitly on regional system performance.

San Joaquin County Traffic Impact Mitigation Fee

The Traffic Impact Mitigation Fee (TIMF) is collected to finance transportation facilities needed to accommodate new or expanded development within the unincorporated areas of San Joaquin County. In January 1989, the Board of Supervisors adopted Ordinance 3452 establishing an infrastructure-financing program for the County TIMF. The Board of Supervisors has adopted changes to the TIF program by adopting resolutions.

County and City General Plans

California state law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning"

(Government Code § 65300). The California Supreme Court has called the general plan the "constitution for future development." The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private.

The transportation policies included in a general plan illustrate the jurisdictions transportation priorities in the community. Each of the incorporated Cities have adopted general plans that govern the circulation decisions within their respective jurisdictions. The general plans include numerous goals, objectives, policies, and implementation measures that control transit and circulation throughout the communities.

San Joaquin County General Plan

The San Joaquin County General Plan (2005) did not include any policies specific to transportation and/or circulation.

City of Escalon

- Periodically evaluate the adequacy of traffic impact fees for providing sufficient funding for circulation network improvements necessitated by planned future growth.
- Incorporate features such as bus shelters, bicycle storage, bicycle racks, and park and ride lots into the design of public and private development projects.
- Designate a network of bicycle routes providing safe passage throughout the City; establish linkages between schools, parks and the designated bikeway.
- Require bicycle storage facilities as a condition of approval for multi-family residential development projects containing 10 or more units and for all commercial and public development proposals.
- Conduct an assessment of existing parking requirements and consider reducing them as a means of attracting commercial development.
- Discourage truck traffic along Main Street in order to facilitate and encourage pedestrian access to downtown.
- Provide additional landscaping, including street trees, along existing roadways. Utilize reclaimed water where feasible to irrigate roadway landscaping.
- The City will budget for traffic improvements in the Capital Improvement Program each fiscal year.
- Over-design of streets including streets that are too wide for projected traffic volumes shall be avoided to save lives, property, and money.
- In the interest of reducing housing production costs and City maintenance costs, street widths should be minimized. Where appropriate, private streets and other design features to reduce street

- Lighting and Landscape Districts and other mechanisms shall be promoted and encouraged for the maintenance and operation of new appurtenances to residential streets.

- Streets shall be designed and constructed to promote energy efficiency.

- In new residential subdivisions, to the maximum extent possible, local streets should be aligned in an east-west orientation.

- All new local streets and Minor Collectors shall have a minimum planting strip of 6 feet in width. Within the planting strip, the maximum spacing between trees shall be 25 feet on center.

- Local residential streets shall be kept at a curb-to-curb width of 32 to 36 feet and provided with shade to prevent excessive heat build-up.

- Design the street network with multiple connections and relatively direct routes for pedestrians, bicyclists as well as motorists.

- To facilitate emergency response times, all new residential development shall have a Network Connectivity Rating of 1.4 or higher. In order to accomplish this, loop-lanes should be encouraged.

- Residential streets shall be designed with sidewalks on both sides. Sidewalks shall be a minimum width of six feet to provide enough room for two pedestrians to walk side by side. Sidewalks and bike lanes shall be shaded by trees for pedestrian comfort.

- Provide pedestrians and bicyclists with shortcuts and alternatives to travel along high volume streets by designing pedestrian and bicycle pass-through pathways at cul-de-sac bulbs adjacent to Arterial roadways.

- Through-streets and Collectors or Arterials should be no more than over a half-mile apart.

- Short streets, trees, on-street parking, tee intersections, use of terminating vistas and traffic calming devices should be used to limit vehicle speed.

- Use traffic calming measures to keep speeds on streets that provide direct access to homes down to 20 mph. (See Table 6-1)

- Streets shall be designed in accordance with projected traffic volumes and city-adopted level of service standards. Oversized streets shall be discouraged.

- Connectivity shall be encouraged and provided which permits vehicular and non-vehicular circulation within a neighborhood without exclusive reliance on perimeter Collectors and Arterials.

- The right-of-way for the circulation system shall be developed and dedicated to the appropriate extent when development or division of property occurs. General Plan

- Street widening and right-of-way acquisition in existing developed areas shall be undertaken when required for obvious safety reasons, such as trends towards higher accident rates or marked decline in overall levels of service.

- Established truck routes shall be maintained. New truck routes should be limited to Arterials and Collectors.

- Minor Collectors shall be used to provide connectivity within neighborhoods... These streets shall have offsets, and/or other traffic calming features, in conformance with table 6-1, to discourage through-traffic. They should also be designed to avoid four way intersections, when possible.

- Minor Collector streets shall provide access to traffic generating land uses such as schools, hospitals, shopping and recreation areas.

- Arterials shall be designated to provide cross-town, through-town, and inter-city traffic.

- Frequent drive approaches shall be discouraged, where possible, to facilitate traffic flow and reduce potential traffic conflicts and hazards.

- Direct access (driveways) to individual dwelling units to Arterials shall be prohibited. Direct access to Collector streets with projected traffic volumes at full build-out in excess of 2,000 average daily trips, shall also be prohibited.

- Overnight truck (tractor-trailer) parking shall be prohibited in residential areas, or other areas that are deemed inappropriate.

- Traffic calming features may be used in accordance with Table 6-1. Passive traffic calming features such as road curvature and width, narrowings, street offsets and other built-in features are preferred over roadway obstructions such as speed humps or tables, chicanes, barriers, diverters, or traffic islands.

- Minor Collectors and Local streets shall not carry an unreasonable level of through traffic. If it is determined that a Local street or Minor Collector is carrying an unacceptable level of through traffic, the City may take appropriate means to reduce traffic through creation of one-way traffic flow, installation of traffic diversion devices, and/or any other means deemed to be acceptable under the Vehicle Code of the State of California. For the purposes of this policy an unreasonable level of traffic may be deemed to exist when traffic exists that is 25 percent in excess of the volume that would be expected from land uses directly served by these streets.

- Maintain pedestrian, bicycle, transit, and automobile connections in existing neighborhoods and developments. Arterial Streets

- Arterial streets shall be built at a typical separation of one (1) mile with a typical right-of-way of 110 feet.

Arterial Street Standards.

- Driveway access to major activity centers shall be located away from adjacent intersections of Collector or Arterial street in a manner to avoid traffic conflicts.

- The distance between driveways along commercially developed Arterials shall be limited in order to provide adequate ingress/egress and merging and weaving operations.

- Where possible, driveways to major activity centers shall be located on adjacent Collector streets rather than on Arterial streets.

- Driveways along Arterials to single-family residential property shall be prohibited; these properties shall receive access from Local streets or Minor Collectors.

- If driveways must be provided near intersections for special commercial facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located far enough from the intersecting right-of-way in order to provide safe traffic operations.

- Median breaks shall provide access to Collector streets and to major activity centers and shall be located adequate distance away from adjacent intersections of an Arterial or Collector Street.

- Arterial streets shall include landscaping…

- To ensure that the transportation system is so planned to minimize social and economic disruptions to the neighborhoods, Arterial streets shall skirt residential areas.

- Arterial streets shall be designed to allow the efficient operation of public transit.

Collector streets shall be built at a typical separation of one mile (typically between adjacent Arterial streets), with a typical right-of-way of 90 to 108 feet…

Collector Street Standards

- Driveway access to major activity centers shall be located an adequate distance from adjacent Collector or Arterial street intersections.

- The distance between driveways and intersecting local streets shall be limited in order to provide adequate ingress and egress.

- Driveways to residential property along Collectors shall be consolidated whenever possible.

- If driveways must be provided near intersections for facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located far enough from the intersecting right-of-way in order to provide safe traffic operations.

- Medians on Collectors shall be raised concrete where left turn control is needed or painted median or two-way left turn pockets where otherwise appropriate.

- Collectors shall include landscaping…

- Streets shall be designed for a level of traffic that will not cause a detrimental impact on adjacent land uses.

- Unnecessary cross-traffic conflicts shall be eliminated to improve the traffic flow along Arterials and Collectors. Raised medians shall be installed as required to restrict unsafe turning movements.

- Collector streets shall be up to four lanes for through traffic and may include an optional median for left turn access to local streets and adjacent land uses. On street parking may be provided where street capacity does not require left turns or four through lanes.

- Arterials and Collectors in areas of existing development shall be built to standards consistent with a policy of reducing impacts on adjacent properties.

- Where possible, Arterials and Collectors should form 4-leg, right-angle intersections; jog, offset and skewed intersections of major streets in near proximity shall be avoided where possible.

- Sidewalks, paths and appropriate crosswalks shall be located in order to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths

- Sidewalks, paths and appropriate crosswalks shall be located in order to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths shall be developed to allow for unobstructed pedestrian flow from within a neighborhood.

- Where Arterial and Collector streets are required, residential development shall be oriented away (side-on or rear-on) from such streets, and properly buffered so that the traffic carrying capacity of the street will be preserved and the residential environment be protected from the adverse effects of the street.

- Adequate access shall be provided to high intensity land use areas such as employment centers, shopping areas, and recreation facilities.

- Due to the traffic congestion which results from numerous points of ingress and egress along commercial streets, future commercial developments or modifications to existing developments shall be master planned with limited points of ingress and egress onto a major street.

- Left-hand movements into and out of commercial areas shall be minimized and existing points of ingress and egress shall be consolidated whenever possible.

- Minor Collectors shall be used to provide access within a neighborhood, and to major activity centers in a safe and efficient manner….

Minor Collectors Standards

- Minor Collectors shall be designed to connect neighborhoods and neighborhood access to schools, parks or other facilities without exclusive reliance on Arterials or Collectors…

- Minor Collectors shall be a 60-foot local street…

- Minor Collector offsets shall be provided at least every 1,320 lineal feet of roadway, with such offsets between 125 to 200 feet. Streets shall be designed with gentle curves to achieve a 25 mph design speed. Other traffic calming features shall be provided in accordance with Table 6-1, if necessary to achieve the desired design speed.

- Provide pedestrian accessibility from adjacent residential neighborhoods though linkages such as through-block connections or other accessibility methods. These street linkages may include access

roads, open ended cul de sacs, pedestrian paths, or other such facilities for pedestrian and bike access, and emergency access, where necessary. Linkages should be made to abutting Collector or Arterials no less frequently than every 600 feet.

Local Streets

- Local Streets shall be designed in accordance with adopted standards with right-of-way widths…
- 56-foot Local streets (32-feet curb to curb) may be used in cul-de-sacs or on Local streets that will have traffic volumes that do not exceed 750 ADT.
- Local street lengths should be short, preferably not exceeding 500 feet, or they shall be designed with gentle curves and changes in grade to limit the sight line to 500 feet.
- A majority of streets should be curved or terminate so that no street vista is longer than 500 feet.
- Traffic calming features such as curb extensions, traffic circles and medians may be used to encourage slower traffic speeds…
- Local streets should be aligned to form three-way intersections when possible, in order to create inherent right-of-way assignment and to reduce accidents without the use of traffic controls.
- Local streets that intersect an Arterial should be aligned with another street to form a fourway intersection. Local streets that intersect a Collector should provide for an offset. These streets should be designed so that they can easily be regulated by a stop sign or other traffic control device, if necessary.
- Curb cuts for driveways to individual residential lots shall be prohibited along Arterial streets. Curb cuts shall be limited to intersections with other streets or access drives to parking areas for commercial, civic or multifamily uses. Clear sight triangles shall be maintained at intersections, unless controlled by traffic signal devices.
- Pedestrian accessibility from adjacent residential neighborhoods shall be provided by the usage of through-block connections or other accessibility methods. These street linkages may include access roads, open ended cul de sacs, pedestrian paths, or other such facilities for pedestrian and bike access, and emergency access, where necessary. Such a linkage shall be made to abutting Collector or Arterials no less frequently than every 600 feet.
- The Subdivision Ordinance, Zoning Ordinance or other applicable City codes and ordinances shall be amended to include standards to address the policies and objectives of the Circulation Element.
- Where alternate build out is not immediately needed, major traffic facilities may be phased so that there is adequate increase in economy.

Parking

- Parking standards will be evaluated to ensure that parking requirements are satisfied within walking distance of development, and so that Arterial and collector streets do not separate parking from the parking demand generator.

- Soften the impact of expansive parking areas in all land use designations through landscaping and tree plantings as prescribed in the City Zoning Ordinance.

- Maintain street tree lines and landscaped buffers between parking surfaces and street right of ways.

- Facilitate and encourage adequate parking throughout the community including all commercial areas.

- All new development, except as designated in the Downtown, shall provide adequate on-site parking for the on-site uses.

Pedestrian and Bicyclist Modes

- In existing developed areas where sidewalks do not exist, the City shall continue to support existing programs and pursue new programs for sidewalk construction. Bicycle accidents shall continue to be monitored and bicycle paths and lanes shall be established upon need.

- Provide safe, aesthetic, and pleasant space for pedestrians.

- Widen sidewalks above the minimum established Improvement Standards where intensive commercial, recreation, or institutional activity is present and where residential densities are high.

- Partially or wholly close certain streets which are not required for traffic so that they can be used for pedestrian circulation, and open space use.

- Ensure convenient and safe pedestrian crossings.

- Pedestrian and bicycle access shall be provided on Local streets and Minor Collectors to enable pedestrians to have access through a neighborhood, to shopping areas, to transit stops, schools and other such facilities.

- Locate sidewalks, pedestrian paths, and appropriate crosswalks to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths shall be developed to allow for unobstructed pedestrian flow from within a neighborhood.

- Require, where security walls or fences are proposed for residential developments along Arterial or Collector streets, that pedestrian access be provided between the Arterial or Collector and the subdivision to allow access to transit vehicles operating on an Arterial or Collector Street.

- Promote safe, convenient, and accessible pedestrian access ways within the community except where there is no demonstrated need, such as industrial and rural residential areas.

- Encourage the inclusion of green belts and common open space for pedestrian use within the residential development areas.

- Require that Collector streets which are identified to function as links for the bicycle transportation system be provided with Class II bikeways (bike lanes) or show an alternative route. Arterial streets shall provide for a Class I or Class II bike routes. In such cases, the City shall accommodate cyclists on these identified streets by widening the street or eliminating on-street parking wherever possible.

- Design bicycle and pedestrian paths so that interaction with vehicular traffic is minimized.

- Require the provision for safe bicycle circulation in all new developments, including bicycle parking facilities and internal bicycle and pedestrian routes.

- Provide for the safe and convenient use of the bicycle as a means of transportation and recreation.

- Eliminate hazards on designated bikeways.

- Prevent bicycle accidents through promoting bicycle safety education and improved traffic enforcement related to bicycle use.

- Provide adequate and secure bicycle parking and/or storage facilities at all governmental, commercial, parks, community gathering areas, and residential locations, throughout the City.

Transit and Rail

- Ensure choices among modes of travel and give priority to each mode when and where it is most appropriate.

- Provide incentives for the use of transit, carpools and vanpools.

- Improve the speed and efficiency of mass transit in the City and enhance the current status of the existing rail system including connections to rail passenger service.

- The transportation facilities are interdependent, and efforts shall be made to ensure an efficient system by coordination of local and regional efforts. The regional and local transit links must be closely related and synchronized to provide maximum efficiency and transfers.

- Coordinate the City's dial-a-ride system with regional transit services.

- Arterials and Collectors will be designed to allow transit vehicles to pull out of traffic. This policy may be implemented with either a continuous parking lane with bus stops, or with special bus pull-out lanes.

- Give a high priority to public transportation systems which are responsive to the needs of the commuter, aged, handicapped and disadvantaged.

City of Lathrop General Plan

- The City should protect the through traffic functions of Interstate and State Route Freeways serving the Lathrop area by planning arterial street alignments which will avoid the need or desire to utilize freeway sections for short, local area interval trips as if they were elements of the local arterial street system.

- Land use designations along freeway sections should take into consideration the visual and noise impacts associated with existing and future traffic levels on these major traffic carrying facilities.

- Freeway interchanges should be improved to carry the demands of traffic generated by development in Lathrop in keeping with the principle that responsibility for improvements must reflect the fair apportionment of traffic to existing and future regional demands v. local demands.

- Arterials constructed to boulevard standards are to be the principal carriers of north-south traffic through SPA's #2 and #3. They typically involve 4-6 lanes but in rare cases can be 2 lanes, depending on the amount of traffic capacity required along a given section, with landscaped dividers between intersections and left turn lanes and signalization at each intersection. Sufficient right-of-way is required to include room for landscaped pedestrian corridors along either side. Spacing between intersections with crossing streets should be in the range of 1,000 to preferably 2,500 feet. Spacing between "T" intersections should be at least 800 feet. On-street parking is to be prohibited. [See Figure IV-2 for typical right-of-way cross sections].

- Arterials are to be typically constructed for 4-6 lanes of traffic with left turn lanes provided at intersections, although in infrequently arterials may be 2 lanes wide. Development through residential areas should be designed to back-on to the Arterial, with ornamental walls and landscaping along the right-of-way line. In areas where development fronts the arterial, the design for a 2- or 4-lane facility should provide for a minimum right-of-way of 84', with 12' travel lanes, two 8' parking lanes and two 10' minimum planting strips for the accommodation of sidewalks and street trees. Commercial sidewalks 10' in width need only be provided in retail commercial areas and along the frontages of other pedestrian-intensive uses. Street trees should be provided along all Arterial streets. Rights-of-way should be widened at the approaches to major intersections to provide space for additional turn lanes.

- Arterial streets serving Service Commercial and Industrial areas are to be designed and constructed to standards which reflect heavy truck traffic and the need for longer turning radii for trucks at intersections. On-street parking shall be prohibited.

- Collector streets are to be designed to carry from 500 to 5,000 vehicles per day. Where average daily traffic (ADT) is projected to be less than 4,000, a ROW of 60' may be sufficient. As an illustration, development might involve two 11’ or 12' travel lanes, two 8' parking lanes and two 10' minimum planting strips with sidewalks. Sidewalk width may not have to exceed 4'- 5' in width except where intensive pedestrian traffic is expected

- Where ADT is projected above 4,000 to 5,000 in residential areas, a 64' right-of-way may be required. In commercial and industrial areas, four lanes of traffic may be required. Where ADT is projected above 5,000, with high peak hour traffic, wider cross-sections will be required. Right-of- way may require widening on their approaches to Arterials or other Major Collector streets in order to provide suitable turn lanes.

- The high costs of converting a deficient Collector street to the appropriate standards required for existing and projected traffic should be limited to only those streets where either: a) high current and projected volumes of traffic are involved; b) joint funding is possible; c) significant contributions of private or assessment district funds are involved as part of the cost of developing adjacent lands; or d) where the rate of serious accidents has been high and where hazards to public safety are great.

- To keep Minor street volume within design capacity, street length shall be kept under 1,200 feet where possible unless interrupted by an Arterial or Collector street.

- Design standards shall permit innovation and flexibility by the developer in relation to land use proposals under Planned Development procedures of the Zoning Ordinance or under any applicable adopted Specific Plan.

- In view of deficiencies in existing Minor streets, the City should consider forms of funding which include direct public sources (e.g., through redevelopment or assessment districts) as a means of overcoming Minor street deficiencies. Curb, gutter, sidewalk and paving needs along Minor streets might alternatively be made the responsibility of affected property owners. Under this approach, the City could assume responsibility for engineering services and additional costs occasioned by higher standards of street construction and drainage than were involved at the time of original street construction. The City might also share equally in total costs where a majority of property owners are willing to accept assessment proceedings or another appropriate method of collective project financing.

- Policies for Minor streets are intended to reflect options for reducing through traffic on minor streets between intersections with Arterials. This policy seeks to eliminate the use of Minor streets as thoroughfares through residential areas where they extend parallel to nearby Arterials or Collectors for many blocks and are often used as substitutes for Arterials or Collectors.

City of Lodi General Plan

- Plan, develop, and maintain a comprehensive, coordinated transportation system to ensure the safe, efficient, and convenient movement of people and goods.

- Maintain and update street standards that provide for the design, construction, operation, and maintenance of City streets based on a "complete streets" concept that enables safe, comfortable, and attractive access for pedestrians, bicyclists, motorists, and transit users of all ages and abilities, in a form that is compatible with and complementary to adjacent land uses.

- Develop neighborhood streets that encourage walking, biking, and outdoor activity through sound engineering and urban design principles that limit potential speeding.

- Provide for safe and convenient pedestrian, bicycle, and transit circulation.

- Ensure the adequate provision of both on-street and off-street parking, taking into account the effect of parking management techniques on urban design, economic vitality, and walkability.

- Improve railroad crossings to minimize safety hazards and allow for additional capacity improvements.

- Provide efficient and direct circulation for local truck traffic, with minimal disruption to residential neighborhoods.

- Encourage reduction in vehicle miles traveled as part of a strategy to reduce greenhouse gas emissions.

- Ensure consistency between the timing of new development and the provision of transportation infrastructure needed to serve that development. Regularly monitor traffic volumes on city streets and, prior to issuance of building permits, ensure that there is a funded plan for the developer to provide all necessary transportation improvements at the appropriate phase of development so as to minimize transportation impacts.

- Review new development proposals for consistency with the Transportation Element and the Capital Improvements Program. Ensure that new projects provide needed facilities to serve developments and/or contribute a fair share to the City's transportation impact fee.

- Work collaboratively with San Joaquin County, San Joaquin Council of Governments, and Caltrans to maintain consistency with regional and State plans, and to successfully implement transportation improvements in the vicinity of Lodi.

- Maintain and update a Capital Improvements Program so that identified improvements are appropriately prioritized and constructed in a timely manner.

- Update the local transportation impact fee program, consistent with General Plan projections and planned transportation improvements.

- Coordinate with the San Joaquin Council of Governments and actively participate in regional transportation planning efforts to ensure that the City's interests are reflected in regional goals and priorities.

- Continue to work with the San Joaquin Council of Governments on regional transportation funding issues, including the update of regional transportation impact fees. Roadway Network

- Participate in discussions with Caltrans and neighboring jurisdictions to develop a fair-share fee program for improvements to regional routes and state highways. This fee should reflect traffic generated by individual municipalities and pass-through traffic.

- Allow exceptions to LOS standards upon findings by the City Council that achieving the designated LOS would:

  – Be technologically or economically infeasible,

  – Compromise the City's ability to support other important policy priorities, such as:

    - Enhancing the urban design characteristics that contribute to pedestrian comfort and convenience;

    - Avoiding adverse impacts to alternate modes of transportation;

    - Preserving the existing character of the community;

    - Preserving agricultural land or open space; or

    - Preserving scenic roadways/highways.

- Exempt downtown from LOS standards to encourage infill development in order to create a pedestrian friendly urban design character and densities necessary to support transit, bicycling, and walking. Development decisions in downtown should be based on community design and livability goals rather than traffic LOS. (Downtown is defined by the Downtown Mixed-Use designation in the Land Use Diagram.)

- Strive to comply with the Level of Service standards and other performance measures on Routes of Regional Significance as defined by the County-wide Congestion Management Program.

- For purposes of design review and environmental assessment, apply a standard of Level of Service E during peak hour conditions on all streets in the City's jurisdiction. The objective of this performance standard is to acknowledge that some level of traffic congestion during the peak hour is acceptable and indicative of an economically vibrant and active area, and that infrastructure design decisions should be based on the conditions that predominate during most of each day.

- Undertake street improvements…and maintain, require or acquire right of way, as necessary. Coordinate with other jurisdictions, including San Joaquin County, and Caltrans, on improvements to street segments common to the City of Lodi and other jurisdictions. It should be noted that because the General Plan will be implemented over an extended time frame, street capacity enhancements will be prioritized through the City's Capital Improvements Program process and will occur as development proceeds.

- Design streets in new developments in configurations that generally match and extend the grid pattern of existing city streets. This is intended to disperse traffic and provide multiple connections to arterial streets. Require dedication, widening, extension, and construction of public streets in accordance with the City's street standards. Major street improvements shall be completed as abutting lands develop or redevelop. In currently developed areas, the City may determine that improvements necessary to meet City standards are either infeasible or undesirable.

- Maintain, and update as needed, roadway design standards to manage vehicle speeds and traffic volumes.

- Limit street right-of-way dimensions where necessary to maintain desired neighborhood character. Consider allowing narrower street rights-of-way and pavement widths for local streets in new residential subdivisions.

- Implement traffic calming measures to slow traffic on local and collector residential streets and prioritize these measures over congestion management. Include roundabouts, corner bulb-outs, traffic circles, and other traffic calming devices among these measures.

- Foster walkable streets through streetscape improvements, continuous sidewalks on both sides of streets, and encouraging pedestrian access wherever feasible. Update the Subdivision Ordinance to include requirements for sidewalks, street trees, and lighting. Where sidewalks do not exist within existing developments, and are desired, explore a program to provide sidewalks by reducing the curb-to- curb road width, in cases where safety and traffic flow are not compromised.

- To maintain walkability and pedestrian safety, consider roadway width and roadway design features such as islands, pedestrian refuges, pedestrian count-down signals, and other such mechanisms. This

policy applies to new roadway construction as well as existing roadways where pedestrian safety issues may occur due to roadway design or width.

- In new development areas, include pedestrian connections to public transit systems, commercial centers, schools, employment centers, community centers, parks, senior centers and residences, and high-density residential areas.

- Work cooperatively with the Lodi Unified School District on a "safe routes to schools" program that aims to provide a network of safe, convenient, and comfortable pedestrian routes from residential areas to schools. Improvements may include expanded sidewalks, shade trees, bus stops, and connections to the extended street, bike, and transit network.

- Use the City's Bike Master Plan as a comprehensive method for implementing bicycle circulation, safety, and facilities development.

- Coordinate the connection of local bikeways and trails to regional bikeways identified in the San Joaquin County Bicycle Transportation Plan.

- Require the placement of bicycle racks or lockers at park-and-ride facilities.

- Establish standards requiring new commercial and mixed-use developments (of sizes exceeding certain minimum thresholds) to provide shaded and convenient bicycle racks, as appropriate. When such facilities are required, use specifications provided in Caltrans' Design Manual, Section 1000, or other appropriate standards.

- Implement the City's Short Range Transit Plan and the San Joaquin Council of Government's Regional Transit Systems Plan, using the most cost effective methods available and based upon professional analysis.

- Review new development proposals for consistency with the Short Range Transit Plan. Ensure new projects provide needed transit facilities to serve developments and provide all needed facilities and/or contribute a fair share for improvements not covered by other funding sources.

- Efficient operation of the Lodi Station, and to explore opportunities to expand the multi-modal transportation services provided there.

- Encourage continued commuter rail service in Lodi by cooperating with Amtrak and supporting transit-oriented development and improvements around Lodi Station.

- Encourage ridership on public transit systems through marketing and promotional efforts. Provide information to residents and employees on transit services available for both local and regional trips.

- Maintain transit performance measures sufficient to meet State requirements.

- Coordinate transit services and transfers between the various transit operators serving Lodi.

- Require new development to provide transit improvements where appropriate and feasible, including direct pedestrian access to transit stops, bus turnouts and shelters, and local streets with adequate width to accommodate buses.

- Continue to actively support and manage the Lodi Grapeline bus service, and to expand public transit services when justified by new demand.

- Require community care facilities and senior housing projects with more than 25 units to provide accessible transportation services for the convenience of residents.

- Coordinate with the California Public Utilities Commission to implement future railroad crossing improvements.

- Require a commitment of funding for railroad crossing protection devices from private development requiring new railroad spurs.

- Continue the ongoing comprehensive program to improve the condition and safety of existing railroad crossings by upgrading surface conditions and installing signs and signals where warranted.

- Review and update parking standards periodically, and require new developments to provide an adequate number of off-street parking spaces in accordance with those parking standards. The parking standards will allow shared parking facilities whenever possible to reduce the number of new parking stalls required. Consideration will also be given to parking reductions for mixed-use projects or projects that have agreed to implement sustainable and enforceable trip reduction methods.

- Consider replacement of on-street parking in commercial areas that will be lost to additional turn lanes at intersections, with an equal number of off-street spaces within the same vicinity, where feasible.

- Continue to implement existing preferential residential parking programs such as in the Eastside residential neighborhood, in the vicinity of the PCP Cannery, and adjacent to high schools. Consider expanding the preferential residential parking program to other neighborhoods only where parking intrusion from adjacent uses clearly undermines the neighborhood's quality of life after all other options are deemed unsuccessful.

- Improve parking opportunities in the downtown area and along Lodi Avenue (between downtown and Cherokee Lane) by examining rear or vacant lots and other underutilized areas for potential off-street parking. In addition, expand the Downtown Parking District to encompass the entire Downtown Mixed Use area shown in the Land Use Diagram.

- Consider development of local park-and-ride facilities, particularly in conjunction with future rail and bus services, if the demand for such facilities is warranted and economically feasible.

- Provide park and ride facilities designed to accommodate public transit, van, and car pool users.

- Maintain design standards for industrial streets that incorporate heavier loads associated with truck operations and larger turning radii to facilitate truck movements. Consider requiring developments using commercial vehicles with large turning radii to provide needed intersection improvements along direct routes from development to freeway access points.

- Ensure adequate truck access to off-street loading areas in commercial areas.

- Encourage regional freight movement on freeways and other appropriate routes; evaluate and implement vehicle weight limits as appropriate on arterial, collector, and local roadways to mitigate truck traffic impacts in the community. T-P48 Promote ridesharing and cooperate with regional travel demand management programs to reduce peak-hour traffic congestion and help reduce regional vehicle miles traveled.

- Promote employment opportunities within Lodi to reduce commuting to areas outside of Lodi.

- Reduce the total vehicle miles of travel per household by making efficient use of existing transportation facilities and by providing for more direct routes for pedestrians and bicyclists through the implementation of "smart growth" and sustainable planning principles.

City of Manteca

- The City shall strive to balance levels of service (LOS) for all modes (vehicle, transit, bicycle, and pedestrian) to maintain a high level of access and mobility, while developing a complete and efficient circulation system. The impact of new development and land use proposals on LOS and accessibility for all modes should be considered in the review process.

- To the extent feasible, the City shall strive for a vehicular LOS of D or better at all streets and intersections, except in the Downtown area where right-of-way is limited, pedestrian, bicycle, and transit mobility are most important and vehicular LOS is not a consideration. While vehicular LOS is not a consideration in the Downtown area, traffic studies shall disclose whether any proposed transportation or land use action will substantially increase traffic at intersections and roadways within this area of the City.

- At the discretion of City staff, certain locations may be allowed to fall below the City's LOS standard under the following circumstances:

  - Where constructing facilities with enough capacity to provide LOS D is found to be unreasonably expensive. This applies to facilities, for example, on which it would cost significantly more per dwelling

  - unit equivalent (DUE) to provide LOS D than is deemed reasonable by City staff.

  - Where it is difficult or impossible to maintain LOS D because surrounding facilities in other jurisdictions operate at LOS E or worse.

  - Where maintaining LOS D will be a disincentive to use of existing alternative modes or to the implementation of new transportation modes that would reduce vehicle travel. Examples include roadway or intersection widening in areas with substantial pedestrian activity or near major transit centers.

  - In the Downtown area the City cannot maintain the vehicular LOS D standard because of the historic nature of development and limited street right-of-way. However, it is the City's goal to maintain high quality access and mobility in the area with a priority toward non-auto modes. Therefore, the City shall require that new discretionary land use action within the Downtown area, which generate net new PM peak hour auto trips, to participate in enhancing access and

mobility for transit, bicycle, and pedestrian modes. These enhancements may include, but are not limited to:

- Enhancing sidewalks to create a high quality pedestrian environment, including wider sidewalks and improved crosswalks, landscaping, buffers between sidewalks and vehicle travel lanes, enhanced pedestrian lighting, increased availability of benches, provisions for café-style seating, and usage of monument elements and other public art.

- Improving bicycle facilities to include attractive and secure bicycle parking, installation of bike lockers in appropriate locations, and provision of bicycle lanes along appropriate roadways.

- Enhancing transit stops through high quality, well maintained shelters, and provision of wayfinding signage and transit timetables.

- Providing off-street parking with high quality access to Downtown businesses, and which is well-maintained and provides amenities like shade streets, canopies, adequate lighting, and way-finding signage.

- Supporting the development of a Downtown Business Improvement District or similar mechanism to help fund ongoing maintenance of the streetscape enhancements. The Public Works Department shall maintain a list of all City intersections and roadway facilities that are exempt from the LOS D standard. This list shall note any alternate LOS standard that is applicable at the exempted locations.

- The City shall maintain a master list of multimodal volume data for key intersections and roadway segments. This master list shall be updated regularly with traffic counts (for autos, transit, bicycles, and pedestrians) taken in conjunction with project traffic studies and by special counts conducted by the City as necessary.

- Perform periodic evaluation of the mobility and access on major streets, which could include evaluation of vehicular LOS conditions, as well as access and mobility issues faced by transit riders, bicyclists, and pedestrians. The use of multimodal LOS analysis techniques could also be included.

- The City shall develop Transportation Impact Analysis (TIA) Guidelines to provide guidance on identifying deficiencies and impacts on all modes of transportation caused by new development. The TIS guidelines will also provide guidance on the types of mitigation measures that would be appropriate to mitigate project-related impacts to transportation facilities in the City. The TIS guidelines will address impact thresholds for vehicular, transit, bicycle, and pedestrian facilities.

- The City shall develop a pedestrian, bicycle, and transit improvement plan for the Downtown area to facilitate implementation of level of service policy C-P-3 d. This plan will develop a list of multi-modal

- improvements in the Downtown area to increase the viability and encourage the use of non-auto modes.

- Streets shall be dedicated, widened, extended, and constructed according to street cross-section diagrams established in the City Standard Plans.

- Major circulation improvements shall be completed as abutting lands develop or redevelop, with dedication of right-of-way and construction of improvements, or participation in construction of such improvements, required as a condition of approval.

- New development shall pay a fair share of the costs of street and other transportation improvements based on impacts to LOS and other modes in conformance with the goals and policies established in this Circulation Element and the PFF program.

- The street system shall be expanded in a contiguous and concentric manner to serve new development areas and to provide improved circulation for existing residents.

- Street improvements will be designed to provide multiple, direct and convenient routes for all modes.

- Residential and collector street intersections with collector and arterial streets shall be aligned with other residential and collector streets, where feasible, to maintain a high degree of connectivity between neighborhoods, minimize circuitous travel, and to allow bicyclists and pedestrians to travel conveniently and safely from one neighborhood to another without using major streets.

- Access for bicycles and pedestrians shall be provided at the ends of cul-de- sacs, where right-of-way is available, to provide convenient access 20 within and between neighborhoods and to encourage walking and bicycling to neighborhood destinations.

- Signals, roundabouts, traffic circles and other traffic management techniques shall be applied at residential and collector street intersections with collector and arterial streets in order to allow bicyclists and pedestrians to travel conveniently and safely from one neighborhood to another.

- Where traffic congestion, pedestrian travel, collision history, or other factors warrant the installation of a traffic signal, the feasibility of a roundabout shall also be evaluated. In general, a roundabout should be installed at these locations unless right of way, cost, design limitations, or other issues preclude the installation of a roundabout.

- The City shall promote development of a future roadway system as shown in the Major Streets Master Plan.

- The City may allow development of private streets in new residential projects that demonstrate the ability to facilitate police patrol, emergency access, and solid waste collection as well as fund on-going maintenance. C-P-15: The City shall promote infill development that completes gaps in the circulation system.

- Residential subdivisions with lots fronting on an existing arterial street should provide for separate roadway access. Ideally, access to residential lots should be from residential or collector streets. For those properties that currently front arterial streets, consideration should be given to providing separate roadway access as a condition of approval for any redevelopment or subdivision of the property.

- Residential subdivisions along arterials and freeways shall be buffered by a noise attenuation measure (sound wall, berm, greenbelt, etc.) as determined by a noise study. Any noise attenuation

measure should be designed in a way that it does not discourage pedestrian or bicycle travel be creating barriers between neighborhoods.

- The City shall aggressively pursue state and federal funding to augment the PFF and implement the City's Circulation Element.

- The City shall coordinate with neighboring jurisdictions, including Caltrans, San Joaquin Council of Governments (SJCOG), San Joaquin County, the City of Lathrop, and the City of Ripon to pursue funding for the following regional facilities:

  - A new interchange at McKinley Avenue and SR 120;

  - A new interchange at Austin Road/McKinley Avenue and SR 99;

  - A new interchange on SR 99 between Lathrop Road and French Camp Road;

  - An easterly extension of the SR 120 freeway towards Oakdale; and

  - Regional bicycle lanes and bicycle paths.

- The City shall maintain a Major Street Master Plan showing the existing and proposed ultimate right-of-way and street width for each road segment within the City's Sphere of Influence and Area of Interest. The Major Street Master Plan shall also indicate the necessary right-of-way to be acquired or dedicated and the expected method of financing roadway improvements (i.e., City-funded or property owner/developer funded). The Major Street Master Plan shall be regularly updated.

- When planning roadway facilities, incorporate the concept of complete streets. Complete streets include design elements for all modes that use streets, including autos, transit, pedestrians, and bicycles. Complete streets shall be developed in a context-sensitive manner. For example, it may be more appropriate to provide a Class I bike path, as opposed to bike lanes along a major arterial. Pedestrian districts like Downtown 22 Manteca or areas near school entrances should have an enhanced streetscape (e.g., narrower travel lanes, landscape buffers with street trees, etc.) to better accommodate and encourage pedestrian travel.

- The City shall require new development to participate in the implementation of transportation improvements identified in the Major Street Master Plan. Participation could include the construction of roadways, improvements to roadways, payment into the PFF program, payment into other fee programs, or fair-share payments. In general, the infrastructure needs and methods of participation will be determined through an environmental impact report or transportation impact analysis.

- The City will coordinate with Caltrans and SJCOG to make sure that projects in the City's Circulation Element and Major Street Master Plan are included in long range planning documents, including the Caltrans Long Range Plan, the SJCOG Regional Transportation Plan, and the San Joaquin County Congestion Management Program.

- Appropriate sound attenuation measures shall be determined by a noise study. Walls and berms shall be attractive and developed to minimize maintenance. Bicycle and pedestrian access shall be provided through walls and berms to minimize travel distances and increase the viability walking and bicycling.

- To support the City's goals of minimizing maintenance costs and encouraging active transportation, any new or substantially modified roadway shall be as narrow as feasible while being consistent with LOS and goods movement policies. In general, this implementation measure can be achieved by constructing narrower traffic lanes, although wider lanes may be necessary on certain truck routes.

- The City shall regularly update the PFF program to ensure that the fees are consistent with construction costs and the project list reflects changes in the transportation system that may occur as land use development projects progress and more detail about their transportation needs are known.

- The creation or continuance of traffic, bicycle, and pedestrian hazards shall be discouraged in new development, infill development, and redevelopment areas.

- In the development of new projects, the City shall give special attention to maintaining/ensuring adequate corner-sight distances appropriate for the speed and type of facility, including intersections of city streets and private access drives and roadways.

- The City shall encourage the development of landscape separated sidewalks along roadways (particularly arterials and non-residential streets) when feasible to discourage pedestrian/vehicle conflicts and be consistent with complete streets concepts.

- Maintain a program of identification and surveillance of high traffic, bicycle, and pedestrian collision locations, with emphasis on early detection and correction of conditions which could potentially constitute safety hazards.

- The City shall identify and remove, as feasible, obstacles limiting corner-sight distances at existing street corners.

- The City shall maintain a program of identification and surveillance of high vehicle, bicycle, and pedestrian collision locations, with emphasis on early detection and correction of conditions that could potentially constitute safety hazards.

- All new signs, roadway striping, and traffic signals shall be consistent with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

- Future growth in traffic volumes may necessitate removal of on-street parking spaces to provide additional traffic lanes.

- New development shall provide an adequate number of off-street parking spaces to accommodate the typical parking demands of the type of development on the site. The City may dictate both minimum and maximum amounts of parking; the use of shared parking is encouraged to reduce overall land consumed by parking areas. In the Downtown area, parking supply and demand will be managed through a coordinated approach led by the City.

- The City may allow for changes to the parking requirements under certain circumstances. In such cases, the City may require provision of off-site parking, participation in a parking district or payment of an in-lieu fee to cover the costs of land acquisition and construction of parking spaces.

- In the Downtown area, the Redevelopment Agency should assist in the provision of off-street parking. Parking facilities in the Downtown area should be within easy walking distance of the businesses

- Ensure that there is adequate parking for normal commercial activities.

- Ensure that there is adequate parking for special events where deemed appropriate.

- The City shall review and revise, as necessary, off-street parking standards of the Zoning Ordinance. Such revision shall be based on a survey of the parking requirements of other Northern California communities, the requirements of the Housing Element to achieve specified residential density levels, and an assessment of the adequacy of the City's current standards.

- Work with local merchants to improve on-street and off-street parking conditions.

- The City will consider preparing a Parking Management Plan for the Downtown area to ensure that parking facilities are provided in a coordinated manner, which maximizes access to local businesses and connectivity with non-auto modes, including transit, bicycles, and pedestrian facilities.

- The City shall require a shared parking analysis for all proposed mixed-use developments and new projects in the Downtown area to ensure that parking is not oversupplied.

- To maintain adequate parking supply for businesses, the City may restrict parking on public streets through permit programs, time limits, or parking meters, where appropriate.

- If roadway widening requires the removal of on-street parking, a parking supply study should be conducted to determine if the loss of on-street parking spaces will create a parking shortage. If so, the parking supply study should also discuss the feasibility of replacing the lost parking spaces.

- Through regular updates to the City's Bicycle Master Plan, the City shall establish a safe and convenient network of identified bicycle routes connecting residential areas with recreation, shopping, and employment areas within the city. The City shall also strive to develop connections with existing and planned regional routes shown in the San Joaquin County Bicycle Master Plan.

- Provide adequate bicycle parking facilities at commercial, business/professional and light industrial uses.

- The City shall strive to expand the existing network of off-street bicycle facilities as shown in the City's Bicycle Master Plan to accommodate cyclists who prefer to travel on dedicated trails. Further, the City shall strive to develop a "city-loop" Class I bike path that links Austin Road, Atherton Drive, Airport Way and a route along or near Lathrop Road to the Tidewater bike path and its extensions. The City shall also strive to develop an off-street bicycle trail extension between the Tidewater Bike Trail near the intersection of Moffat Boulevard and Industrial Park Drive to the proposed regional route between Manteca and Ripon.

- The City shall strive to provide on-street Class II bike lanes along major collector and arterial streets whenever feasible.

- Bicycle travel through residential streets shall be facilitated as much as possible without the use of Class II bike lanes. In general, residential streets have sufficiently low volumes as to not require bike lanes and the narrower street cross section will assist in calming traffic.

- The City shall extend the existing Class I bicycle route north of Lathrop Road along the former Tidewater Southern Railway right-of-way, and any branch or connecting link where right-of-way is available.

- Improve safety conditions, efficiency, and comfort for bicyclists and pedestrians by providing shade trees and controlling traffic speeds by implementing narrow lanes on appropriate streets.

- City shall strive to provide a sidewalk system that serves all members of the community and meets the latest guidelines related to the Americans with Disabilities Act (ADA).

- All new sidewalks, walkways, and intersection crosswalks shall be consistent with the requirements of the ADA

- Provide walkways connecting to the residential neighborhoods and primary public destinations.

- Route sidewalks so that they connect to major public parking areas, transit stops, and intersections with the bikeway system.

- Provide sidewalks along all new streets in the City.

- The City shall update its Bicycle Master Plan to include all areas envisioned for development by this General Plan. The Bicycle Master Plan will establish future bicycle routes and provide standards for bicycle facilities, including bicycle paths and bicycle lanes.

- Utilize the standards set forth in the MUTCD and AASHTO Green Book for improvement and re-striping of appropriate major collector and arterial streets to accommodate Class II bike lanes in both directions, where sufficient roadway width is available. This may include narrowing of travel lanes.

- Increase bicycle safety by:

  – Providing bicycle paths and lanes that promote bicycle travel.

  – Sweeping and repairing bicycle lanes and paths on a continuing, regular basis.

  – Ensuring that bikeways are delineated and signed in accordance with AASHTO standards and lighting is provided, where feasible.

  – Ensuring that all new and improved streets have bicycle-safe drainage grates and are free of hazards such as uneven pavement or gravel.

- Add bike lanes whenever possible in conjunction with road rehabilitation, reconstruction, or re-striping projects.

- Update the City Standard Plans to include bike lanes on collector and arterial streets, as defined by the Bicycle Master Plan.

- Encourage resident and visitor use of the bike trail system by preparing a map of the pedestrian and bike paths.

- Update the standard plans to specify a set of roadways with narrower lanes (less than 12 feet) to calm traffic and increase pedestrian and bicycle comfort. These narrow lane standards shall be applied to appropriate streets (e.g., they shall not be applied to outside lanes on major truck routes).

- The City shall develop a Pedestrian Master Plan, which encompasses all areas envisioned for development by this General Plan. The Pedestrian Master Plan will identify existing deficiencies and establish standards for future pedestrian facilities, including sidewalks, crosswalks, and pedestrian pathways.

- The City shall develop an ADA Transition Plan. This plan shall identify deficiencies related to ADA access and identify an implementation strategy to bring the deficient facilities up to the applicable standards

- Update the standard plans to include landscape separated sidewalks where appropriate and feasible.

- Provide for pedestrian access in the Downtown area, along Yosemite Avenue, Main Street, and in other high-use areas by:

  – Constructing wide sidewalks where feasible to accommodate increased pedestrian use.

  – Providing improved crosswalks, landscaping, buffers between sidewalks and vehicle travel lanes, enhanced pedestrian lighting.

  – Improving the walking environment by providing benches, allowing for café seating, and constructing monument elements and other public art.

  – Providing improvements that enhance pedestrian safety and convenience, such as bulb-outs extending into intersections and at crosswalks to reduce walking distances and provide a safe peninsula for pedestrians.

- Provide for enhanced pedestrian environments in new subdivisions by:

  – Providing bulb-outs at intersections (to be identified by the City) to reduce crossing distances and calm traffic.

  – Providing marked (and signalized, if appropriate) mid-block crossings near schools, parks, or other neighborhood attractions. A landscaped median refuge island, raised/textured sidewalk, or other design features may also be provided.

- The City shall encourage the expansion of interstate bus service in the Manteca area.

- The City shall encourage commuter and regional passenger rail service that will benefit the businesses and residents of Manteca. Examples include Amtrak, the Altamont Commuter Express (ACE), and high speed rail.

- The City shall identify and implement means of enhancing the opportunities for residents to commute from residential neighborhoods to the ACE station or other transit facilities that may develop in the City.

- Establish a plan of primary locations where the transit systems will connect to the major bikeways and pedestrian ways and primary public parking areas.

- Encourage programs that provide ridesharing and vanpool opportunities and other alternative modes of transportation for Manteca residents.

- The City shall promote the development of park-and-ride facilities near I-5, SR 120, and SR 99.

- The City shall establish and maintain a working relationship between the City administration and the local management of the Union Pacific Railroad regarding expansion of freight and passenger rail service and economic development of the region.

- The City shall design future roadways to accommodate transit facilities, as appropriate. These design elements would include installation of transit stops adjacent to intersections and provision of bus bays and sheltered stops.

- The City shall periodically review transit needs in the city and adjust bus routes to accommodate changing land use and transit demand patterns. The City shall also periodically coordinate with the San Joaquin Regional Transit District to assess the demand for regional transit services.

- The City shall explore the opportunities for, and encourage the development of, a multi-modal bus/train/bike/auto facility in the downtown area.

- The City shall explore a transit connections study that would identify improvements to connections and access to the existing ACE station and the planned multi-modal downtown transit facility.

- The City's standard plans shall be updated to include the option for bus bays at intersections of major streets.

- The City shall consider alternatives to conventional bus systems, such as smaller shuttle buses that connect neighborhood centers to local activity centers.

- The City should explore with the Manteca School District opportunities for joint-use public transit that would provide both student transportation and local transit service.

- The city shall require that new industrial development pay a fair share toward improvements required to accommodate heavy vehicles, including increased pavement wear.

- All roads identified as truck routes shall be designed to accommodate STAA trucks.

- The City shall encourage the provision of freight rail service into industrial developments through the use and development of rail spurs.

- The City should consider vehicle weight limit restrictions on roadways near sensitive uses like schools and residential neighborhoods to discourage cut-through truck traffic.

- The City shall develop a truck route map identifying key goods movement corridors in Manteca.
- The truck route map shall be periodically reviewed and updated by the City engineer to ensure that goods movement needs are adequately served.
- The City shall establish a requirement for a TDM program in any business park, industrial or commercial land use that employs more than 50 full time equivalent employees.
- The City shall provide information about transit services, ridesharing, van-pools, and other transportation alternatives to single occupant vehicles at City Hall, the library, and on the City website.
- The City shall encourage employers to provide alternative mode subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting, and work-at-home programs employee education and preferential parking for carpools/vanpools.
- Partner with SJCOG on the Commute Connection program, which is the regional rideshare program operated by SJCOG. The City shall work with SJCOG to ensure that appropriate businesses and land use development projects participate in the program.

City of Ripon General Plan

- Provide a circulation system correlated with existing and proposed land use that contributes to efficient and safe movement of persons, goods, and services within and through ripon.
- The city will maintain existing streets and intersections in a safe condition and require new streets to be built to city standards, except under extraordinary circumstances which require a finding to be made by the city engineer that to deviate will not adversely affect the health, safety, and welfare of the citizens of the city.
- The city will require adequate access and circulation be made available to every new development, without adversely affecting the existing circulation system.
- New streets will be designed to discourage heavy through traffic within residential neighborhoods, but will also provide direct and adequate access for emergency service vehicles.
- The city will consider visual aesthetics and safety aspects in future developments, including landscaping requirements and setback requirements.
- The city will not allow private streets in residential developments except in planned unit developments.
- A level of service (LOS) of "d" will be the minimum standard for all streets within the city.
- Require off-street parking for all development, and any other project or event that will cause a safety or parking congestion problem when parking is allowed on the streets.
- Implement parking control measures, as necessary, to promote the efficient use of parking facilities.

- The city will consider the creation of new alleys in development projects. However, they will be required to be constructed to city standards with those in residential projects being dedicated to the city as public rights-of-way if not located in a planned unit development.

- The city will maintain a program of identification and surveillance of high traffic accident locations, with emphasis on early detection and correction of conditions that could potentially constitute traffic hazards.

- Minimize the adverse effects of development on the existing and future circulation facilities.

- Development within the city that is likely to generate significant levels of daily or peak hour traffic on local streets will be required to have a traffic study prepared by a qualified traffic engineer at the applicants expense. The study will identify potential traffic impacts and specify improvement measures needed to assure an acceptable service level on affected streets.

- On and off-site circulation improvements, dedication of rights-of-way, and reciprocal easements may be required at the time of development as conditions of approval.

- Development will be responsible for paying all costs associated with providing all new streets or expanded roadway facilities required by traffic access and circulation needs of that development.

- Investigate potential locations for park and ride lots and a multi-modal station within the community with an emphasis for facilities near state route 99.

- Pursue alternate funding sources, including county, state, and federal funds to implement the city's circulation plan.

- The city will actively support and encourage the San Joaquin County Council of Governments and Caltrans in promoting planning and funding for additional mainline SR 99 improvements as needed.

- Adequate on street and off-street parking will be promoted.

- Off-street parking will be required for development and where the potential parking demands for a project or event will cause a safety or parking congestion problem when parking is allowed on the streets.

- Parking variances will be allowed only for the most unusual conditions and circumstances, and only after all other possible actions and conditions have been identified and studied; payment of in-lieu fees may be required if variances are permitted.

- Efficient use of available public parking facilities will be promoted by using parking control measures such as time limits and other controls when necessary.

- Support a public transit service that meets the needs of the local residents.

- The city will support public transit service that meets the needs of the city's residents.

- The city will provide for intercity connections to serve major work centers within the community.

- The city will provide for transit connections at park-and-ride lots and at the multi-modal station.
- The city will work to encourage increased rail service to the region, and a rail stop in the community.
- To encourage safe bicycling at the local and regional levels.
- The city will provide safe and convenient bicycle facilities to various destinations throughout the community for commuting, shopping, employment, recreational riders, and children.
- The city will provide facilities that link schools, parks, civic facilities, employment centers, shopping, and the central business district.
- The city's master bicycle plan will connect regional facilities plus adapt to an overall system.
- The city of ripon bicycle route master plan, a copy of which is available for review in the ripon planning department, is incorporated by reference to this chapter of the general plan and is listed as a resource document in volume iii (technical appendix) accompanying this document.
- To coordinate the implementation of appropriate transportation control measures with other agencies.
- The city will select, with agencies such as the san joaquin valley unified air pollution control district, appropriate voluntary transportation control measures to reduce demand for the single occupant automobile travel.
- The city will encourage the safe and efficient movement of freight within and through the community.
- Recognizing the mixed use of the state route 99/jack tone road interchange for both truck and other vehicular traffic, the city will continue to implement standards and controls to reduce any potential conflict issues.
- Promote utilization of existing rail facilities to develop multi-modal transportation facilities and as a part of the city's overall economic development effort.
- Encourage state and regional transportation agencies to include a City of Ripon stop in passenger rail transportation plans.
- Incorporate provisions for rail transportation in proposed multi-modal station plans.
- In the consideration of commercial and industrial development proposals located in the vicinity of existing railroads, provide for preservation of access to main line railroad facilities.
- Promote maintenance and development of high-quality air transportation facilities by other jurisdictions.
- Cooperate with and support San Joaquin and Stanislaus County airport facilities in the development of passenger and airfreight services.

City of Stockton General Plan

- To develop an integrated transportation system that provides for the safe and efficient movement
- The City shall utilize and maintain the Circulation Diagram to designate the classification for all major roadways, designate significant transit facilities, and designate bicycle facilities.
- The City shall continue to work cooperatively with the various local, State, and Federal transportation agencies (i.e., San Joaquin County, SJCOG, Caltrans, San Joaquin Regional Transit District, the Altamont Commuter Express, and Amtrak) to maintain a multimodal transportation system that is well-integrated and interconnected in terms of service, scheduling, and capacity, and that effectively accommodates planned land uses and related transportation needs, and that promotes the safe movement of people and goods and the efficient use of limited public resources.
- The City shall work with its transportation partners to create and maintain a transportation system as a multi-modal network design to effectively accommodate planned land uses and related transportation needs.
- The City shall continue to utilize the City's capital improvement program, developer dedications and the City's public facilities fees and other mechanisms to finance transportation needs and improvements.
- The City shall work with the County, SJCOG, Caltrans, SJRTD, and other jurisdictions and agencies to secure additional funding to meet transportation funding shortfalls for priority projects and other modes of transportation (e.g., bike and transit).
- The City will work with other local jurisdictions and agencies to seek sources of funding to meet transportation funding shortfalls for priority projects and alternative modes of transportation (bikeways, transit, other).
- Land use planning and transportation decisions shall be correlated so that planned land uses are supported by the appropriate types of circulation service, levels of service, and the timing of transportation improvements. Wherever practicable, road improvements shall complement regional needs and initiatives. The City's highest priority for road improvement funding shall be regional and local roads servicing infill development, existing community areas, and other areas shown on the General Plan for urban development, which are designed to achieve the City's regional housing allocation and affordable housing goals.
- The City shall prioritize improvements to the roadway system, ensuring that allocation of funding for transportation, maintenance and improvement projects serving anticipated growth areas as specified by applicable environmental documents.
- Strategies to reduce vehicle demand on City roadways shall be given consideration in conjunction with planned vehicle capacity expansion projects where they are demonstrated to achieve the same or similar outcome. The City shall plan and consider financial assistance for Bus Rapid Transit and other non-auto related circulation systems as a way to address peak hour congestion within the City. The City shall ensure that all planed arterial and regional road capacity projects (including lane

widening) are justified based on environmental documentation in compliance with CEQA and cost efficiency.

- All new development projects shall be required to pay their fair share of the cost of constructing needed transportation and transit facilities, and contributing to ongoing operations and services. This shall include costs associated with mitigating new development impacts on the capacity of existing transportation facilities and services. All essential facilities and services will be installed prior to or concurrent with such new development or phased as specified in the applicable environmental documents. This requirement shall be made a condition of project approval.

- To develop a street and highway system that promotes safe, efficient and reliable movement of people and goods by multiple transportation modes and routes, and that reduces air quality impacts.

- To assist in ensuring efficient traffic operating conditions, evaluating the effects of new development, determining mitigation measures and impact fees, and developing capital improvement programs, the City shall require that Level of Service (LOS) D or better be maintained for both daily and peak hour conditions, with the following exceptions:

- In the downtown area (bounded by Harding Way, the Union Pacific railroad tracks, Charter/Martin Luther King Jr. Way, Interstate 5, and Pershing Avenue), the City shall require LOS E or better. However, LOS F may be accepted after consideration of physical or environmental constraints and other City goals and policies. This policy recognizes the importance of an active and vibrant downtown to the overall health of the City, and acknowledges that economic vitality in a relatively constrained downtown area may result in greater levels of traffic congestion.

- The following corridors shall be subject to different LOS standards, due to physical constraints that limit the improvements that can be constructed.

  - Benjamin Holt Drive, Plymouth Road to Gettysburg Place LOS F
  - Eight Mile Road, Trinity Parkway to I-5 LOS E
  - Eight Mile Road, Lower Sacramento Road to West Lane – LOS E
  - Eighth Street, I-5 to El Dorado Street – LOS E
  - Eighth Street, Airport Way to Mariposa Road LOS E
  - French Camp Road, Manthey Road to I-5 LOS E
  - French Camp Road, I-5 to Val Dervin Parkway- LOS F
  - Hammer Lane, I-5 to Kelly Drive LOS E
  - Hammer Lane, West Lane to Holman Road LOS E
  - Interstate 5, Hammer Lane to Benjamin Holt Drive LOS E
  - Interstate 5, Benjamin Holt Drive to Downing Avenue – LOS F

  - Interstate 5, Downing Avenue to French Camp Road LOS E
  - Otto Drive, I-5 to Thornton Road – LOS F
  - Pacific Avenue, Harding Way to Castle Drive and Alpine Avenue to the Calaveras River –LOS F
  - Pershing Avenue, I-5 to Brookside Road – LOS F
  - SR 4 (Crosstown Freeway), I-5 to SR 99 LOS E (with exception of the segment from Stanislaus Street to Wilson Way, where the standard will be LOS F)
  - SR 99, Morada Lane to SR 4 (Crosstown Freeway) – LOS E (with the exception of the segments from Hammer Lane to March Lane and from Waterloo Road to SR 4, where the standard will be LOS F)
  - Swain Road, I-5 to Pacific Avenue – LOS F
  - Thornton Road, Davis Road to Pershing Avenue – LOS E
  - t West Lane, Hammer Lane to Morada Lane – LOS E
  - Woods Boulevard, French Camp Road to Carolyn Weston Boulevard – LOS E

- The City shall identify economic, design and planning solutions to improve existing levels-of-service currently below the LOS specified above. Where physical mitigation is infeasible, the City shall consider developing programs that enhance alternative access or otherwise minimize travel demand.
- The City shall require City-maintained streets and roads to be designed and constructed according to the standards set out in this General Plan and City of Stockton Standard Plans and Specifications.
- The City shall require at least two (2) independent access routes for all major development areas.
- The City shall require that significant trip-generating land uses be served by roadways and transit connections adequate to provide efficient access by multiple transportation modes with a minimum of delay.

Improvements

- The City shall give priority to street and highway improvements that increase safety, minimize maintenance costs, improve air quality, increase the efficiency of the street system, and reduce the dependence on single occupant vehicles (SOV) for commuting.
- The City shall ensure that highways and arterial streets within its jurisdiction provide for the efficient flow of traffic. Therefore, the following shall be undertaken:
  - Minimize the number of intersections along arterials.
  - Reduce curb cuts along arterials through the use of common access easements, backup lots and other design measures.

  - Provide grade separations where practicable and feasible where a railroad crosses at least a 4-lane existing or future arterial roadway.

  - Extend arterials over waterways, railroads and through developed and undeveloped areas, where feasible, to provide for the continuous flow of through traffic and appropriate area access.

  - Consider alternative designs for high capacity multi-modal corridors.

- The City shall synchronize and otherwise manage traffic signals on arterial streets to the extent possible to facilitate the movement of people and to minimize stops or delays.

- The City shall develop and maintain a network of arterial streets to facilitate efficient intra-city travel and to provide alternatives to State highways for local trips.

- The City shall seek to improve freeway interchanges along State Route 99, State Route 4, and Interstate 5 to current design standards as required by the traffic demands of new development, within funding constraints.

- Consistent with the goals of the City of Stockton Neighborhood Traffic Management Program, the City shall encourage inter-neighborhood traffic movement on arterial and collector streets and discourage such traffic from using neighborhood streets.

- The City shall ensure that neighborhood streets are designed to discourage through traffic and excessive speeds.

- The City shall ensure that construction of new roadways and expansion of existing streets mitigates, impacts on air quality, noise, historic resources, sensitive biological areas, and other resources.

- The City shall require right-of-way dedications for major public streets and highways, highway interchanges, and other major roadway improvements (i.e., arterial and collector streets and related bridges or railroad crossings) at the initial stage of development.

- The City shall, where practical, protect future street and highway rights-of-way through the adoption of Precise Road Plans.

- The City shall ensure that Precise Road Plans for future roadways on the fringe of the city are prepared in coordination with the County and/or Caltrans, as appropriate

- To improve air quality and reduce congestion, the City shall seek to reduce vehicle-miles-traveled per household by making efficient use of existing and planned transportation facilities; supporting policies are detailed in the City's adopted list of Reasonably Available Control Measures. These measures include:

  - Promoting efficient arrangement of land uses.

  - Improving public transportation and ridesharing.

  - Facilitating more direct routes for pedestrians and bicyclists and other non-polluting modes.

- The City shall maintain existing transportation facilities in the best condition feasible.
- Truck routes shall be established in existing and new development areas as needed to efficiently serve truck traffic and to minimize impacts on neighborhoods. The City shall direct truck traffic to designated truck routes.
- The City shall require a sufficient supply of off-street parking for all land uses in order to reduce congestion, improve overall operation, and ensure land use compatibility.
- To minimize land consumption and paving, the City shall promote shared parking among land uses whose demand for parking peaks at different times.
- The City shall work to reduce speeds on roads where excessive rates of speed occur. This is to be accomplished through increased enforcement, improvement signage, and/or traffic calming measures. Within neighborhood and community areas, alternative traffic calming techniques shall first be considered before resorting to other methods.
- To minimize single-occupant vehicle demand and reduce vehicle emissions on the transportation system and reduce vehicle emissions by encouraging use of alternative transportation modes as well as alternatives to travel.
- The City shall support the location of park-and-ride lots within the parking lots of commercial and/or office uses or at other appropriate locations, in consultation with SJRTD, San Joaquin County, SJCOG, Caltrans, and other agencies, and in compliance with the design features related to park-and-ride facilities that are specified in Policy TC-4.4.
- The City shall support development of programs to encourage carpooling and vanpooling among local employees.
- The City shall encourage the use of staggered starting and ending work hours and/or flextime to alleviate peak period traffic congestion.
- The City shall encourage provision of subscription bus service to major trip generators and special events.
- The City shall encourage preferential employee parking for carpools and vanpools.
- The City shall work with other agencies and institutions, such as school districts, universities and other major employers, to promote employer-based Travel Demand Management programs.
- The City shall support the following types of programs to manage travel demand:
  - Participation in and promotion of a program in which major employers can use their employee ID cards as transit passes in exchange for a single annual charge to the employer.
  - Telecommunications substitutes for commuting and other travel.
  - Community (“free”) bike programs.

  - Car-sharing programs.

  - No-fare or low-fare shuttles at shopping centers and other major activity centers.

- The City shall enhance the Downtown's intermodal role by integrating mass transit facilities and services such as Bus Rapid Transit.

Oriented-Development

- To facilitate development of transit-oriented development projects, the City shall support and capitalize on existing and proposed "smart growth" or transit-oriented development (TOD) programs, which award funds for transportation projects to local jurisdictions that approve building permits for compact housing and mixed use development near transit.

- To develop an efficient, coordinated, integrated, and attractive public transit system that provides access to major activity centers in the City, and to the San Francisco Bay Area and Sacramento.

- The City shall work cooperatively with the San Joaquin Regional Transit District, the Altamont Commuter Express, the San Joaquin Council of Governments, Bay Area Rapid Transit (BART), Caltrans, AMTRAK, and other public transit providers to provide rail and bus service at a level that offers an alternative to the automobile for both the short and long distance commuter, and provides basic transportation to work, shopping and other destinations, especially for the handicapped, elderly, youth and economically disadvantaged.

- The City shall ensure that transit-related public improvements (e.g., bus pullouts, bus shelters) are provided along arterial and major collector streets to encourage transit use.

- The City shall encourage clustering of land uses that generate high trip volumes in areas that are served by existing or planned transit, especially when such uses are complementary and where they can be adequately served by public transportation.

- The City shall strongly encourage new development projects to incorporate the following transit-related design features:

  - A through roadway shall connect adjacent developments to permit transit circulation between developments.

  - Parking shall be prohibited on collector and arterial streets to provide access to bus stops in major employment/commercial areas.

  - Where subdivision sound walls exist or are warranted, appropriate designs shall be used to facilitate direct pedestrian access to transit stops.

  - Transit operators shall be encouraged to post route and schedule information in major employment/commercial areas.

  - Commercial and industrial developments shall have easy access to major arterials and transit stops.

  - Sheltered bus stops shall be provided with new development.
  - Medium and high-density development shall be located near transit services.
  - Residential areas shall be linked to transit stops via continuous sidewalks or pedestrian paths.
  - Park-and-ride facilities shall be strategically located in cooperation with transit providers to maximize transit use.
  - Park-and-ride facilities shall be designed to accommodate not only motorists but also other users of public transit and van or carpooling.
  - Major new developments shall be required to provide, operate and maintain park-and-ride facilities.
  - The City shall work with SJCOG, the County transit providers and existing development to provide park and ride facilities within existing developed areas.
  - In major new development areas, the project proponents shall be required to coordinate with transit operators in advance of discretionary project approvals and to provide an agreement for the timely provision of transit service.

- The City shall work with operators of public and private transportation services to provide convenient extension and integration of the public transit system.
- The City shall support the SJRTD Regional Bus Service, Altamont Commuter Express and Amtrak's San Joaquin Intercity Rail service and work with other local, regional and State agencies to explore other public transportation facilities.
- The City shall, where feasible, preserve additional right-of-way (ROW) for transit uses when mapping adjacent development areas, designing new roadways, and improvements for existing roadways.
- The City shall support efforts to develop bus rapid transit (BRT) within and beyond Stockton.
- The City shall support High-Speed Rail and other efforts to promote high-speed connections between Stockton and California's other major urban centers.
- The City shall support efforts to expand the use of low-cost trolley service or other forms of local circulation services in major shopping, employment, and pedestrian areas.
- When rail lines within the city are abandoned, the City shall consider converting the railroad corridors to high-capacity transit or other transportation corridors.
- It appears that the creation of a light rail system is not feasible in the short- to middle-term of this General Plan, because there is not enough density in the City to support such as system. However, implementation of

- a BRT system should be designated to protect future right of way for a light rail, and plans for the transition of BRT corridors to light rail in terms of right-of-way reservation, shall be investigated.

- The city shall support the SJRTD Regional Bus Service, Altamont Commuter Express and AMTRAK's San Joaquin Intercity Rail service and work with other local, regional and State agencies to explore other public transportation facilities. The City shall work with and support ACE attempts to build tracks to bypass existing bottlenecks (e.g., the Union Pacific railyards in South Stockton). As a high priority, the City shall cooperate in studies to determine the feasibility of additional rail connections with the Bay Area and Sacramento, such as connections with the BART system and proposing rail between Stockton and Sacramento along the California Traction and other rail corridors. To promote development of pedestrian and bikeway facilities for transportation and recreation.

- The City shall encourage pedestrian and bicycle travel as viable modes of movement throughout the City by providing safe and convenient pedestrian and bicycle facilities within and linking commercial areas, residential neighborhoods, and employment centers.

- The City shall require crosswalks and other pedestrian safety measures be designed and installed according to the City of Stockton Pedestrian Safety and Crosswalk Installation Guidelines.

- The City shall require new subdivisions and planned unit developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as bus stops, schools, parks, and shopping centers.

- The City shall encourage existing and new commercial and office establishments to develop and enhance pedestrian pathways through landscaping, frontage improvements, and creating pedestrian crosswalks through parking areas or over major barriers such as freeways or canals.

- The City shall ensure that recreational bikeways are developed and maintained on separate rights-of-way (i.e., Calaveras River path, East Bay Municipal Utility District easement path, French Camp Slough, and Shima Tract Levee).

- The City shall ensure dedication of adequate right-of-way for bicycle use in the development of new arterial and collector streets, and where feasible, in street improvement projects.

- The City shall require that safe and secure bicycle parking facilities be provided at major activity centers such as public facilities, employment sites and shopping and office centers.

- In developing bicycle and pedestrian facilities, the City shall give priority to projects that close gaps in existing networks.

- The City shall coordinate bikeway development efforts of planning, recreation, public works, and other City departments, with San Joaquin County government and other agencies that are involved in planning and construction of operational elements of the bikeway system.

- The City shall encourage major employment centers (50 or more total employees) to install showers, lockers, and secure parking areas for bicyclists as part of any entitlement.

- The City shall ensure that bikeways are maintained in a manner that promotes their use.

- The City shall promote law enforcement and educational awareness programs that improve bicycle and pedestrian safety.

- At the time of new street construction, pavement overlays, or seal coat projects, the City shall, where feasible, implement the bikeways within the project limits as detailed in the adopted master plan.

- To minimize adverse impacts and maximize economic and community benefits resulting from railroad operations in the Stockton metropolitan area.

- The City shall work to provide grade separations at all railroad crossings on arterial streets to both ensure public safety and minimize traffic delay.

- The City shall ensure that new railroad rights-of-way or yards adjacent to existing residential or commercial areas are screened to reduce noise, air, and visual impacts.

- The City shall encourage railroad services for freight and passenger transport as a means to reduce automobile and truck travel on the roadway system and to support and enhance economic development.

- To promote an airport system capable of accommodating the future growth of air commerce while minimizing adverse airport-related environmental impacts and safety hazards.

- The City shall encourage a full range of aviation services at the Stockton Metropolitan Airport and promote airline service that meets the present and future needs of residents and the business community. In the short-term, the City shall support the continuation of airport freight service, especially tied to local agricultural imports and exports. In the longer term, passenger air service may become more feasible.

- Until adequate passenger air service is available at the Stockton Metropolitan Airport, the City shall support regularly scheduled airport limousine, bus or van service between Stockton, the Sacramento International Airport, and the Dublin/Pleasanton BART station (from which passengers can reach the Oakland and San Francisco airports). This service could be operated under the San Joaquin Regional Transit District or under contract to a private firm with appropriate City supervision and subsidy.

- The City shall encourage commercial and industrial developments requiring air service to locate near the airport vicinity.

- To encourage and maintain the operation of the Port of Stockton as an asset to the community and a source of jobs, while minimizing environmental impacts in accordance with CEQA.

- The City shall encourage commercial and industrial developments requiring water borne freight service to locate in the Port vicinity.

- The City shall work to improve access to the Port while minimizing the adverse effects of Port-related traffic on surrounding neighborhoods.

- The City shall work with the SJRTD, local businesses, and interested parties to evaluate the potential for a water taxi service and to take steps to facilitate the implementation of this service should it be viable.

City of Tracy General Plan

- The City should develop context-based street designs that allow for variations based on the expected function and location of the facility, and the surrounding land use context. These context-sensitive designs should have the following aims:
  - Create aesthetically attractive streetscapes.
  - Enhance multi-modal transportation by increasing mobility and improving safety for autos, trucks, transit, pedestrians and bicyclists.
- The City shall preserve rights-of-way needed for future roadway and freeway interchange improvements through dedication or acquisition as adjacent properties develop or redevelop.
- The City shall continue to apply traffic mitigation fee programs to fund transportation infrastructure, based on a fair share of facility use.
- The City should continue to pursue regional, County and State funding to fund roadway projects. These potential funding sources may include Measure K sales tax revenues, a regional or countywide transportation impact fee, and other existing and future revenue sources.
- The City shall continue to participate in regional transportation funding decisions, including Measure K reauthorization, regional or countywide transportation fees, and prioritization of State funded projects.
- The Roadway Master Plan update shall identify necessary improvements to various intersections on I-205 and I-580 based on land use designations and with particular attention to Terminal Access Routes in accordance with Surface Transportation Assistance Act of 1982 (STAA).
- The City shall ensure that the street system results in a high level of connectivity, especially between residences and common local destinations, such as schools, Village Centers, retail areas and parks. The standard for roadway (vehicular) connectivity is defined as appropriate spacing of arterials and collectors and local roads as detailed above in Section B of this Element "Roadway Classifications and Standards."
- The City shall implement a connected street pattern with multiple route options for vehicles, bikes and pedestrians.
- New development shall be designed to provide vehicular, bicycle and pedestrian connections with adjacent developments.
- The City should develop residential street alignments and designs that provide connectivity while discouraging high speed cut-through traffic.
- New development should be designed with a grid or modified grid pattern to facilitate traffic flows and to provide multiple connections to arterial streets.
- Street patterns in hillside areas may reflect existing topography and minimize grading impacts.

- To the extent feasible, the City shall strive for LOS C on all streets and intersections, except as follows:
  - LOS D shall be allowed on streets and at intersections within one-quarter (1/4) mile of any freeway. This lower standard is intended to discourage inter-regional traffic from using Tracy streets.
  - LOS E shall be allowed in the Downtown and Bowtie area of Tracy.
  - The City may allow individual locations to fall below the City's LOS standards in instances where the construction of physical improvements would be infeasible, prohibitively expensive, significantly impact adjacent properties or the environment, or have a significant adverse effect on the character of the community.
  - Intersections may be permitted to fall below their adopted LOS standard on a temporary basis when the improvements necessary to preserve the LOS standard are in the process of construction or have been designed and funded but not yet constructed.
  - For long-range planning purposes, the LOS of major streets shall be determined based on an estimation of peak hour conditions using future average daily traffic forecasts and standard Tracy relationships between daily traffic and peak PM hour traffic.
  - For project-specific development approvals, the LOS at major street intersections shall be determined based on the direct estimation of peak hour conditions and should reflect the average condition prevailing throughout the peak hour of a typical weekday for all traffic using the intersection.
  - Traffic studies for new developments within the City may be prepared if necessary and appropriate to determine the impacts of the project's traffic on the transportation system.
  - Access control and minimization of median openings shall be a key consideration in the design of expressways, boulevards, arterials and major collectors.
  - The City shall encourage the use of right-turn-in/right turn- streets intersect arterial streets with medians. The purpose is to increase the safety of the roadway and to avoid traffic signals that are spaced too close together.
  - Exclusive right turn lanes in and out of major residential, commercial, industrial and office developments shall not reduce the width of public or private landscaping requirements.
  - Significant new truck traffic generating uses shall be limited to locations along designated truck routes, in industrial areas or within ¼-mile of freeways.
  - The City shall enforce designated truck routes based on the existing City ordinance.
  - Use of local residential streets by non-local and commercial traffic shall be discouraged. The City may consider techniques such as route signs and route maps. This policy should not restrict the ability of local vehicle and nonmotorized transportation to utilize residential collectors as an effort to encourage higher levels of roadway connectivity.

  - The City shall coordinate the timing of traffic signals on arterials to facilitate traffic movement.

  - The City shall design streets using context-sensitive design principles that enhance safety for all modes of travel.

  - New development shall implement traffic calming measures where necessary so long as connectivity is not diminished.

  - Appropriate buffering and screening mechanisms shall be incorporated in development projects to limit the impacts associated with traffic. These buffering and screening mechanisms may include setbacks, landscaping, berms, sound walls or other methods as appropriate.

- Sound walls shall only be used next to major arterials, and other high-speed, high-volume facilities in accordance with the policies in the Community Character Element.

- The City shall continue to cooperate with regional and State agencies, including Caltrans and San Joaquin Council of Governments (SJCOG) to study, plan and fund improvements to the regional transportation system. These regional transportation improvements may include freeway widening, the construction of regional roadways, regional passenger rail expansions, additions to the existing commuter bus system and provision of park-and-ride lots near facilities heavily used by commuters.

- The City should ensure that land needed for park-and-ride facilities is conserved in new development areas.

- The City shall work with other local jurisdictions, SJCOG, and Caltrans to identify and develop alternative routes to allow locally-generated traffic to bypass congestion on I-205 and I-580 without impacting city streets.

- The City shall work with the City of Lathrop and San Joaquin County to preserve a right-of-way along the existing alignment of Middle Road/Arbor Avenue north of I- 205 (a.k.a., Golden Valley Parkway) for the future construction of a regional roadway parallel to I-205. This process should determine appropriate funding mechanisms and the design of an interchange with I-205 at Chrisman Road.

- The City shall consider techniques, such as freeway ramp metering or traffic signal timing changes, to discourage the diversion of inter-regional travel from the freeways onto Tracy streets.

- The City shall incorporate appropriate bicycle and pedestrian facilities on all roadways constructed by the City, Class I to the extent feasible.

- To the extent possible, the City shall separate vehicular from bicycle and pedestrian traffic on higher-speed and higher-volume roadways through the use of off-street bicycle and pedestrian facilities.

- The City may separate bicycle from pedestrian users on high usage bicycle and pedestrian paths.

- The City's bicycle and pedestrian system shall have a high level of connectivity, especially between residences and common local destinations, such as schools, shopping and parks. A higher level of bicycle and pedestrian connectivity is defined as a shorter or similar distance to common destinations for bicycles and pedestrians compared to distances for vehicles.

- New development shall include pedestrian and bicycle facilities internal to the development and that connect to city-wide facilities, such as parks, schools and recreational corridors.

- New development sites for commercial, employment, educational, recreational and park-and-ride land uses shall provide bicycle parking and/or storage facilities.

- The City shall continue to partner with SJCOG, SJRTD and Caltrans in efforts to locate park-and-ride lots and other transit-related facilities in the City of Tracy.

- The City shall continue to operate the Tracer fixed-route and paratransit transit service and expand service to new residential and non-residential areas if funding for additional service is available and is warranted by ridership demand.

- The City shall seek funding from regional and State and federal agencies to fund additional transit service expansions and improvements.

- The City shall require large developments to provide for transit with adequate street widths and curb radii, bus turnouts, bus shelters, park-and-ride lots and multi-modal transit centers, if appropriate.

- The City shall encourage efforts for additional regional transit service, including expansion of the existing ACE service, expansion of the existing commuter bus service, and new commuter rail service from Tracy to other areas in the region.

- The City shall continue to pursue the development of the Multi Modal Transit Center at Central Avenue and 6th Street.

- The City shall preserve the necessary rights-of-way by continuing the implementation of current arterial street standards and ensuring the preservation of existing rail corridors to facilitate the development of an expanded transit program in the future.

- The City shall encourage the expansion of transit services through coordination and cooperation with the Bay Area Rapid Transit District (BART), San Joaquin Regional Rail Commission, San Joaquin Regional Transit District, the Altamont Commuter Express (ACE), on services that expand the mobility and accessibility of transporting people, goods and services in and through Tracy and the region.

- The City shall develop a fully integrated multi-modal transportation system that takes into account access to employment, education, shops, medical services and that facilitates participation in social and recreational opportunities.

- The City shall provide an efficient, effective and coordinated transit system that maximizes use of regional, state and federal funds.

- The City shall pursue economical, long term solutions to transportation problems by encouraging community designs which encourage transit use, and walking, bicycling and other non-motorized forms of transportation.

4.12.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the 2014 RTP/SCS would result in significant impacts to the transportation system, if any of the following would occur:

- The Plan results a substantial increase in vehicle miles traveled (VMT) or hours of congestion.
- 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.
- 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.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Methodology

Regional conditions for a number of key performance indicators form the basis for the transportation impacts analysis presented in this Program EIR. These indicators include VMT, roadway congestion (as measured by Level of Service [LOS]), vehicle hours of congestion, shares of transit and non-motorized trips, transit productivity, and miles of bicycle and pedestrian routes. These indicators have been important performance measures throughout the development of the RTP and the associated SCS, and all relate directly to the performance of the region's transportation system.

One "VMT" is one vehicle traveling on a roadway for 1 mile. Regardless of how many people are traveling in the vehicle, each vehicle traveling on a roadway within the region produces VMT.

For the purposes of the Program EIR, VMT is estimated and projected for a typical weekday. VMT has been a primary indicator of travel for policy-makers and transportation professionals for decades. Several features collectively make VMT a key performance measure:

- First, it is relatively easy to calculate by counting traffic on roadways at different locations. It is one of the few measures of transportation performance consistently and comprehensively estimated and documented in the region.

- Second, VMT bears a strong and direct relationship to vehicle emissions, although the relationship is becoming more complex moving into the future. Electric and hybrid vehicles, along with state and federal policies pertaining to vehicle fuel efficiency and the formulation of vehicle fuels suggest that on a per VMT basis, emissions for most pollutants will decline relative to today. However, even if emissions per VMT improve, lower VMT will still mean lower emissions.

- Third, VMT can be influenced by policy in a number of different ways. By providing more attractive alternatives to driving alone, VMT can be reduced by shifting from vehicle to non-vehicle modes (i.e., from a car trip to a bike or walk trip), or from single-occupancy vehicle (SOV) trips to higher-occupancy vehicle (HOV) trips such as formal or informal carpooling or transit trip). VMT can be influenced by land use patterns as well. A better mix of residential, employment, education, and service uses in an area can allow people to accomplish their daily activities with less driving, and consequently, less VMT. Policies that aim to charge drivers user fees to cover the cost of services they use (such as parking) rather than have taxpayers and other third parties bear these costs also reduced VMT.

- Fourth, VMT correlates with travel time. The more miles driven, the more vehicles on the roadways at any given time and higher numbers of vehicles eventually result in longer travel times.

Transportation data was supplied by SJCOG based on forecasts developed using the San Joaquin Regional Travel Demand Model (SJCOG Model). This regional Model used for characterizing the transportation environment divides the region into Transportation Analysis Zones. The model was developed in accordance with and validated to standards in 2010 California Transportation Commission RTP Guidelines.

Model inputs are listed below.

- Socioeconomic Data by Traffic Analysis Zone
- Highway Networks
- Land Use and Accessibility for Auto Ownership Model
- Land Use, parking, Travel Demand Model (TDM), Walk and Bike for Mode Choice Model
- Transit Networks
- External Trips (inter-regional trips)

The model includes modules that incorporate household characteristics (size, number of workers, income, single-family or multi-family unit); auto ownership; trip generation; trip distribution; mode choice (e.g., single-occupant vehicle, multi-occupant vehicle, transit and active modes (walking and

cycling); and traffic assignment to the transportation network. The RTP/SCS foundation is comprised of recent household and job growth forecasts, market demand and economic studies, and transportation studies including SJCOG's Smart Growth Transit Oriented Development Plan, Goods Movement Study, and Regional Bike/Pedestrian Master Plan.

Cumulative Analysis

The RTP addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The RTDM used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP, this Plan would influence growth, including distribution patterns, throughout the County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of transportation impacts includes a comparison of the expected future conditions with the 2014 RTP and the expected future conditions if no RTP were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the 2014 RTP.

Determination of Significance

The significance of impacts was determined by applying the significance criteria above to compare current regional transportation conditions to expected future conditions with the Plan. The RTDM provides performance data for future Plan conditions. The performance measure output for year 2040 with the Plan was compared to the existing regional conditions for each significance criterion to determine the significance of impacts. The 2040 transportation model output provides a regional and cumulative level of analysis for the impacts of the Plan on transportation resources.

Impacts and Mitigation Measures

Impact TRANS-1 The Plan could result a substantial increase in VMT or hours of congestion.

The 2014 RTP includes a series of individual improvement projects and programs (street and highway, transit, bicycle and trail, pedestrian and other projects) to help expand and enhance San Joaquin's multi-modal transportation system.

Table 4.12-2 Summary of RTP Investments, provides expenditures in the 2014 RTP compared to the 2011 RTP.

Table 4.12-2
Summary of RTP Investments

Project Category	2014 RTP/SCS Expenditure (in millions)	2011 RTP Expenditure (in millions)	Percent Change
Roadway Operations, Maintenance, and Safety	$3,875	$3,364	15.2%
Transit	$3,520	$2,747	28.1%
Roadway Capacity (mainline, interchanges, regional roadways)	$3,273	$4,441	-26.3%
Active Transportation	$282	$158	77.8%
Total	**$10,950**	**$10,725**	**2.6%**

Source: SJCOG 2014 RTP

Table 4.12-3 shows changes in VMT and congested lane miles between 2012 and the horizon year of the Plan (2040).

As shown in **Table 4.12-3**, implementation of the 2014 RTP in 2040 will worsen VMT and congested lane miles when compared to existing (2012) conditions. Overall VMT levels will rise by about one half in 2040, reflecting San Joaquin's substantial population gains during the 27-year period. This increase in absolute VMT will result in a substantial increase in the number of hours motorists will experience congested conditions (defined by SJCOG as roadway traffic Levels of Service (LOS) grades D, E, and F.) The congested lane miles measure will increase by more than 50 percent under the Plan compared to 2012 conditions.

Table 4.12-3
Plan Impacts on Key Transportation Measures vs. Existing and 2040 No Project

Indicators & Measures	2012 Existing	2040 Plan	2013–2040 Percentage Change with Plan	2040 No Project	2040 Plan vs. No Project % Change
Total Population	704,794	1,070,486	**52%**	1,070,486	0.0%
Total VMT per Weekday (Miles, in Thousands)	18,091	28,593	**58.0%**	28,795	0.7%
Congested Lane Miles (Level of Service D, E, F – PM 1 Hour)	408.6	989.5	**59%**	1,189.7	17%
Other Indicators					
Public Transit (Boardings)	93,972	129,657	**38%**	126,496	-2.4%
Transit (Walk+Drive Access)	2.09%	1.96%	**-6.22%**	1.68%	-14.3%
Bike+Walk (Non-Motorized)	4.16%	3.91%	**6.0%**	3.76%	3.8%
Single Occupancy Vehicle (SOV)	37.96%	37.89%	**-1.8%**	38.11%	0.5%
High Occupancy Vehicles (HOV) 2+ per vehicle	55.79%	56.24%	**0.8%**	56.44%	0.3%
Per Capita Vehicle Miles Traveled (VMT) (All Trips)	25.67	26.71	**4.0%**	26.90	0.7%

Source: SJCOG, 2014.

However, between 2012 and 2040 public transit boardings are projected increase by one third, although transit as a total share will drop to slightly under 2 percent. The share of trips by bicycle and walking will also drop to slightly under 4 percent. The share of trips by single-occupancy vehicles will fall by 1.8, and high-occupancy vehicle mode share will rise slightly to 56 percent of all trips. However, due to the substantial increase in population (approximately 365,694 persons), VMT per capita between 2012 and 2040 will rise by approximately 4 percent. Congested lane miles will also increase under the Plan from 408.6 existing lane miles operating at D, E, or F during the PM peak hour to 989.5 lane miles.

The last two columns of **Table 4.12-3** compares the Plan against the No Project alternative in which new transportation investments cease after 2015 while population and development continue to grow to forecast levels and development follows a more dispersed pattern than called for in the Plan. Compared to the No Project Alternative, the Plan would result in less VMT as well as an increase in transit boardings, more transit and bike trips as a percentage of total trips.

Thus, impacts on San Joaquin's overall circulation system resulting from implementation of the proposed 2014 RTP are considered potentially significant for **Impact TRANS-1.** Measures intended to reduce vehicle travel and improve LOS are part of the 2014 RTP. These include increasing transit use ridesharing and other measures to reduce demand on the transportation system; investments in non-motorized transportation; seeking to optimize land use/transportation connection; other travel demand measures

described in in local agency General Plans; and key roadway investments targeted to reduce congestion levels and improve LOS. Mitigation is required. **Mitigation Measures TRANS-1** through **TRANS-3** are described below.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

TRANS-1: SJCOG should pursue funding for new unidentified projects and programs, beyond the current financially and institutionally feasible measure included in the 2014 RTP, which may improve LOS results on roadway segments projected to be LOS E or F.

TRANS-2: In addition to the current Tier 1 RTP projects, SJCOG should continue to explore potential measures to reduce vehicular travel. Such measures as land-use strategies, car-sharing programs, additional car- and vanpool programs, additional bicycle programs.

TRANS-3: Implementing and local agencies should evaluate VMT as part of project specific review and identify and implement measures that reduce VMT including mixed use, alternative transportation facilities (bike racks, transit stops, and pedestrian amenities).

Level of Significance After Mitigation

If implementing agencies adopt **Mitigation Measure TRANS-3**, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant. Even with implementation of **Mitigation Measures TRANS-1**, **TRANS-2**, and **TRANS-3**, substantial increases in VMT and congested lane miles would remain. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable. As appropriate, SJCOG will encourage implementing agencies to adopt measure TRANS-3 through its Intergovernmental Review process. However, SJCOG cannot require the implementing agency to adopt this mitigation measures because such agencies are ultimately responsible to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact TRANS-2 **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.**

The analysis of roadway operations takes the existing and forecasted traffic volumes on the study roadway segments and compares it to established level of service volume thresholds used by SJCOG in their regional planning capacity. LOS criteria take into account variables such as traffic volumes, roadway capacity, grade, environment (urban versus rural), and other considerations as appropriate. For state highways, the general Caltrans standard is LOS C in rural areas and LOS D in urban/developed areas. Local agencies throughout San Joaquin County apply their own LOS standards for roadways in their jurisdictions.

Table 4.12-4 RTP PM Peak Hour Levels of Service Summary, provides a summary of roadway lane-miles within the County that are estimated to operate at different levels of service in the various scenarios evaluated during the one hour PM peak. As shown, the proportion of roadway lane-miles operating at LOS D, E, or F is anticipated to increase, from about 8 percent under current conditions to 18 percent under future conditions. This result reflects the overall increase in vehicular travel and delay discussed above.

Table 4.12-4
RTP PM Peak Hour level of Service Summary

	Existing (2012)		Year 2040 No Project		Year 2040 Plan	
LOS	**Lane Miles**	**Percent**	**Lane Miles**	**Percent**	**Lane Miles**	**Percent**
C or better	4,865.4	92.2	4,214.2	77.9	4,540.9	82.1
D	83.7	1.6	190.4	3.5	183.9	3.3
E	119.1	2.3	159.6	2.9	162.3	2.9
F	205.8	3.9	839.7	15.5	643.2	11.6

Source: SJCOG, 2014

Results of the 2012, No Project Alternative and 2040 Plan LOS segment analyses are shown in **Figures 4.12-1**, **4.12-2,** and **4.12-3.** The projects and policies contained in the RTP are expected to improve LOS on many roadways segments. The figures indicate that even with the 2014 RTP 2040 will see an increase in the number of segments that will operate at LOS F, and a larger increase in the number of segments operating at LOS E. While LOS E may be acceptable, such segments are at risk of falling to LOS F if currently unforeseeable contingencies result in modestly higher traffic levels.

Impacts on San Joaquin's roadway operations resulting from implementation of the proposed 2014 RTP/SCS are considered potentially significant for **Impact TRANS-2.** Measures intended to reduce vehicle travel and improve LOS are part of the 2014 RTP. These include increasing transit use ridesharing and other measures to reduce demand on the transportation system; investments in non-motorized transportation; seeking to optimize land use/transportation connection; other travel demand measures described in in local agency General Plans; and key roadway investments targeted to reduce congestion levels and improve LOS. Mitigation is required see **Mitigation Measure TRANS-4**, below.

Level of Significance Before Mitigation:

Significant.

Mitigation Measures

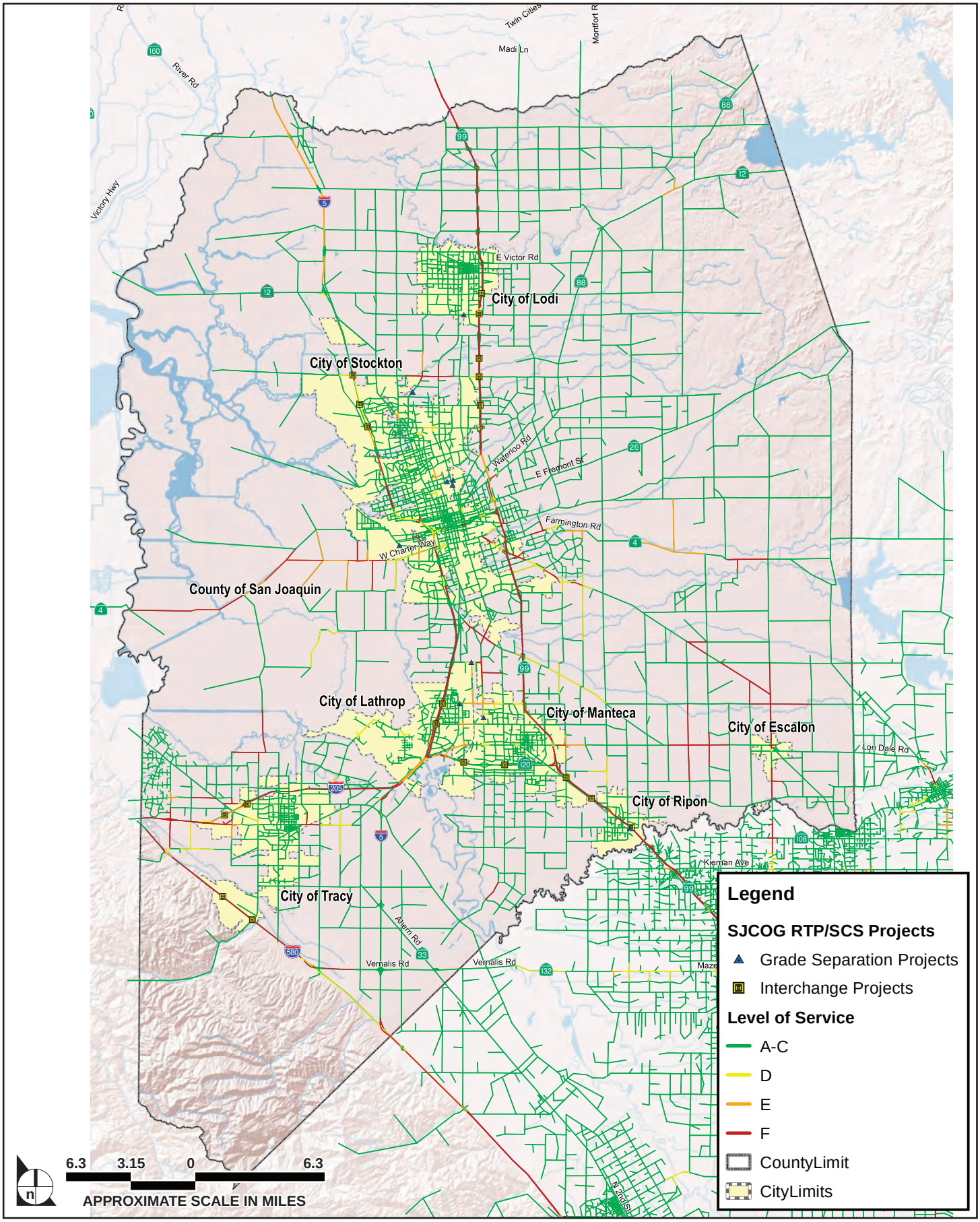
TRANS-4: SJCOG should inform jurisdictions with projected LOS E and F roadway segments under the Plan of the potential need to develop a Deficiency Plan under the San Joaquin Congestion Management Program at some point before 2040. SJCOG should work with these agencies to identify and encourage changes that would increase use of alternative transportation and other means to reduce congestion.

Level of Significance After Mitigation

Even with implementation of **Mitigation Measure TRANS-4**, it is anticipated that LOS F deficiencies would occur. Thus, this would remain a potential significant and unavoidable impact.

Impact TRANS-3 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.

The Plan will not in itself result in changes in air traffic patterns; however, increased population that would occur by 2040 would likely result in increased air traffic. Currently, the SJCOG Board of Directors serves as the designated body to carry out the functions of the Airport Land Use Commission. This includes establishing an Airport Land Use Compatibility Plan (ALUCP). The 2009 ALUCP, along with the 1993 ALUCP for the Stockton Metropolitan Airport, provide the guidance intended to minimize the public's exposure to excessive noise and safety hazards, as well as ensure that the approaches to airports are kept clear of structures and other conflicts that could pose an aviation safety hazard.

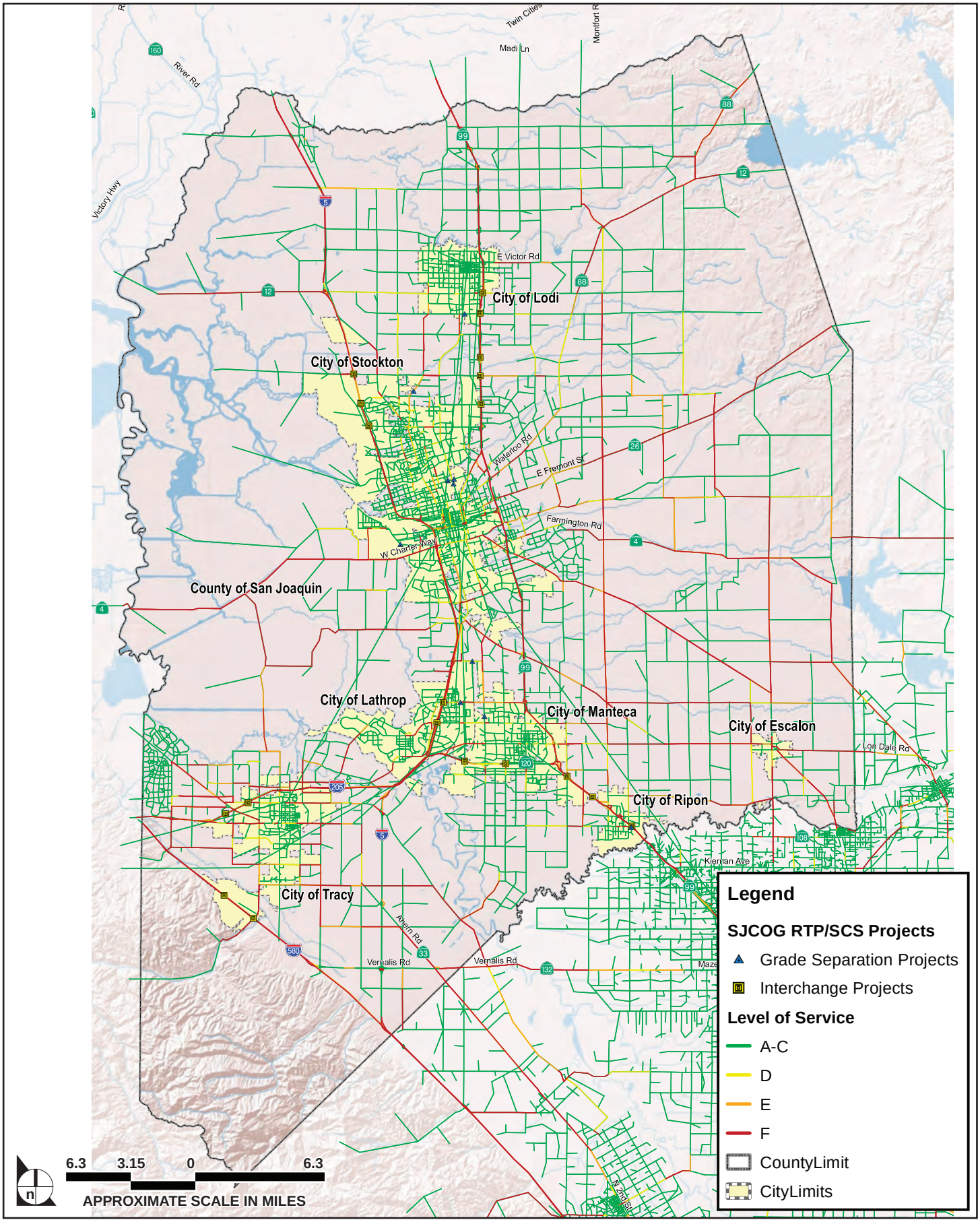


SOURCE: San Joaquin COG, February 2014

FIGURE **4.12-1**

San Joaquin County Level of Service: Existing Conditions

1173.001•02/14

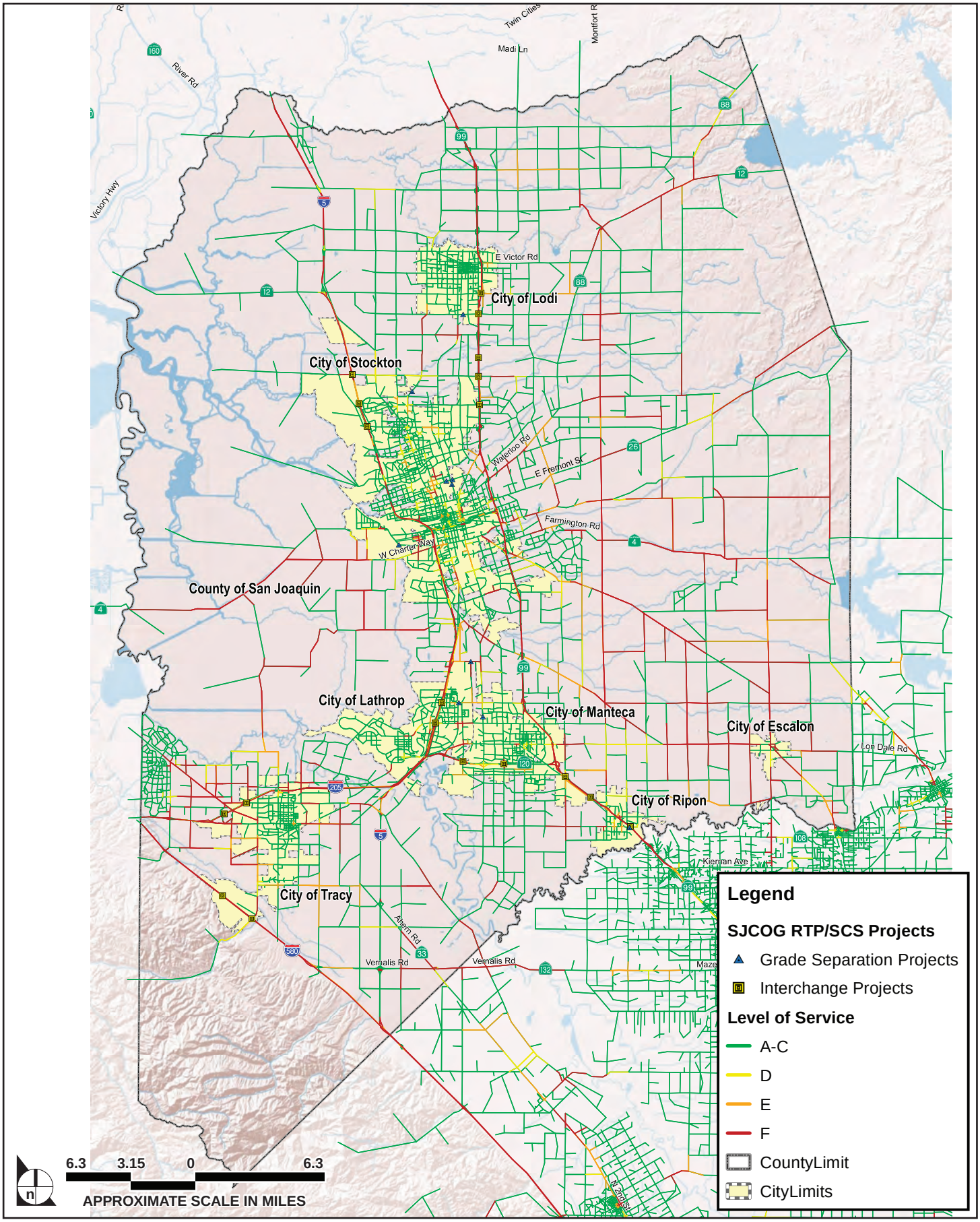


SOURCE: San Joaquin COG, February 2014

FIGURE **4.12-2**

San Joaquin County Level of Service: No Project

1173.001•02/14



SOURCE: San Joaquin COG, February 2014

FIGURE **4.12-3**

San Joaquin County Level of Service: 2014 RTP/SCS

1173.001•02/14

Depending on location and type, proposed new land uses need to be consistent with the guidelines stipulated in the ALUCP. It is the responsibility of Airport Land Use Compatibility (ALUC) (SJCOG) staff to work collaboratively with the incorporated cities and the County of San Joaquin, developers, and the public at-large to ensure that consistency is maintained between local land-use decision making process and the strategic areas surrounding each of the public access airports. Implementation of the ALUCP will avoid or remedy safety risks associated with air traffic.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less than Significant.

Impact TRANS-4 **Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**

While the Plan will not in itself result in increased hazards due to design feature (e.g., sharp curves or dangerous intersections) or increase conflicts between incompatible uses (e.g., farm equipment and other vehicular traffic), steps should be taken to ensure that traffic hazards are minimized in the design of the individual projects entailed by the Plan. Moreover development in urban areas will increase the number of San Joaquin residents proximate to transit and in areas with good opportunities for walking and biking, making it imperative that facilities designed for these non-automobile modes are designed to enhance the safety of transit riders, bicyclists and pedestrians.

Impacts from design features or incompatible uses due to projects entail by the proposed 2014 RTP are considered potentially significant for **Impact TRANS-4**. Mitigation is required; see **Mitigation Measure TRANS-5** below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measure

TRANS-5: Implementing and local agencies should make safety a prime objective in the design of RTP projects, and should plan to avoid, remedy, or mitigate such impacts in the course of project-level environmental review. The implementing agency or local jurisdiction will be responsible for developing and ensuring adherence to necessary mitigation measures.

Level of Significance After Mitigation

Less than significant.

Impact TRANS-5 Result in inadequate emergency access.

Between now and 2040 congestion would increase which could adversely impact emergency access. While the Plan would generally enhance mobility and access to destinations (including access for emergency vehicles) as compared to the No Project Alternative, steps should be taken to maintain adequate emergency access for ambulance services and other public safety services in the design of projects entailed by the Plan. Before 2014 RTP projects are implemented by local jurisdictions, all projects as applicable will undergo further environmental and technical analysis that will include evaluation of impacts by emergency and public services. The implementing and local agencies will use these subsequent analyses to ensure adequate access for emergency and public safety vehicles in the design of individual RTP projects. Emergency vehicles are required to be given right of way during emergencies (lights and sirens), which will continue to be true in the future, allowing emergency vehicles to avoid some congestion.

Impacts related to emergency access from implementation of individual 2014 RTP are considered potentially significant for **Impact TRANS-5** as a result of increased congestion anticipated to occur, especially in urban areas. Mitigation is required; see **Mitigation Measure TRANS-6** is described below.

Level of Significance Before Mitigation:

Potentially significant.

Mitigation Measure

TRANS-6: Implementing and local agencies should consider emergency access impacts and plan to avoid, remedy, or mitigate such impacts in the course of project-level environmental review. The implementing agency will require and ensure adherence to the necessary mitigation measures.

Level of Significance After Mitigation

Less than significant.

Impact TRANS-6 **Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.**

The 2014 RTP includes a series of individual improvement projects and programs (including a substantial number of public transit, bicycle and trail, and pedestrian projects) to enhance San Joaquin's multi-modal transportation system. The RTP/SCS adds 822 additional Class I, II, and III bike lane miles in the RTP/SCS Plan and provides for intercity and interregional bus and rail transit investments that increase travel interaction between San Joaquin County's cities and the Bay Area, as well as the Sacramento area and San Joaquin Valley communities. These RTP projects are consistent with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. The lead agency will use these subsequent analyses to ensure adequate access for transit and active mode users in the design of projects entailed by the Plan.

While the Plan would generally enhance mobility for transit and active modes, it also contains roadway projects that have the potential to create conflicts between motorists and transit riders, pedestrians and cyclists. This is considered potentially significant for **Impact TRANS-6.** Mitigation is required see **Mitigation Measure TRANS-7** below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

TRANS-7: Implementing and local agencies should consider access and mobility needs of transit riders, pedestrians and cyclists and plan to enhance the mobility and access for these modes, and, at minimum, to avoid, remedy, or mitigate impacts to these modes in the course of project-level environmental review and design. Implementing agency and local agencies should require measures that increase alternate modes of transportation.

Level of Significance After Mitigation

Less than significant.

4.12.4 CUMULATIVE EFFECTS

Implementation of the 2014 RTP/SCS would result in an increase in density and land use development over the next 27 years. The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. Under the No Project Alternative land use changes could affect jurisdictions outside the region, by setting a precedent for and/or urbanization; such impacts would be cumulatively considerable. The Plan would decrease congestion potentially making it easier for people to live and work outside the region, thereby inducing land uses changes and increasing congestion outside the region, these impacts also could be cumulatively considerable.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures TRANS-1** through **TRANS-7**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.12.5 COMPARISON WITH NO PROJECT ALTERNATIVE

Under the No project Alternative, new transportation infrastructure investment would cease after 2015, while growth would continue to occur at forecasted rates. As shown in **Table 4.13.-5**, in 2040, the No Project alternative would result in more VMT and more congested lane miles as compared to the Plan. The No Project Alternative would also result in a drop in transit and active mode shares compared to the Plan. Additional and/or worsened significant impacts would result from this alternative compared to those impacts identified for the Project. These would include more roadway segments with unacceptable LOS F, and decreases in the performance of San Joaquin's pedestrian and bicycle facilities, in view of increased vehicular congestion and the lack of investment in pedestrian and bicycle facilities.

4.13 WATER RESOURCES

This section addresses the existing water resources including hydrology, water supply and demand, and water quality in the region and evaluates the potential significance of changes to these resources that could result from implementation of the 2014 RTP/SCS. In addition, where appropriate and feasible, mitigation measures are identified to reduce potential significant impacts. Sources utilized in this discussion include the 2011 RTP EIR, 2009 San Joaquin County General Plan Update Natural Resources Element, the California Department of Water Resources, the 2007 Eastern San Joaquin Integrated Regional Water Management Plan, and the 2004 Eastern San Joaquin Groundwater Basin Groundwater Management Plan.

4.13.1 ENVIRONMENTAL SETTING

Climate

The climate in the San Joaquin region is dry and hot, marked with minimal rain. Average rainfall ranges from 10 inches per year in the southern portion of the County to 18 inches per year in the north. The mean annual precipitation for the County, which is measured in the City of Stockton, is 13.84 inches; however, over the past two years the state has experienced extremely dry conditions.[1] Most cities in northern and Southern California have received approximately 2 inches of rain or less.[2]

Most of the County's precipitation occurs between October and April, creating hot and dry summers. The long dry months can provide a long growing season for agricultural purposes, often 292 days a year. 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 storm water and other sources of runoff to meet year-round water needs within the County. Management methods often involve dam impoundment to create constructed reservoirs that provide both flood control and a steady supply of water, for a multitude of agencies and users.

Hydrologic Components

San Joaquin County encompasses approximately 1,440 square miles in central California. Water resources in San Joaquin County include rivers, streams, sloughs, marshes, wetlands, channels, harbors, and underground aquifers. The extensive Delta Basin waterway system is one of San Joaquin's most valuable

1 2009 San Joaquin County General Plan Update, Natural Resources Element

2 California Department of Water Resources, Hydrologic Conditions in California as of January 2014.

water resources. Over 700,000 acres of agricultural land and 700 miles of interlacing waterways form the Sacramento-San Joaquin Delta.

Hydrologic Regions

The Department of Water Resources (DWR) has divided the state into 10 hydrologic regions, corresponding to the State's major water drainage basins. The San Joaquin River Hydrologic Region encompasses San Joaquin County and other parts of the San Joaquin Valley. **Figure 4.13-1, San Joaquin River Hydrologic Region,** illustrates the boundary of the region and the County's location within the region. The San Joaquin Valley comprises the southernmost portion of the Great Valley Geomorphic Province of California. The Great Valley is a broad structural trough bounded by the tilted block of the Sierra Nevada on the east and the complexly folded and faulted Coast Ranges on the west.[3]

Surface Water Resources

Surface water hydrology refers to surface water systems, including watersheds, floodplains, rivers, streams, lakes, and reservoirs.

Watersheds

Watersheds refer to areas of land, or a basin, in which all waterways drain to one specific outlet, or body of water, such as a river, lake, ocean, or wetland. Watersheds have topographical divisions such as ridges, hills or mountains and can serve an important biological function, often times supporting an abundance of aquatic and terrestrial wildlife including special-status species and anadromous and native local fisheries. All precipitation that falls within a given watershed, or basin, eventually drains into the same body of water. There are three major watersheds in the San Joaquin GOG region. The watersheds in the County are shown in **Figure 4.13-2 San Joaquin County Watersheds**: the Consumnes, Eastern San Joaquin, and Tracy.[4] The Modesto, Turlock, and Delta-Mendota watersheds are located directly south of the County.

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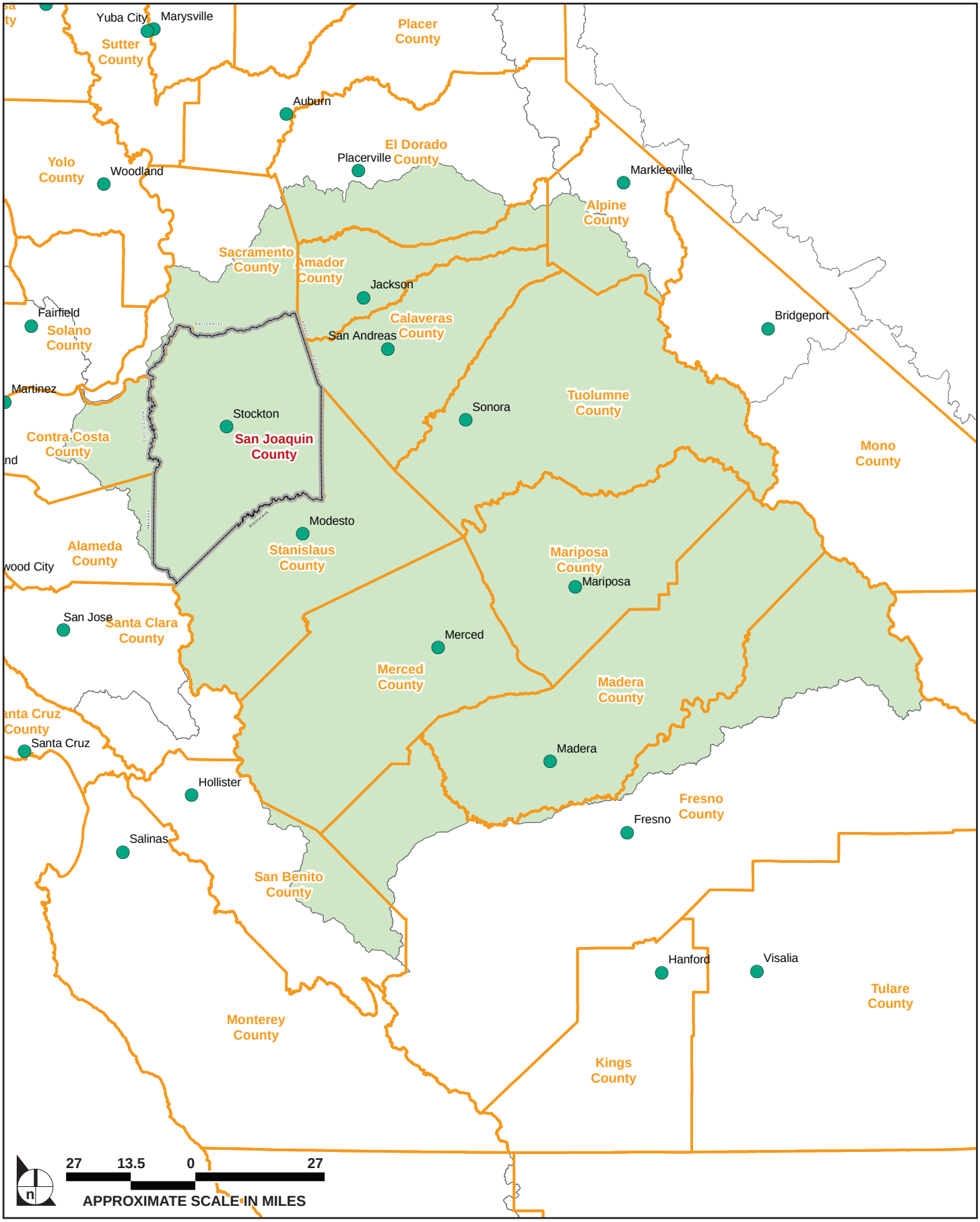
3 California Department of Water Resources, Hydrologic Regions of California, San Joaquin River

4 2009 San Joaquin County General Plan Update, Natural Resources Element



SOURCE: San Joaquin County Watersheds, 2013

FIGURE **4.13-1**

San Joaquin River Hydrologic Region

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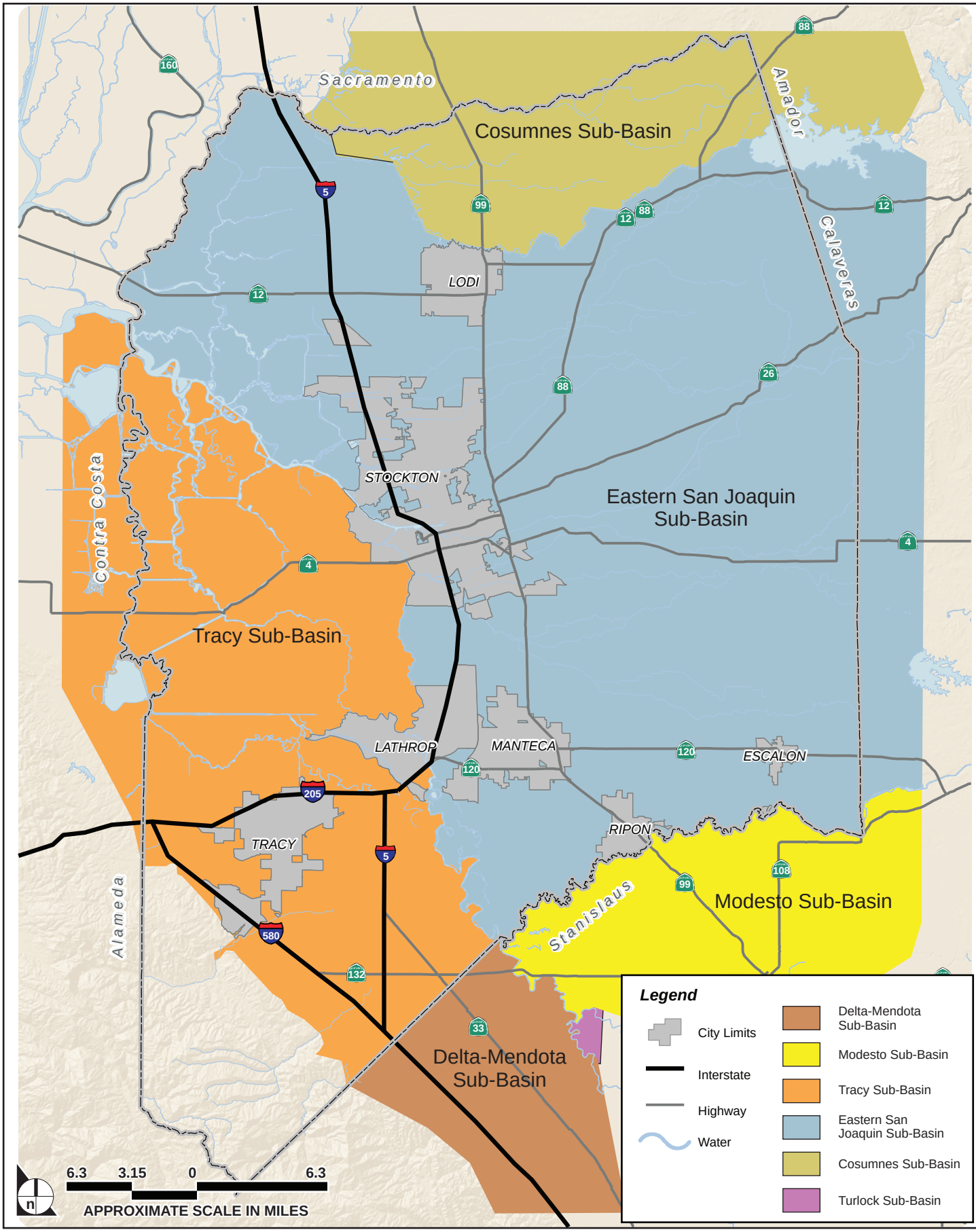

SOURCE: San Joaquin County General Plan Update, 2009

FIGURE **4.13-2**

San Joaquin County Watersheds

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Rivers and Streams

Four major rivers and streams, shown in **Figure 4.13-3, San Joaquin County Rivers,** drain from the western slope of the Sierra Nevada traversing San Joaquin County, generally from east to west, including the Calaveras, Mokelumne, Stanislaus, and San Joaquin River.[5] The Calaveras River flows southwest for approximately 80 miles and originates in the northeast of Calaveras County. The Calaveras River flows through San Joaquin County and the City of Stockton before entering into the San Joaquin River.

The Mokelumne River also flows westward from its headwaters in the high Sierra Nevada to the eastern edge of the Delta, where it combines with the Cosumnes River.[6]

The Stanislaus River is approximately 65 miles long and is extensively dammed. It drains a 1,075-square-mile watershed, and is one of the largest tributaries that feeds into the San Joaquin River. It has a North, Middle, and South Fork and originates in the Sierra Nevada. The Stanislaus River forms the southern boundary of San Joaquin County, just north of Modesto.[7]

The San Joaquin River is approximately 330 miles long and originates on the western slopes of the Sierra Nevada Mountains. It drains an area of approximately 13,500 square miles including most of the area from the southern border of Yosemite, south to Kings Canyon National Park. It flows northwest through the County before entering into the Delta.[8]

Lakes and Reservoirs

The County has eight significant reservoirs, including Camanche Reservoir which is located at the juncture of Amador, Calaveras, and San Joaquin counties. **Table 4.13-1, Reservoirs Located in San Joaquin County,** provides the water source, reservoirs size, and operating agency of each reservoir.

5 2009 San Joaquin County General Plan Update, Natural Resources Element

6 2011 San Joaquin COG, RTP, Hydrology and Water Quality

7 2011 San Joaquin COG, RTP, Hydrology and Water Quality

8 2011 San Joaquin COG, RTP, Hydrology and Water Quality

Table 4.13-1
Reservoirs Located in San Joaquin County

Reservoir	River	Size (acre/feet)	Owning/Operating Agency
Pardee Reservoir	Mokelumne River	197,950	East Bay Municipal Utility District
Camanche	Mokelumne River	417,120	East Bay Municipal Utility District
New Hogan Lake	Calaveras River	317,000	US Bureau of Reclamation, US Army Corp. of Engineers, Stockton East Water District, Calaveras County Water District
New Melones Reservoir	Stanislaus River	2,400,00	US Bureau of Reclamation, Central Valley Water Project
Beardsley Reservoir	Stanislaus River	77,600	Oakdale Irrigation District and South San Joaquin Irrigation District
Donnells Reservoir	Stanislaus River	56,893	Oakdale Irrigation District and South San Joaquin Irrigation District
Tulloch Reservoir	Stanislaus River	68,400	Oakdale Irrigation District and South San Joaquin Irrigation District
Friant Dam	San Joaquin River	520,500	US Bureau of Reclamation

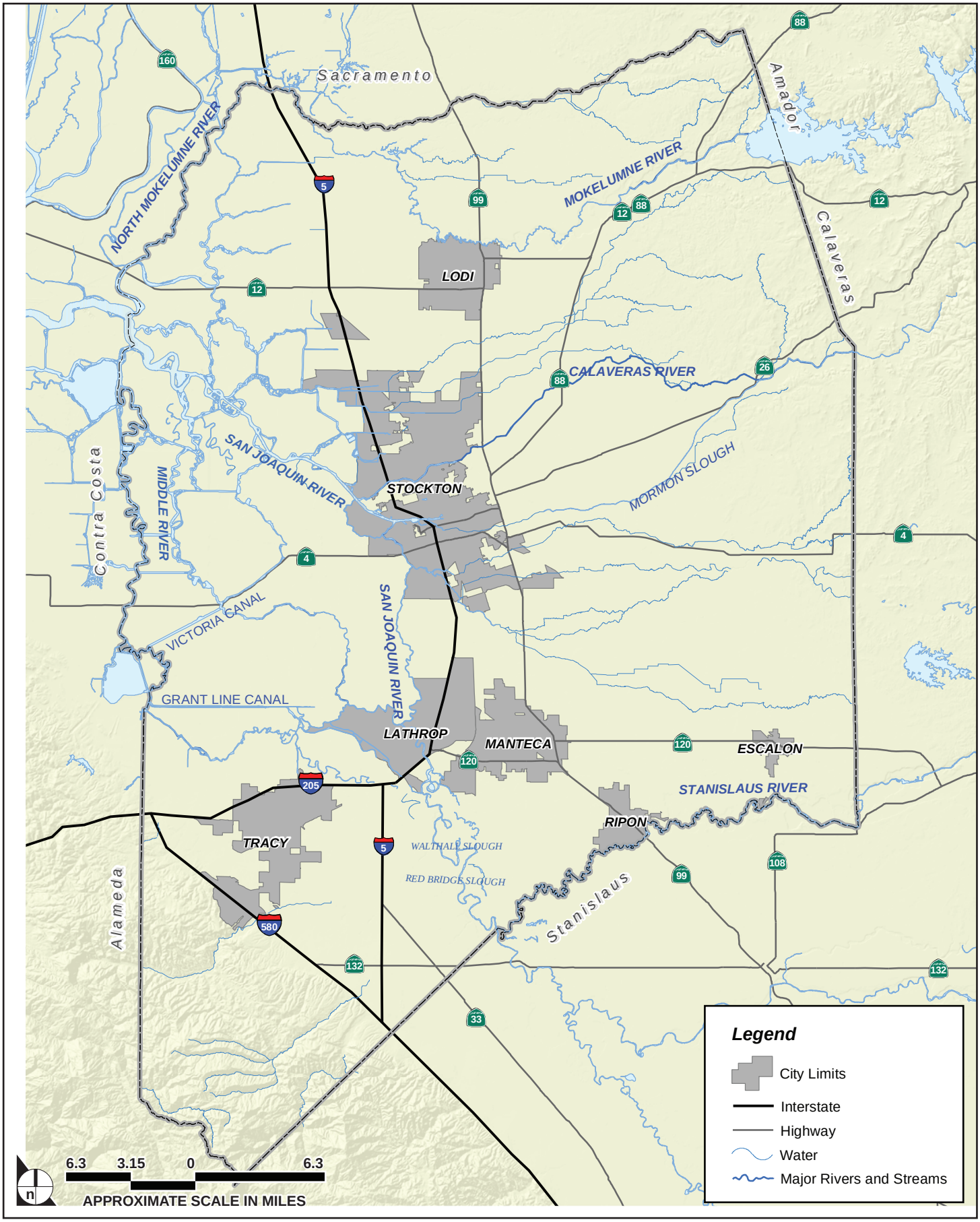
Source: 2009 San Joaquin County General Plan Update, Natural Resource Element.

Additional rivers and streams that have some relevance to water resources in San Joaquin County are the Tuolumne River, Cosumnes River, and Dry Creek. The Tuolumne River originates in the Sierra Nevada Mountains and is the largest tributary to the San Joaquin River. It has a watershed of approximately 1,500 square miles and an unimpaired annual runoff of approximately 1.8 million acre-feet. Flows in the lower reaches of the Tuolumne River are regulated by New Don Pedro Dam, which was constructed in 1971 and is owned by Turlock and Modesto Irrigation Districts. New Don Pedro Reservoir has a capacity of approximately 2 million acre-feet and is operated for irrigation, hydroelectric generation, fish/wildlife protection, recreation, and flood control. Irrigation water is diverted downstream from New Don Pedro at La Grange into the Modesto Main Canal and Turlock Main Canal. The City and County of San Francisco operate O'Shaughnessy Dam in the Hetch Hetchy Valley, Lake Eleanor, and Cherry Lake in the upper watershed of the Tuolumne. These facilities are operated for municipal and industrial supply as well as hydropower.[9]

The Cosumnes River is a tributary to the Mokelumne River, with the confluence of these two rivers located just north of the San Joaquin-Sacramento County line, near the town of Thornton. Dry Creek is a minor tributary to the Mokelumne River and forms the northern boundary between San Joaquin and Sacramento Counties.[10]

9 2009 San Joaquin County General Plan Update, Natural Resources Element

10 2009 San Joaquin County General Plan Update, Natural Resources Element



SOURCE: San Joaquin County General Plan Update, 2009

FIGURE **4.13-3**

San Joaquin County Rivers

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Groundwater Resources

Groundwater is the part of the hydrologic cycle representing underground water sources. Groundwater is present in many forms: in reservoirs, both natural and constructed, in underground streams, and in the vast movement of water in and through sand, clay, and rock beneath the earth's surface. The place where groundwater comes closest to the surface is called the water table, which in some areas may be very deep, and in others may be right at the surface.

With a long, dry growing season and an average of only 13 inches per year of average rainfall, and significantly less over the past several years, use of groundwater is necessary to maintain a sufficient water supply in the County's semi-desert climate. During the 1980s, 30 percent of the water resources in San Joaquin County were met using groundwater sources. Over time, this demand has increased, and by 2007 over 60 percent of the water demand was met using groundwater resources.[11]

Eastern San Joaquin Subbasin

Groundwater measurements over the past 40 years show a fairly continuous decline in groundwater levels in Eastern San Joaquin County. Groundwater levels have declined at an average rate of 1.7 feet per year and have dropped as much as 100 feet in some areas. It is estimated that groundwater overdraft during the past 40 years has reduced storage in the basin by as much as 2 million acre-feet. Due to the continued overdraft of groundwater within the subbasin, significant groundwater depressions are present below the City of Stockton, east of Stockton, and east of Lodi. Several of these groundwater depressions extend to depths of about 100 feet below ground surface (or more than 40 feet below mean sea level).[12]

Tracy Subbasin

Review of hydrographs for the Tracy Subbasin indicate that except for seasonal variation resulting from recharge and pumping, the majority of water levels in wells have remained relatively stable over at least the last 10 years.[13]

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11 2009 San Joaquin County General Plan Update, Natural Resources Element

12 California Department of Water Resources, Basins and Subbasins of the San Joaquin River Hydrologic Region, http://www.water.ca.gov/groundwater/bulletin118/san_joaquin_river.cfm.

13 California Department of Water Resources, Basins and Subbasins of the San Joaquin River Hydrologic Region, http://www.water.ca.gov/groundwater/bulletin118/san_joaquin_river.cfm.

Cosumnes Subbasin

A review of 23 long-term hydrographs dating back to the early 1960s shows a fairly consistent pattern of water level trends through much of the subbasin. Wells outside the influence of the Cosumnes River declined from the mid-1960s to about 1980 on the order of 20 to 30 feet. From 1980 through 1986, water levels recovered on the order of 5 to 10 feet. During the 1987 through 1992 drought, water levels once again declined by 10 to 15 feet. From 1993 through 2000, much of the basin recovered by 15 to 20 feet, leaving water levels at the about the same elevation or slightly higher than they were in the mid-1980s. One exception is along the eastern subbasin margin where water levels remained fairly constant during the 1993 through 2000 recovery period. Prior to that, those eastern wells behaved similarly to other wells in the subbasin.[14]

As discussed below, the current and past dry conditions have led to a statewide drought. As the County's largest groundwater basin, the Eastern San Joaquin Subbasin has been heavily over drafted causing significant groundwater depressions. As the dry conditions continue, it is expected that the agricultural industry will further rely on the existing groundwater resources in the County, including the Tracy and Consumnes Subbasin. This could lead to substantial groundwater over drafts in both subbasins and further deplete the remaining groundwater in the Eastern San Joaquin Subbasin.

Water Supply

Water delivery in San Joaquin County is provided by several agencies and projects including federal, state, regional, and local water projects; special districts (e.g., irrigation, water, and water conservation); and private water systems. Irrigation and domestic water systems within San Joaquin County are operated and maintained by irrigation districts, water districts, and water conservation districts. Irrigation, water, and water conservation districts are located throughout the County; some are relatively small, while others span several planning areas.[15] **Table 4.13-2, San Joaquin County Water Resources,** shows the County's main water resources, the primary users of these resources, and the beneficial uses associated with each source.

14 California Department of Water Resources, Basins and Subbasins of the San Joaquin River Hydrologic Region, http://www.water.ca.gov/groundwater/bulletin118/san_joaquin_river.cfm.

15 2009 San Joaquin County General Plan Update, Public Services and Utilities Element.

Table 4.13-2
San Joaquin County Water Resources

Water Source	Beneficial Uses A	B	C	D	E	Primary Users
San Joaquin River	X		X	X	X	Riparian Farmers Shipping Industry Irrigation Industry
Mokelumne River	X		X		X	Irrigation Industry
Camanche Reservoir	X		X			Local Residents
Calaveras River	X	X			X	Water Districts
Stanislaus River	X		X		X	Irrigation Districts
Delta	X		X	X	X	Recreation Wildlife Shipping Industry DWR USBR
Delta-Mendota Canal	X	X	X		X	City of Tracy Irrigation Districts Commercial Businesses
California Aqueduct	X	X	X		X	Commercial Businesses Irrigation Districts
Lodi Lake			X			Local Residents
Groundwater	X	X				Private Individuals Cities Towns

Source: 2009 San Joaquin County General Plan Update, Natural Resources Element
Notes: DWR= California Department of Water Resources
USBR= US Bureau of Reclamation
Beneficial Uses: A=Irrigation, B=Municipal/Industrial, C=Recreation, D=Transportation, E= Estuary/Wildlife Area.

While all cities and most unincorporated areas of the County are served by water districts or municipal water systems, some County 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. Most water supply districts in San Joaquin County have been transitioning away from groundwater sources to surface water to reduce overdraft of groundwater, however the following unincorporated communities are not served by a water district and rely on groundwater pumping: Banta, Stoneridge, Glenwood, Noble Acres, Collierville, Coopers Corner, and Peters.[16]

On January 17, 2014, Governor Edmund G. Brown Jr. proclaimed a State of Emergency with respect to the ongoing drought in California. The Governor directed state officials to take all necessary actions to

16 2009 San Joaquin County General Plan Update, Public Services and Utilities Element.

prepare for these drought conditions, including voluntary and possible future mandatory water restrictions. In the State of Emergency declaration, Governor Brown directed state officials to assist farmers and communities that are economically impacted by dry conditions, as well as take necessary measures to ensure that the state can respond if Californians face drinking water shortages. The Governor also directed state agencies to use less water and hire more firefighters and initiated a greatly expanded water conservation public awareness campaign.

In addition, the proclamation gives state water officials more flexibility to manage supply throughout California under drought conditions. According to state water officials, California's rivers and reservoirs are below their record lows and manual and electronic readings of the state's snowpack water content show that the snowpack is at about 20 percent of normal average.

Surface Water

Water supplies in San Joaquin County are subject to the complex system of riparian and appropriative rights and are further complicated by numerous agreements and water service contracts. It is estimated that San Joaquin County has approximately 1.2 million acre-feet (af) per year (afy) of surface water available. This amount includes approximately 500,000 afy applied by farmers in the Delta.[17]

However, the actual quantity of water delivered varies significantly from year to year due to contractual and water right conditions. The actual quantities utilized within San Joaquin County also vary significantly with climatic fluctuations, infrastructure limitations, and facility operation. Further, due to the dry conditions over the past few years the amount of surface water could be below the average af.

Surface water supplies are likely to decrease in the future. Several current contracts are for "interim" supplies, which are available subject to requirements of upstream or senior rights holders. As development increases in areas with senior water rights, San Joaquin County's surface water supplies will be reduced.

State Water Projects

Water projects are large water development and conveyance systems that are typically built and operated by federal, state, and local agencies. The purpose of water projects is to provide irrigation and drinking water to areas of the County, a region, and the state that lack adequate local water resources to provide for existing and projected growth.

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17 Northeastern San Joaquin County Groundwater Banking Authority, Eastern San Joaquin Groundwater Management Plan, Section 2.6 Water Supplies

In response to the Governor's declaration of a State of Emergency with respect to the drought in California, on January 31, 2014 the Department of Water Resources (DWR) announced that except for a small amount of carryover water from 2013, State Water Program (SWP) customers should not expect any water deliveries from the SWP in 2014 if current dry conditions persist. Further, deliveries to agricultural districts with long-standing water rights in the Sacramento Valley may be cut by up to 50 percent, (the maximum permitted by contract), depending upon future snow survey results. While additional winter storms may provide a limited boost to reservoir storage and water deliveries, these storms will not provide the region with the needed rainfall and snowpack due to record dry years in 2012 and 2013. In 2010, the County received 32.7 percent of its water from the SWP. If current weather conditions continue and the drought persists, the County could experience water shortages according to the statement issue by the DWR.

It should be noted that the SWP's principal reservoir Lake Oroville in Butte County, is at 36 percent of its 3.5 million acre-foot capacity (55 percent of its historical average for the date) and Shasta Lake, California's largest reservoir, is at 36 percent of its 4.5 million acre-foot capacity (54 percent of average for the date). San Luis Reservoir, a significant southern reservoir for both the SWP and Central Valley Project, is at 30 percent of its 2 million acre-foot capacity (39 percent of average for the date).

Governor Brown has directed the DWR to monitor groundwater levels, land subsidence, and land fallowing as groundwater resources are expected to be further depleted. The DWR has indicated that water-short Valley farmers are expected to fallow thousands of acres, which will negatively affect communities dependent on the agricultural economy, such as San Joaquin County. These water shortages could lead to farmers pumping increasing amounts of groundwater, further depleting overtapped aquifers.

Central Valley Project

The Central Valley Project (CVP) is one of the Nation's major water conservation developments, covering the entire Central Valley and portions of California's mountain ranges. The CVP was created to protect the Central Valley from water shortages and floods; improve navigation on the Sacramento River; ensure supplies of domestic and industrial water; enhance water quality; generate electric power, conserve fish and wildlife; and create opportunities for recreation. The CVP consists of 20 dams and reservoirs, 11 power plants, and 500 miles of major canals, conduits, and tunnels. About 9 million acre-feet of water are managed by the CVP and about 7 million acre-feet of water for agricultural, urban, and wildlife use are delivered annually.

The Sacramento River carries water to the Sacramento-San Joaquin Delta where the Tracy Pumping Plant at the southern end of the Delta lifts the water into the Delta Mendota Canal, a 117-mile canal with a capacity of about 4,600 acre/feet. This canal delivers water to CVP contractors and exchange contractors on the San Joaquin River and water rights contractors on the Mendota Pool. The CVP water is also conveyed to the San Luis Reservoir for deliveries to CVP contractors through the San Luis Canal. Water from the San Luis Reservoir can also be conveyed through the Pacheco Tunnel to CVP contractors in Santa Clara and San Benito counties. The CVP also serves water from the Friant Dam on the San Joaquin River to CVP contractors located near the Madera and Friant-Kern canals. Water is stored in the New Melones Reservoir for water rights holders in the Stanislaus River watershed and CVP contractors in the northern San Joaquin Valley.

Irrigation and municipal water is delivered from the main canals in accordance with long-term contracts negotiated with irrigation districts and other local organizations. Distribution of water from the main canals to the individual users is the responsibility of the local districts. Irrigation distribution systems use lateral canals and pipelines to convey water from the main canals to individual farms.

Groundwater and Groundwater Banking

Groundwater conditions have changed drastically since the mid-1850s when much of agricultural interests began to expand into San Joaquin County. Early farmers were dependent on seasonal rains and natural flow from rivers. Groundwater artesian flow also augmented water supplies. With the introduction of the deep well turbine pump in the 1930s, regional groundwater patterns were greatly altered and artesian flows were no longer observed; however, access to groundwater enabled agriculture to spread to other portions of Eastern San Joaquin County.[18]

Beginning in 1850 the development of groundwater for agriculture expanded rapidly. Within the Central Valley, irrigated agriculture has grown from less than 1 million to over 7 million acres. In average years almost 870,000 acre-feet of groundwater is pumped per year from the Regional Planning Area. In the 2003 DWR Bulletin 118-80, the Eastern San Joaquin Basin is characterized as "critically overdrafted."[19, 20]

Groundwater pumping quantities in San Joaquin County are not recorded at the water district or county level. Consequently, an accurate assessment of the quantity of groundwater used is difficult to establish. The approach adopted by DWR and other agencies to estimate groundwater withdrawals is based on land use and population. Using a similar approach with groundwater modeling, Camp Dresser and

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18 2007 Eastern San Joaquin Integrated Regional Water Management Plan, Section 4.5 Groundwater Conditions

19 2007 Eastern San Joaquin Integrated Regional Water Management Plan, Section 4.5 Groundwater Conditions

20 The 2003 DWR Bulletin 118-80 is the most recent publication of this document.

McKee estimated that the total agricultural and municipal groundwater pumping in Eastern San Joaquin County has averaged approximately 870,000 afy for the last 20 to 30 years.[21]

Further as the statewide drought continues, agriculture, municipal and industrial users, and groundwater banking operations will continue to draw upon local groundwater resources, with the agricultural industry estimated as the largest user of groundwater in the region.

Groundwater banking is the storage/recharge of excess water supplies into aquifers during wet periods for later withdrawal/recovery for use during dry periods. Historically, during wet periods, surface water imports have been substantial enough to satisfy irrigation and urban water needs and thus, excess water has been recharged to groundwater aquifers. The groundwater is then pumped/extracted out through the many private and publicly owned wells located throughout the region during dry periods when local or imported surface water supplies are insufficient. Long-term overdraft has created opportunities for groundwater banking to the benefit of regional and statewide interest. Overuse of groundwater has depleted a substantial portion of stored groundwater in the Basin and has made available volume for potential regulatory storage.

In 2001, the Northeastern San Joaquin County Groundwater Banking Authority formed with the consensus approach to develop "locally supported groundwater banking projects that improve water supply reliability in Northeastern San Joaquin County…and provide benefits to project participants and San Joaquin County as a whole."[22] The purpose of the Groundwater Management Plan is to review, enhance, assess, and coordinate existing groundwater management policies and programs in Eastern San Joaquin County and to develop new policies and programs to ensure the long-term sustainability of groundwater resources in Eastern San Joaquin County.

Water Demand

Water demands within the County are serviced by a variety of water purveyors, including the County's 14 irrigation districts and 22 domestic water districts, investor-owned water companies, mutual water companies, municipalities and private well owners.

The water demand summarized below was taken from 2007 Eastern San Joaquin Integrated Regional Water Management Plan (IRWMP). This IRWMP represents the County's most up to date water demand

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21 Northeastern San Joaquin County Groundwater Banking Authority, Eastern San Joaquin Groundwater Management Plan, Section 2.6 Water Supply

22 Northeastern San Joaquin County Groundwater Banking Authority Eastern San Joaquin Groundwater Basin Management Plan, Executive Summary

data. The Draft 2014 IRWMP, which will include the County's 2010 data is expected to be released in July 2014.[23]

Irrigation Districts

Irrigation districts provide a reliable and economical source of irrigation water to the agricultural areas of the County. All of the seven incorporated cities within the County maintain a contract with at least one of the 14 irrigation districts. Most cities maintain contracts with at least two irrigation districts as some irrigation districts provide water to cities and water districts that process the water for domestic use. Irrigation districts in San Joaquin County also treat and distribute domestic water and provide other services such as electricity.[24]

Domestic Water Providers

Domestic water is provided by cities, water districts, maintenance districts, County Service Areas (CSA)[25] and Districts (CSD), and other local agencies. Domestic Water providers supply drinkable water to customers within their boundaries. The County's domestic water providers are supplied by both surface water and groundwater. Major water providers in the County are the cities. Some cities have their own water treatment facilities and are able to provide water to large numbers of people using both surface and groundwater sources. Other cities and smaller water providers provide water to smaller populations, rely on other agencies for treated water, and maintain limited distribution systems.[26]

Urban Demand

Table 4.13-3, San Joaquin County Urban Water Demand, summarizes the 2005 water demands for the seven incorporated cities in the County. Annual water was summarized based on current Urban Water Management Plans, water production data obtained from water service providers, or other general planning documents. Urban water demand for the County's CSAs are not included in the table. Various factors determine how these unincorporated portions of the County receive their water. Some unincorporated areas are located close enough to one of the cities and have connected to the cities' water

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23 San Joaquin County, Department of Public Works, County Engineer, R. Valdez, February 7, 2014

24 2009 San Joaquin County General Plan Update, Public Services and Utilities Element.

25 CSAs allow small communities in unincorporated areas to pay for and receive specific services from the county. If residents are willing to pay, they can receive the types of services and improvements not available in other areas of the county. There is no cost to residents of other areas of the county who do not wish to receive the additional services. A synopsis of the County Service Area Law is included under State Regulatory Conditions

26 2009 San Joaquin County General Plan Update, Public Services and Utilities Element.

infrastructure,[27] while others rely on groundwater and have constructed a groundwater pumping system.[28]

Table 4.13-3
San Joaquin County Urban Water Demand

City	2005 Urban Water Demand (acre-feet)
Escalon	1,657
Lathrop	4,514
Lodi	17,300
Manteca	15,491
Ripon	5,860
Stockton	67,157
Tracy	16,400
Total	**128,379**

Source: 2007 Eastern San Joaquin Integrated Regional Water Management Plan, Section 4.2 Urban Land and Water Use

Agricultural Demand

Agricultural water use is based on various crop Evapotranspiration (ET) and efficiency data collected by DWR. The ET of a crop represents the total amount of water transpired by the plant, retained in the plant tissue, and evaporated from adjacent soil surfaces during the growing period. In dry years, the effective precipitation (EP) is less than normal, thus, the amount of applied water (AW) must be increased to meet the total ET of the crop and vice-versa in wet years. Also, the irrigation efficiency of applied water varies due to cultural practices, canal or ditched delivery, pressurized delivery systems, and soil drainage conditions. Unless the irrigator is 100 percent efficient, the amount of applied water is greater than the crop ET. The difference in the applied water demand and the ET is accounted for as either tail-water, lost to the groundwater basin, or recovered and reapplied downstream. Throughout the state, DWR collects land and water use data based on geographical Demand Analysis Units (DAU's) to account for these varying conditions.[29]

Table 4.13-4, San Joaquin County Water Demands for Agricultural Use, provides the approximate 2005 water demand for agricultural use in the entire County.

27 Currently there are less than 5,000 CSA water connections to surrounding cities' water lines

28 San Joaquin County, Department of Public Works, County Engineer, R. Valdez, February 7, 2014

29 2007 Eastern San Joaquin Integrated Regional Water Management Plan, Section 4.3.2 Agricultural Water Use

Table 4.13-4
San Joaquin County Water Demands for Agricultural Use

Water Agency	2005 Estimated Agriculture Water Demand (afy)
Central Delta Water Agency	111,369
South Delta Water Agency	55,921
North San Joaquin Water Conservation District	152,853
Woodbridge ID	71,513
Stockton East Water District	206,217
Central San Joaquin Water Conservation District	140,289
Oakdale ID	32,554
South San Joaquin Irrigation District	200,031
Unorganized County Areas	99,270
Total	**1,070,017**

Source: 2007 Eastern San Joaquin Integrated Regional Water Management Plan, Section 4.3.2 Agricultural Water Use

Water Quality

Buildings, roads, sidewalks, parking lots, and other impervious surfaces define the urban landscape in San Joaquin County, as well as alter the natural hydrology of the region and prevent the infiltration of water into the ground. In addition, impervious surfaces change the flow of stormwater over the landscape. In undeveloped areas, vegetation holds down soil, slows the flow of stormwater over land, and filters out some pollutants by both slowing the flow of the water and trapping some pollutants in the root system. Additionally, stormwater filters through the soil, replenishing underground aquifers.

As development increases in the County, these natural processes are reduced as vegetation is cleared and soil is paved over. As more impervious surface coverage is added to the landscape, stormwater flows increase and the concentration of pollutants grows. Increased stormwater flows also increase the possibility of flooding.

Surface Water Quality

As referenced above, surface water resources in the County include creeks and rivers, lakes and reservoirs. Impaired surface waters within San Joaquin County are those listed by the Central Valley Regional Water Quality Control Board (CVRWQCB) as impaired due to one or more pollutants. Under the 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. **Table 4.13-5, 2010 303(d) List of Impaired Water Bodies San Joaquin County,** lists all the bodies of water within San

Joaquin County on the 303(d) list, including the 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. Most of these bodies of water are contaminated due to urban and agriculture runoff, and resource extraction. Regional Water Quality Control Board (RWQCB) plans forecast that the TMDLs will be met for these water bodies between 2010 and 2020.

Table 4.13-5
2010 303(d) List of Impaired Water Bodies San Joaquin County

Water Body Name	Water Body Type	Pollutant	Expected TMDL Completion Date
Avena Drain	River and Stream	Ammonia Pathogens	2020
Bear Creek; partly in Delta Waterways, eastern portion)	River and Stream	Copper Diazinon, Escherichia coli, Low Dissolved Oxygen	2021
Calaveras River, Lower (from Bellota Weir to Stockton Diverting Canal)	River and Stream	Unknown Toxicity	2021
Calaveras River, Lower (from Stockton Diverting Canal to the San Joaquin River; partly in Delta Waterways, eastern portion)	River and Stream	Chlorpyrifos Diazinon Mercury Organic Enrichment/Low Dissolved Oxygen Pathogens	2021
Camanche Reservoir	Lake and Reservoir	Copper Mercury Zinc	2021
Delta Waterways (Stockton Ship Channel)	Estuary	Chlorpyrifos, DDT (Dichlorodiphenyltrichloroethane) Diazinon, Furan Compounds Group A Pesticides Invasive Species Mercury Organic Enrichment/Low Dissolved Oxygen PCBs (Polychlorinated biphenyls) Pathogens Unknown Toxicity	2019
Delta Waterways (Central portion)	Estuary	Chlorpyrifos DDT (Dichlorodiphenyltrichloroethane) Diazinon Group A Pesticides Invasive Species Mercury Unknown Toxicity	2019

Water Body Name	Water Body Type	Pollutant	Expected TMDL Completion Date
Delta Waterways (eastern portion)	Estuary	Chlorpyrifos DDT (Dichlorodiphenyltrichloroethane) Diazinon Group A Pesticides Invasive Species Mercury Unknown Toxicity	2019
Delta Waterways (export area)	Estuary	Chlorpyrifos DDT (Dichlorodiphenyltrichloroethane) Diazinon Electrical Conductivity Group A Pesticides Invasive Species Mercury Unknown Toxicity	2019
Delta Waterways (southern portion)	Estuary	Chlorpyrifos DDT (Dichlorodiphenyltrichloroethane) Diazinon Electrical Conductivity Group A Pesticides Invasive Species Mercury Unknown Toxicity	2019
Duck Creek (San Joaquin County)	River & Stream	Chlorpyrifos Escherichia coli (E. coli) Mercury	2021
Five Mile Slough (Alexandria Place to Fourteen Mile Slough; in Delta Waterways, eastern portion)	River & Stream	Chlorpyrifos Diazinon Organic Enrichment/Low Dissolved Oxygen Pathogens	2019
French Camp Slough (confluence of Littlejohns and Lone Tree Creeks to San Joaquin River, San Joaquin Co; partly in Delta Waterways, eastern portion)	River & Stream	Chlorpyrifos Diazinon Escherichia coli (E. coli) Oxygen, Dissolved Sediment Toxicity Unknown Toxicity	2021
Hospital Creek (San Joaquin and Stanislaus Counties)	River & Stream	DDE (Dichlorodiphenyldichloroethylene) Dieldrin Dimethoate Escherichia coli (E. coli) Pyrethroids Salinity Sediment Toxicity Trifluralin Unknown Toxicity	2021
Little Johns Creek	River & Stream	Escherichia coli (E. coli) Unknown Toxicity	2021
Middle River (in Delta Waterways, southern portion)	River & Stream	Low Dissolved Oxygen	2019

Water Body Name	Water Body Type	Pollutant	Expected TMDL Completion Date
Mokelumne River, Lower (in Delta Waterways, eastern portion)	River & Stream	Chlorpyrifos Copper Mercury Oxygen, Dissolved Unknown Toxicity Zinc	2021
Mormon Slough (Commerce Street to Stockton Deep Water Channel; partly in Delta Waterways, eastern portion)	River & Stream	Organic Enrichment/Low Dissolved Oxygen Pathogens Chlorpyrifos Unknown Toxicity	2021
Mormon Slough (from Stockton Diverting Canal to Bellota Weir--Calaveras River)	River & Stream	Chlorpyrifos Unknown Toxicity	2021
Mosher Slough (downstream of I-5; in Delta Waterways, eastern portion)	River & Stream	Chlorpyrifos Diazinon Mercury Organic Enrichment/Low Dissolved Oxygen Pathogens	2021
Mountain House Creek (from Altamont Pass to Old River, Alameda and San Joaquin Counties; partly in Delta Waterways, southern portion)	River & Stream	Chloride Salinity	2021
Pixley Slough (San Joaquin County; partly in Delta Waterways, eastern portion)	River & Stream	Chlorpyrifos Diazinon Escherichia coli (E. coli) Oxygen, Dissolved Oxygen, Dissolved	2021
San Joaquin River (Bear Creek to Mud Slough)	River & Stream	Arsenic Boron Chlorpyrifos DDT (Dichlorodiphenyltrichloroethane) Electrical Conductivity Escherichia coli (E. coli) Group A Pesticides Mercury Unknown Toxicity	2021
San Joaquin River (Tuolumne River to Stanislaus River)	River & Stream	Chlorpyrifos DDT (Dichlorodiphenyltrichloroethane) Diazinon Electrical Conductivity Group A Pesticides Mercury Temperature, water Unknown Toxicity	2021

Water Body Name	Water Body Type	Pollutant	Expected TMDL Completion Date
San Joaquin River (Stanislaus River to Delta Boundary)	River and Stream	Chlorpyrifos DDE (Dichlorodiphenyldichloroethylene) DDT (Dichlorodiphenyltrichloroethane) Diuron Electrical Conductivity Escherichia coli (E. coli) Group A Pesticides Mercury Temperature, water Toxaphene Unknown Toxicity	2021
Smith Canal (in Delta Waterways, eastern portion)	River and Stream	Organic Enrichment/Low Dissolved Oxygen Organophosphorus Pesticides Pathogens	N/A
Stanislaus River, Lower	River and Stream	Chlorpyrifos Diazinon Group A Pesticides Mercury Temperature, water Unknown Toxicity	2021
Sutter Bypass	River & Stream	Mercury	2021
Temple Creek	River and Stream	Ammonia	2020
Tom Paine Slough (in Delta Waterways, southern portion)	River & Stream	Chloride Oxygen, Dissolved Salinity	2021
Walker Slough (partly in Delta Waterways, eastern portion)	River and Stream	Pathogens	2021

Source: California State Water Resources Control Board, 2010 Integrated Report 303(d) Impaired Bodies of Water List.
Notes: Expected TMDL Completion Date reflects the expected date that all pollutants will be expunged from the specific body of water. Specific pollutants may be removed at a sooner date.

San Joaquin County is predominantly arid and many of the natural rivers and creeks are intermittent or ephemeral, drying up in the summer or flowing only in reaction to precipitation. Annual rainfall amounts vary depending on elevation and proximity to the coast. Some waterways in the region maintain a perennial flow due to agricultural irrigation and urban landscape watering.

Point and non-point source pollution are different forms of pollution which can damage surface water and are regulated at the federal and local level. Point source pollution refers to contaminants that enter a watershed, usually through a specific location such as a pipe. The source must be documented and the flow from the source is subject to a discharge permits issued by a Regional Water Quality Control Board. Examples of point source pollution are discharges from sewage treatment plants and industrial facilities. Because point sources are much easier to regulate than non-point sources, they were the initial focus of

the 1972 Clean Water Act. Regulation of point sources since then has dramatically improved the water quality of many rivers and streams throughout the country

In contrast to point source pollution, non-point source pollution, also known as "pollution runoff," is diffuse. Non-point pollution comes from areas (such as contaminated runoff from urban areas) and is significantly influenced by land uses. A driveway or the road in front of a house may be a source of pollution if spilled oil, leaves, pet waste, or other contaminants are washed into a storm drain. Non-point source pollution is now considered one of the major water quality problems in the United States.

The problem of non-point source pollution, specifically runoff pollution is especially acute in urbanized areas where a combination of impermeable surfaces, landscape irrigation, highway runoff, and illicit dumping increase the pollutant loads in stormwater. The California State Water Quality Control Board (SWQCB) has identified the following pollutants found in urban runoff as being of particular concern:

- **Sediment.** Excessive sediment loads in streams can interfere with photosynthesis, aquatic life respiration, growth, and reproduction.
- **Nutrients.** Nitrogen and phosphorus can result in eutrophication of receiving waters (excessive or accelerated growth of vegetation or algae), reducing oxygen levels available for other species.
- **Bacteria and viruses.** Pathogens introduced to receiving waters from animal excrement in the watershed and by septic systems can restrict water contact activities.
- **Oxygen demanding substances.** Substances such as lawn clippings, animal excrement, and litter can reduce dissolved oxygen levels as they decompose.
- **Oil and grease.** Hydrocarbons from automobiles are toxic to some aquatic life.
- **Metals.** Lead, zinc, cadmium, and copper are heavy metals commonly found in stormwater. Other metals introduced by automobiles include chromium, iron, nickel, and manganese. These metals can enter waterways through storm drains along with sediment, or as atmospheric deposition.
- **Toxic pollutants.** Pesticides, phenols, and polynuclear aromatic hydrocarbons (PAHs) are toxic organic chemicals found in stormwater.
- **Floatables.** Trash in waterways increases metals and toxic pollutant loads in addition to undesirable aesthetic impacts.

Groundwater Quality

Localized impairments including total dissolved solids (TDS), sodium chloride, nitrate, and inorganic compounds are common in the County's groundwater, impairing the water quality.

The majority of groundwater in the Eastern San Joaquin Basin is characterized by calcium-magnesium bicarbonate or calcium-sodium bicarbonate types. Bicarbonate is the predominant anion in the eastern part of the basin. Large areas of chloride type water occur along the western margin of the subbasin along the San Joaquin River.

As a result of declining water levels, poor quality water has been moving east along a 16-mile front on the east side of the Delta. The degradation was particularly evident in the Stockton area where the saline front was moving eastward at a rate of 140 to 150 feet per year. Data from 1980 and 1996 indicate that the saline front has continued to migrate eastward up to about 1 mile beyond its 1963 extent. Large areas of elevated nitrate in groundwater exist within the subbasin located southeast of Lodi and south of Stockton and east of Manteca extending towards the San Joaquin – Stanislaus County line.[30]

Areas of poor water quality exist throughout the subbasin. Areas of elevated chloride occur in several areas including: along the western side of the subbasin; in the vicinity of the City of Tracy; and along the San Joaquin River. Areas of elevated nitrate occur in the northwestern part of the subbasin and in the vicinity of the City of Tracy. Areas of elevated boron occur over a large portion of the subbasin from south of Tracy and extending to the northwest side of the subbasin.

Flooding

Flooding generally occurs when soil and vegetation cannot absorb excess rainwater or snowmelt, and water runs off the land in quantities that cannot be carried in stream channels or kept in natural ponds or man-made reservoirs. Periodic floods occur naturally on many rivers, forming areas known as floodplains. These river floods usually result from heavy rain, sometimes combined with melting snow, which causes the rivers to overflow their banks. A flood that rises and falls rapidly with little or no advance warning is called a flash flood. Flash floods usually result from intense rainfall over a relatively small area.

The risks of flooding hazards in San Joaquin County are related to the failure of levees in the Delta, dam failures, and 100-year flood events. These risks of flooding are greatest during the rainy season, between November and April, yet snowmelt from the Sierra Nevada can also extend the period of time for water flows, typically between April and June. Flooding events can result in damage to structures, injury, or loss of human and animal life, exposure of waterborne diseases, and damage to infrastructure. In

30 California Department of Water Resources, Hydrologic Regions of California, Eastern San Joaquin Basin

addition, standing floodwater can destroy agricultural crops, undermine infrastructure and structural foundations, and contaminate groundwater.[31]

The County has a system of dams, dikes, spillways, and reservoirs to control flooding. A majority of the Delta's waterways are located below sea level and rely on more than 1,000 miles of levees for flood protection. Flooding may occur from the overtopping of a levee, levee failure, or dam failure. Approximately 35 percent of the County is located within the 100-year flood zone. In these areas, special regulation, planning, and building standards are applied to guarantee a minimum level of public safety and to allow for the rapid discharge of floodwater.[32]

Several of the County's major flood events have occurred as a result of levee failure. The potential for levee failure in the Delta is greatest where levees have been constructed out of unstable materials like peat soil and silt. These materials have low density and are highly compressible and structurally weak. In addition, peat soils can oxidize and erode when dried and are exposed to air. This can result in a continual subsidence of the levees and adjacent land surfaces. Water pressure on the levees increase when subsidence occurs, adding to levee instability.[33]

A minimal amount of all levees within the County have been built and/or maintained according to federal standards as either federal flood control project levees or by local districts. Most levees are privately constructed and maintained by local landowners or local agencies. Many of these levees are in poor condition and need to be reconstructed or improved to meet to higher standards.[34]

100-Year Floodplain

The 100-Year floodplain denotes an area that has a 1 percent chance of being inundated during any particular 12-month period. The risk of this area being flooded in any century is 1 percent but statistically the risk is almost 40 percent in any 50-year period.

Floodplain zones are determined by the Federal Emergency Management Agency (FEMA) and used to created Flood Insurance Rate Maps (FIRMs). These tools assist communities in mitigating flood hazards through land use planning. FEMA also outlines specific regulations for any construction located within a 100-year floodplain, whether residential, commercial, or industrial. San Joaquin County's FIRM number is 06077C0470F and was last updated in October of 2009.

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31 2011 San Joaquin COG, RTP, Hydrology and Water Quality

32 2011 San Joaquin COG, RTP, Hydrology and Water Quality

33 2011 San Joaquin COG, RTP, Hydrology and Water Quality

34 2011 San Joaquin COG, RTP, Hydrology and Water Quality

Figure 4.13-4, FEMA Flood Zones in San Joaquin County, illustrates the various flood zones located throughout San Joaquin County. A description of each FEMA flood zone included on the figure is below:

- **Zone A:** This zone is listed as a high risk and special flood hazard area; in addition, FEMA has designated these lands as within the 100-year floodplain. Further, these areas are subject to inundation by the 1-percent-annual-chance flood event.

- **Zone AE:** This zone is listed as a high risk and special flood hazard area. Further, these areas are subject to inundation by the 1-percent-annual-chance flood event. Base Flood Elevations (BFEs) have been established for this zone.

- **Zone AH:** This zone is listed as a high risk and special flood hazard area. Further, these areas are subject to inundation by the 1-percent-annual-chance shallow flooding (usually in areas of ponding) where average depths of water are 1-3 feet.

- **Zone AO:** This zone is listed as a high risk and special flood hazard area. Further, these areas are subject to inundation by the 1-percent-annual-chance shallow flooding (usually caused by sheet flow[35] on sloping terrain) where average depths of water are 1 to 3 feet. Average flood depths have been derived from detailed hydraulic analyses.

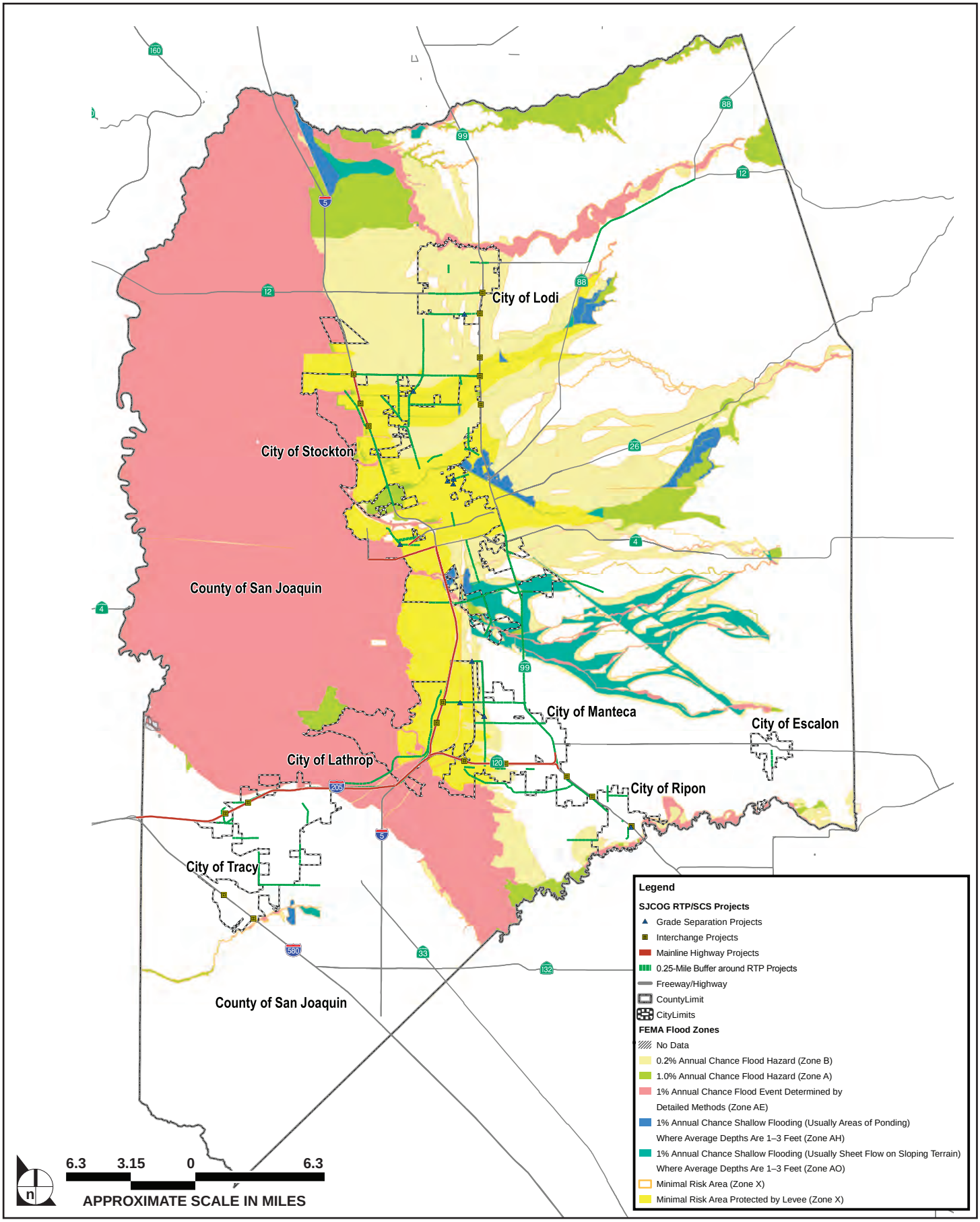
- **Zone X:** This zone is listed as a moderate and minimal risk area. These areas include: moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee.

Dam Failure

According to the County's Office of Emergency Services (OES) Dam Failure Plan, there are 14 dams located in and around San Joaquin County, all of which have the potential to inundate portions of the County if they were to fail. Three of these dams are located in the County boundaries: Camanche, South Shore, and Farmington Dams. The failure of any one of these dams could result from structural instability caused by improper design or construction, instability resulting from seismic shaking, or overtopping and erosion of the dam.[36]

35 Sheet flow is water, usually storm runoff which flows in a thin layer over the ground surface.

36 San Joaquin County Office of Emergency Services, 2003 Dam Failure Plan



SOURCE: San Joaquin County, February 2014

FIGURE **4.13-4**

FEMA Flood Zones in San Joaquin County

Larger dams that are higher than 25 feet or with storage capacities over 50 acre-feet of water are regulated by the California Dam Safety Act, which is implemented by the California Department of Water Resources, Division of Safety of Dams (DSD). The DSD is responsible for inspecting and monitoring these dams. The Act also requires that dam owners submit to the California Office of Emergency Services inundation maps for dams that would cause significant loss of life or personal injury as a result of dam failure. The County Office of Emergency Services is responsible for developing and implementing a Dam Failure Plan that designates evacuation plans, the direction of floodwaters, and provides emergency information.

Sacramento-San Joaquin Delta

The Delta plays a major role in the economy, natural environment, and human environment of San Joaquin County as well as the entire State of California. Recent legislation has major implications for how land use decisions are made in the County, as related to areas subject to water conveyance, flooding, sea level rise, and areas that may be converted from agricultural uses to permanently flooded wetlands. The recent planning efforts for the Peripheral Canal, a major water conveyance facility, could also have major implications for San Joaquin County. Agricultural operations within the County could be restricted by water rights owned by Delta farmers being purchased by out-of-County water users.[37] **Figure 4.13-5, Sacramento-San Joaquin Delta,** shows the boundaries of the Legal Delta in comparison to the boundaries of San Joaquin County and the other five counties. The Legal Delta includes parts of San Joaquin, Sacramento, Yolo, Solano, Alameda, and Contra Costa counties.

The Delta Protection Act of 1992 refined the definition of the Legal Delta by designating a primary zone and a secondary zone as shown in **Figure 4.13-5**. It also established the Delta Protection Commission for the purpose of developing a long-term management plan for the primary zone, which constitutes approximately two-thirds of the Delta's area. The Act recognizes the importance of maintaining agricultural uses in the primary zone, and the difficulty of providing flood protection for the islands in the primary zone, and for these and other reasons, states that the primary zone "should be protected from the intrusion of nonagricultural uses." The Legal Delta includes two zones – the Primary Zone and the Secondary Zone.

Water Supply

The Delta is a vital link in California's water delivery system. About one-quarter of California's drinking water comes from the Delta and two-thirds of Californians get some or all of their drinking water from the Delta. Many industries, including industries in the Silicon Valley, depend on water from the Delta.

37 2009 San Joaquin County General Plan Update, The Delta Element

Water from the Delta is delivered by the CVP and the SWP to cities and communities in many of California's largest urban areas, including: the Bay Area; Stockton, Los Angeles, and San Diego. In addition, about 3 million acres of agricultural lands within and outside the Delta are irrigated using water from the Delta.[38]

The SWP operated by the DWR and the CVP operated by the US Bureau of Reclamation are the principal exporters of water from the Delta. Although the amount of water exported varies by year based on available supply and complex operating rules, the SWP and CVP combine to export an average of approximately 5 million af of water per year. The SWP diverts water from two places in the Delta. At Barker Slough, in the northwest portion of the Delta, water is pumped via the North Bay Aqueduct to cities in Napa and Solano counties. At the Harvey O. Banks Pumping Plant, in the south Delta, water is pumped into the California Aqueduct for delivery to farms in the San Joaquin Valley; cities in the Bay Area, Los Angeles, Riverside, San Bernardino, and San Diego counties; and, other parts of Southern California. Water pumped by the SWP at Banks Pumping Plant is stored in Lake Oroville, located in Butte County, and flows down the Sacramento River until it reaches the Delta.[39]

The CVP pumps water from the C. W. "Bill" Jones pumping plant near the City of Tracy in the south Delta. Although the CVP delivers some water for domestic use (principally in Contra Costa County), CVP water is used mainly for agricultural irrigation in the San Joaquin Valley. Water pumped by the CVP is stored in Lake Shasta and Folsom Lake in the Sacramento Valley, Claire Engel Lake in the Trinity River watershed, and Millerton Lake in the San Joaquin Valley. The Sacramento and San Joaquin rivers and Delta channels are then used by both systems to convey the water to their pumping plants.

In addition to the SWP and CVP facilities in the Delta, the East Bay Municipal Utility District (EBMUD) owns and operates the Mokelumne Aqueduct, which crosses the Delta to provide water to its customers in Alameda and Contra Costa counties. Water transported by EBMUD comes from Camanche and Pardee reservoirs on the Mokelumne River.

Flood Management

The Delta drains a watershed comprising 40 percent of California's landmass, thus during storm events a large volume of water flows into the Delta. 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. In addition, because islands have experienced subsidence, many levees hold back water from land up to 20 feet below water levels in adjacent channels.

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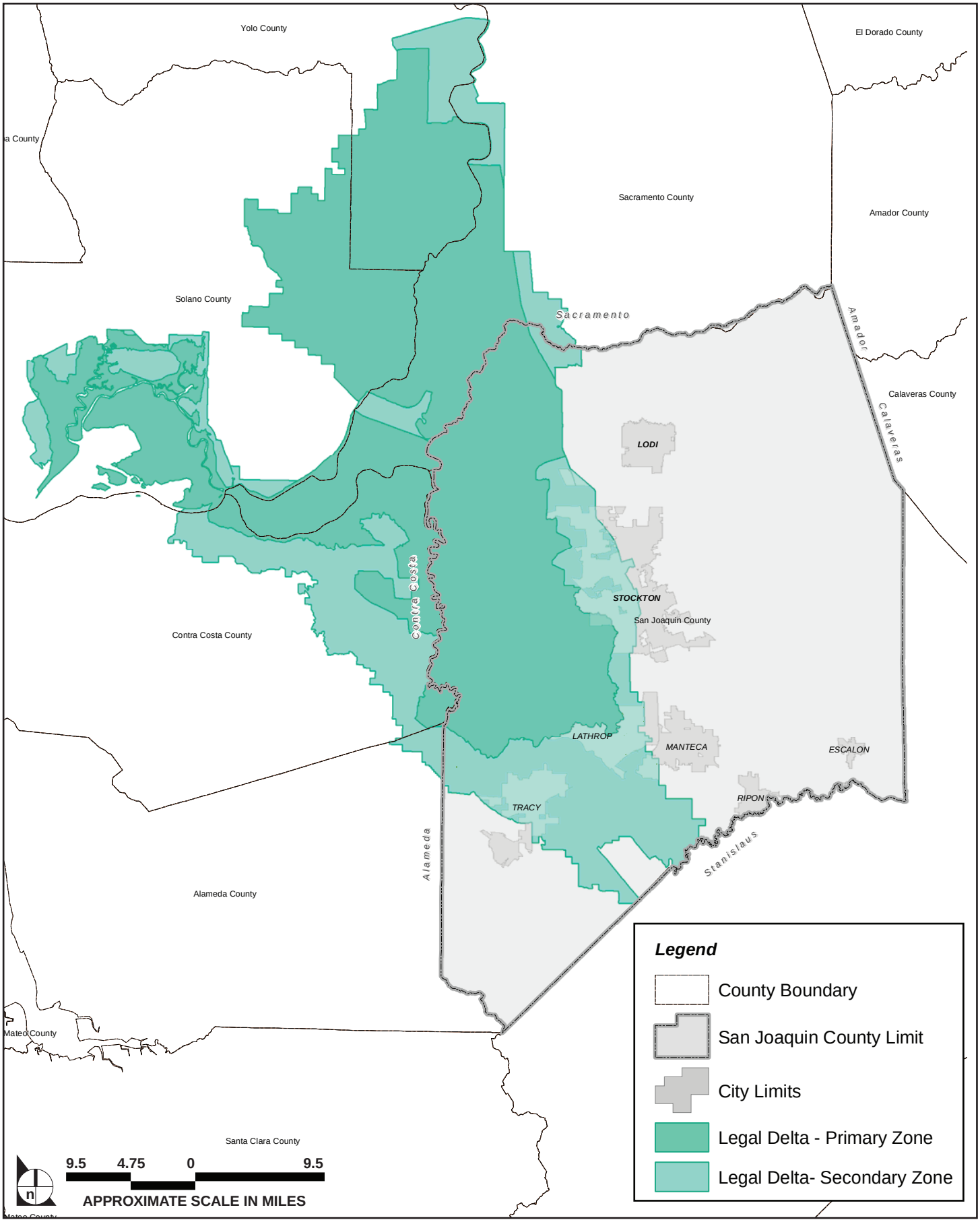
38 2009 San Joaquin County General Plan Update, The Delta Element

39 2009 San Joaquin County General Plan Update, The Delta Element



SOURCE: San Joaquin County General Plan Update, 2009

FIGURE **4.13-5**

Sacramento-San Joaquin Delta

1173.001•02/14

The greatest stresses to the levees in the Delta occur when a large storm coincides with high tides. 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.

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 US 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 who are also responsible for the maintaining these levees. Roughly 400 miles of Delta levees are project levees; more than 700 miles of levees are classified as non-project.[40]

Ecosystem

The Delta and Suisun Marsh form the largest estuary on the west coast of North America. Suisun Marsh represents 10 percent of California's remaining wetlands. The Delta provides habitat for numerous species listed as Threatened or Endangered under the California Endangered Species Act (CESA) or Endangered Species Act (ESA), including: Chinook salmon (winter and spring runs), Central Valley Steelhead, Delta smelt, Southern distinct population segment of the green sturgeon, Valley elderberry longhorn beetle, and Delta green ground beetle.

Infrastructure

The Delta contains a large amount of infrastructure of statewide importance, including transportation facilities, power generation and transmission facilities. Three interstate freeways (I-5, I-80, and I-580) pass along the periphery of the Delta. On an average day, the segments of I-5 that pass through Stockton carry approximately 130,000 vehicles.[41]

The Altamont Commuter Express train passes through the Delta and currently carries between 3,000 and 3,500 passengers per day between Stockton, the East Bay, and the South Bay. The Amtrak San Joaquin

40 2009 San Joaquin County General Plan Update, The Delta Element

41 2009 San Joaquin County General Plan Update, The Delta Element

also carries passengers daily on lines that pass through the Delta between Bakersfield and Sacramento and between Bakersfield and Oakland.[42]

In addition, two deep-water ship channels and two ports in the Delta support inter-state as well as international commerce. Electricity, gasoline, and other energy supplies for the region are provided by pipelines and transmission facilities that cross the Delta. A very large PG&E gas storage facility is located under McDonald Island within the San Joaquin County portion of the Delta. More than 500 miles of electrical transmission lines run through the Delta. Portions of these transmission lines carry power within California and parts of the western United States. The petroleum pipelines that cross the Delta provide approximately 50 percent of transportation fuel used in Northern California and Nevada.[43]

Land Use

The Delta is an important source of agriculture and open space in San Joaquin County. Most of the land within San Joaquin County's portion of the Delta is used for agriculture. This is especially true in the Primary Zone, where 87 percent of existing land use is devoted to agriculture. One-third of the County's agricultural land is located in the Delta. Moreover, about two-thirds of the County's acres of irrigated row crops are located in the Delta. Residential uses make up only a small part (1.92 percent) of land uses in the San Joaquin County part of the Delta, with most of that being in the secondary zone. Only 699 acres (0.37 percent) of residential uses are within the San Joaquin County portion of the primary zone. Commercial, industrial, and mining uses make up only 0.3 percent of the San Joaquin County portion of the Delta; public and quasi-public uses make up 2.95 percent; open space and recreation make up 2.07 percent; 1.76 percent of the land is vacant, and 6.3 percent is in miscellaneous uses including rights-of-way, rivers, and canals.[44]

4.13.2 REGULATORY SETTING

Federal

Clean Water Act (CWA)

Enacted by Congress in 1972, the Clean Water Act mandates cooperative efforts by federal, state, and local governments to implement its pollution control measures. This law was the first comprehensive national clean water legislation to protect the nation's waters.

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42 2009 San Joaquin County General Plan Update, The Delta Element

43 2009 San Joaquin County General Plan Update, The Delta Element

44 2009 San Joaquin County General Plan Update, The Delta Element

The National Pollutant Discharge Elimination System (NPDES) was established by the Clean Water Act to regulate discharges into "navigable waters" of the United States. This is accomplished by using pollutant thresholds and operational conditions for industrial facilities and wastewater treatment plants. The Act also established Storm Water Management Plans, municipal authority for non-point source NPDES permits, in communities with populations greater than 100,000 to control urban storm water runoff.

These plans ensure best management practices to reduce pollutant loads. Water quality thresholds called Total Maximum Daily Loads were also developed for pollutants and other stressors affecting water quality. Finally, in an effort to ensure that the actions will be consistent with the state's water quality requirements, Section 401 of the Clean Water Act grants states the authority to review federal permits or licenses that will result in a discharge or disruption to wetlands and other waters under state jurisdiction.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) ensures the quality of Americans' drinking water. The law requires actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs and groundwater wells—and applies to public water systems serving 25 or more people. It authorizes the EPA to set national health-based standards for drinking water to protect against both naturally occurring and manmade contaminants. In addition, it oversees the states, municipalities, and water suppliers that implement the standards.

EPA standards are developed as a Maximum Contaminant Level (MCL) for each chemical or microbe. The MCL is the concentration that is not anticipated to produce adverse health effects after a lifetime of exposure, based upon toxicity data and risk assessment principles. EPA's goal in setting MCLs is to assure that even small violations for a period of time do not pose significant risk to the public's health over the long run. National Primary Drinking Water Regulations ("NPDWRs," or "primary standards") are legally enforceable standards that limit the levels of contaminants in drinking water supplied by public water systems.

Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

US Army Corps of Engineers

The USACE regulates placement of dredged or fill material in waters of the United States, and regulates work in its navigable waters. Section 404 of the CWA obligates the USACE to issue permits for the movement of dredge and fill material into and from "waters of the United States." Additionally Section 404 requires permits for activities affecting hydrologically important areas. For example, alterations of wetlands, rivers, or ephemeral creek beds resulting from construction activities require Section 404 permits.

US Environmental Protection Agency

The US Environmental Protection Agency (EPA) is the federal agency responsible for water quality management and administration of the federal Clean Water Act (CWA). In California, the EPA has delegated most of the administration of the CWA to the State Water Resources Control Board (SWRCB). Much of the responsibility for implementation of the SWRCB's policies is delegated to the RWQCB.

US Fish and Wildlife Service

The US Fish and Wildlife Service (USFWS) administers the Federal Endangered Species Act (FESA) and designates critical habitat for Endangered species to carry out its mission to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of people. Critical habitat areas cannot be disturbed without permission from the USFWS or other federal agencies, depending on land ownership. The USFWS also manages a system of land and waters for the conservation of wildlife and associated ecosystems. These National Wildlife Refuges are primarily managed for the preservation and protection of unique or important resources and ecosystems.

The Federal Emergency Management Agency

The US Congress passed the National Flood Insurance Act in 1968 and the Flood Disaster Protection Act in 1973 in order to restrict certain types of development on floodplains and provide for a national flood insurance program. The purpose of these programs is to reduce the need for large publicly funded flood control structures and disaster relief.

The US Bureau of Reclamation

The US Bureau of Reclamation (USBR) operates the Colorado River project, an extensive network of dams, canals, and related facilities. The USBR serves as Watermaster overseeing contentious water rights issues, and runs drought protection programs.

State

California State Water Resource Control Board (SWRCB)

The SWRCB was established through the California Porter Cologne Water Quality Act of 1969. It is the primary state agency responsible for water quality management issues.

Regional Water Quality Control Board Central Valley Region

The RWQCB is responsible for implementing policies of the SWRCB, such as ensuring compliance with discharge thresholds and operating standards. San Joaquin County is located within the RWQCB's Central Valley Region. Section 303(d) of the CWA requires the SWRCB to list impaired water bodies in the state and determine total maximum daily loads (TMDLs) of pollutants or other stressors that are contributing excessively to these impaired waters. SWRCB is also responsible for granting water rights permits, approving water right transfers, investigating violations, and may reconsider or amend water rights.

As described above, the EPA has delegated most of the administration of the CWA in California to the SWRCB. In turn, much of the responsibility for the implementation of the SWRCB's policies is delegated to the nine RWQCBs. The nine RWQCBs develop and enforce water quality objectives and implementation plans.

The federal CWA directs states to review water quality standards every three years and, as appropriate, modify and adopt new standards. CWA also regulates wastewater operation through state boards. CWA authorizes the EPA to administer requirements primarily to deal with the quality of effluent which may be discharged from treatment facilities, the recycling of residual solids generated in the process, the reuse of reclaimed water for irrigation and industrial uses to conserve potable water, and the nature of waste material (particularly industrial) discharged into the collection system.

California Department of Fish and Wildlife

The mandate of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for public use and enjoyment. In particular, CDFW is required under the California Endangered Species Act, the California Native Plant Protection Act, the California Environmental Quality Act (CEQA), and the Natural Community Conservation Planning Act to conserve species through listing, habitat acquisition, and protection, review of local land use planning, multi-species conservation

planning, stewardship, recovery, research, and education. The CDFW protects Rare, Threatened and Endangered species by managing habitat in legally designated ecological reserves or wildlife areas.

Delta Stewardship Council

In November 2009, the California Legislature enacted the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act) of 2009, also known as Sen. Bill No. 1 (Stats. 2009, 7th Ex. Sess., ch. 5) (SB X7-1), one of several bills passed at that time related to water supply reliability, ecosystem health, and the Delta. The Delta Reform Act created the Delta Stewardship Council (DSC). The DSC is made up of seven members that are advised by a 10-member board of scientists. The DSC was charged with developing and adopting a Delta Plan by January 1, 2012.

The DSC is tasked with addressing the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. According to the Delta Reform Act, the coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The DSC regulates covered actions, as statutorily defined, to address the coequal goals.

Delta Water Agency

The Delta Agency was established in 1965 to maintain agricultural water quality throughout the Delta. In 1973, the agency was replaced by three distinctive agencies: North, Central, and South Delta Water Agencies.

The Delta Protection Act of 1992

The Delta Protection Act of 1992 (Act) refined the definition of the Legal Delta by designating a primary zone and a secondary zone. It also established the Delta Protection Commission for the purpose of developing a long-term management plan for the primary zone, which constitutes approximately two-thirds of the Delta's area. The Act recognizes the importance of maintaining agricultural uses in the primary zone, and the difficulty of providing flood protection for the islands in the primary zone, and for these and other reasons, states that the primary zone "should be protected from the intrusion of nonagricultural uses." The Legal Delta includes two zones – the Primary Zone and the Secondary Zone.

Delta Protection Commission

The Delta Protection Act of 1992 (Pub. Resources Code § 29760 et seq.) recognized the Sacramento-San Joaquin Delta as a natural resource of statewide, national, and international significance, containing irreplaceable resources. It created the policy to recognize, preserve, and protect those resources, and

established the Delta Protection Commission. The Delta Protection Commission was charged with creating the Land Use and Resources Management Plan for the Delta Primary Zone, which was adopted in 1995. The management plan provides direction for local jurisdictions in the Delta region on land use decisions. Local jurisdictions with lands in the primary zone have amended their general plans to incorporate the management plan. In 2010, the Delta Protection Commission amended the management plan to reflect changes since adoption, such as newly identified Endangered species, effects of climate change, flood control issues, increased recreational use, water quality changes, habitat loss, road and utility construction, and urbanization. The amendment adds specific overview, goals, and policies subsections and a glossary of terms to address components of the Delta system, such as: natural resources, utilities, infrastructure, land use, agriculture, water, recreation, and levees.

Bay Delta Conservation Plan

The Bay Delta Conservation Plan (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. The BDCP would secure California's water supply by building new water delivery infrastructure and operating the system to improve the ecological health of the Delta. The BDCP also would restore or protect approximately 145,000 acres of habitat to address the Delta's environmental challenges.

The BDCP is made up of specific actions, called Conservation Measures, to improve the Delta ecosystem. The BDCP includes 22 conservation measures aimed at improving water operations, protecting water supplies and water quality, and restoring the Delta ecosystem within a stable regulatory framework. As the Delta ecosystem improves in response to the implementation of the conservation measures, water operations would become more reliable, offering secure water supplies for 25 million Californians, an agricultural industry that feeds millions, and a thriving economy.

The BDCP is a Habitat Conservation Plan (HCP) under the federal Endangered Species Act, and a Natural Community Conservation Plan (NCCP) under the California Natural Community Conservation Planning Act. The BDCP would result in long-term permits from regulatory agencies in return for meeting the Delta's ecological needs. The regulatory nature of the HCP/NCCP creates a durable regulatory framework that would allow for fundamental and systematic improvements in the Delta. This reflects a significant departure from the species-by-species approach utilized in previous efforts to manage Delta-specific species and habitats. Instead, the BDCP seeks to improve the health of the ecological system as a whole.

Delta-Vision Blue Ribbon Task Force

California Executive Order S-17-06 created the Delta Vision Blue Ribbon Task Force and directed it to develop a vision statement for sustainable management of the Delta and a management plan for the long-term restoration and maintenance of identified functions and values that are determined to be important to the environmental quality of the Delta and the economic and social well-being of the people of California. In 2009, the task force released its vision, which includes 12 recommendations:

- Delta ecosystem and a reliable water supply for California are the primary, coequal goals for sustainable management of the Delta.
- The California Delta is a unique and valued area, warranting recognition and special legal status from the State of California.
- The Delta ecosystem must function as an integral part of a healthy estuary.
- California's water supply is limited and must be managed with significantly more efficiency to be adequate for its future population, growing economy, and vital environment.
- The foundation for policy making about California water resources must be the long-standing constitutional principles of "reasonable use" and "public trust;" these principles are particularly important and applicable to the Delta
- The goals of conservation, efficiency, and sustainable use must drive California water policies.
- A revitalized Delta ecosystem will require reduced diversions, or changes in patterns and timing of those diversions, upstream, within the Delta and exported from the Delta at critical times.
- New facilities for conveyance and storage, and better linkage between the two, are needed to better manage California's water resources the estuary and exports.
- Major investments in the California Delta and the statewide water management system must be consistent with, and integrate specific policies in this vision. In particular, these strategic investments must strengthen selected levees, improve floodplain management, and improve water circulation and quality.
- The current boundaries and governance system of the Delta must be changed. It is essential to have an independent body with authority to achieve the co-equal goals of ecosystem revitalization and adequate water supply for California while also recognizing the importance of the Delta as a unique and valued area. This body must have secure funding and the ability to approve spending, planning and water export levels.
- Discouraging inappropriate urbanization of the Delta is critical both to preserve the Delta's unique character and to ensure adequate public safety.
- Institutions and policies for the Delta should be designed for resiliency and adaptation.

The Department of Water Resources

The DWR is responsible for the planning, construction, and operation of SWP facilities, including the California Aqueduct, and sets conditions on use of SWP facilities. In addition, DWR is responsible for statewide water planning, evaluating urban water management plans, overseeing dam safety and flood control, and transfer of certain water rights permits (e.g., pre-1914).

The California Department of Public Health

The California Department of Public Health (DPH) implements the SDWA. In addition, it oversees the operational permitting and regulatory oversight of public water systems. DPH requires public water systems to perform routine monitoring for regulated contaminants that may be present in their drinking water supply. To meet water quality standards and comply with regulations, a water system with a contaminant exceeding an MCL must notify the public and remove the source from service or initiate a process and schedule to install treatment for removing the contaminant. Health violations occur when the contaminant amount exceeds the safety standard (MCL) or when water is not treated properly. In California, compliance is usually determined at the wellhead or the surface water intake. Monitoring violations involve failure to conduct or to report in a timely fashion the results of required monitoring.

In addition, DPH conducts water source assessments, oversees water recycling projects, permits water treatment devices, certifies water system employees, promotes water system security, and administers grants under the State Revolving Fund and state bonds for water system improvements.

The California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) is responsible for oversight of hazardous substances and remediation of contaminated sites, including in some cases water sources.

Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act of 1967 (Water Code Section 13000 et seq.) requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative to the applicable and numerical water quality standards, and implementation procedures.

The Porter-Cologne Water Quality Control Act authorizes the state boards to adopt, review, and revise policies for all waters of the state (including both surface and ground waters) and directs the regional boards to develop Basin Plans. The act also authorizes state boards to adopt Water Quality Control Plans. In the event of inconsistencies among state and regional board plans, the more stringent provisions apply.

California Administrative Code Title 20 and Title 25

Title 20 (Sections 1604 and 1606) and Title 24 (Sections 2-5307 and 2-5352) of the California Administrative Code (CAC) which establishes efficiency standards (i.e., maximum flow rates) for all new showerheads, lavatory faucets, and sink faucets. These regulations also prohibit the sale of fixtures that do not comply with the current regulations; prohibit the installation of fixtures unless the manufacturer has certified compliance with the flow rate standards; and address pipe insulation requirements that can reduce water used before hot water reaches fixtures. Other applicable state water conservation laws include the Health and Safety Codes.

State Senate Bills 610 and 221

State Senate Bills (SB) 610 and SB 221were adopted in 2001. The bills require lead agencies to obtain an assessment from the local water supplier to determine the sufficiency of the water supply for a proposed development. SB 610 applies at the time an EIR is prepared; SB 221 applies at the time a Tentative Tract Map or other related project actions are approved.

As growth in the San Joaquin Region increases, and larger development projects are being proposed, the preparation of water supply assessments (WSAs) or written verifications pursuant to these bills is becoming increasingly more common, forcing some urban water purveyors in the area to question their ability to provide service to these developments. If water supplies were to be deemed unavailable, developers in the Region would be required to find water outside the Region in sufficient quantities to serve their projects.

Additionally, water agencies must coordinate with land use planning agencies in the development of their Urban Water Management Plans (UWMPs), which include projections of future water demand and water supply availability during normal and dry periods. Water agencies and land use planning agencies within the Region are working together to ensure adequate management and planning for water supplies to meet the needs of growing communities

Senate Bill X 7-7

Senate Bill 7 of Special Extended Session 7 (SB X7-7) was signed into law in November 2009; it calls for progress towards a 20 percent reduction in per capita water use statewide by 2020. As a result, the legislation now mandates each urban water retail supplier to develop and report a water use target in the retailer's 2010 UWMP. The legislation further requires that retailers report an interim 2015 water use target, their baseline daily per capita use and 2020 compliance daily per capita use, along with the basis for determining those estimates. SB X7-7 provides four possible methods for an urban retail water

supplier to use to calculate its water use target. DWR has also developed methodologies for calculating base daily per capita water use, baseline commercial, industrial and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use and landscape area water use. Agencies not in compliance with SB X7-7 will be ineligible for state loan and grant funding.

SB X7-7 also contains requirements for agricultural water suppliers. All agricultural water suppliers, either publicly or privately owned which irrigate 10,000 or more acres are required by SB X7-7 to implement critical Efficient Water Management Practices (EWMPs) and additional EWMPs if locally cost effective and technically feasible. Affected agricultural water suppliers must implement EWMPs by July 31, 2012. Critical EWMPs include:

- Each agricultural water supplier is to measure the volume of water delivered to customers with sufficient accuracy to comply with standards set by DWR.
- Each agricultural water supplier is to develop a pricing structure for water customers, based at least in part on the volume of water delivered.

SB X7-7 also created the Agricultural Water Management Planning Act, which requires affected agricultural water suppliers to adopt Agricultural Water Management Plans (AWMPs). These plans facilitate management and conservation of water suppliers, and also guide and document the implementation of EWMPs. The plans are mandatory for many suppliers and are required to be completed and adopted for affected agricultural water suppliers by December 31, 2012.

Assembly Bill 3616

This bill was enacted in 1990 and authorized the development of AWMP and the formation of the Agricultural Water Management Council (AWMC). Entities join the AWMC by signing the Agricultural Memorandum of Understanding (MOU) Regarding Efficient Water Management Practices (EWMPs) by Agricultural Water Suppliers in California. Entities signing the MOU voluntarily pledge to undertake the following activities:

- Prepare a water management plan and identify efficient water management practices that will be implemented;
- Perform a comprehensive Net Benefit Analysis on EWMPs to establish cost-effectiveness of each EWMP for implementation.
- Net Benefit Analysis takes into consideration the technical, environmental, socioeconomic, financial, and third party factors, thus helping to determine whether and in what manner implementation may be appropriate.

- Implement, in a timely manner, those EWMPs found to provide benefit in a cost effective manner.
- Prepare progress reports on implementation of EWMPs and results on a biannual basis.

Assembly Bill 1881

Assembly Bill 1881 built upon many past legislative acts related to landscape water use efficiency. AB 1881, the Water Conservation in Landscaping Act of 2006, enacted many landscape efficiency recommendations of the California Urban Water Conservation Council (CUWCC) for improving the efficiency of water use in new and existing urban irrigated landscapes in California. AB 1881 required DWR, not later than January 1, 2009 to update the existing Model Local Water Efficient Landscape Ordinance and local agencies to adopt the updated model ordinance or an equivalent no later than January 1, 2010. DWR has completed the update of the Model Local Water Efficiency Landscape Ordinance. The law also requires the Energy Commission to adopt performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

The Model Local Water Efficient Landscape limits the water budget for new landscapes (or rehabilitated landscapes), greater than 2,500 square feet, to 70 percent of the local reference evapotranspiration (ET). The model ordinance lays out the procedures for evaluating potential landscape water use during the land development process. In addition, the ordinance contains requirements for planting as well as the design and maintenance of irrigation systems, all with the intent of limiting outdoor water use and avoiding irrigation runoff.

Assembly Bill 1420

AB 1420, passed in 2007 and in effect as of January 2009, changes the funding eligibility requirements of Section 10631 of the Water Code (Urban Water Management Planning Act). For any urban water supplier to be eligible for grant or loan funding administered by DWR, the SWRCB, or the Bay-Delta Authority (such as Propositions 50 and 84), the supplier must show implementation the 14 water use efficiency demand management measures/best management practices (DMMs/BMPs) listed and described in the UWMP Act and the CUWCC Memorandum of Understanding, or show the schedule by which the supplier will begin implementing the DMMs/BMPs. Any supplier not implementing the measures based on cost-effectiveness must submit proof showing why the measures are not cost-effective.

Assembly Bill 2882

This bill was passed in 2008 and encourages public water agencies throughout California to adopt conservation rate structures that reward consumers who conserve water. Prior to AB 2882 state law authorized water agencies to promote conservation using rate structures; however, some agencies were concerned that such rate structures may be inconsistent with other parts of state law. AB 2882 clarifies the allocation-based rate structures and establishes standards that protect consumers by ensuring a lower base rate for those who conserve water.

California Public Resources Code

As defined in Public Resources Code 10910, a city or county determines whether the projected water demand associated with a proposed project was included as a part of the most recently adopted urban water management plan. If the water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, the water supply assessment for the proposed project must include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry and multiple dry water years during a 20-year projection would meet the projected water demand associated with the proposed project, in addition to the water systems' existing and planned future uses.

California Water Plan

The California Water Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The plan, updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the state's water needs.

Urban Water Management Plan

Urban Water Management Plans (UWMPs) are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 or more connections is required to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. This assessment is to be included in its UWMP, which are to be prepared every five years and submitted to the

Department of Water Resources. DWR then reviews the submitted plans to make sure they have completed the requirements identified in the Urban Water Management Planning (UWMP) Act (Division 6 Part 2.6 of the Water Code §10610 - 10656).

Groundwater Management Act

The Groundwater Management Act of 1992 (Wat. Code § 10750 et seq.), also known as AB 3030 (Stats. 1992, ch. 947), provides guidelines for local agencies to acquire authority over the management of groundwater resources in basins recognized by DWR. Its intent is to promote the voluntary development of groundwater management plans and provide criteria for the plans in order to ensure sustainable groundwater supplies for the future. It stipulates the technical components of a groundwater management plan as well as procedures for such a plan's adoption, including passage of a formal resolution of intent to adopt a groundwater management plan, and holding a public hearing on the proposed plan. AB 3030 also allows agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin, such as extraction wells, conveyance infrastructure, recharge facilities, and testing and treatment facilities. Sen. Bill No. 1938 (Stats. 2002, ch. 603) (SB 1938) also requires basin management objectives and other additions to be included in local groundwater management plans to comply with California Water Code (Wat. Code §10750–10756).

Stormwater Pollution Prevention Plans

The purpose of the Stormwater Pollution Prevention Plan (SWPPP) is to develop a strategy for construction projects to comply with Federal and State stormwater regulations. These regulations are put in place to minimize sediment and other pollutants in stormwater runoff commonly associated with construction activities

The SWPPP is a document that outlines how a construction project will minimize stormwater pollution. Construction sites are a well-known source of sediment and other pollutants which can cause significant harm to rivers, lakes, coastal waters, and flood control facilities. The SWPPP describes the contractor's activity to prevent pollution for the specific project. The SWPPP should be kept on the construction site and updated frequently to reflect changes at the site

Typically, SWPPPs are only required for construction projects that disturb more than 1 acre of developed or undeveloped land. Additionally, the California Green Building Code (CalGreen) requires SWPPPs for projects that disturb less than 1 acre.

Standard Urban Stormwater Mitigation Plans

The State Regional Water Quality Control Board adopted the Standard Urban Stormwater Mitigation Plan (SUSMP) in 2000. It was developed as part of the municipal stormwater program to address stormwater pollution from new developments and redevelopment projects. Project applicants are required to prepare and implement a Standard Urban Stormwater Mitigation Plan when their projects are identified as one of the following categories:

- Single-family hillside residential developments
- Housing developments of 10 or more dwelling units (including single-family tract developments)
- Industrial/Commercial developments with 1 acre or more of impervious surface area
- Automotive service facilities*
- Retail gasoline outlets*
- Restaurants*
- Parking lots of 5,000 square feet or more of surface area or with 25 or more parking spaces
- Projects with 2,500 square feet or more of impervious area that are located in, adjacent to, or draining directly to designated Environmentally Sensitive Areas (ESA)

Project applicants will be required to incorporate stormwater mitigation measures into their design plans and submit the plans to the local jurisdiction for review and approval. Any project that cannot comply with the Low Impact Development Ordinance requirements shall be required to comply with, at a minimum, all applicable Standard Urban Stormwater Mitigation Plan SUSMP requirements in order to maximize on-site compliance.

The County Service Area Law

The law allows residents or county supervisors to initiate the formation of a County Service Area (CSA). A CSA is authorized to provide a wide variety of services, including extended police protection, fire protection, park and recreation facilities, libraries, low power television and translation facilities and services. CSAs also may provide other basic services such as water and garbage collection if they are not already performed on a countywide basis.

A CSA may span all unincorporated areas of a county or only selected portions. A CSA may issue General Obligation or Revenue Bonds, or form improvement areas for the purpose of issuing bonds that

specifically benefit, and will be charged to, only part of the CSA. Any bond issuance or other long-term debt will require approval of voters residing within the CSA.

Delta Mercury Total Maximum Daily Load

As of November 2008, the CVRWQCB has contracted with the California State US Center for Collaborative Policy to convene a stakeholder process to address the Delta mercury TMDL. The process began in 2005 when the report titled "Sacramento-San Joaquin Delta Estuary TMDL for Methyl and Total Mercury Draft Report" was released. As a result, the Central Valley RWQCB is developing a TMDL value for mercury in the Delta by developing a Delta methyl mercury TMDL and a Basin Plan Amendment. The methyl mercury TMDL development is underway. Once completed, a Basin Plan Amendment staff report will be prepared, which will propose a site-specific water quality objective for the Delta, an implementation plan to achieve the objective, and regulations to reduce mercury and methyl mercury discharges.

Local

Delta Protection Act of 1959

The Delta Protection Act, enacted in 1959, defined the boundaries of the Delta within the Water Code of the State of California. These boundaries are often referred to as the Legal Delta. The Delta Protection Act was passed during the same legislative session as the Burns-Porter Act, which authorized construction of the State Water Project (SWP). The Delta Protection Act guarantees an adequate water supply to Delta water users and protection from increased levels of salinity due to the export of water through the CVP and SWP.

Framework for Delta Legislative Options

On April 14, 2009, the County Board of Supervisors approved a set of goals, conditions, and actions that address the County's legislative interests in the Delta. The framework lays out criteria for the creation of a Delta Plan, requests $51 million for emergency response and levee repair during a flood, expresses the need for a "water master" type of public official position, and calls on the state to allow enough water storage projects in the state to increase water capacity 5 million acre-feet more than the needs of the Delta.

Stockton Urbanized Area NPDES Municipal Permit

The County of San Joaquin includes the City of Stockton, 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 referred to as the Stockton Urbanized Area and are subject to the NPDES Phase I municipal permit, Order No. RS-2007-0173 (CAS083470). Phase II of the NPDES Stormwater program builds on the Phase I program by requiring smaller communities not covered by Phase I to be permitted to develop and implement a comprehensive stormwater management program. The County is currently completing the permit process for the Phase I portion of the NPDES program.

San Joaquin Stormwater Management Program

The December 2007 update of the City of Stockton and the County of San Joaquin NPDES municipal stormwater permit Stormwater Management Program (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 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 within their respective jurisdictions and 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.

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.

Stormwater Management and Discharge Control Ordinance No. 3966

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 also addresses construction activities, new development, redevelopment, and BMPs.

County and City General Plans

General plans can be described as a city or county's "blueprint" for future development. It represents the community's view of its future; a constitution made up of the goals and policies upon which the city council, board of supervisors, or planning commission will base their land use decisions. To illustrate its importance, all subdivisions, public works projects, and zoning decisions (except in charter cities) must be consistent with the general plan. If inconsistent, they must not be approved.

State law requires that each city and each county adopt a general plan containing the following seven components or "elements": land use, circulation, housing, conservation, open-space, noise, and safety (Government Code Sections 65300 et seq.). At the same time, each jurisdiction is free to adopt a wide variety of additional elements covering subjects of particular interest to that jurisdiction such as recreation, urban design, or public facilities. The seven cities included in San Joaquin County have created general plans. The general plans of the County and its local jurisdictions are discussed below.

San Joaquin County General Plan

- The availability of a long-term, reliable potable water supply shall be a primary determinant in the planning of areas for growth.
- The minimum requirements for water for the approval of tentative maps shall include many specified elements including the relationship of map area with community service districts.
- Public water systems shall be provided by an existing public or quasi-public agency, or by a new district if no public agency in the community or other area planned for a public system is empowered to provide water supply services.
- In antiquated subdivisions, a public water supply shall be required for issuance of building permits for new residences on parcels less than 2 acres.
- The need for water system improvements shall be reduced by encouraging new development to incorporate water conservation measures into their projects.
- Water supplies serving new development shall meet state water quality standards. If necessary, water shall be treated to meet these standards.
- The County shall not take actions that result in an increased demand upon the water supply available to San Joaquin County as of April 1, 1991.

- The Delta shall be recognized as an area of international importance and as a major recreational, wildlife, agricultural, and economic resource of San Joaquin County.

- Waterway development and development on Delta islands shall protect the natural beauty, the fisheries, wildlife, riparian vegetation, and the navigability of the waterway.

- Development in the Delta islands shall generally be limited to water-dependent uses, recreation, and agricultural uses.

City of Escalon General Plan

- Continue to coordinate community irrigation ditch issues with local districts, private ditch companies, private landowners, and public agencies. Irrigation ditches shall be piped as a condition of approval prior to development on subject property.

- Developers shall prepare an infrastructure and public services assessment.

- Prepare and implement Citywide infrastructure master plans.

- Coordinate urban growth management planning with public and private utilities.

- Design stormwater runoff drainage structures to decrease erosion.

- Developers shall construct all tributary facilities necessary to connect to major infrastructure facilities, whether or not the major facilities have yet been constructed.

- Temporary drainage facilities such as retention basins shall be dedicated to the City.

- To encourage groundwater recharge, ponding basins shall be designed as retention basins.

- New municipal water well sites should be planned which include pump, storage, pressure filtration and/or treatment equipment. These new wells should be located so that they will not conflict with planned residential neighborhoods.

- Conditions of approval shall be implemented with each development to assure that the necessary water production, distribution and/or treatment facility is in place prior to issuance of a building permit.

City of Lathrop General Plan

- The City of Lathrop is the most logical governmental entity to assume management responsibility for water service to the developing urban pattern.

- Development within the City's three sub-plan areas is to be served by the City under development agreements between the City and project developers.

- Any Water, Wastewater, and Recycled Water Master Plan update should provide for the eventual integration of the water well and distribution system serving the existing community with the

system(s) needed to serve areas of urban expansion to avoid potential future problems of groundwater quality associated with the existing system.

- In developing additional groundwater sources to meet requirements for firm water supply, the City will be required to meet state and federal standards of water quality, including concern for such factors as taste, odor control, color, removal of any unique compounds of minerals identified through water testing.

- Pressurized water for fire suppression should be available at flows in the range of 1,000 gallons per minute (gpm) (for all residential areas) to 3,000 gpm (for commercial, industrial, and institutional areas) for a period of 60 to 120 minutes over and above normal community water uses.

City of Lodi General Plan

- The City, together with San Joaquin County, shall monitor the water quality of the Mokelumne River and Lodi Lake to determine when the coliform bacterial standard for contact recreation and the maximum concentration levels of priority pollutants are exceeded.

- The City shall post signs at areas used by water recreationists warning users of health risks whenever the coliform bacteria standard for contact recreation is exceeded.

- The City shall prohibit new industrial development that will adversely affect water quality in the Mokelumne River or in the area's groundwater basin.

- The City shall explore the potential development of surface water sources to augment the City's groundwater supply.

- The City shall regularly monitor water quality in municipal wells for evidence of contamination from Dibromochloropropane (DBCP, a pesticide), saltwater intrusion, and other toxic substances that could pose a health hazard to the domestic water supply.

- The City shall close or treat municipal wells that exceed the action level for DBCP.

- The City shall explore a program of complete wastewater reclamation and reuse at the White Slough Water Pollution Control Facility (WSWPCF).

- The City shall support efforts on a county, regional, state, and federal level to reduce runoff of toxic chemicals from agricultural lands.

- The City shall provide for an adequate high-quality water supply prior to approving future development.

- The City shall monitor outfalls to the Mokelumne River and the Woodbridge Irrigation District Canal consistent with EPA and State Water Quality Control Board requirements.

- The City shall require water conservation in both City operations and private development to minimize the need for the development of new water sources and facilities.

- The City shall meter all new residential developments.

- The City shall investigate a program for metering all existing residential uses.

- The City shall require water-conserving landscaping practices in new City projects and in private development, such as the use of drought-tolerant plants and irrigation techniques.

City of Manteca General Plan

- Secure sufficient sources of water to meet the needs of the existing community and planned residential and commercial growth.

- The City will continue to rely principally on groundwater resources for its municipal water in the near term, will participate in the regional improvements to deliver surface water to augment the City's groundwater supply.

- The City shall develop new water sources as necessary to serve new development.

- The City shall develop new water storage facilities and major distribution lines as necessary to serve new development.

- The City will provide water for future development to maintain a balance of jobs and housing.

- City water services shall not be extended to unincorporated areas except in extraordinary circumstances.

- Development of private water wells within the City limits shall be allowed only where the City makes a finding that it cannot feasibly provide water service. Such systems shall only be allowed to be used until such time as City water service becomes available.

- The City will develop and implement water conservation measures as necessary elements of the water system.

- The City shall continue to assess a water development fee on all new commercial, industrial, and residential development sufficient to fund system wide capacity improvements. The water development fee schedule shall be periodically reviewed and revised as necessary.

- Ensure that all new development provides for and funds a fair share of the costs for adequate water distribution, including line extensions, easements, and plant expansions.

- The City shall continuously monitor water flows through the City's water system to identify areas of potential water loss and cases of under billing for water service and shall make improvements in the systems as necessary.

- The City shall monitor water quality regularly and take necessary measures to prevent contamination.

- The City of Manteca shall include a groundwater analysis as a technical analysis of water system capacity and shall prepare an environmental analysis in the PF-P that addresses the quality and availability of groundwater.

- The City of Manteca shall consider incremental increases in the demands on groundwater supply and water quality when reviewing development applications.

City of Ripon General Plan

- Require residential and commercial development to connect to City water, non-potable water, wastewater treatment, and storm drainage systems.
- Industrial, mixed use and highway service development may install on-site water, non-potable water, wastewater treatment and storm drainage systems if approved by the City Engineer and City Council.
- Evaluate new development projects for consistency with planned facilities identified in the Public Facilities Financing Plan.
- Adopt, and update as required, City fee ordinance, which reflects current estimates of public facilities costs and the allocation of those costs to future urban development.
- Subdivision projects shall be referred to utility agencies for comment. Easements necessary to provide service to the project shall be dedicated on the final map or parcel map.
- The City shall ensure that new development provides necessary infrastructure to develop residential projects that will meet the needs of the community, including schools, irrigation and drainage facilities, and water wells.
- Expand City's existing system to regularly monitor and evaluate the physical condition and quality of the groundwater system underlying Ripon, and to identify the need for supplemental water as required.
- Identify and secure available sources of supplemental surface water for replacement or recharge of groundwater as required.
- Manage land use and sewage disposal as required to maintain adequate groundwater quality.
- Promote water conservation through public dissemination of groundwater and municipal water use information.
- Develop a plan, financing mechanism, and target date for installation of water meters on un-metered portions of the water system.
- Promote reclamation and reuse of municipal and industrial wastewaters for irrigation, recharge, or other beneficial uses.
- Encourage development and relocation of regional irrigation and drainage systems to align parallel to existing or approved roadways.
- The City shall continue to implement water conservation programs that save significant amounts of water at a reasonable cost.

- The City shall evaluate long-term water supply strategies, including acquiring or developing additional water supplies that would be available during drought periods, to offset the shortages anticipated from existing supplies, and improved water conservation and re-use.

- The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected water demands.

- The City shall monitor water quality regularly to ensure that safe drinking water standards are met and maintained in accordance with state and EPA regulations and take necessary measures to prevent contamination.

- The City shall ensure that water supply capacity and infrastructure are in place prior to granting building permits for new development.

- The City shall not approve new development that relies on water from the Delta Water Supply Project until this Delta water is allocated through a water right to the City by the State Water Resources Control Board or a replacement water supply is secured.

- The City shall ensure through the development review process that public facilities and infrastructure are designed to meet ultimate capacity needs, pursuant to a master plan, to avoid the need for future replacement to achieve upsizing.

- The City shall work in concert with other water purveyors in the region to achieve the target yield (0.6 afy) of the drinking water aquifer, and shall limit its long-term average groundwater withdrawals to this target yield.

- The City shall encourage the use of non-potable water supplies for irrigation of landscape.

City of Stockton General Plan

- The City shall continue to implement water conservation programs that save significant amounts of water at a reasonable cost.

- The City shall evaluate long-term water supply strategies, including acquiring or developing additional water supplies that would be available during drought periods, to offset the shortages anticipated from existing supplies, and improved water conservation and re-use. For new development, the City will require the installation of non-potable water infrastructure for irrigation of large landscaped areas where feasible and cost effective. Conditions of approval will require connection and use of non-potable water supplies when available at the site.

- The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected water demands.

- The City shall establish a process for monitoring water demand growth trends to anticipate water supply needs.

- The City shall monitor water quality regularly to ensure that safe drinking water standards are met and maintained in accordance with state and EPA regulations and take necessary measures to prevent contamination.

- The City shall maintain adequate levels of water service by preserving, improving, and replacing infrastructure as necessary.

- The City shall ensure that water supply capacity and infrastructure are in place prior to granting building permits for new development.

- The City shall not approve new development that relies on water from the Delta Water Supply Project until this Delta water is allocated through a water right to the City by the State of Water Resources Control Board or a replacement water supply is secured.

- The City shall ensure through the development review process that public facilities and infrastructure are designed to meet ultimate capacity needs, pursuant to a master plan, to avoid the need for future replacement to achieve upsizing. For facilities subject to incremental sizing, the initial design shall include adequate land area and any other elements not easily expanded in the future.

- The City shall work in concert with other water purveyors in the region to achieve the target yield (0.6 afy) of the drinking water aquifer, and shall limit its long-term average groundwater withdrawals to this target yield.

- The City shall encourage the use of non-potable water supplies for irrigation of landscape.

- Prior to approval of any tentative small lot subdivision map for a proposed residential project of more than 500 dwelling units, the City shall comply with Government Code Section 66473.7. Prior to approval of any tentative small lot subdivision map for a proposed residential project of 500 or fewer units, the City need not comply with Section 66473.7 or formally consult with the public water system that would provide water to a proposed subdivision, but shall nevertheless make a factual showing or impose conditions similar to those required by Section 66473.7 in order to ensure an adequate water supply for development authorized by the map. Prior to recordation of any final small lot subdivision map, or prior to City approval of any project-specific discretionary approval or entitlement required for nonresidential land uses, the City or the project applicant shall demonstrate, based on substantial evidence, the availability of a long-term, reliable water supply from a public water system for the amount of development that would be authorized by the final subdivision map or project-specific discretionary nonresidential approval or entitlement. Such a demonstration shall consist of a written verification that existing sources are or will be available and that needed physical improvements for treating and delivering water to the project site will be in place prior to occupancy.

City of Tracy General Plan

- Ensure that reliable water supply can be provided within the City's service area, even during drought conditions.

- Provide adequate water infrastructure facilities to meet current and future populations.

- Promote coordination between land use planning and water facilities and service.

- Design and manage water system facilities for reliability during catastrophic events such as fires, power outages, droughts, and earthquakes.

- Use recycled water to reduce non-potable water demands whenever practicable and feasible.

4.13.3 ENVIRONMENTAL IMPACTS

Thresholds of Significance

For the purposes of this Program EIR, SJCOG has determined that adoption and/or implementation of the proposed RTP/SCS (including RTP policies, the SCS, and the transportation project list and financing plan) would result in significant impacts to the County's water resources, if any of the following could occur:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality, or substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- Substantially interfere with groundwater recharge.
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or place within a 100-year flood hazard area structures which would impede or redirect flood flows; or 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; and/or inundation by seiche or mudflow.
- Substantially increase demand for water such that existing supplies and facilities would not be able to accommodate demand.

Methodology

The analysis assesses the potential impacts to water resources that could result from implementation of the 2014 RTP/SCS. For each potential impact, implementation of the proposed RTP is analyzed at the regional level.

Impacts are assessed in terms of both land use and transportation impacts. By 2040, implementation of the proposed RTP will result in a land use pattern and transportation network that is different from existing conditions.

Comparison with No Project Alternative

The analysis of water resources includes a comparison of the expected future conditions with the 2014 RTP/SCS and the expected future conditions if no RTP/SCS were adopted (No Project). This evaluation is not included in the determination of significance of impacts (which is based on comparison to existing conditions as required under CEQA); however, it provides meaningful perspective on the effects of the RTP/SCS.

Cumulative Analysis

The RTP addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the RTP, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the Program EIR covers overall impacts of all transportation projects and land development described in the RTP. In addition, this Program EIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Determination of Significance

The methodology for determining the significance of water impacts compares the existing conditions to the RTP/SCS conditions, as required by *State CEQA Guidelines* Section 15126.2(a). The known water resources located within the region were evaluated using the criteria set forth by the California Department of Water Resources, FEMA, and the *State CEQA Guidelines*. The research analysis includes water resources of local significance.

Generally, with regard to water impacts, the greater the change from existing conditions, the more noticeable the change to the environment. The construction of a new roadway generally has a greater impact on water resources than the widening of an existing one as it would result in the loss of a greater amount of permeable surface. Road widening, however, can have significant local impacts especially when requiring the removal of trees and other important landscape buffers, or when construction of noise barriers or other visual impediments is necessary.

The development of new transportation facilities may affect water resources, either through direct effects to water sources or through indirect effects to the area surrounding a resource if toxins pollute the area's water resources. The region contains a fair number of water resources; therefore, the potential for impacts to water resources is significant. Improvements within existing rights-of-way are less likely to affect existing water resources; however, new highway segments near water resources would constitute a significant impact. Also, reducing buffer zones between transportation corridors and reduction of water resources through lane widening could cause significant impacts.

Since this document analyzes impacts to water resources on a program level only, project-level analysis of impacts must be undertaken as appropriate.

Impacts and Mitigation Measures

Impact WAT-1 **Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality, or substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.**

Construction activities could potentially involve soil disturbance, excavation, cutting/filling, stockpiling, and grading. Consequently, erosion and sedimentation could increase, affecting water quality, as well as pollutants in the water, including draining in to the Delta. During site grading, trenching, and other construction activities, areas of bare soil are exposed to erosive forces during rainfall events. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. The extent of anticipated impacts is dependent on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, and topography and proximity to drainage channels.

In addition to impacts from construction activities, the proposed RTP/SCS would increase impervious surfaces in San Joaquin County through a combination of transportation projects and development. Substantial adverse impacts to water quality are often caused by urban runoff from increased impervious surfaces and discharges of constituents to federal Clean Water Act Section 303(d)-listed waters. Anticipated runoff contaminants from projects included in the proposed RTP/SCS include sediment, pesticides, herbicides, fertilizers, oil and grease, nutrients metals, bacteria, and trash. Contributions of these contaminants to stormwater and non-stormwater runoff could degrade the quality of receiving waters in and around the Plan area especially after the first storm event. During an initial storm event, the concentrated pollutants would be transported via runoff to stormwater drainage systems. Contaminated runoff waters could flow into the stormwater drainage systems that discharge into rivers, agricultural ditches, sloughs, and channels and ultimately could degrade the water quality of any of the County's bodies of water.

Several bodies of water in the study area, including major rivers, creeks, and tributaries (**see Table 4.13-3**) have been identified under the Clean Water Act Section 303(d) as being impaired by a variety of contaminants. These constituents originate from a variety of sources, but generally include agricultural

activities, such as irrigation runoff, and urban nonpoint sources of runoff from landscaping, rooftops, trash, and illegal dumping.

In order to address impaired waters, the State Water Board has several permit processes for municipal stormwater and construction runoff. In addition, several jurisdictions in the plan area, including the County, have adopted BMPs and ordinances that address the issues of construction-related runoff and runoff resulting from new development. Proponents (public agencies and private developers) of construction projects that disturb one or more acres of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain a Construction General Permit from the State Water Board. The project proponent must propose control measures consistent with the state's permit, and develop a Storm Water Pollution Prevention Plan for each site, which includes BMPs to reduce potential impacts.

Further, before discharging any dewatered effluent to surface water, project proponents are required to obtain an NPDES MS4 permit and Waste Discharge Requirement from the Central Valley RWQCB. Depending on the volume and characteristics of the discharge, coverage under the NPDES General Construction Permit may be permissible. If coverage under the NPDES Construction General Permit is not allowed, projects must conform to requirements of the General Dewatering Permit, issued by the Central Valley RWQCB.

Transportation projects where Caltrans is the lead agency are covered by the Caltrans Stormwater Program. As described above, this permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities, and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

The DSC will review and provide timely advice to local agencies and San Joaquin COG regarding the consistency of local planning documents and the proposed RTP/SCS with the Delta Plan, including the ecosystem restoration needs of the Delta and reviewing whether the lands set aside for natural resources protection are sufficient to meet the Delta's ecosystem needs. If the DSC concludes that the draft RTP/SCS is inconsistent with the Delta Plan, they must provide written notice of the claimed inconsistency to the SJCOG no later than 30 days prior to the adoption of the final RTP/SCS. If the DSC provides timely notice of a claimed inconsistency, SJCOG should include a detailed response to the council's notice in the final RTP/SCS

The 2014 RTP/SCS would directly increase impervious surfaces with the County; specifically the 2014 RTP/SCS would add approximately 256 new lane miles to the County. The 2014 RTP/SCS would also

consume approximately 18,123 acres of land that would largely be converted to impervious surfaces. The addition of lane miles could result in the alteration of storm flows or degradation of water quality. In urban areas impacts could be reduced as fewer opportunities expansion of roadways. However, as the potential still exists for degraded water quality, impacts would be potentially significant.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

WAT-1 Implementing and local agencies should undergo individual project review and comply with NPDES requirements.

Level of Significance After Mitigation

The increased development would increase pollutant runoff, but projects would be required to comply with requirements to prepare and implement (SWPPPs and SUSMPs. Compliance with **Mitigation Measure WAT-1**, which is required by law, would reduce impacts to less than significant.

Impact WAT-2 Substantially interfere with groundwater recharge.

Under natural conditions, vegetation intercepts and retains rainfall before infiltration or runoff occurs resulting in natural groundwater recharge. With a roadway or other hard surface, infiltration is impeded. Roadways greatly impede groundwater recharge as the natural areas are replaced with hard surfaces. The volume of storm water washed off 1 acre of roadway is about 16 times greater than that of a comparably sized meadow.[45] As such, an increase in roadways would be expected to interfere with groundwater recharge.

The proposed 2014 RTP/SCS would directly result in approximately 256 new lane miles through 2040. This would include new roadway projects and the widening of existing roadways**. Appendix 3.0** lists the roadway improvement projects which include construction of new lanes and/or expansion of existing lanes in each city and unincorporated areas of the County. These additions would include new facilities and additional right-of way on existing facilities. Thus, where these projects involve installation of additional impervious surfaces, impacts to groundwater infiltration would be significant.

45 Scheuler, T. R. (1994). "The Importance of Imperviousness." *Watershed Protection Techniques 1(3)*: 100-111.

The increase in impervious surfaces due to the additional miles of roadway, in addition to urban development associated with the anticipated development patterns for 2040 would increase runoff and potentially affect groundwater recharge rates. Thus, impacts to groundwater recharge related to land use and transportation changes resulting from implementation of the proposed 2014 RTP/SCS at the regional level are considered potentially significant for **Impact WAT-2.** Mitigation is required; see **Mitigation Measures WAT-2** through **WAT-5** below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

WAT-2: Implementing and local agencies should ensure that projects requiring continual dewatering facilities implement monitoring systems and long-term administrative procedures to ensure proper water management that prevents degrading of surface water and minimizes, to the greatest extent possible, adverse impacts on groundwater for the life of the project. Construction designs can and should comply with appropriate building codes and standard practices including the Uniform Building Code.

WAT-3: Implementing and local agencies should maximize, where practical and feasible, permeable surface area in existing urbanized areas to protect water quality, reduce flooding, allow for groundwater recharge, and preserve wildlife habitat. New impervious surfaces can and should be minimized to the greatest extent possible, including the use of in-lieu fees and off-site mitigation.

WAT-4: Implementing and local agencies should avoid development in groundwater recharge areas. Where feasible, transportation facilities should not be sited in groundwater recharge areas, to prevent conversion of those areas to impervious surface.

WAT-5: Implementing and local agencies to reduce hardscape to the extent feasible to facilitate groundwater recharge as appropriate.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced, although not to a level of less than significant in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures WAT-2** through **WAT-5**, impacts could remain significant and

unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact WAT-3 **Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or place within a 100-year flood hazard area structures which would impede or redirect flood flows; or 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; and/or inundation by seiche or mudflow.**

The proposed 2014 RTP/SCS would include the construction of additional 102,396 housing units by 2040 and substantial additional transportation infrastructure.

While the majority of growth will take place outside of flood zones, some new housing could occur within flood zones. The areas designated as Zone A in **Figure 4.13-4,** are located within the FEMA-designated 100-year floodplain. The proposed 2014 RTP/SCS could increase the amount of housing in flood hazard areas, but state regulations, in combination with local ordinances and federal regulations, as well as ongoing improvements to flood protection infrastructure, would likely mitigate the risk associated with housing in these areas. Further, individual project sponsors are required by state and federal regulations to obtain necessary approvals for construction within designated floodplains.

A portion of the transportation projects included in the proposed 2014 RTP/SCS could occur within the 100-year flood hazard area, thus increasing the potential to obstruct or exacerbate floodwaters. The construction of projects involving support structures in the floodway could obstruct floodwaters at some locations. Placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. Structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels. The Plan could alter existing drainage patterns or substantially increase the rate or amount of surface runoff in a manner that would result in flooding or produce or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems.

Storm water runoff is influenced by rainfall intensity, ground surface permeability, watershed size and shape, and physical barriers. The introduction of impermeable surfaces greatly reduces natural infiltration, allowing for a greater volume of runoff. In addition, paved surfaces and drainage conduits can accelerate the velocity of runoff, concentrating peak flows in downstream areas faster than under natural conditions. Significant increases to runoff and peak flow can overwhelm drainage systems and alter flood elevations in downstream locations. Increased runoff velocity can promote scouring of existing drainage facilities, reducing system reliability and safety.

The 2014 RTP/SCS would result in increased impervious surfaces through transportation projects and development. Additional impervious surfaces increases storm water runoff volumes and peak flow rates. This increase has the potential to create or contribute runoff flows that would exceed the capacity of existing or planned storm water drainage systems. In addition, placing new structures within an existing floodplain can impede flood waters, altering the flood risks both upstream and downstream.

Natural desert conditions promote runoff that can cause flash flooding. In those areas of San Joaquin where soils have naturally low permeability and are subject to quick saturation, high rain volumes remain on the surface as runoff. When impervious surfaces such as highways are placed within these areas of an existing flood plain the public is exposed to the hazards of flash flooding. As discussed above, **Figure 4.13-4**, identifies federally designated flood hazard zones in the San Joaquin County.

The highway and arterial projects proposed in the 2014 RTP/SCS generally include widening existing highways, constructing new interchanges, new highway segments, and new rail lines. Some of the proposed transit projects would involve construction of new rail lines, new stations, and upgrades to existing stations, and are not included in the calculation of approximately 256 new lane miles.

Placing new structures within an existing floodplain can impede flood waters, altering the flood risks both upstream and downstream. The flooding risks associated with projects located in flood zones can be modified with appropriate design and alignment considerations. The amount of new urbanized acreage (consuming previously vacant land) would be on the order of 18,123 acres. The additional urbanized acreage expected by 2040 could increase stormwater runoff. Mitigation would be required.

Therefore, the impacts associated with land use changes and transportation projects from the implementation of the proposed RTP/SCS are considered potentially significant for **Impact WAT-3** Mitigation is required see **Mitigation Measures WAT-6** through **WAT-8**, below.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

WAT-6: Implementing and local agencies should conduct or require project-specific hydrology studies for projects proposed to be constructed within floodplains to demonstrate compliance with applicable federal, state, and local agency flood-control regulations. These studies should identify project design features or mitigation measures that reduce impacts to either floodplains or flood flows to a less than significant level. For the purposes of this mitigation, less than significant means consistent with federal, state, and local regulations and laws related to development in the floodplain.

WAT-7 Implementing and local agencies should comply with local, state, and federal floodplain regulations. Projects requiring federal approval or funding should comply with Executive Order 11988 on Floodplain Management, which requires avoidance of incompatible floodplain development, restoration, and preservation of the natural and beneficial floodplain values, and maintenance of consistency with the standards and criteria of the National Flood Insurance Program.

WAT-8 Implementing and local agencies should to the extent feasible and appropriate, prevent development in flood hazard areas that do not have appropriate protections.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced, although not to a level of less than significant in all cases. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures WAT-6** through **WAT-8**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable.

Impact WAT-4 Substantially increase demand for water such that existing supplies and facilities would not be able to accommodate demand

Water agencies that either provide over 3,000 acre-feet of water annually or serve more than 3,000 or more connections in San Joaquin County are required to submit Urban Water Management Plans (UWMPs) to the California Department of Water Resources every five years. Urban water management plans include an estimation of water usage across all sources (commercial, residential, agricultural etc.).

Most urban water management plans do not plan for water demand to 2040, therefore, estimates of supply and demand in this EIR are considered approximate.

As discussed in the Environmental Setting above, the largest water usage in San Joaquin County is for agricultural resources. Agricultural demand is based on various crop evapotranspiration (ET) and efficiency data collected by DWR and is shown in **Table 4.16-4**. Although historically the trend of agricultural water use has been decreasing, for purposes of the 2014 RTP/SCS analysis, future agricultural water demands are assumed to stay the same at 1,070,017 afy (acre-feet/year). However, by 2040, with the 2014 RTP/SCS, agricultural land would be reduced by 8,140 acres which would be expected to reduce the overall water demand from agricultural lands. Other factors such as crop type, climate, and availability of water are also expected to impact demand from the agricultural sector.

The projected population in San Joaquin County is anticipated to increase by approximately 365,692 people. Water consumption estimated for the new growth is expected to be approximately 274.7 gallons per day per household.[46] As discussed above, many water service providers have not identified water supplies through 2040 in their plans.

Other sources of water demand include commercial and industrial uses. It is beyond the scope of this EIR to estimate water usage associated with each of these sectors and no sufficient data currently is available to make such an estimation. While it is expected there would be an increase among these sectors, due to various state and federal programs, increasing awareness of drought conditions, and water restrictions, it is assumed that each of these areas would become more efficient in water usage.

Reduction in water supply, as well as uncertainty in the reliability of that supply, could result from increased temperatures due to global climate change, as well as regulatory or legislative decisions that affect the availability of imported water. Thus, many agencies are implementing aggressive water conservation, recycling and planning strategies (water transfer and water banking) to reduce demand and even out supply in wet and dry years.

Meeting future water demand is ultimately the responsibility of local and regional water agencies. Water supplies are either produced locally from groundwater and surface water sources or are imported via the California Aqueduct and the CVP. Other means of providing water without increasing imported supplies include reclamation and recycling, conservation, water transfers, groundwater banking, developing brackish groundwater, and ocean desalination.

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46 San Joaquin COG, 2014

Each water district develops its own policy for determining its planning horizon and for acquiring and building water facilities. Further, water districts provide water for the growth planned and authorized by the appropriate land use authority. If water agencies can supply the water necessary to meet future demand and/or minimize that demand, impacts would be less than significant. However, given the challenges to imported water supplies and reducing groundwater depletion, and the uncertainly of water supplies in general meeting future demand is expected to be difficult. Therefore, water demand impacts related to land use and transportation changes from implementation of the proposed RTP/SCS are considered potentially significant for **Impact WAT-4.** Mitigation is required. **Mitigation Measures WAT-9** through **WAT-15** are described below.

Level of Significance Before Mitigation

Potentially significant

Mitigation Measures

WAT-9: SJCOG, in coordination with regional water agencies and other stakeholders, should encourage the kind of regional coordination throughout California that develops and supports sustainable policies in accommodating growth.

WAT-10: Regional water agencies should consider, to the greatest extent feasible, potential climate change hydrology and attendant impacts on available water supplies and reliability in the process of creating or modifying systems to manage water resources for both year round use and ecosystem health. As the methodology and base data for such decisions is still developing, agencies can and should use the best currently available science in decision making.

WAT-11: Implementing and local agencies should reduce exterior uses of water in public areas, and promote reductions in private homes and businesses by shifting to drought-tolerant native landscape plantings, using weather-based irrigation systems, educating other public agencies about water use, and installing related water pricing incentives. Local jurisdictions should work with local water retailers to promote the availability of drought resistant landscaping options and provide information on where these can be purchased. Use of reclaimed water especially in median landscaping and hillside landscaping can and should be implemented where feasible.

WAT-12: Future impacts to water supply should be minimized through cooperation, information sharing, and program development as part of the SJCOG's ongoing regional planning efforts, in-coordination with regional water agencies, and other stakeholders.

WAT-13: Implementing and local agencies should coordinate with the local water provider to ensure that existing and/or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with state law, a water supply assessment can and should be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor will identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider will be required at the time that a water connection permit application is submitted.

WAT 14: Implementing and local agencies to implement water conservation measures in new development that should include but not be limited to the following:

- High efficiency toilets
- Restroom faucets with automatic shut-off
- High efficiency clothes washers
- High efficiency dishwashers
- Use of reclaimed water for appropriate uses
- Water saving irrigation measures including: weather-based irrigation controller with rain shut-off.

WAT-15: Implementing and local agencies should consult with the local water provider to identify feasible and reasonable measures to reduce water consumption, including, but not limited to, systems to use reclaimed water for landscaping, drip irrigation, re-circulating hot water systems, water conserving landscape techniques (such as mulching, installation of drip irrigation systems, landscape design to group plants of similar water demand, soil moisture sensors, automatic irrigation systems, clustered landscaped areas to maximize the efficiency of the irrigation system), water conserving kitchen and bathroom fixtures and appliances, thermostatically controlled mixing valves for baths and showers, and insulated hot water lines.

WAT-16: Implementing and local agencies should comply with local drought measures as appropriate including prohibiting hose watering of driveways and associated walkways; requiring decorative fountains to use recycled water, and repairing water leaks in a timely manner.

WAT-17: Implementing and local agencies should adopt and implement a comprehensive strategy to increase water conservation and the use of recycled water that includes similar measure to the following:

- **Water Consumption Reduction Target:** Regional water agencies should work together to set a target for to reduce per capita water consumption by 2020.
- **Water Conservation Plan:** Regional water agencies should establish a water conservation plan that may include such policies and actions as:
  - Tiered rate structures for water use;
  - Restrictions on time of use for landscape watering, and other demand management strategies;
  - Performance standards for irrigation equipment and water fixtures;
  - Requirements that increased demand from new construction be offset with reductions so that there is no net increase in water use.
- **Recycled Water Use:** Local jurisdictions and regional water agencies should establish programs and policies to increase the use of recycled water, including:
  - Create an inventory of non-potable water uses within the jurisdiction that could be served with recycled water;
  - Produce and promote the use of recycled water for agricultural, industrial, and irrigation purposes, including grey water systems for residential irrigation;
  - Produce and promote the use of treated, recycled water for potable uses where greenhouse gas emissions from producing such water are lower than from other potable sources.
- **Water Conservation Outreach:** Local jurisdictions and regional water agencies should implement a public education and outreach campaign to promote water conservation, and highlights specific water-wasting activities to discourage, such as the watering of non-vegetated surfaces and using water to clean sidewalks and driveways

WAT-18: Implementing and local agencies should establish building design guidelines and criteria to promote water-efficient building design, including minimizing the amount of non-roof

impervious surfaces around the building(s) and menus and check-lists for developers and contractors to ensure water-efficient infrastructure and technology are used in new construction, including low-flow toilets and shower heads, moisture-sensing irrigation, and other such advances.

WAT-19: Implementing and local agencies should establish criteria and standards to permit the safe and effective use of gray water (on-site water recycling), and review and appropriately revise, without compromising health and safety, other building code requirements that might prevent the use of such systems.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced, although not to a level of less than significant. Because this document evaluates impacts at the programmatic level, all project circumstances are not foreseeable and therefore, even with implementation of **Mitigation Measures WAT-9** through **WAT-19**, impacts could remain significant and unavoidable. As appropriate, SJCOG will encourage lead agencies to adopt these mitigation measures through its Intergovernmental Review process. However, SJCOG cannot require implementing agencies to adopt these mitigation measures, as it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore, this impact remains significant and unavoidable. .

4.13.4 CUMULATIVE EFFECTS

Cumulatively, both the Plan and the No Project Alternative would impact water quality, groundwater recharge, flood hazards, and water supply. The No Project Alternative would accommodate the same increase in population as projected for the Plan but in a more dispersed pattern. To reduce land consumption, the Plan includes land use measures that encourage development targeted in urban areas. These measures are largely absent in the No Project alternative. Large lot development associated with the No Project Alternative would result in greater demands on water supply. This increase in water consumption would pull additional water from imported sources, thereby limiting water available for other parts of the state. The land use strategies included in the plan would result in a more compact development pattern that would be more water efficient. The water providers within the County that serve the population would need to coordinate water supply with nearby jurisdictions. Given the unreliability of water supply in the region, the result of 365,692 additional people would be cumulatively conservable.

Additional impacts described above include water quality effects. These impacts would be greater under the No Project Alternative as increased impervious surface (which contributes to water quality impacts)

would be greater under the No Project. The Plan could also facilitate access to other areas of the state by increasing infrastructure which could ultimately induce growth (and associated impermeable surfaces) in areas outside San Joaquin County. This could result in greater impacts to water quality and could affect water in areas outside the San Joaquin County. Therefore, cumulative water quality impacts would be greater under the No Project than the Plan alternative.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Refer to **Mitigation Measures WAT-1** through **WAT-19**, above.

Level of Significance After Mitigation

If the implementing agency adopts these mitigation measures, impacts would be reduced although it is not anticipated impacts would be reduced to less than significant in all cases. However, SJCOG cannot require implementing agencies to adopt mitigation, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Further, this document evaluates impacts at the programmatic level; all project circumstances are not foreseeable. As appropriate, SJCOG, through its Intergovernmental Review process, will encourage implementing agencies to adopt these mitigation measures. However, as SJCOG cannot require implementation of these measures, impacts could remain significant and unavoidable.

4.13.5 COMPARISON WITH NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the San Joaquin COG region would still grow by close to 365,692 people by 2040, however no regional transportation investments would be made above the existing programmed projects. The population distribution would follow past trends, uninfluenced by the Plan's emphasis on urban areas.

Since the No Project Alternative includes fewer transportation and development projects than the Plan, it would have a lesser impact in terms of water demand and quality. Under the No Project Alternative, only those projects currently funded and programmed would be constructed. Overall, fewer transportation project would be constructed (including fewer lane miles) and as a result, stormwater runoff associated with transportation infrastructure could be reduced compared to the Plan.

The No Project Alternative would accommodate the same increase in total population, households as the Plan. However, the Plan includes strategies to focus growth in urban areas which would help reduce the disruption of natural lands and vegetation in rural areas (under the No Project Alternative 35,184 acres of land would be consumed compared to 18,123 acres under the Plan). The No Project Alternative could increase stormwater runoff as a result of more land disturbed/urbanized, as well as increase development in outlying areas including flood zones. Under the No Project Alternative, land use strategies to concentrate growth may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans.

Regarding water supply, water usage for new development would increase under the No Project Alternative from 274.17 gallons per day under the plan to 462.50 million gallons per day per household under the No Project. This would occur even though the population total would be the same indicating growth patterns would be less water efficient. However, more important farmland would be consumed under the No Project Alternative (23,875 acres) which could result in a reduction in water usage associated with agricultural lands.

The No Project Alternative impacts would be greater than the Plan for **Impacts WAT-1, WAT-2**, **WAT-3**, and **WAT-4** because of the increased urbanization, water consumption for new growth, development in flood plains and the potential for increased impervious surfaces (i.e., land consumption).

5.0 OTHER CEQA CONSIDERATIONS

Section 15126 of the *California Environmental Quality Act (CEQA) Guidelines* requires that all phases of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify (1) significant environmental effects of the proposed project, (2) significant environmental effects that cannot be avoided if the proposed project is implemented, (3) significant irreversible environmental changes that would result from implementation of the proposed project, and (4) growth-inducing impacts of the proposed project. This section addresses all four of these impact categories.

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

Table 2.0-1, Summary of Impacts and Mitigation Measures, in the **Executive Summary** Section of this Program EIR, and **Section 4.0** of this Program EIR provide a comprehensive identification of the proposed project's environmental effects, including the level of significance both before and after mitigation. Many of the impacts that are determined to be significant and unavoidable could be mitigated to less than significant at the project level. However, this Program EIR is at the programmatic level, project information and detailed plans are not available. Therefore, without the ability to evaluate each project that could occur as a result of the Plan, these impacts were determined to be significant and unavoidable.

Section 15126.2(b) of the *State CEQA Guidelines* requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Implementation of the proposed project would result in the following unavoidable significant and project-related and/or cumulative impacts. As discussed previously, SJCOG cannot require implementing agencies to adopt mitigation measures. In many cases, if implementing agencies were to adopt the recommended mitigation measures, impacts would be reduced to less than significant. However, as SJCOG does not have this authority and because this document evaluates impacts at the programmatic level and project specific information is not available; many impacts below are considered to remain significant and unavoidable at the programmatic level. Where compliance with existing regulations would reduce impacts, impacts were found to be less than significant, as compliance is assumed to occur without SJCOG action.

Aesthetics

Implementation of the RTP/SCS would obstruct views of or alter the appearance of scenic resources or vistas along designated vista points and local scenic routes. In addition, construction and implementation of the projects associated with the Plan could create significant contrasts with the overall visual character of the landscape, as well as light and glare and shade and shadow effects. The effects of each of these impacts could also result in cumulative impacts outside the region.

Agricultural Resources

Implementation of the projects and land use strategies in the RTP/SCS would result in a substantial disturbance/loss of farmlands and forestland. Construction and operation of projects and development anticipated to occur under the Plan would directly result in the consumption of these lands and would contribute to statewide impacts. As the County is a primary producer of a variety of crops and one of the largest agricultural counties in the state, the loss of farmland could result in cumulative impacts statewide.

Air Quality

Implementation of the 2014 RTP/SCS would result in substantial reductions of reactive organic gases (ROG), oxides of nitrogen (NOx), and carbon monoxide (CO) in the region. These would be considered beneficial impacts. Emissions of fine particulate matter (PM2.5) from mobile sources and respirable particulate matter (PM10) would slightly increase.

Biological Resources

Implementation of the RTP/SCS could conflict with local agencies' adopted policies, plan, and/or regulations and displace natural vegetation, some of which is used as habitat for sensitive species in the San Joaquin COG region. Projects included in the Plan would contribute to habitat fragmentation of existing habitat, while forming barriers to animal migration or foraging routes. Construction and operation of projects and development anticipated to occur under the Plan would increase near-road disturbances such as litter, trampling, light pollution, and road noise, and would result in damage to previously inaccessible and undisturbed natural areas, or direct fatalities to wildlife. The Plan could result in potentially displacing or disturbing riparian or wetland habitat, prime farmland or grazing lands, or existing open space and recreation lands. In addition, siltation of streams and other water resources may result from construction activities in proximity to erodible soils. The Plan would contribute to a cumulatively considerable loss of biological resources and open space.

Cultural Resources

Implementation of the RTP/SCS could disturb or cause a substantial adverse change in the significance of historical, archaeological, or paleontological resources. The Plan would contribute to a cumulatively considerable loss of cultural resources.

Geology, Soils and Mineral Resources

Implementation of the RTP/SCS would expose people or structures to seismic hazards such as surface rupture, ground shaking, liquefaction, landslides, seismically induced ground shaking, seiches, or tsunami waves. In addition, projects included in the Plan could be located on expansive or unstable soils, resulting in potential on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. However, transportation and development projects undertaken as part of the RTP/SCS would be required to comply with the most recent Uniform Building Code (UBC) and California Building Code (CBC), thus impacts would be less than significant. Earthwork associated with construction of Plan projects and development could result in substantial soil erosion and/or loss of topsoil. The Plan would also result in a significant loss of aggregate resources in the region and would contribute to a cumulatively considerable loss of these resources.

Greenhouse Gas Emissions

Implementation of the 2014 RTP/SCS would increase greenhouse gas (GHG) emissions by 2.6 million metric tons as compared to existing conditions. Total GHG emissions from the Plan (including GHG emissions from emissions factors outside of SJCOG's control (e.g., energy, water, etc.) could be greater than the GHG emissions target set by AB 32, which states that 2020 emissions must equal 1990 levels, or be 15 percent below 2005 levels. In other words, the Plan could not by itself meet the AB 32 reduction targets. However, implementation of the 2014 RTP/SCS would meet the GHG emissions reduction targets set by ARB pursuant to SB 375.

Hazards

Implementation of the RTP/SCS would increase the risk of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Projects included in the Plan may increase the risk of emitting hazardous materials within 0.25 mile of sensitive receptors. In addition, the increased mobility associated with the Plan may significantly increase the risk associated with hazardous materials transport to areas outside of the San Joaquin COG region.

Land Use and Population

Although the RTP/SCS is based on local general plans and input from local governments and local transportation agencies, many general plans do not extend to the RTP horizon year (2040). As a result, implementation of the projects and land use strategies in the RTP/SCS could result in inconsistencies with currently applicable adopted local land use plans and policies. Projects associated with the Plan have the potential to disrupt or divide established communities, and would facilitate substantial population growth to some areas of the region, and may require the acquisition of rights-of way that could displace existing homes and businesses. The Plan would result in an increase in density and land use development and would contribute to a cumulatively considerable effect related to population and housing.

Public Services and Utilities

Implementation of the RTP/SCS would result in an increased need for police, fire, and increase the demand for school facilities within the San Joaquin region. The Plan would result in loss or disturbance to existing open space and recreation lands. Thus, the Plan would contribute to a cumulatively considerable demand for public services. Implementation of the RTP/SCS would result in the use of electricity, natural gas, gasoline, diesel, and other non-renewable energy types in the construction and expansion of transportation facilities. Similar to public services, the Plan would contribute to a cumulatively considerable demand for utilities.

Transportation and Circulation

Implementation of projects included in the RTP/SCS would increase total daily Vehicle Miles of Travel (VMT) in 2040 compared to current daily VMT and would conflict with the Congestion Management Plan (CMP). The Plan would decrease congestion potentially making it easier for people to live and work outside the region, thereby inducing land uses changes and increasing congestion outside the region, these impacts also could be cumulatively considerable.

Water Resources

Implementation of the RTP/SCS would degrade local surface water quality due to increased roadway runoff from construction of transportation projects. Increased impervious surfaces would reduce groundwater infiltration. The Plan would influence the pattern of urbanization in the San Joaquin region, and would contribute to the conversion of undeveloped land to urban areas. This would result in impacts to storm water infiltration and groundwater recharge. In addition, this increased urbanization would contribute to an increased demand for water supply and associated infrastructure, as well as an increased need for wastewater treatment capacity. The proposed RTP/SCS would include the construction of

additional 100,116 housing units by 2040 and substantial additional transportation infrastructure. A portion of the transportation projects and land use developments could take place within the flood zones. The Plan would contribute to a cumulatively considerable impact on water supply, water quality, groundwater recharge, and flood hazards.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

Section 15126.2(c) of the *State CEQA Guidelines* requires a discussion of any significant irreversible environmental changes that would be caused by the proposed project. Specifically, Section 15126.2(c) states:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irreversible commitments of resources should be evaluated to assure that such current consumption is justified.*

Generally, a project would result in significant irreversible environmental changes if any of the following would occur:

- The primary and secondary impacts would generally commit future generations to similar uses;
- The project would involve a large commitment of nonrenewable resources;
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

Resources that would be permanently and continually consumed by the proposed project's implementation include water, electricity, natural gas, fossil fuels, and aggregate resources; however, the amount and rate of consumption of these resources would not result in significant environmental impacts related to the unnecessary, inefficient, or wasteful use of resources. In addition, construction activities related to the proposed project would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobile and construction equipment and aggregate supply used in construction.

With respect to operation activities, compliance with all applicable building codes, as well as project mitigation measures or project requirements, would help ensure that natural resources are conserved or

recycled as feasible. It is also possible that new technologies or systems will emerge, or will become more cost-effective or user-friendly, that will further reduce the region's reliance upon nonrenewable natural resources; however, even with implementation of conservation measures consumption of natural resources would generally increase with implementation of the Plan.

A long-term increase in the demand for electrical and natural gas resources would occur. However, the proposed project would not involve wasteful or unjustifiable use of energy or other resources, and energy conservation efforts could also occur with new construction. In addition, new development associated with the proposed project will be constructed and operated in accordance with specifications contained in Tile 24 CCR. Therefore, the use of energy on-site would occur in an efficient manner.

5.3 GROWTH INDUCEMENT

Section 15126.2(d) of the *State CEQA Guidelines* requires that growth-inducing impacts of a proposed project be considered. Growth inducing impacts are characteristics of a project that could directly or indirectly foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. According to the *State CEQA Guidelines*, such projects include those that would remove obstacles to population growth (e.g., a major expansion of a wastewater treatment plant) and projects that encourage and facilitate other activities that are beyond those proposed as part of the project and could affect the environment are growth inducing. In addition, as set forth in the *State CEQA Guidelines*, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. The *State CEQA Guidelines* also state that it must not be assumed that growth in an area is necessarily beneficial, detrimental or of little significance to the environment. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth, in some other way, significantly affects the environment (i.e., that it would result in construction that would adversely affect the environment).

Project Overview

The 2014 RTP/SCS can be considered the San Joaquin region's 27-year "statement of priorities" for the future transportation system. Therefore, at the highest level, the goals, policies, objectives, and performance indicators contained in the RTP/SCS are all designed to articulate: what the region wants the future transportation system to look like, what types of decisions will help the region attain its vision, and measures, or indicators by which the region can assess its progress. Establishing clear linkages between the broad, value-laden goals and the more specific performance indicators helps to provide a tangible path towards success.

The 2014 RTP/SCS built upon the 2011 RTP goals, policies, objectives, and performance measures foundation in order to provide a simplified and more clearly articulated vision of the future that emphasizes the fundamental values reflected in past RTPs, while at the same time, addresses the current values and priorities as articulated through public outreach efforts as well as by the voters in San Joaquin County through both the renewal of the County's Measure K sales tax.

In addition, SJCOG revisited adopted Revenue Policies and project Delivery Policies that target specific issues relating to the funding and delivery of transportation projects in the region to ensure they continue to reflect the values of the region. SJCOG staff conducted a comprehensive review that resulted in the following over-arching goals that guide the plan.

- Enhance the Environment for Existing and Future Generations & Conserve Energy
- Maximize Mobility & Accessibility
- Increase Safety & Security
- Preserve the Efficiency of the Existing Transportation System
- Support Economic Vitality
- Promote Interagency Coordination & Public Participation for Transportation Decision-Making & Planning Efforts
- Maximize Cost Effectiveness
- Improve the Quality of Life for Residents

As discussed in **Section 3.0 Project Description**, over the lifetime of the 2014 RTP/SCS, SJCOG forecasts that there will be an additional 365,692 people added to this large and diverse area. The 2014 RTP/SCS is based on growth forecasts in the region in 2040 as shown in **Table 5.0-1 Existing and 2040 Population, Households, and Employment**.

Table 5.0-1
2040 Population, Households, and Employment

	Population		Households		Employment	
	Existing (2012)	Plan (2040)	Existing (2012)	Plan (2040)	Existing (2012)	Plan (2040)
San Joaquin COG	704,794	1,070,486	219,640	319,756	206,900	299,717

Source: San Joaquin COG 2014, The Planning Center/DC & E 2012, University of the Pacific 2012

To accommodate this growth, the proposed 2014 RTP/SCS forecasts the need for an additional 18,123 acres of land, which constitutes less than two percent of the total acreage in the County.

The proposed 2014 RTP/SCS promotes efficient growth and is a significant departure from the business as usual development patterns predicted in the 2011 RTP. The plan also promotes a balance of land uses throughout the entire region. This approach represents an evolution in regional planning that coordinates local land use decisions with regional, state, and federal transportation funding decisions and air quality planning. It also addresses new statutory requirements to examine land use and transportation in the context of global climate change and state-mandated reductions in GHG emissions. As a result, and as demonstrated in this Draft EIR, the proposed RTP/SCS is expected to result in the following beneficial outcomes:

- Reductions in per capita GHG emissions that exceed the minimum targets established for SJCOG by CARB;
- Increases in the productivity of the transit system;
- Greater levels of investment in a multi-modal transportation system, including bicycle and pedestrian facilities;
- Better integration of future land use patterns, transportation investments and air quality impacts, including higher levels of development near current and future transit

Analysis of Growth Inducement

This analysis examines the following potential growth-inducing impacts related to implementation of the proposed 2014 RTP/SCS and assesses whether these effects are significant and adverse:

1. Foster population growth and construction of housing
2. Eliminate obstacles to population growth
3. Foster economic growth
4. Affect service levels, facility capacity, or infrastructure demand; an
5. Encourage or facilitate other activities that could significantly affect the environment

Foster Population Growth and Construction of Housing

Section 4.9 Land Use and Population of this Draft Program EIR, examines growth associated with the proposed 2014 RTP/SCS. The SCS outlines a plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs and

changing demographics and transportation demands. The SCS focuses development in urban areas near HQTAs and other opportunity areas resulting in more opportunity for transit-oriented development. This overall land use pattern supports and compliments the proposed transportation network that emphasizes system preservation, active transportation (such as bike lanes), and transportation demand management measures.

By law and by design, the proposed RTP/SCS provides a coordinated strategy for managing land use patterns and transportation investments to accommodate projected population growth. The plan is intended to help shape growth patterns in the County, leading to better efficiency and more compact land use patterns that are better served by transit and other mode choice options. It would be inaccurate to conclude the plan would induce growth as SJCOG has no land use authority in this regard. All land use decisions remain at the local level. Further, as required by law, the plan identifies areas within the region sufficient to house the population of the region; therefore it is tailored to meet population growth, not to foster the construction of housing that has the potential to induce growth.

While population growth remains a factor generally outside of local control, cities and counties do control the provision of housing and employment opportunities for that population, and this ultimately determines densities, growth patterns, and resulting efficiencies in the use of land and resources. The proposed RTP/SCS reflects a concerted attempt of local governments to influence population growth in a beneficial manner. The proposed RTP/SCS represents the coordination of local land use policies with transportation investments that support mixed-use and compact development, transportation options, housing choice and diversity, conservation of agricultural land and natural resources, and use of existing assets. By accommodating efficient, sustainable, compact growth in existing developed areas and limited new areas, regional development pressures are accommodated in a more sustainable pattern, resulting in overall beneficial effects for the region.

The proposed RTP/SCS is also a less consumptive plan comparatively. By 2040, the RTP/SCS plan area is projected to increase by approximately 365,694 people, 92,839 jobs, and 100,186 households. Implementation of the proposed RTP/SCS will convert approximately 18,123 acres of undeveloped land, which represents a 16 percent increase in the amount of developed land over existing conditions. Comparatively, the projected population and housing unit growth represent 51 percent and 45 percent increases over existing conditions, respectively, indicating that implementation of the proposed RTP/SCS will result in more compact development than existing conditions.

Development consistent with the proposed RTP/SCS would result in additional commerce, industry, recreation, public services, and infrastructure throughout the region. However, as substantiated by the growth forecasts, this growth is projected to occur under any scenario and even without the 2014

RTP/SCS. By influencing the location and nature of this growth, adverse outcomes are avoided or minimized, and regional opportunities are maximized. Therefore, rather than fostering population growth and the construction of housing, the plan accommodates and manages that growth.

Eliminate Obstacles to Growth

Impediments to growth may be physical, regulatory, or fiscal. A physical obstacle to growth typically involves the lack of public infrastructure or insufficient infrastructure capacity. The extension of public service infrastructure (e.g., roadways, water and sewer lines) into areas that are not currently provided with these services may be considered growth inducing. Similarly, the elimination of a regulatory obstacle, such as a service boundary or growth management policy, or a change in land use designation, can also result in new growth in a manner that might be considered growth inducing. In addition, resolution of infrastructure funding constraints or the identification of new sources of funding can facilitate growth by funding the construction of new infrastructure.

The proposed 2014 RTP/SCS would result in significant investments and improvements in the regional circulation system in support of planned growth. In theory, transportation improvements can remove impediments to growth by providing access and roadway capacity to new areas for development and, depending on location, creating roadway capacity that induces travel. Additionally, because community-serving infrastructure (e.g., roadways, water, and sewer lines) and services often are located within or adjoining road rights-of-way, the construction of roadways can facilitate the expansion and/or extension of infrastructure.

In this case, however, the transportation network is made to fit to the land use plan. The transportation investments focus on maintaining the current system, the expansion of roads, targeting cost-effective expansions of transit, and increasing the commitment to walking and bicycling investments. This is based on the overall policy objectives of SB 375 and thus the plan to, among other things, increase roadway optimization, increase modes of travel other than single occupancy automobile use, increase access to jobs and amenities, reduce VMT, and reduce GHG emissions. Among the strategies to meet these goals is a mix of land uses balanced to minimize VMT and maximize the ability for residents to conduct everyday activities within their neighborhood without the need to travel by car. In other words, the plan's roadway investments are located and sized to accommodate the forecasted growth.

One of the plan objectives for the proposed 2014 RTP/SCS is to more efficiently utilize the regional transportation system. More efficient utilization of roadways demonstrated in the proposed RTP/SCS indicates that projects are right-sized to match travel demand, without creating excess roadway capacity that increases VMT and induces growth. Moreover, the plan results in increasing transit productivity,

increasing bicycling and walking mode share, decreasing auto mode share, and decreasing VMT per capita. This substantiates the conclusion that the strategic roadway expansions in the proposed RTP/SCS, in combination with other modal investments, support more compact development, more sustainable and more efficient development without inducing the type of population growth that would require development of more land for urban purposes.

Of the road and highway expenditures in the 2014 RTP/SCS, approximately $3.2 billion of the investment would go to system expansion or roadway capacity improvements. This investment when compared to the plan's investment in system maintenance, transit, bicycle and pedestrian facilities, demonstrates the adaptation of the plan to the forecasted population needs, and financial constraint.

As established above, rather than eliminating obstacles to growth, the plan responds to growth that is outside the regulatory control of SJCOG.

Foster Economic Growth

As discussed above, the proposed 2014 RTP/SCS was developed to respond to forecasted population increases, employment opportunities, and housing needs within the region. Therefore, the RTP/SCS is designed to accommodate growth that would occur with or without the proposed RTP/SCS; it is not designed, nor is it anticipated to, drive further population growth beyond the levels forecasted. The plan supports the successful economic growth and prosperity of the region as required by law. Federal regulations governing the preparation of regional transportation plans require that they "support the economic vitality of the metropolitan area."[1] Moreover, economic growth is critical for the economic recovery of the region. But the population growth resulting from that economic recovery and vitality is accommodated by the plan—it is not a growth-inducing byproduct of the plan.

Affect Service Levels, Facility Capacity, or Infrastructure Demand

While growth that may occur consistent with the proposed RTP/SCS could result in increases in demand for public services and infrastructure in excess of the existing conditions, SJCOG's member agencies retain the authority to ensure the provision of appropriately timed and sized services and utilities to serve new urban development concurrent with growth. **Section 4.11** of the Draft EIR addresses this impact.

1 23 CFR § 450.306

Encourage or Facilitate Other Activities That Could Significantly Affect the Environment

This Draft Program EIR provides a comprehensive assessment of the potential for environmental impact associated with implementation of the proposed RTP/SCS. Please refer to **Section 4.0**, which comprehensively address the potential for impacts from land use changes and transportation projects resulting from implementation of the proposed RTP/SCS.

Summary

In summary, the proposed RTP/SCS responds to growth in a manner substantially consistent with local general plans, regional values and visions, and state and federal laws. The plan accounts for growth likely to occur during the 27-year plus planning horizon and makes assumptions about location and design that promote regional environmental benefits. While growth inducement can be considered an adverse impact under CEQA, the proposed RTP/SCS is growth accommodating not inducing, and results in environmentally beneficial outcomes. Therefore, any potential for adverse impact is considered less than significant, and additional mitigation measures beyond those identified in **Section 4.0** are not necessary.

6.0 ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that an EIR describe a reasonable range of alternatives to the project or to the location of the project that could feasibly avoid or lessen significant environmental impacts while substantially attaining the basic objectives of the project.[1] An EIR should also evaluate the comparative merits of the alternatives. This section sets forth potential alternatives to the proposed project and provides a qualitative analysis of each alternative and a comparison of each alternative to the proposed project. Key provisions of the *State CEQA Guidelines* pertaining to the alternatives analysis are summarized below.[2]

- The discussion of alternatives shall focus on alternatives to the project including alternative locations that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

- The No Project Alternative shall be evaluated along with its impacts. The No Project Alternative analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would reasonably be 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.

- The range of alternatives required in an EIR is governed by a "rule of reason." That requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the proposed project.

- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner intended to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in *State CEQA Guidelines* Section 15126.6[f][1]) are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site.

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are feasible, and, therefore, merit in-depth

1 *State CEQA Guidelines*, California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, § 15126.6, 2013.

2 *State CEQA Guidelines*, California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, § 15126.6, 2013.

consideration. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet project objectives, are infeasible, or do not avoid any significant environmental effects.

6.1 PROJECT OBJECTIVES

As called for by the *State CEQA Guidelines*, the achievement of project objectives must be balanced by the ability of an alternative to reduce the significant impacts of the project. The objectives of the 2014 RTP/SCS are the following goals:

- Enhance the Environment for Existing and Future Generations & Conserve Energy
- Maximize Mobility & Accessibility
- Increase Safety & Security
- Preserve the Efficiency of the Existing Transportation System
- Support Economic Vitality
- Promote Interagency Coordination & Public Participation for Transportation Decision-Making & Planning Efforts
- Maximize Cost Effectiveness
- Improve the Quality of Life for Residents

The policies, supplemental strategies, and performance indicators for this document are all designed to articulate: (1) what the region wants the future transportation system to look like; (2) what types of decisions will help the region attain its vision, and; (3) the performance measures or indicators by which the region can assess its progress. Establishing clear linkages between the broad, value-laden goals and the more specific performance indicators helps to provide a tangible path towards feasible implementation.

A feasible alternative must meet most if not all of these project objectives. In addition, while not specifically required under CEQA, other parameters may be used to further establish criteria for selecting alternatives such as adjustments to phasing, and other "fine-tuning" that could shape feasible alternatives in a manner that could result in reducing identified environmental impacts.

6.2 ALTERNATIVES TO THE PROPOSED PROJECT

The CEQA statute, the *State CEQA Guidelines*, and related recent court cases do not specify a precise number of alternatives to be evaluated in an EIR. Rather, "the range of alternatives required in an EIR is governed by the rule of reason that sets forth only those alternatives necessary to permit a reasoned

choice." At the same time, Section 15126.6(b) of the *State CEQA Guidelines* requires that "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project" and Section 15126.6(f) requires, "[t]he alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project." Accordingly, alternatives that would not address potentially significant effects are not considered herein. However, the *State CEQA Guidelines* Section 15126.2(e) requires that a "No Project" alternative must be included. Other project alternatives may involve a modification of the proposed land uses, density, or other project elements at the same project location.

Alternatives should be selected on the basis of their ability to attain all or most of the basic objectives of the project while reducing the project's significant environmental effects. The *State CEQA Guidelines* Section 15126.6 (d) states that "[t]he EIR should briefly describe the rationale for selecting alternatives to be discussed [and]...shall include sufficient information to allow meaningful evaluation, analysis and comparison with the proposed project." The feasibility of the alternatives is another consideration in the selection of alternatives. The *State CEQA Guidelines* Section 15126.6(f)(1) states that "[a]mong the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations [and] jurisdictional boundaries." Also, "[t]he range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making." Alternatives that are considered remote or speculative, or whose effects cannot be reasonably predicted do not require consideration. Therefore, feasibility, the potential to mitigate significant project-related impacts, and reasonably informing the decision-maker are the primary considerations in the selection and evaluation of alternatives.

The following alternatives are analyzed in this Program EIR; they represent a reasonable range and bracket the range of potential impacts. The No Project Alternative is required by CEQA; 2011 RTP represents what could occur under the previous RTP (with updates to population information); and the Compact Development Alternative represents enhancements to the Plan that are anticipated to reduce some impacts associated with the Plan:

Alternative 1 – No Project

The No Project Alternative is required by Section 15126.6(e)(2) of the *State CEQA Guidelines* and assumes that the proposed project would not be implemented. The No Project Alternative allows decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. However, "no project" does not necessarily mean that development will be prohibited. The No Project Alternative includes "what would 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."[3] For purposes of this document, the No Project Alternative includes only those transportation projects that are included in the first year of the previously conforming transportation plan and/or TIP, or have completed environmental review by January 2014. These reasonably foreseeable projects fulfill the definition of the CEQA mandated "No Project Alternative." The growth scenario included in the No Project Alternative is based on local general plans. Each impact area addressed in **Section 4.0** includes a discussion of the No Project Alternative as well as a comparison of the No Project Alternative with the Plan.

Alternative 2 – 2011 RTP Alternative

The 2011 RTP Alternative is an update of the adopted 2011 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions. This alternative does not include urban form strategies included within the SCS. The growth scenario for the 2011 RTP Alternative is a combination of local input and existing general plan and land use data provided by local jurisdictions.

Alternative 3 – Compact Development Alternative

The Compact Development Alternative builds on the enhanced density and ideas of the SCS as described in the Plan and goes further. It includes more aggressive densities than the Plan, increases mobility through additional transportation investments, reduces emissions, and limits the development of single-family housing that would be built in the region. The Compact Development transportation network is similar to the Plan network with minor changes to transit frequency. The growth network associated with Compact Development Alternative limits single-family housing as a percentage of new growth to 49.9 percent (as opposed to 58.8 percent under the RTP/SCS).

Table 6.0-1 summarizes the housing mix for each of the alternatives.

3 *State CEQA Guidelines* Section 15126.6[e][2]

Table 6.0-1
Summary of Growth for RTP and Alternatives

Alternative	% Infill	GROWTH ONLY		
		Multi-family /Mixed Use	Small Lot/Mobile Home	Large Lot/Conventional Single Family Detached
Plan	3.16	42,126	33,405	26,869
No Project	1.01	8,827	31,516	62,064
2011 RTP	1.01	8,827	31,516	62,064
Compact	4.82	51,298	32,635	18,487

Source: San Joaquin Council of Governments, 2014
Notes: Some numbers were rounded

A summary comparison of major impact categories of the project and alternatives is included in **Table 6.0-2, Comparison of Alternatives to the Proposed Project**.

Table 6.0-2
Comparison of Alternatives to the Proposed Project

Environmental Issue	Project Impact	Alternative 1 – No Project Alternative	Alternative 2 – 2011 RTP Alternative	Alternative 3- Compact Development Alternative
Aesthetics				
Scenic Vistas	Significant	Similar (significant)	Similar (significant)	Lesser (significant)
Visual Character	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Light and Glare	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Agricultural Resources				
Convert Prime Farmland	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Conflict with Land Use/Williamson Act	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Convert Forest land	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Air Quality				
Long Term Criteria Pollutants	Less than Significant	Greater (less than significant)	Greater (less than significant)	Lesser (less than significant)
Short Term Criteria Pollutants	Significant	Lesser (less than significant)	Greater (significant)	Lesser (significant)
Long Term Air Toxics	Significant	Greater (significant)	Greater (significant)	Lesser (significant)
Localized Air Toxics	Significant	Lesser (significant)	Lesser (significant)	Lesser (significant)
Consistent with Air Quality Plans	Less than Significant	Greater (less than significant)	Greater (less than significant)	Lesser (less than significant)
Biological Resources				
Sensitive Species	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Riparian Communities	Significant	Greater (significant)	Greater (significant)	Similar (significant)

Environmental Issue	Project Impact	Alternative 1 – No Project Alternative	Alternative 2 – 2011 RTP Alternative	Alternative 3- Compact Development Alternative
Wetlands	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Migratory Fish/Birds	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Local Plans/HCPs	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Cultural Resources				
Historic Resources	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Archeological Resources	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Paleontological Resources	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Disturb Human Remains	Less than significant	Greater (significant)	Greater (significant)	Similar (significant)
Geology, Soils, and Mineral Resources				
Seismic Risk (ground shaking, landslides, liquefaction)	Less than significant	Similar (significant)	Similar (significant)	Similar (significant)
Soil Erosion	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Expansive Soil	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Mineral Resources	Significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant
Greenhouse Gas Emissions				
Increase GHG Emissions	Significant	Greater (significant)	Greater (significant)	Lesser (significant)
Conflict with AB 32	Significant	Greater (significant)	Greater (significant)	Lesser (significant)
Conflict with Senate Bill (SB) 375	Less than Significant	Greater (significant)	Greater (significant)	Lesser (less than significant)
Hazards and Hazardous Materials				
Transport, use or disposal of hazardous materials	Less than Significant	Similar (significant)	Similar (significant)	Similar (significant)
Upset and accident conditions	Less than Significant	Similar (significant)	Similar (significant)	Similar (significant)
Emit hazardous materials	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Located on a hazardous materials site	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Hazardous materials near an airport	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Interfere with an emergency response plan	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Land Use				
Conflict with plans	Significant	Similar (significant)	Similar (significant)	Greater (significant)
Divide a community	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Noise				
Expose persons to noise levels in excess of established standards	Significant	Similar (significant)	Similar (significant)	Greater (significant)
Groundborne vibration	Significant	Similar (significant)	Similar (significant)	Greater (significant)

Environmental Issue	Project Impact	Alternative 1 – No Project Alternative	Alternative 2 – 2011 RTP Alternative	Alternative 3- Compact Development Alternative
Public Services - Fire				
Create the need for new fire facilities	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Expose people/structures to wildfire risk	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Public Services - Police				
Create the need for new police facilities	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Public Services - Schools				
Create the need for new school facilities	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Public Services - Parks				
Increase the use of existing parks	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Require construction of new parks	Significant	Similar (significant)	Similar (significant)	Similar (significant)
Transportation and Traffic				
Substantial increase in VMT	Significant	Greater (significant)	Greater (significant)	Lesser (significant)
Conflict with CMP	Significant	Similar (significant	Similar (significant)	Similar (significant)
Change air traffic patterns	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Increase hazards	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Inadequate emergency access	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Conflict with alternative transportation plans	Less than significant	Similar (less than significant)	Similar (less than significant)	Similar (less than significant)
Utilities - Energy				
Increase energy consumption	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Use substantial amounts of energy	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Uncover utility lines	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Utilities - Wastewater				
Exceed the capacity of existing or planned facilities	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Utilities – Solid Waste				
Generate substantial increases in solid waste	Less than Significant	Greater (significant)	Greater (significant)	Similar (significant)
Water Resources				
Violate water quality standards	Less than Significant	Similar (significant)	Similar (significant)	Similar (significant)
Interfere with groundwater recharge	Less than Significant	Greater (significant)	Greater (significant)	Similar (significant)
Place housing in flood plains	Significant	Greater (significant)	Greater (significant)	Similar (significant)
Substantial increase in demand for water	Significant	Greater (significant)	Greater (significant)	Similar (significant)

Analysis of Alternative 1 – No Project Alternative

Aesthetics

The No Project Alternative includes fewer transportation projects than the Plan and would have a lesser impact in terms of obstructing views and scenic resources, creating contrasting visual elements and adding visual elements to existing natural, rural areas. The No Project Alternative would not affect any vista points.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas which would help reduce the consumption and disturbance of natural lands and reduce impacts to aesthetics and views. Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. The Plan also includes transportation improvements that facilitate access to undeveloped lands, making those lands more attractive for development than under the No Project Alternative. However, the Plan includes policies to dissuade such encroachment on open space and vacant lands and is anticipated to result in far fewer impacts. The No Project Alternative impacts would be greater than the Plan impacts because of the increased consumption of open space and vacant land (about 35,184 acres under the Plan and about 18,123 acres under the No Project Alternative) that would result in loss of scenic resources and changes in visual character. As shade/shadow and glare impacts typically occur in urban areas, these impacts would be reduced under the No Project Alternative as fewer residential units and transportation projects would be built in urban areas. However, the No Project Alternative would result in greater light and glare impacts as many of the transportation projects would occur in areas that are currently undeveloped or underdeveloped and would introduce new sources of light and materials that cause glare.

Agricultural Resources

The No Project Alternative includes fewer transportation projects than the Plan, but does not include any agricultural land, timberland, or forest land preservation strategies, other than locally approved plans and policies currently in place. Initially this may minimize the potential for creating conflicts with general plans, as the only growth strategies that would occur would be local land use controls, however it also would have less of an influence on the patterns of urbanization in the region. Thus, the No Project Alternative would result in a more dispersed land use pattern, which could have greater impacts related to conversion of agricultural land, timberland, and forest land. The No Project Alternative would result in 35,184 acres of land consumed, compared to 18,123 acres consumed under the Plan. The No Project Alternative would also result in 23,875 acres of farmland consumed compared to 8,140 under the Plan.

Further, the No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas which would help reduce the consumption and disturbance of natural lands and reduce impacts to agricultural and forestland.

Air Quality

Criteria Air Pollutants

Emissions of criteria pollutants from mobile sources would be affected by implementation of the No Project Alternative. In order to analyze the net impact of implementation, existing year (2012) emissions were compared to buildout year (2040) emissions.

Results of modeling are presented in **Table 6.0-3 Criteria Pollutant Emissions from Mobile Sources**. As shown, there are dramatic reductions of reactive organic gases (ROG), oxides of nitrogen (NOx) and CO. These would be considered beneficial impacts. Emissions of fine particulate matter (PM2.5) and respirable particulate matter (PM10) from mobile sources would decrease slightly over existing conditions. The No Project Alternative would generate greater amounts of criteria pollutants as compared to the 2014 RTP/SCS.

Table 6.0-3
Criteria Pollutant Emissions from Mobile Sources

	Tons/Day				
Scenario	**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**
Existing 2012	10.2	29.3	61	7.2	1.4
2014 RTP/SCS 2040	4.5	9.5	37	6.2	0.9
2014 RTP/SCS Net	**-5.7**	**-19.8**	**-24**	**-1.0**	**-0.5**
No Project 2040	4.6	9.6	38	6.5	0.9
No Project Net	**-5.6**	**-19.7**	**-23**	**-0.7**	**-0.5**

Source: San Joaquin Council of Governments, 2014

A conformity analysis was prepared for the 2014 RTP/SCS that analyzes emissions of ozone precursors (ROG and NOx), CO, PM10 and PM2.5 compared to the approved emissions budgets for mobile sources in San Joaquin County which found that emissions of all pollutants under the Plan passed the applicable conformity tests, and is in conformity with the state implementation plans (SIPs). This indicates that the County is not exceeding state or federal emissions limits designed to achieve ambient air quality

standards for any pollutants, including PM10. The No Project Alternative would generate greater PM10 emissions than the 2014 RTP/SCS, but the impact would still be less than significant.

While it is possible that short-term emissions associated with construction would be different under the 2014 RTP/SCS than under the No Project scenario, there is insufficient data to make an assessment of the likely difference. Therefore it is unknown if the impacts would be lesser or greater for the 2014 RTP/SCS compared to the No Project scenario. **Mitigation Measure AIR-1** would be implemented to reduce potential impacts from NOx.

Toxic Air Contaminants

Diesel particulate matter (DPM) generated from diesel-fueled engines and found in diesel exhaust, has been determined by CARB to be a toxic air contaminant as defined under Section 39655 of the Health and Safety Code. The long-term health effects of DPM include cancer, increased incidences of asthma, allergies, and respiratory disease and the short-term health impacts include dizziness, headaches, nausea, and irritation of the eyes, nose, and throat.

PM2.5 emissions will be used as a proxy for DPM emissions in this analysis as further described in **Section, 4.3 Air Quality**. As shown in **Table 6.0-3**, above, emissions of PM2.5 for all mobile sources will be reduced under the No Project Alternative. However, in order to more closely approximate DPM emissions, PM2.5 emissions specifically from heavy-duty diesel vehicles were estimated. The emissions generated under existing conditions as compared to the No Project Alternative are shown in **Table 6.0-4, PM2.5 Emissions from Heavy Duty Diesel Vehicles.**

Table 6.0-4
PM2.5 Emissions from Heavy Duty Diesel Vehicles (tons/day)

Existing 2012	2040 RTP/SCS Plan	2040 No Project
0.50	0.27	0.27

Source: San Joaquin Council of Governments, 2014

PM2.5 emissions from heavy-duty diesel vehicles in 2040 would be substantially less than the emissions under existing conditions for both scenarios. CARB has several programs and regulations in place to reduce DPM emissions statewide. This includes enforced retrofit of diesel particulate filters, replacement of older trucks and buses, requirements for lower emissions on new diesel vehicles, inspection programs, idling restrictions, and other programs for marine and off-road diesel vehicles. These programs and

regulations would reduce DPM emissions over the period of the 2014 RTP/SCS. Consequently it can be assumed that the reductions in PM2.5 emissions include reductions in DPM emissions region-wide.

However, on a case-by-case basis 2014 RTP/SCS improvements may also bring sources of DPM closer to sensitive receptors through construction of new facilities or widened roadways, which could increase exposure of sensitive receptors. In addition, another substantial source of toxic air contaminants (TACs) is stationary sources, such as diesel generators, industrial processes, and dry cleaners. There is no available data on possible new stationary sources that would be in operation in 2040 under the No Project Alternative. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the No Project Alternative would influence any such contribution. Consequently, this impact is considered potentially significant and **Mitigation Measure AIR-2** would be implemented, but would not reduce the impact to less than significant.

TAC emissions present in vehicle exhaust are typically ROGs, and would be included in the estimates of ROG emissions from mobile sources. As shown in **Table 6.0-3**, emissions of ROG would be substantially reduced under the No Project Alternative as compared to 2012 emissions. Although ROG emissions generated under the No Project Alternative would be greater than the 2014 RTP/SCS. This would then reflect a general reduction of TACs in vehicle exhausts as well.

The No Project Alternative would likely place fewer sensitive receptors near high volume roadways as compared to the 2014 RTP/SCS. In all cases, impacts resulting from the 2014 RTP/SCS are less than impacts occurring under the No Project scenario. Therefore, impacts associated with TACs and sensitive receptors would be less under the 2014 RTP/SCS than under the No Project scenario. Another substantial source of TACs are stationary sources, such as diesel generators, industrial processes, and dry cleaners. As with the 2014 RTP/SCS, the No Project Alternative does not have any direct effect on these types of sources, nor is there any available data on possible new stationary sources that would be in operation in 2040. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the No Project Alternative would influence any such contribution.

Although ROG emissions would be reduced in San Joaquin County under the No Project Alternative, there would likely be more sensitive receptors located next to highways in 2040 than under existing conditions. The projected higher volume of truck traffic could potentially increase the health risk to certain populations in San Joaquin County. In addition, given the lack of data regarding industrial and other stationary sources of TACs it is unknown whether these sources would result in increased emissions of TACs in 2040 compared to existing conditions, and therefore it is unknown what their impact on health risks in San Joaquin County would be. Consequently, this impact must be considered potentially significant. **Mitigation Measure AIR-3** through **AIR-7** would be implemented but would not

reduce the impact to less than significant. Overall impacts from the No Project Alternative would be greater than those under the Plan.

Consistency with applicable air quality plans, specifically the SIP is shown through a conformity analysis, in which emissions of air pollutants are compared to allowable pollutant emissions budgets. Emissions of all pollutants would be lower under the 2014 RTP/SCS than in the No Project Alternative. Therefore, impacts the No Project Alternative would have a greater impact than the 2014 RTP/SCS but would likely remain less than significant.

Biological Resources

Implementation of the RTP/SCS would result in the same regional total population as the No Project Alternative. However, no regional transportation investments would be made beyond the existing programmed projects under the No Project Alternative. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments and growth policies contained within the RTP/SCS.

Under the No Project Alternative fewer areas would be impacted by excavation and construction activities related to transportation projects. However, the No Project Alternative is expected to result in a less concentrated growth pattern, which would affect an increased amount of currently undisturbed land. While the No Project Alternative would reduce the number of transportation projects built in the San Joaquin Council of Governments (SJCOG) region, it would result in greater vacant land consumption that could, in turn, increase the chance to affect significant biological resources. On balance, it is anticipated that the RTP/SCS's impacts to biological resources would be less than the No Project Alternative because it would result in 35,184 acres of land consumed compared to 18,123 acres of land consumed under the No Project Alternative.

Cultural Resources

Under the No Project Alternative, fewer developed areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. However, growth patterns under the No Project Alternative would consume 35,184 acres of undeveloped (vacant) land whereas the Plan would consume 18,123 of undeveloped land. While the No Project Alternative would reduce the number of transportation projects built in San Joaquin County, it would result in greater vacant land consumption that could, in turn, increase the chance to uncover a greater number of previously undisturbed resources. Therefore, the No Project Alternative impacts to cultural resources would be greater than the impacts from the Plan. Additionally, because the No Project Alternative would consume greater amounts of vacant land and result in a more spread out growth pattern which could

result in the development of lands that contain previously undisturbed and undiscovered archaeological, paleontological, or human remains, the No Project Alternative's cumulative impacts to cultural resources would be greater than those of the RTP/SCS. The Plans greater focus on urban areas could result in greater impacts to historic buildings, although many jurisdictions have policies and ordinances in place to protect historic resources.

Geology, Soils and Mineral Resources

Implementation of the RTP/SCS would result in a greater amount of transportation projects and would increase the amount of transportation infrastructure that would be subject to risk as a result of surface rupture, ground-shaking liquefaction, and landsliding and other risks associated with seismic events. The No Project Alternative would result in the construction of approximately 136 fewer new lane miles compared with the Plan. Impacts related to geologic and seismic resources would be similar to the Plan under the No Project Alternative because the population would be the same and entire region is subject to seismic risk. The reduced amount of RTP/SCS projects would be expected to occur under the No Project Alternative could result in a decrease in the amount of aggregate and mineral resources demand in the region. However as more land would be consumed under the No Project Alternative (35,184 acres compared to 18,123 acres under the Plan), more local access roads are anticipated to be needed. The more compact development pattern under the Plan could use less aggregate per capita as more compact development is more efficient. On balance it is anticipated that the No Project Alternative would result in greater impacts because dispersed development is less efficient in its use of aggregate as compared to a more compact development pattern.

Greenhouse Gas Emissions

The 2014 RTP/SCS includes strategies aimed at increasing the density of land use in San Joaquin County, thereby increasing the efficiency of vehicle and energy use. In all analysis years emissions would be higher without adoption of the 2014 RTP/SCS. The first significance threshold for GHG emissions is whether the project would result in greater emissions than under existing conditions (i.e., would emissions in 2040 be greater than in 2012). As shown in **Table 6.0-5**, in 2040 emissions would be 8,286,750 metric tons of carbon dioxide (CO_2) equivalent ($MTCO_2e$) under the No Project Alternative, compared to 7,879,860 $MTCO_2e$ under the 2014 RTP/SCS, which is a 5 percent increase compared to under the 2014 RTP/SCS.

Table 6.0-5
Annual GHG Emissions – 2012 Compared to 2040

Source	2012 ($MTCO_2e$/Year)	2040 – Plan ($MTCO_2e$/Year)	2040 – No Project Alternative ($MTCO_2e$/Year)
Mobile Sources	3,508,974	6,013,068	6,296,640
Energy Use	1,540,053	1,708,438	1,782,639
Water Use	163,233	108,354	157,471
Construction	40,000	50,000	50,000
Total Emissions	**5,252,260**	**7,879,860**	**8,286,750**

The No Project Alternative would result in greater emissions than under existing conditions. The second threshold asks whether the project would hinder progress toward the goals of applicable GHG reductions plans such as AB 32 (i.e., would emissions in 2020 be the same as emissions in 1990). In 2020 emissions would be roughly 5,892,094 without the plan, as opposed to 5,877,716 $MTCO_2e$ with the Plan, as shown in **Table 6.0-6**.

Table 6.0-6
Annual Additional GHG Emissions – 1990 Compared to 2020

Source	1990 (2005 minus 15%) ($MTCO_2e$/Year)	2020 – Plan ($MTCO_2e$/Year)	2020 – No Project Alternative ($MTCO_2e$/Year)
Mobile Sources	2,461,310	4,267,768	4,229,833
Energy Use	1,261,294	1,459,059	1,478,204
Water Use	132,142	105,889	139,057
Construction	40,000	45,000	45,000
Total Emissions	**3,894,746**	**5,877,716**	**5,892,094**

In comparison, emissions in 1990 were estimated to be 3,894,746 $MTCO_2e$. Therefore significance thresholds would be exceeded for the first two thresholds under the No Project Alternative. Additionally, the No Project Alternative would generate more emissions than the 2014 RTP/SCS.

The third threshold is whether San Joaquin County would meet its SB 375 targets of a 5 percent reduction in GHG emissions from cars and light trucks in 2020 and a 10 percent reduction in 2035. Data provided by SJCOG show that under the No Project Alternative per capita GHG emissions from cars and light duty trucks would be reduced by 24.8 percent in 2020 and 19.7 percent in 2035. The County would meet its SB 375 targets for GHG reductions under the No Project Alternative. The impacts under the No Project

Alternative would be less than significant for SB 375. Similarly to the Plan, the No Project Alternative would cumulatively contribute to GHG emissions.

Hazards

Due to the reduced number of transportation projects and increased number of transportation gaps, the No Project Alternative could result in a reduced movement of hazardous materials around the SJCOG region, resulting in fewer associated risks. Although, reducing roadway improvements would also mean the safety benefits of the project would not be realized., Since the same population and employment increases would occur, the demand for goods (including hazardous materials) could be the same as the project resulting in increased movement on less safe roads and through transportation gaps (although a more dispersed growth patterns would tend to be less efficient which could lead to slightly greater demand for hazardous materials). The No Project Alternative would result in the construction of fewer transportation facilities as compared to the RTP/SCS. As a result, fewer new transportation projects would be located near sensitive uses.

Without the transportation system improvements incorporated in the proposed RTP/SCS, vehicle miles travelled (VMT) would increase as compared to the project. Total VMT under the No Project would be 10.51 billion compared to 10.43 billion under the Plan. Congested lane miles for level of service (LOS) D and F would be greater under the No Project Alternative compared to the Plan. As a result of increased VMT there could be more opportunities for accidents with vehicles transporting hazardous materials under the No Project Alternative than under the proposed RTP/SCS. Construction could occur on or adjacent to a greater number of potentially contaminated sites than under the No Project Alternative thereby increasing the risk of exposure of hazardous materials. The proposed RTP/SCS assumes the use of urban form strategies that would encourage greater property reuse and more infill development than under the No Project Alternative. Under the No Project Alternative only 1.01 percent of growth in residential units would be infill/redevelopment compared to 3.16 percent (Countywide) under the Plan. Thus, it is more likely that previously contaminated urban sites would be encountered under the proposed RTP/SCS than the No Project Alternative. However, the more dispersed development pattern would result in greater potential for people to be exposed to agricultural-related contaminants. As the population in central California increases through 2040, the amount of hazardous materials that pass through San Joaquin County (trucks, trains, and pipelines) is expected to increase regardless of RTP/SCS scenario implemented.

Land Use and Population

The No Project Alternative includes fewer transportation projects than the RTP/SCS and does not include any land use strategies to encourage a compact growth pattern. It would have a lesser potential for conflicting with general plans as the only growth strategies that would occur would be local land use controls. It would have less of an influence on the patterns of urbanization in the region. Nonetheless, urbanization with significant potential for land use incompatibility would occur. The No Project Alternative would result in a more dispersed land use pattern. The No Project Alternative would consume an estimated 23,875 acres of important farmland, while the Plan would consume only 8,140 acres of important farmland.

The No Project Alternative is expected to accommodate the same increase in total population, housing, and employment as the Plan. Therefore, the No Project Alternative would result in the same population growth impacts as the Plan.

The No Project Alternative contains fewer transportation projects than the Plan. Consequently, there would be fewer places where businesses and homes would be displaced and fewer places where communities would be disrupted.

The No Project Alternative is expected to accommodate the same increase in total population, housing, and employment as the Plan. It is anticipated that more development would occur in urban areas under the Plan; therefore more displacement could occur under the Plan, and increase the level of incompatibility with surrounding land uses. The Plan includes additional transportation improvements that would facilitate access to currently vacant lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan could help facilitate population and economic growth in areas of the region that are currently not undeveloped and under developed. While the Plan could encourage growth in previously undeveloped areas, land use strategies would aggressively seek to reduce consumption of vacant lands. The No Project Alternative could consume about 35,184 acres of vacant lands, while the Plan would consume about 18,123 acres. Although the Plan and the No Project Alternative would result in a different distribution of consumed land, they would result in the same total number of population, households, and employment. Therefore, the No Project Alternative's cumulative impacts to population, households, and employment would be approximately the same as those of the Plan.

Therefore, the No Project Alternative would have greater impacts related to conversion of farmland and agricultural lands. The No Project Alternative would likely have similar or possibly greater impact on

land use incompatibility because redevelopment in existing communities would still occur and more land in general would be impacted.

Noise

The No Project Alternative would result in a more distributed growth pattern, which would increase noise levels across the County not just in concentrated urban areas. Noise levels potentially would not be as great in individual areas (including urban areas) as there would be less construction and less activity. However, impacts from construction and increased vehicle trips would still be significant. The transportation improvements under the Plan would help to move traffic more efficiently which could reduce noise in urban areas but not to the point of offsetting increased vehicle trips. Similarly with vibration, in general vibration impacts can be reduced to a level of less than significance, but as for the project there remains the potential for individual projects in the region and within urban centers to result in significant vibration impacts.

Public Services

Police and Fire

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban centers which would help reduce response times, as most requests would be from concentrated urban areas. The No Project Alternative is more likely to permit sprawl development which would strain fire resources due to the physical distances between developments. Under the No Project Alternative, the dense land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Under the No Project Alternative, is anticipated that more households could be exposed to wildfire threat than under the proposed RTP/SCS as more development would occur in areas outside the urban core.

The Plan also includes transportation improvements that facilitate access to undeveloped lands, potentially making those lands more attractive for development than under the No Project Alternative. However, the Plan includes policies to dissuade such encroachment on open space and vacant lands and is anticipated to result in far fewer impacts. It is anticipated that the land use planning strategies included in the proposed RTP/SCS will minimize consumption of vacant, open space/recreation and agricultural lands compared to the No Project Alternative (about 18,123 acres under the Plan and about 35,184 acres under the No Project Alternative). The congestion that results because of a lack of additional transportation improvement projects and the population distribution would result in emergency vehicle response times that are worse in the No Project Alternative than under the Plan. Traffic delay is measured

in vehicle hours travelled (VHT). Total VMT under the No Project would be 10.51 billion compared to 10.43 billion under the Plan. The No Project Alternative would result a greater amount of congested lane miles (LOS D, F). Therefore, implementation of the Plan would reduce traffic delay as compared to the No Project Alternative, thereby reducing delays in emergency vehicle response times.

Under the No Project Alternative, it is anticipated that 4,358 households would located in areas of very high, high or moderate wildfire threat; whereas under the Plan, the number would be reduced to 3,498

As a result of more households located near wildfire areas, the need for additional fire facilities could be necessary. Further, as more dispersed patterns of development could result in more people located further from existing police and fire facilities, necessitating the construction of new facilities to accommodate the dispersed land use pattern while maintaining appropriate response times. Therefore, the No Project Alternative would result in greater impacts as compared to the proposed Plan.

Education

The No Project Alternative would result in similar impacts related to educational facilities as under the Plan. The No Project Alternative assumes the continuation of development patterns that the region has experienced over the past decades, and the same future population is expected. Therefore, the demand for educational facilities would remain the same under the No Project Alternative as under the Plan.

Recreation

The No Project Alternative includes fewer transportation projects than the Plan and does not include land use strategies beyond those put in place by local jurisdictions. Thus, the No Project Alternative would be expected to directly consume or disturb fewer acres of agricultural lands and open space as a result of construction of transportation projects as compared to the Plan. However, development under the No Project Alternative would consume more open space land than under the Plan.

The No Project Alternative is expected to accommodate the same increase in total population as the Plan. The Plan includes additional transportation improvements that facilitate access to agricultural lands, vacant lands, open space, and recreation lands that would be less accessible with the No Project Alternative. However, the Plan also includes land use measures that would substantially reduce the consumption and disturbance of agricultural lands, vacant lands, open space, and recreation lands. These mitigation measures are absent in the No Project Alternative. The No Project Alternative is expected to result in the continuation of past land use development patterns, which result in more growth in undeveloped land and open spaces. Under the No Project Alternative, by 2040, up to approximately 35,184 acres of vacant lands would be consumed, compared to 18,123 under the Plan. The No Project

Alternative would result in a more dispersed land use pattern adding residential uses further from urban areas. Development of residential areas without the addition of park facilities could result in a need for additional park facilities. Under the Plan, more people would be located in urban areas where a need for parks has already been established. The addition of more people without provisions for additional parkland would result in potential impacts. However, as the No Project Alternative would consume a greater amount of open space and vacant land, therefore, the No Project Alternative would result in greater impacts to recreational lands than the Plan.

Transportation

Under the No Project Alternative, new transportation infrastructure investment would cease after 2015, while growth would continue to occur at forecasted rates. As shown in **Table 4.13.-5**, in **Section 4.13, Transportation and Circulation**, in 2040, the No Project Alternative would result in more VMT and an increase in congested lane miles LOS D and F compared to the Plan. The No Project Alternative would also result in a drop in transit and active mode shares compared to the Plan. Additional and/or worsened significant impacts would result from this alternative compared to those impacts identified for the Project. These would include decreases in the performance of San Joaquin's pedestrian and bicycle facilities, in view of the lack of investment in pedestrian and bicycle facilities and the increase in congested lane miles.

Utilities

Energy

Since the No Project Alternative includes fewer transportation and development projects than the Plan, it would have more of an impact from the need to expand or construct new energy facilities to serve the anticipated sprawl accompanying population growth in the region due to less emphasis on urban areas. In addition, since fewer public transit options would be available than under the 2014 RTP/SCS, use of petroleum fuel for personal vehicles would be greater, as indicated in **Table 6.0-7**.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. As shown in **Table 6.0-8**, the total energy consumption under the No Project Alternative would be greater than under the 2014 RTP/SCS.

Table 6.0-7
Gasoline Consumption

Scenario	Vehicle Miles Travelled - Annual (billions of miles)	Gasoline Consumption (million gallons)
No Project (2040)	10.51	491
2014 RTP/SCS(2040)	10.44	488

Source: San Joaquin COG 2014, The Emission Factors (EMFAC) 2011

Table 6.0-8
Residential and Commercial Energy Consumption from New Growth

Scenario	Electricity Consumption (MWh)	Natural Gas Consumption (MMBtu)
No Project (2040)	4,594,503	16,145,926
2014 RTP/SCS(2040)	4,464,775	15,240,316

Source: Impact Sciences 2014
MWh = megawatt-hours; MMBtu = million British thermal units.

Unlike the No Project Alternative, the 2014 RTP/SCS includes strategies to focus growth in urban areas, which would help reduce the number of new energy facilities or expansion of existing facilities that need to be constructed. This is because the Plan would accommodate the same population by constructing higher density development with infill and mixed use projects. Infill and mixed-use developments are generally higher efficiency dwellings accounting for the reduction in total energy consumption seen in **Table 6.0-5**. Lower density development would sprawl throughout San Joaquin County under the No Project Alternative to satisfy the same population growth. Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. It is also possible that increased density in urban areas could put additional pressure on energy providers to increase capacity to these areas result in additional impacts. However, as in general, energy use would be more efficient (on a per capita basis), with the Plan, impacts would be greater with the No Project Alternative. Similarly to the Plan the No Project Alternative would add to cumulative demand for energy in California and in the world in general.

Wastewater

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan; however, the Plan includes strategies to focus growth in urban areas,

which would help reduce construction of new wastewater treatment facilities because of more efficient use of water (and thus less generation of wastewater). The more distributed development pattern of the No Project Alternative would result in greater water consumption – likely as a result of more landscaping associated with single-family development as compared to multi-family homes. The additional water used on landscaping generally does not become wastewater, nonetheless the No project's distributed growth pattern would tend to use more water, which could generate more wastewater.

It is expected that expansion of existing facilities or construction of new facilities would be necessary under the Plan to accommodate increases in population in urban areas. In addition, under the Plan a more concentrated growth pattern could result in the existing wastewater collection system being inadequate (sewer lines could be too small). Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Construction of new wastewater treatment facilities would occur under the No Project Alternative to service the more dispersed growth pattern. Therefore, impacts would be similar with the No Project alternative than with the Plan. With a more dispersed growth pattern existing sewer lines would not be as impacted, although new sewer lines would be expected to be needed to serve the more dispersed growth pattern. Similarly to the Plan the No Project Alternative would impact wastewater facilities in San Joaquin County and would not contribute substantially to cumulative impacts outside the region.

Solid Waste

Since the No Project Alternative includes fewer transportation and development projects than the Plan, it would have a lesser impact on solid waste generated from construction of transportation projects. The more compact growth pattern of the Plan would likely generate less solid waste than the more dispersed pattern of the no Project Alternative. However, as the growth strategies included in the RTP would not occur with the No Project Alternative, longer distances could occur between development and landfill facilities and/or garbage collection would require that collection trucks travel greater distances to collect waste from the more distributed land use pattern.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas, which would help reduce the impact to solid waste facilities for the reasons described above. Under the No Project Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Therefore, impacts would be greater under the No Project Alternative. Since the No Project Alternative would generate greater solid waste

(due to the less efficient growth pattern), it would contribute more to overlapping impacts with other areas of the state where they use the same facilities.

Water Resources

Under the No Project Alternative, fewer areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. However, growth patterns under the No Project Alternative would consume 35,184 acres of open space whereas the Plan would consume 18,123 acres of open space. While the No Project Alternative would reduce the number of transportation projects, it would result in greater vacant land consumption that would, in turn, increase the amount of impervious surfaces and increase impacts to water resources. Therefore, the No Project Alternative impacts to water resources would be greater than the impacts from the Plan.

With fewer transportation projects than the Plan, the direct effects of the No Project Alternative from transportation projects on water resources would be reduced when compared with the Plan. As the currently planned transportation projects included in the No Project alternative are built, the impacts resulting from increased roadway runoff and drainage patterns would remain significant. Similarly the impacts to groundwater infiltration caused by the increased impervious surfaces of roadway projects, and to increased flooding hazards, would remain significant.

While the Plan and the No Project would result in the same total population, the more dispersed growth pattern under the No Project Alternative would result in less efficient use of water resulting in greater demand (more single-family homes with landscaping) and therefore would result in a greater use of water 462.50 gallons per day per household compared to 274.17 gallons per day per household. As the Plan's more compact growth pattern would be more water efficient, the Plan's water supply impacts would be less than the No Project.

Similar to water supply impacts, wastewater generation could be increased through the less efficient land use patterns. More new development would be located in areas that are not served by existing infrastructure which could result in additional impacts. The impacts to water quality would be greater under the No Project Alternative as the projected urbanized acreage under the No Project Alternative would be greater compared to the Plan. Due to a more dispersed growth pattern, the No Project Alternative's impacts to both water quality and flood risk would be greater than those associated with the Plan. Flooding impacts would generally be site specific although with greater consumption of vacant land, the No Project Alternative has a greater risk of locating RTP/SCS projects and/or development in flood prone areas. Overall, it is anticipated that the Plan would result in fewer impacts to water resources

because of a compact growth pattern that would result in less impervious surfaces and less demand for water.

Analysis of Alternative 2 – 2011 RTP

Aesthetics

Under Alternative 2, fewer roadways would be constructed resulting in fewer opportunities for impacts to and vistas. However, Alternative 2 would not include the urban form strategies included in the SCS, intended to focus more growth in walkable, mixed-use communities and existing and planned urban areas. As shade/shadow and glare impacts typically occur in urban areas, these impacts would be reduced under Alternative 2 as growth would be more distributed and less dense. Nighttime lighting impacts would be greater as more vacant land would be consumed under this Alternative, as lighting impacts are most pronounced in rural areas. Therefore, the 2011 RTP Alternative would result in fewer impacts to scenic vistas and shade/shadow and glare but would result in greater lighting impacts than the Plan.

A*gricultural Resources*

Under Alternative 2, fewer roadways would be constructed resulting in fewer acres of farmland consumed by transportation projects. Similar to the No Project Alternative, the 2011 RTP would not encourage a compact growth pattern and Alternative 2 would consume a total of 23,875 acres of farmland, or 67.8 percent of the total land that would be consumed would be farmland. Alternative 2 would not include the urban form strategies that would focus growth within urban areas and as a result, would result in the consumption of a greater amount of farmland compared to the Plan. Impacts to forest lands would also be greater as the more dispersed land use pattern of the 2011 RTP Alternative would result in development in areas that currently contain forest land. Therefore, the 2011 RTP Alternative would result in greater impacts than the Plan.

Air Quality

Criteria Air Pollutants

Emissions of criteria pollutants from mobile sources would be affected by implementation of the 2011 RTP Alternative. In order to analyze the net impact of implementation, existing year (2012) emissions were compared to buildout year (2040) emissions.

Results of modeling are presented in **Table 6.0-9 Criteria Pollutant Emissions from Mobile Sources**. As shown, there are dramatic reductions of ROG, NOx and CO as compared to 2012 emissions. These would

be considered beneficial impacts. Emissions of PM10 and PM2.5 from mobile sources would decrease slightly over existing conditions The 2011 RTP Alternative would generate greater amounts of criteria pollutants as compared to the 2014 RTP/SCS except for PM2.5 which would be the same.

Table 6.0-9
Criteria Pollutant Emissions from Mobile Sources

	Tons/Day				
Scenario	**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**
Existing 2012	10.2	29.3	61	7.2	1.4
2014 RTP/SCS 2040	4.5	9.5	37	6.2	0.9
2014 RTP/SCS Net	**-5.7**	**-19.8**	**-24**	**-1.0**	**-0.5**
2011 RTP 2040	4.6	9.6	38	6.5	0.9
2011 RTP Net	**-5.6**	**-19.7**	**-23**	**-0.7**	**-0.5**

Source: San Joaquin Council of Governments, 2014

A conformity analysis was prepared for the 2014 RTP/SCS that analyzes emissions of ozone precursors (ROG and NOx), CO, PM10 and PM2.5 compared to the approved emissions budgets for mobile sources in San Joaquin County which found that emissions of all pollutants under the Plan passed the applicable conformity tests, and is in conformity with the SIPs. This indicates that the County is not exceeding state or federal emissions limits designed to achieve ambient air quality standards for any pollutants, including PM10. The 2011 RTP Alternative would generate greater PM10 emissions than the 2014 RTP/SCS, but the impact would still be less than significant.

While it is possible that short-term emissions associated with construction would be different under the 2014 RTP/SCS than under the 2011 RTP scenario, there is insufficient data to make an assessment of the likely difference. Therefore it is unknown if the impacts would be lesser or greater for the 2014 RTP/SCS compared to the 2011 RTP Alternative. **Mitigation Measure AIR-1** would be implemented to reduce potential impacts from NOx.

Toxic Air Contaminants

Diesel particulate matter (DPM) generated from diesel-fueled engines and found in diesel exhaust, has been determined by CARB to be a toxic air contaminant as defined under Section 39655 of the Health and Safety Code. The long-term health effects of DPM are described above.

PM2.5 emissions will be used as a proxy for DPM emissions in this analysis as further described in **Section, 4.3 Air Quality**. As shown in **Table 6.0-9** above, emissions of PM2.5 for all mobile sources will be

reduced under the 2011 RTP Alternative as compared to existing conditions. However, in order to more closely approximate DPM emissions, PM2.5 emissions specifically from heavy-duty diesel vehicles were estimated. The emissions generated under existing conditions as compared to the 2011 RTP Alternative are shown in **Table 6.0-10, PM2.5 Emissions from Heavy Duty Diesel Vehicles.**

Table 6.0-10
PM2.5 Emissions from Heavy Duty Diesel Vehicles (tons/day)

Existing 2012	2040 RTP/SCS Plan	2040 2011 RTP
0.50	0.27	0.27

Source: San Joaquin Council of Governments, 2014

PM2.5 emissions from heavy-duty diesel vehicles in 2040 would be substantially less than the emissions under existing conditions for both scenarios. CARB has several programs and regulations in place to reduce DPM emissions statewide as described further in **Section 4.3 Air Quality**. These programs and regulations would reduce DPM emissions over the period of the 2014 RTP. Consequently it can be assumed that the reductions in PM2.5 emissions include reductions in DPM emissions region-wide.

However, on a case-by-case basis 2014 RTP/SCS improvements may also bring sources of DPM closer to sensitive receptors through construction of new facilities or widened roadways, which could increase exposure of sensitive receptors. In addition, another substantial source of TACs is stationary sources, such as diesel generators, industrial processes, and dry cleaners. There is no available data on possible new stationary sources that would be in operation in 2040 under the 2011 RTP Alternative. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the 2011 RTP Alternative would influence any such contribution. Consequently, this impact is considered potentially significant and **Mitigation Measure AIR-2** would be implemented, but would not reduce the impact to less than significant.

TAC emissions present in vehicle exhaust are typically ROGs, and would be included in the estimates of ROG emissions from mobile sources. As shown in **Table 6.0-10**, emissions of ROG would be substantially reduced under the 2011 RTP Alternative as compared to 2012 emissions. Although ROG emissions generated under the 2011 RTP Alternative would be greater than the 2014 RTP/SCS but not substantially. This would then reflect a general reduction of TACs in vehicle exhausts as well.

The 2011 RTP Alternative would likely place fewer sensitive receptors near high volume roadways as compared to the 2014 RTP/SCS. In all cases, impacts resulting from the 2014 RTP/SCS are less than

impacts occurring under the 2011 RTP Alternative. Therefore, impacts associated with TACs and sensitive receptors would be less under the 2014 RTP/SCS than under the 2011 RTP Alternative. Another substantial source of TACs are stationary sources, such as diesel generators, industrial processes, and dry cleaners. As with the 2014 RTP/SCS, the 2011 RTP Alternative does not have any direct effect on these types of sources, nor is there any available data on possible new stationary sources that would be in operation in 2040. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the 2011 RTP Alternative would influence any such contribution.

Although ROG emissions would be reduced in San Joaquin County under the 2011 RTP Alternative, there would likely be more sensitive receptors located next to highways in 2040 than under existing conditions. The projected higher volume of truck traffic could potentially increase the health risk to certain populations in San Joaquin County. In addition, given the lack of data regarding industrial and other stationary sources of TACs it is unknown whether these sources would result in increased emissions of TACs in 2040 compared to existing conditions, and therefore it is unknown what their impact on health risks in San Joaquin County would be. Consequently, this impact must be considered potentially significant. **Mitigation Measure AIR-3** through **AIR-7** would be implemented but would not reduce the impact to less than significant. Overall impacts from the 2011 RTP Alternative would be greater than those under the Plan.

Consistency with applicable air quality plans, specifically the SIP is shown through a conformity analysis, in which emissions of air pollutants are compared to allowable pollutant emissions budgets. Emissions of all pollutants would be lower under the 2014 RTP/SCS than in the 2011 RTP Alternative. Therefore, impacts the 2011 RTP Alternative would have a greater impact than the 2014 RTP/SCS but would likely remain less than significant.

Biological Resources

Under the Old RTP Alternative, fewer areas would be impacted by excavation and construction activities as compared to the Plan. The Old RTP Alternative would not include the urban form strategies included in the SCS, intended to focus more growth in walkable, mixed-use communities and existing and planned urban centers. Therefore, the Old Alternative would result in transportation projects and development taking place over a greater area of land. Specifically, new transportation projects and development would result in 35,184 acres of open space land being consumed, as compared to 18,123 acres under the Plan. This would result in greater vacant land consumption, including sensitive species habitat and natural lands, that would, in turn, increase the impacts to biological resources and open space, such as habitat

loss and fragmentation. Therefore, the Old RTP Alternative impacts to biological resources and open space would be greater than the impacts from the Plan.

Cultural Resources

Under the 2011 RTP Alternative, there would be a similar number of transportation projects but development patterns would extend over a greater area of land. The 2011 RTP Alternative would not include the urban form strategies included in the SCS, intended to focus more growth in walkable, mixed-use communities and existing and planned urban centers. The 2011 RTP Alternative would result in 35,184 acres of new land consumption, as compared to 18,123 square miles under the Plan. This would increase the chance to uncover a greater number of previously undisturbed resources. Therefore, the 2011 RTP Alternative impacts to cultural resources would be greater than the impacts from the Plan. The 2011 RTP Alternative would not focus growth in urban areas to the extent of the Plan and therefore could have fewer impacts ion historic buildings.

Geology, Soils and Mineral Resources

Implementation of the RTP/SCS would result in a greater number of transportation projects and would increase the amount of transportation infrastructure that would be subject to risk as a result of surface rupture, ground-shaking liquefaction, and landsliding and other risks associated with seismic events. The 2011 RTP Alternative would result in the construction of fewer new lane miles than the RTP/SCS. Impacts related to geologic and seismic resources would be similar to the Plan under the 2011 RTP Alternative because the population would be the same and entire region is subject to seismic risk.

The reduced number of RTP/SCS transportation projects would be expected to occur under the 2011 RTP Alternative could result in a decrease in the amount of aggregate and mineral resources demand in the region. However as more land would be consumed under the 2011 RTP Alternative (35,184 acres compared to 18,123 acres under the Plan), more local access roads are anticipated to be needed. The more compact development pattern under the Plan could use less aggregate per capita as more compact development is more efficient. On balance it is anticipated that the 2011 RTP Alternative would result in greater impacts because dispersed development is less efficient in its use of aggregate as compared to a more compact development pattern.

Greenhouse Gas Emissions

The 2014 RTP/SCS includes strategies aimed at increasing the density of land use in San Joaquin County, thereby increasing the efficiency of vehicle and energy use. In all analysis years emissions would be higher without adoption of the 2014 RTP/SCS. The first significance threshold for GHG emissions is

whether the project would result in greater emissions than under existing conditions (i.e., would emissions in 2040 be greater than in 2012). As shown in **Table 6.0-11**, in 2040 emissions would be 8,007,401 $MTCO_2e$ under the 2011 RTP Alternative, compared to 7,879,860 $MTCO_2e$ under the 2014 RTP/SCS, which is a 2 percent increase compared to under the 2014 RTP/SCS.

Table 6.0-11
Annual GHG Emissions – 2012 Compared to 2040

Source	2012 ($MTCO_2e$/Year)	2040 – Plan ($MTCO_2e$/Year)	2040 – 2011 RTP Alternative ($MTCO_2e$/Year)
Mobile Sources	3,508,974	6,013,068	6,115,284
Energy Use	1,540,053	1,708,438	1,721,414
Water Use	163,233	108,354	150,408
Construction	40,000	50,000	50,000
Total Emissions	**5,252,260**	**7,879,860**	**8,037,106**

The 2011 RTP Alternative would result in greater emissions than under existing conditions. The second threshold asks whether the project would hinder progress toward the goals of applicable GHG reductions plans such as AB 32 (i.e., would emissions in 2020 be the same as emissions in 1990). In 2020 emissions would be roughly 5,818,932 $MTCO_2e$ under the 2011 RTP Alternative, as opposed to 5,877,716 $MTCO_2e$ under the 2014 RTP/SCS, as shown in **Table 6.0-12**.

In comparison, emissions in 1990 were estimated to be 3,894,746 $MTCO_2e$. Therefore significance thresholds would be exceeded for the first two thresholds under the 2011 RTP Alternative. Additionally, the 2011 RTP Alternative would generate more emissions than the 2014 RTP/SCS.

Table 6.0-12
Annual Additional GHG Emissions – 1990 Compared to 2020

Source	1990 (2005 minus 15%) ($MTCO_2e$/Year)	2020 – Plan ($MTCO_2e$/Year)	2020 – 2011 RTP Alternative ($MTCO_2e$/Year)
Mobile Sources	2,461,310	4,267,768	4,189,795
Energy Use	1,261,294	1,459,059	1,478,204
Water Use	132,142	105,889	139,057
Construction	40,000	45,000	45,000
Total Emissions	**3,894,746**	**5,877,716**	**5,818,932**

The third threshold is whether San Joaquin County would meet its SB 375 targets of a 5 percent reduction in GHG emissions from cars and light trucks in 2020 and a 10 percent reduction in 2035. Data provided by SJCOG show that under the No Project Alternative per capita GHG emissions from cars and light duty trucks would be reduced by 24.8 percent in 2020 and 19.7 percent in 2035. The County would meet its SB 375 targets for GHG reductions under the No Project Alternative. The 2011 RTP Alternative would construct housing in the same distribution pattern as the No Project Alternative. Therefore, the GHG emissions reductions would presumably be the same and the County would meet its targets for GHG reductions under SB 375 under the 2011 RTP Alternative. The impacts under the 2011 RTP Alternative would be less than significant for SB 375. Similarly to the Plan, the 2011 RTP Alternative would cumulatively contribute to GHG emissions.

Hazards

Alternative 2 would have similar impacts related to the accidental release of hazardous materials as compared to the Plan. The 2011 RTP Alternative would not include the urban form strategies included in the SCS which are intended to focus more growth in walkable, mixed-use communities and existing and planned urban centers. Anticipated development under the 2011 RTP Alternative would result in 35,184 acres of new land consumption, as compared to 18,123 acres under the Plan. The 2011 RTP Alternative may not include as much redevelopment of urban infill properties as the Plan, and, therefore, could result in fewer potential impacts related to disturbance of contaminated sites as compared to the Plan. However it would disturb more undeveloped and open space uses, some of which might be farmland or former oil uses and may be contaminated with pesticides or chemicals from past operations and thus can result in impacts when ground is disturbed.

VMT under the 2011 RTP Alternative would be 10.61 billion miles annually in 2040, as compared to 10.43 billion under the Plan. Increased mobility would increase the possibility of hazardous materials transport throughout the region, as well as through areas outside of the region. As the population in Central California increases through 2040, the amount of hazardous materials that pass through San Joaquin County (trucks, trains, and pipelines) is expected to increase regardless of RTP/SCS scenario implemented.

Land Use and Population

The 2011 RTP Alternative includes fewer transportation projects than the Plan and does not include any land use strategies to focus growth in urban areas. It would have a lesser potential for conflicting with general plans as the only growth strategies that would occur would be local land use controls. It also would have less of an influence on the patterns of urbanization in the region. Nonetheless, urbanization

with significant potential for land use incompatibility would occur. The 2011 RTP Alternative would result in a more dispersed land use pattern. The 2011 RTP Alternative would consume an estimated 35,184 acres of vacant land, while the Plan would consume only 18,123 acres of vacant land. The 2011 RTP Alternative would likely have similar or possibly greater impact on land use incompatibility because redevelopment in existing communities would still occur and more land in general would be impacted.

The 2011 RTP Alternative contains fewer transportation projects as compared to the Plan. Consequently, there would be fewer places where businesses and homes would be displaced by transportation projects and fewer places where communities could be disrupted. Due to the dispersed pattern of the 2011 RTP Alternative, the 2011 RTP Alternative would be expected to have fewer impacts on existing uses and residential land uses (rural, low, and medium to high-density housing land uses) than the Plan. The impacts of transportation projects alone under the Plan would result in greater impacts as compared to the 2011 RTP Alternative. Development impacts are less clear, since under the Plan development would be concentrated in urban areas. In contrast, in the 2011 RTP Alternative land uses would change to a much greater extent in undeveloped areas.

The 2011 RTP Alternative has the same population, household, and employment growth as the Plan Given that the population, household, and employment growth would be the same; the Plan impacts would be the same as those associated with the 2011 RTP Alternative.

The 2011 RTP Alternative's growth strategies would not focus the future population in urban areas to the same extent as the Plan. The 2011 RTP Alternative would consume an estimated 35,184 acres of vacant land, while the Plan would consume only 18,123 acres of vacant land. The Plan's growth strategies would result in more compact development around urban areas. The Plan would be more likely to result in displacing more businesses or homes as more than half of the anticipated development would occur in already urbanized areas. In many of these urbanized areas vacant land is scarce, resulting in a greater potential for projects to displace existing uses.

Noise

The 2011 RTP would result in some transportation improvements and some concentration of growth, but not to the same extent as the project. Therefore impacts would be similar but not as great as the project. Similar to the No Project Alternative the 2011 RTP would not make some of the improvements in urban areas, potentially leading to greater congestion on the outskirts of Stockton and towards the Sierra Nevada mountain range.

Public Services

Police and Fire

The 2011 RTP Alternative would result in similar transportation-related public services impacts as compared to the Plan. The 2011 RTP Alternative and the Plan alternatives include the same number of population, housing, and jobs that would require police, fire, and emergency facilities. However, under the 2011 RTP Alternative, development would be more dispersed resulting in slightly greater impacts as response times may be increased as police, fire and emergency personnel have to travel farther distances.

Further, as more dispersed patterns of development could result in more people located further from existing police and fire facilities, necessitating the construction of new facilities to accommodate the dispersed land use pattern while maintaining appropriate response times. The 2011 RTP would result in greater impacts related to wildfire threats as compared to the Plan because without the urban form strategies included in the SCS, there would be less focus on urban centers and a greater number of homes and communities could locate in rural areas with a greater risk of wildfire.

Education

The 2011 RTP Alternative would result in similar educational facilities impacts as the Plan. Without the land use strategies of the Plan, the 2011 RTP may not result in the same level of urbanization as the Plan; however, the population in the County is anticipated to be the same under both Alternatives. The more dispersed land use pattern under the 2011 RTP Alternative could result in the need for additional schools located further from the urban areas. However, the Plan's more compact development pattern could result in the need for additional schools in currently over crowded areas. The need for new schools in these areas could expose more people to construction impacts. Therefore, as new schools would be required under either alternative, both the 2011 RTP Alternative and the Plan would result in the need for additional educational facilities to accommodate a growing population.

Recreation

The 2011 RTP Alternative would result in greater impacts to recreational facilities as compared to the Plan. Without the urban form strategies included in the Plan, the 2011 RTP would result in more development outside of urban areas, thereby increasing the potential for impacts to recreation lands or open space. The 2011 RTP would consume 35,184 acres of new land as compared to 18,123 acres under the Plan. The 2011 RTP Alternative would result in a more dispersed land use pattern adding residential uses further from urban areas. Development of residential areas without the addition of park facilities could result in a need for additional park facilities. Under the Plan, more people would be located in

urban areas where a need for parks has already been established. The addition of more people without provisions for additional parkland would result in potential impacts. As both alternatives could result in the need for additional parks, due to the increase in population, impacts would be similar under the 2011 RTP and the Plan.

Transportation

This transportation planning assumes an updated 2011 RTP list of financially constrained projects, which reflect modest improvements to transit, bike, and walk infrastructure, and a continuation of the growth pattern occurring in San Joaquin County over the past several decades. Transportation investments are focused on freeways and roads to accommodate a peripheral development pattern, and improved truck flows and safety. Transit investments consist of operations and maintenance of existing bus and passenger rail services with expansion of key services The 2011 RTP alternative would increase VMT in 2040 as compared to the Plan (10.61 billion VMT under the 2011 RTP compared to 10.43 billion under the Plan) as well as a drop in transit and active mode shares. Congested lane miles overall would be slightly lower than the plan, reflecting relatively greater roadway investments compared to the Plan.

Utilities

Under the 2011 RTP Alternative, the population of the SJCOG region would still grow by close to 365,692 people from 2012 to 2040, however regional transportation investments planned as part of the 2011 RTP would be constructed. The 2011 RTP Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. Similarly to the No Project Alternative, the population distribution would follow past trends, uninfluenced by the 2014 RTP/SCS's emphasis on urban areas.

Energy

As with the No Project Alternative, the 2011 RTP Alternative includes fewer public transit options. Consequently the use of petroleum fuel for personal vehicles would be greater than under the 2014 RTP/SCS, as indicated in **Table 6.0-13**.

The 2011 RTP Alternative would include fewer transportation and development projects than the Plan and would have more of an impact from the need to expand or construct new energy facilities. As shown in **Table 6.0-14**, the total energy consumption under the 2011 RTP Alternative would be greater than under the 2014 RTP/SCS.

Table 6.0-13
Gasoline Consumption

Scenario	Vehicle Miles Travelled – Annual (billions of miles)	Gasoline Consumption (million gallons)
2011 RTP Alternative (2040)	10.61	496
2014 RTP/SCS (2040)	10.44	488

Source: San Joaquin Council of Governments, 2014, EMFAC 2011

Table 6.0-14
Residential and Commercial Energy Consumption from New Growth

Scenario	Electricity Consumption (MWh)	Natural Gas Consumption (MMBtu)
2011 RTP Alternative (2040)	4,594,503	16,145,926
2014 RTP/SCS (2040)	4,464,775	15,240,316

Source: Impact Sciences 2014

Unlike the 2011 RTP Alternative, the 2014 RTP/SCS includes strategies to focus growth such as infill and mixed-use developments, in urban areas, which would help reduce the number of new energy facilities or expansion of existing facilities that need to be constructed. Infill and mixed-use developments are generally higher efficiency dwellings accounting for the reduction in total energy consumption seen in **Table 6.0-14**. Lower density development would sprawl throughout San Joaquin County under the 2011 RTP Alternative to satisfy the same population growth. Under the 2011 RTP Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Energy use would be more efficient per capita, with the Plan, impacts would be greater with the 2011 RTP Alternative. Similarly to the Plan the 2011 RTP Alternative would add to cumulative demand for energy in California and in the world in general.

Wastewater

The 2011 RTP Alternative does not include strategies to focus growth in urban areas. The more distributed development pattern of the 2011 RTP Alternative would tend to use more water, similarly to the No Project Alternative, which could generate more wastewater.

It is expected that expansion of existing facilities or construction of new facilities would be necessary under the Plan to accommodate increases in population in urban areas and concentrated growth patterns.

Under the 2011 RTP Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Construction of new wastewater treatment facilities would occur under the 2011 RTP Alternative to service the more dispersed growth pattern. Therefore, impacts would be similar with the 2011 RTP alternative than with the Plan. With a more dispersed growth pattern existing sewer lines would not be as impacted, although new sewer lines would be expected to be needed to serve the more dispersed growth pattern. Similarly to the Plan, the 2011 RTP Alternative would impact wastewater facilities in San Joaquin County and would not contribute substantially to cumulative impacts outside the region.

Solid Waste

Since the 2011 RTP Alternative includes fewer transportation and development projects than the Plan, it would have a lesser impact on solid waste generated from construction of transportation projects. The more compact growth pattern of the Plan would likely generate less solid waste than the more dispersed pattern of the 2011 RTP Alternative. However, as the growth strategies included in the RTP would not occur with the 2011 RTP Alternative, longer distances could occur between development and landfill facilities and/or garbage collection would require that collection trucks travel greater distances to collect waste from the more distributed land use pattern.

The 2011 RTP Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in urban areas, which would help reduce the impact to solid waste facilities for the reasons described above. Under the 2011 RTP Alternative, these land use strategies may not occur, although individual jurisdictions may still seek to reduce the urban footprint through their general plans. Therefore, impacts would be greater under the 2011 RTP Alternative. Since the 2011 RTP Alternative would generate greater solid waste (due to the less efficient growth pattern), it would contribute more to overlapping impacts with other areas of the state where they use the same facilities.

Water Resources

Under the 2011 RTP Alternative, fewer areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. However, the 2011 RTP Alternative would not include the urban form strategies included in the SCS, intended to focus more growth in walkable, mixed-use communities and existing and planned high-quality transit areas. Therefore, the 2011 RTP would result in development patterns consuming a greater amount of land. Specifically, anticipated development under the 2011 RTP Alternative would result in 35,184 acres of new land consumption, as compared to 18,123 under the Plan thereby increasing the amount of impervious surfaces and increasing

impacts to water resources. Further, the development pattern of the 2011 RTP would not focus development in urban areas, as the plan would. As urban is generally more water efficient (due to lack of large lawns, etc.) the 2011 RTP Alternative's development pattern would be less efficient and result in more water use overall. Under the 2011 RTP Alternative water consumption would be 462.50 gallons per day per household, compared to 274.17 under the Plan. Therefore, the 2011 RTP Alternative impacts to water resources would be greater than the impacts from the Plan.

Analysis of Alternative 3 – Compact Development Alternative

Aesthetics

Under the Compact Development Alternative more aggressive growth strategies would be applied to the region. This would potentially result in greater impacts related to light and glare, shade and shadow and visual character of neighborhoods as more intense development occurs within urban centers. Taller buildings could be incongruous with existing surroundings and could overwhelm historic buildings and/or existing neighborhoods. Further, glare impacts and shade and shadow impacts could be increased due to increased density. However, as more development is focused in urban areas, fewer nighttime lighting impacts would occur in undeveloped areas. Lastly, impacts related to scenic highways and vistas would generally be the same as both alternatives include similar transportation networks.

Agricultural Resources

Under Alternative 3, more development would be targeted in urban areas. Approximately 4.82 percent of new residential would be infill development (compared to 3.03 percent) which would result in fewer acres of farmland consumed. Alternative 3 would consume a total of 7,387 acres of farmland, or 48.49 percent of the total land that would be consumed would be farmland. Alternative 3 would also include urban form strategies that would further focus growth within urban areas and as a result, would result in the consumption of fewer acres of farmland compared to the Plan. Impacts to forest lands would also be lesser as the more efficient land use pattern of the Compact Development Alternative would reduce the potential for development in areas that currently contain forest land. Therefore, the Compact Development Alternative would result in fewer impacts to agricultural resources than the Plan.

Air Quality

Criteria Air Pollutants

Emissions of criteria pollutants from mobile sources would be affected by implementation of the Compact Development Alternative. In order to analyze the net impact of implementation, existing year (2012) emissions were compared to buildout year (2040) emissions.

Results of modeling are presented in **Table 6.0-15 Criteria Pollutant Emissions from Mobile Sources**. As shown, there are dramatic reductions of ROG, NOx and CO as compared to 2012 emissions. These would be considered beneficial impacts. Emissions of PM2.5 would increase slightly over existing conditions and emissions of PM10 from mobile sources increase significantly over existing conditions. The Compact Development Alternative would generate fewer criteria pollutant emissions as compared to the 2014 RTP/SCS except for CO and PM2.5 which would be the same.

Table 6.0-15
Criteria Pollutant Emissions from Mobile Sources

	Tons/Day				
Scenario	**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**
Existing 2012	10.2	29.3	61	7.2	1.4
2014 RTP/SCS 2040	4.5	9.5	37	6.2	0.9
2014 RTP/SCS Net	**-5.7**	**-19.8**	**-24**	**-1.0**	**-0.5**
Compact Development 2040	4.4	9.3	37	6.1	0.9
Compact Development Net	**-5.8**	**-20.0**	**-24**	**-1.1**	**-0.5**

Source: San Joaquin Council of Governments, 2014

A conformity analysis was prepared for the 2014 RTP/SCS that analyzes emissions of ozone precursors (ROG and NOx), CO, PM10 and PM2.5 compared to the approved emissions budgets for mobile sources in San Joaquin County which found that emissions of all pollutants under the Plan passed the applicable conformity tests, and is in conformity with the SIPs. This indicates that the County is not exceeding state or federal emissions limits designed to achieve ambient air quality standards for any pollutants, including PM10. The Compact Development Alternative would generate fewer emissions than the 2014 RTP/SCS, and the impact would remain less than significant.

While it is possible that short-term emissions associated with construction would be different under the 2014 RTP/SCS than under the Compact Development Alternative, there is insufficient data to make an assessment of the likely difference. Therefore it is unknown if the impacts would be lesser or greater for

the 2014 RTP/SCS compared to the Compact Development Alternative. **Mitigation Measure AIR-1** would be implemented to reduce potential impacts from NOx.

Toxic Air Contaminants

Diesel particulate matter (DPM) generated from diesel-fueled engines and found in diesel exhaust, has been determined by CARB to be a toxic air contaminant as defined under Section 39655 of the Health and Safety Code. The long-term health effects of DPM are described above.

PM2.5 emissions will be used as a proxy for DPM emissions in this analysis as further described in **Section, 4.3 Air Quality**. As shown in **Table 6.0-15** above, emissions of PM2.5 for all mobile sources will be reduced under the Compact Development Alternative as compared to existing conditions. However, in order to more closely approximate DPM emissions, PM2.5 emissions specifically from heavy-duty diesel vehicles were estimated. The emissions generated under existing conditions as compared to the Compact Development Alternative are shown in **Table 6.0-16, PM2.5 Emissions from Heavy Duty Diesel Vehicles.**

Table 6.0-16
PM2.5 Emissions from Heavy Duty Diesel Vehicles (tons/day)

Existing 2012	2040 RTP/SCS Plan	2040 Compact Development
0.50	0.27	0.27

Source: San Joaquin Council of Governments, 2014

PM2.5 emissions from heavy-duty diesel vehicles in 2040 would be substantially less than the emissions under existing conditions for both scenarios. CARB has several programs and regulations in place to reduce DPM emissions statewide as described further in **Section 4.3 Air Quality**. These programs and regulations would reduce DPM emissions over the period of the 2014 RTP. Consequently it can be assumed that the reductions in PM2.5 emissions include reductions in DPM emissions region-wide.

However, on a case-by-case basis 2014 RTP/SCS improvements may also bring sources of DPM closer to sensitive receptors through construction of new facilities or widened roadways, which could increase exposure of sensitive receptors. In addition, another substantial source of TACs is stationary sources, such as diesel generators, industrial processes, and dry cleaners. There is no available data on possible new stationary sources that would be in operation in 2040 under the Compact Development Alternative. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the Compact Development Alternative would influence any such

contribution. Consequently, this impact is considered potentially significant and **Mitigation Measure AIR-2** would be implemented, but would not reduce the impact to less than significant.

TAC emissions present in vehicle exhaust are typically ROGs, and would be included in the estimates of ROG emissions from mobile sources. As shown in **Table 6.0-15**, emissions of ROG would be substantially reduced under the Compact Development Alternative as compared to 2012 emissions. Additionally ROG emissions generated under the Compact Development Alternative would be less than the 2014 RTP/SCS. This would then reflect a general reduction of TACs in vehicle exhausts as well. However, the Compact Development Alternative would likely place more sensitive receptors near high volume roadways as compared to the 2014 RTP/SCS.

Another substantial source of TACs are stationary sources, such as diesel generators, industrial processes, and dry cleaners. As with the 2014 RTP/SCS, the Compact Development Alternative does not have any direct effect on these types of sources, nor is there any available data on possible new stationary sources that would be in operation in 2040. Consequently it is difficult if not impossible to determine what contribution these sources would have to sensitive receptors, and how the Compact Development Alternative would influence any such contribution.

Although ROG emissions would be reduced in San Joaquin County under the Compact Development Alternative, there would likely be more sensitive receptors located next to highways in 2040 than under existing conditions. The projected higher volume of truck traffic could potentially increase the health risk to certain populations in San Joaquin County. In addition, given the lack of data regarding industrial and other stationary sources of TACs it is unknown whether these sources would result in increased emissions of TACs in 2040 compared to existing conditions, and therefore it is unknown what their impact on health risks in San Joaquin County would be. Consequently, this impact must be considered potentially significant. **Mitigation Measure AIR-3** through **AIR-7** would be implemented but would not reduce the impact to less than significant. Overall impacts from the Compact Development Alternative would be greater than those under the Plan.

Consistency with applicable air quality plans, specifically the SIP is shown through a conformity analysis, in which emissions of air pollutants are compared to allowable pollutant emissions budgets. Emissions of all pollutants would be lower under the Compact Development Alternative for ROG, NOx, CO, and PM10. Emissions of PM2.5 would be the same under both the Compact Development Alternative and the Plan. Therefore, impacts the Compact Development Alternative would have a lesser impact than the 2014 RTP/SCS and be less than significant.

Biological Resources

Under the Compact Development Alternative, fewer areas would be impacted by excavation and construction activities as compared to the Plan. The Compact Development Alternative would include a greater amount of infill development compared to the Plan. Therefore, the Compact Development Alternative would result in transportation projects and development taking place over a smaller amount of land. Specifically, new transportation projects and development included in the Compact Development Alternative would result in 14,927 acres of new land consumption, as compared to 18,123 acres under the Plan. Although the difference would be relatively small (a decrease of 3,196 acres), this would result in fewer acres of vacant land consumed, including sensitive species habitat and natural lands, that would, in turn, decrease the impacts to biological resources and open space, including habitat loss and fragmentation. Therefore, the Compact Development Alternative impacts to biological resources and open space would be lesser than the impacts from the Plan.

Cultural Resources

Under the Compact Development Alternative, fewer undeveloped areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. The Compact Development Alternative focuses on more development in infill areas and further expansion of non-motorized transportation. Under the Compact Development Alternative, anticipated development would result in 14,927 acres of new land consumption as compared to 18,123 acres under the Plan, thereby exposing fewer previously undisturbed cultural resources. As with the Plan, increased focus on redevelopment of existing communities could result in increased impacts to historic buildings.

Geology, Soils and Mineral Resources

The Compact Development Alternative transportation network is similar to the Plan network with minor changes to transit projects. Construction and excavation impacts would therefore be generally the same as for the Plan. The Plan and the Compact Development Alternative would have similar construction related impacts. The Compact Development Alternative focuses residential and employment growth in urban areas; development is anticipated to be more compact (more multi-family as compared to large lot and conventional single-family housing). Some urban centers are located near known faults and other geologic hazards which could increase the number of people and structures exposed to potential surface rupture, ground-shaking liquefaction, and landsliding due to seismic events. Impacts related to geologic and seismic resources would be similar to the Plan under the Compact Development Alternative because the population would be the same and entire region is subject to seismic risk.

Greenhouse Gas Emissions

The 2014 RTP/SCS includes strategies aimed at increasing the density of land use in San Joaquin County, thereby increasing the efficiency of vehicle and energy use. In all analysis years emissions would be higher without adoption of the 2014 RTP/SCS. The first significance threshold for GHG emissions is whether the project would result in greater emissions than under existing conditions (i.e., would emissions in 2040 be greater than in 2012). As shown in **Table 6.0-17**, in 2040 emissions would be 7,744,011 $MTCO_2e$ under the Compact Development Alternative, compared to 7,879,860 $MTCO_2e$ under the 2014 RTP/SCS, which is a 2 percent decrease compared to under the 2014 RTP/SCS.

Table 6.0-17
Annual GHG Emissions – 2012 Compared to 2040

Source	2012 ($MTCO_2e$/Year)	2040 – Plan ($MTCO_2e$/Year)	2040 – Compact Development Alternative ($MTCO_2e$/Year)
Mobile Sources	3,508,974	6,013,068	5,914,715
Energy Use	1,540,053	1,708,438	1,688,143
Water Use	163,233	108,354	91,153
Construction	40,000	50,000	50,000
Total Emissions	**5,252,260**	**7,879,860**	**7,744,011**

The Compact Development Alternative would result in greater emissions than under existing conditions. The second threshold asks whether the project would hinder progress toward the goals of applicable GHG reductions plans such as AB 32 (i.e., would emissions in 2020 be the same as emissions in 1990). In 2020 emissions would be roughly 5,760,607 $MTCO_2e$ under the Compact Development Alternative, as opposed to 5,877,716 $MTCO_2e$ under the 2014 RTP/SCS, as shown in **Table 6.0-18**.

Table 6.0-18
Annual Additional GHG Emissions – 1990 Compared to 2020

Source	1990 (2005 minus 15%) ($MTCO_2e$/Year)	2020 – Plan ($MTCO_2e$/Year)	2020 – Compact Development Alternative ($MTCO_2e$/Year)
Mobile Sources	2,461,310	4,267,768	4,152,232
Energy Use	1,261,294	1,459,059	1,449,717
Water Use	132,142	105,889	113,658
Construction	40,000	45,000	45,000
Total Emissions	**3,894,746**	**5,877,716**	**5,760,607**

In comparison, emissions in 1990 were estimated to be 3,894,746 $MTCO_2e$. Therefore significance thresholds would be exceeded for the first two thresholds under the Compact Development Alternative. Additionally, the Compact Development Alternative would generate more emissions than the 2014 RTP/SCS.

The third threshold is whether San Joaquin County would meet its SB 375 targets of a 5 percent reduction in GHG emissions from cars and light trucks in 2020 and a 10 percent reduction in 2035. Data provided by SJCOG show that under the 2014 RTP/SCS per capita GHG emissions from cars and light duty trucks would be reduced by 24.4 percent in 2020 and 23.7 percent in 2035. The County would exceed its SB 375 targets for GHG reductions under the 2014 RTP/SCS. The Compact Development Alternative would construct housing in the denser distribution pattern than the 2014 RTP/SCS. Therefore, the GHG emissions reductions would presumably be the same or greater and the County would meet its targets for GHG reductions under SB 375 under the Compact Development Alternative. The impacts under the Compact Development Alternative would be less than significant for SB 375. Similarly to the Plan, the Compact Development Alternative would cumulatively contribute to GHG emissions.

Hazards

The Compact Development Alternative would result in similar impacts related to the accidental release of hazardous materials as compared to the Plan. Alternative 3 would include additional transportation projects compared to the Plan. The Compact Development Alternative focuses on more development in infill areas and further expansion of non-motorized transportation. Under the Compact Development Alternative only 14,972 acres of land would be consumed (as compared to 18,123 acres under the Plan). The Compact Development Alternative could result in greater impacts related to disturbance of contaminated sites as compared with the Plan because of the increased focus on urban redevelopment and infill. The land use patterns associated with the Compact Development Alternative would maximize urban centers and focus on urban infill. This would increase the potential for disturbance of contaminated sites, as there is a greater likelihood for urban redevelopment sites to be previously exposed to hazardous materials. As the population in Southern California increases through 2040, the amount of hazardous materials that pass through San Joaquin County (trucks, trains, and pipelines) is expected to increase regardless of RTP scenario implemented

Land Use and Population

Current land use practices may have to change to address the Compact Development Alternative because the Compact Development Alternative focuses growth into the existing urban area around transit stations and existing activity centers, possibly beyond what communities are ready to accept. The Compact

Development Alternative would reduce the amount of land used for large lot and conventional single-family homes compared to the Plan. To achieve the densities of the Compact Development Alternative, there would be a greater chance of conflicting with market forces and community desired growth patterns.

The Compact Development Alternative would focus development in urban areas and existing communities and would have a greater emphasis on infill development. As a result, the Compact Development Alternative could result in increased division of existing communities as a result of aggressive redevelopment.

The Compact Development Alternative has the same population, household, and employment growth as the Plan. Given that the population, household, and employment growth would be the same, the Plan impacts would be the same as those associated with the Compact Development Alternative.

Noise

The Compact Development Alternative would result in much more focused growth patterns concentrating growth and trips in urban areas, which would lead to greater noise levels in urban areas.

Public Services

Fire and Police

The Compact Development Alternative would include the same number of population, housing, and jobs that would require police, fire, and emergency personnel; however more of these people would be located in urban areas. In general urban areas are well served by police, fire, and emergency services and as personnel would travel shorter distances to calls response times would not be substantially affected. Further, fewer emergency service personnel would be needed to serve previously inaccessible areas of the County. The increase in population in urban areas could result in the need for new or expanded facilities to serve increased demand in those areas. The Compact Development Alternative would result in approximately 4.82 infill compared to 3.16 percent under the Plan which would not be a substantial enough change to see a significant increase in the need for public services compared to the Plan.

The Compact Development Alternative would result in fewer impacts related to wildfire threats as compared to the Plan, because there would be greater focus on urban centers it is anticipated that fewer homes and communities would locate in rural areas with a greater risk of wildfire. Therefore, while rural areas would require fewer services (to combat wildfire), urban areas could require an incremental

increase in services under the Compact Development Alterative. This would likely balance out public services impacts between the Plan and the Compact Development Alternative.

Education

The Compact Development Alternative would have similar impacts to educational facilities as the Plan. The 2040 population is expected to be similar under the Compact Development Alternative as under the Plan; however, the Compact Development Alternative includes more aggressive population densities in urban areas than the Plan and could result in the need for additional school facilities in the areas targeted for increased population densities.

Recreation

The Compact Development Alternative would have fewer impacts related to recreational facilities as compared to the Plan. The Compact Development Alternative focuses on increased densities, especially in urban areas. The Compact Development Alternative would result in fewer acres of new land consumption, as approximately 4.82 percent of new development would be infill development, thereby decreasing the potential to disturb existing recreational facilities. However, existing urban parks could be more severely impacted under the Compact Development Alternative, possibly resulting in parks becoming over used and degraded and possibly requiring that new parks and recreational facilities be constructed in urban areas.

Transportation

The Compact Development Alternative builds on the Plan alternative, but intensifies land uses in urban areas. The Compact Development Alternative assumes an increase in demand for multi-family housing in the region. Highway investments would be made to alleviate the most critical roadway bottlenecks and to achieve operational improvements, improved truck flows, safety and demand management strategies. Additional improvements would require the identification of new funding sources. Additional bike and pedestrian improvements identified by the 2010 San Joaquin County Bike Master Plan would enhance transportation in infill areas. The Compact Development Alternative would result in a reduction in VMT of over 0.14 percent compared to the Plan and would increase transit and active mode shares compared to the Plan. **Table 6.0-3** shows congested lane miles for the Compact Development Alternative would decrease slightly compared to the Plan.

Utilities

Energy

The Compact Development Alternative includes more public transit options. Consequently the use of petroleum fuel for personal vehicles would be less than under the 2014 RTP/SCS, as indicated in **Table 6.0-19**.

Table 6.0-19
Gasoline Consumption

Scenario	Vehicle Miles Travelled – Annual (billions of miles)	Gasoline Consumption (million gallons)
Compact Development Alternative (2040)	10.30	481
2014 RTP/SCS (2040)	10.44	488

Source: San Joaquin COG 2014, EMFAC 2011

The Compact Development Alternative would include more transportation and higher density development projects centered in urban areas to accommodate growth, than the Plan. There would be less need to expand or construct new energy facilities. As shown in **Table 6.0-20**, the total energy consumption under the Compact Development Alternative would be less than under the 2014 RTP/SCS.

Table 6.0-20
Residential and Commercial Energy Consumption from New Growth

Scenario	Electricity Consumption (MWh)	Natural Gas Consumption (MMBtu)
Compact Development Alternative (2040)	4,429,376	14,992,305
2014 RTP/SCS (2040)	4,464,775	15,240,316

Source: Impact Sciences 2014

Similarly to the Compact Development Alternative, the 2014 RTP/SCS includes strategies to focus growth such as infill and mixed-use developments, in urban areas. However, the Compact Development Alternative would promote higher densities in urban areas which would help reduce the number of new energy facilities or expansion of existing facilities that need to be constructed. Infill and mixed-use developments are generally higher efficiency dwellings accounting for the reduction in total energy

consumption seen in **Table 6.0-20**. Energy use would be more efficient per capita, with the Compact Development Alternative. Similarly to the Plan the Compact Development Alternative would add to cumulative demand for energy in California and in the world in general.

Wastewater

The Compact Development Alternative includes strategies to focus growth in urban areas at higher densities than under the 2014 RTP/SCS. The higher density development pattern of the Compact Development Alternative would tend to use less water which could generate less wastewater.

It is expected that expansion of existing facilities or construction of new facilities would be necessary under the Plan to accommodate increases in population in urban areas and concentrated growth patterns. Under the Compact Development Alternative, construction of new wastewater treatment facilities would still be necessary to accommodate growth. Therefore, impacts from the Compact Development Alternative would be similar to the Plan. Similarly to the Plan, the Compact Development Alternative would impact wastewater facilities in San Joaquin County and would not contribute substantially to cumulative impacts outside the region.

Solid Waste

Since the Compact Development Alternative includes more transportation and higher density development projects than the Plan, it would have a greater impact on solid waste generated from construction of transportation projects. Similarly to the Plan, the more compact growth pattern of the Compact Development Alternative would likely generate less solid waste.

Water Resources

Under the Compact Development Alternative, fewer undeveloped areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. The Compact Development Alternative focuses on infill development and further expansion of non-motorized transportation. Under the Compact Development Alternative, anticipated development would result in 14,972 acres of open space land consumption as compared to 18,123 under the plan, thereby reducing the amount of impervious surfaces and decreasing impacts to water resources as compared to the Plan.

Table 6.0-21 Impact Comparison Among RTP and Alternatives, summarizes how each of the alternatives performs based on several performance indicators.

Table 6.0-21
Impact Comparison Among RTP/SCS and Alternatives

Impact Measure[1]	Plan	No Project	2011 RTP	Compact Development
Population	1,070,486	1,070,486	1,070,486	1,070,486
Employment	299,717	299,717	299,717	299,717
Household	319,756	319,756	319,756	319,756
Traffic Impact Measures				
Total Annual VMT (billions)	10.43	10.51	10.61	10.29
VMT per capita	26.71	26.90	27.16	26.36
Fuel Consumption (millions of gallons – annual)	487,936	491,381	496,228	481,482
Households w/in 0.5 mile QTA stations and routes	23.86%	11.67%	11.67%	24.59%
Congested Lane Miles (PM I Hour)				
LOS D	183.99	190.44	170.42	159.54
LOS E	162.27	159.62	174.34	163.77
LOS F	643.22	839.67	641.84	610.75
Environmental Impact Measures				
Water consumption (per household gallons per day)	274.17	462.50	462.50	235.20
Energy Use (per household – million BTUs)	93.17	168.90	168.90	76.70
Air Quality Indicators				
Total SB 375 emissions (tons)	8,020	8,670	8,194	7,821
Per capita SB 375 CO_2 (lbs)	15.0	16.2	15.3	14.6
2040 vs 2005	-23.8	-17.6	-22.1	-25.6
SB 375 CO_2 % reduced				

Source: San Joaquin Council of Governments and Impact Sciences, 2014

[1] *This table compares select quantifiable impacts among alternatives. It is not a comprehensive listing of all impacts as some impacts are not easily quantified and/or not easily compared in a simple table such as the one presented above. But this table does present some of the measures used in assessing impacts.*

6.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126.6 of the *State CEQA Guidelines* requires that an "environmentally superior" alternative be selected among the alternatives that are evaluated in the EIR. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. If the No Project Alternative is identified as environmentally superior, then another environmentally superior alternative shall be identified among the other alternatives.

As shown in **Table 6.0-22**, the Compact Development Alternative would reduce potentially significant impacts associated with agricultural resources and biological resources compared to the Plan. However, these impacts would remain significant and unavoidable and farmland and vacant land would continue to be consumed. **Table 6.0-22 Summary of Better/Worse Impacts Between All Alternatives and the Proposed Project** provides a comparison of the Plan and the Alternatives.

Table 6.0-22
Summary of Better/Worse Impacts Between All Alternatives and the Proposed Project

Alternative	Better than Proposed Project	Worse than Proposed Project
Alternative 1 No Project Alternative	Noise	Aesthetics Air Quality Agricultural Resources Biological Resources Cultural Resources Greenhouse Gas Emissions Land Use Public Services Utilities Traffic Water Resources
Alternative 2 2011 RTP	Aesthetics	Air Quality Agricultural Resources Biological Resources Cultural Resources Greenhouse Gas Emissions Land Use Public Services Utilities Traffic Water Resources
Alternative 3 Compact Development Alternative	Agricultural Resources Biological Resources Cultural Resources Water Resources Traffic	Hazardous Materials Aesthetics Public Services (police, schools, existing parks) Land Use

Source: Impact Science, 2014

As shown in **Table 6.0-22**, the decision to identify an environmentally superior alternative is not clear-cut. The less dense alternatives generally result in fewer impacts to people but greater impacts to open space and biological resources, as these less dense alternatives result in a greater consumption of land/open space resources. The most-dense alternatives increase urban impacts resulting in greater impacts to people. As urban areas become denser (more units per acre), urban infrastructure is used more:

- Water and sewer lines are required to carry more, greater than the current capacity, which could result in the need to construct additional capacity in the older infill areas at significant cost.

- Demand for police and fire services increases requiring expansion of existing stations and service personnel.
- Greater impacts related to hazardous materials could also occur due to an increase in redevelopment, as previously contaminated sites are reused
- Parks are used more, resulting in potential crowding and/or over use, with facilities becoming worn and substandard (grass becomes over used and dies, equipment breaks, etc.) and/or the need to construct more parks and recreational facilities.

Passenger vehicle transportation infrastructure cannot accommodate peak period volumes creating increased congestion, noise and air emission impacts. The Compact Development Alternative is identified as the environmentally superior alternative because it would result in preservation of the most open space including farmland. However, it could result in the greater impacts to people as described above. Further, the transportation improvements that would be necessary to achieve the Compact Development Alternative are beyond the financially constrained plan. By number of impacts the Compact Development Alternative would result in more impact areas that are better off than the under the Plan.

As discussed throughout this Program EIR, SJCOG has no land use authority; rather it sets regional land use policy. SB 375 addresses the land use component (in the context of transportation planning) of statewide efforts to achieve AB 32 GHG reduction goals that include all sectors of the economy. In order to meet the SB 375 targets for statewide GHG reductions, CARB identified that SJCOG must plan to reduce GHG emissions compared to 2005 by 5 percent per capita by 2020 and 10 percent per capita by 2035. SJCOG has developed the SCS (the regional land use policy component of the 2014 RTP/SCS) which sets forth land use strategies to meet these GHG emissions reduction targets. Actual implementation of the SCS will be undertaken by local jurisdictions through general plans and specific plans and through actions on individual projects.

Local jurisdictions with existing urban infrastructure would need to accommodate infill development. It is possible, local jurisdictions' zoning would be sufficiently flexible to accommodate the addition of 100,116 units by 2040, but it is not certain that such flexibility exists within local land use plans. In addition, as urban areas become denser (more units per acre), urban infrastructure is used more:

- Water and sewer lines are required to carry more, possibly greater than the current capacity, which could result in the need to construct additional local distribution lines and possibly additional treatment facilities.
- Demand for police and fire services increases possibly requiring construction of additional stations.
- Parks are used more, resulting in potential crowding and/or over use, with facilities becoming worn and substandard (grass becomes over used and dies, equipment breaks, etc.) and/or the need to construct more parks and recreational facilities.

While development outside urban areas would likely require the construction of new infrastructure, it would occur in less populated areas and would expose fewer people to construction impacts. Also, in general infrastructure in less urban areas has greater available capacity since infrastructure is generally sized for capacities that can accommodate substantially more than the current densities (parks, police stations, water lines, etc. have minimum sizes that can generally accommodate more than rural level density).

Furthermore, as more people are located in the same area, urban impacts increase. Congestion increases, noise and air emissions in proximity to sensitive receptors (residences, schools, hospitals, etc.) also increase.

Each community must determine what level of population it can support – balancing infrastructure capacity and population density. In developing the Plan, SJCOG has satisfied its obligation under SB 375 to identify a policy and growth pattern that meets desired GHG reduction goals. Imposing additional land use guidelines that would further exceed identified GHG targets would result in greater impacts on local communities (primarily the City of Stockton). While these communities (i.e., the City of Stockton) may be able to accommodate such growth at a later time, at the present time, without detailed evaluation of infrastructure carrying capacity, the potential increased impacts to these communities likely would offset the decreased GHG emissions and decreased consumption of open space that could be achieved by the Compact Development Alternative. Nonetheless, local jurisdictions, in exercising their land use authority, could choose to interpret the regional SCS policies in terms of the growth pattern identified in the Compact Development Alternative.

The Plan provides general guidance on location of development. The 2014 RTP/SCS does not impose specific land use controls. This EIR evaluates a number of potential scenarios some of which comply with regional policy (Plan, Compact Development Alternative) of which do not (No Project, 2011 RTP). It will be up to each jurisdiction to interpret the 2014 RTP/SCS land use policy as it applies to them and through ongoing monitoring of key performance measures (in cooperation with SJCOG), monitor GHG reductions to ensure consistency with the 2014 RTP/SCS. Through ongoing monitoring SJCOG will adjust regional policy as needed (in the next RTP/SCS or in interim Amendments if needed) to ensure that the region complies with applicable state law including AB 32 and SB 375.

SJCOG is not rejecting the Compact Development Alternative as a possible land use scenario for 2040. Rather, SJCOG is rejecting the inclusion of policies in the 2014 RTP/SCS that would impose extensive land use intervention (to mandate specific land use densities and/or specific locations) with local jurisdictions because (1) such intervention is not necessary to achieve SB 375 targets and (2) SJCOG has no land use

authority and no mechanism exists to impose detailed land use control. In the future, should monitoring indicate that such detailed land use intervention appear necessary.

7.0 LIST OF EIR PREPARERS

7.1 LIST OF PREPARERS

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8.2 PERSONS CONSULTED

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APPENDIX 1.0

Notice of Preparation and Comments

Notice of Preparation

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NOTICE OF PREPARATION

To: Interested agencies and individuals

Subject: Notice of Preparation of a Program Environmental Impact Report for the 2014 Regional Transportation Plan (including a Sustainable Communities Strategy)

Date: February 5, 2013

Lead Agency: San Joaquin Council of Governments
555 East Weber Avenue
Stockton, California 95202

The San Joaquin Council of Governments (SJCOG), as Lead Agency, is publishing this Notice of Preparation (NOP) to prepare a Program Environmental Impact Report (Program EIR) in accordance with the California Environmental Quality Act (CEQA) for the 2014 Regional Transportation Plan (RTP), which will include a Sustainable Communities Strategy (SCS).

This NOP is being circulated to obtain input regarding the scope and content of the environmental analysis to be included in the Program EIR for the 2014 RTP. SJCOG seeks input from local, state, and federal agencies, as well as other interested parties, on issues relevant to the RTP (including the SCS).

The project location, description, and the expected scope of environmental analysis are described on the following pages.

A scoping meeting for this project will be held at SJCOGs office (see location above), February 21, 2013; 5:00 PM.

Due to the time limits mandated by state law, your response must be sent **not later than 30 days** after the date of this notice.

Please send your response to Aaron Hoyt, Associate Regional Planner either electronically to: hoyt@sjcog.org; or at the mailing address shown above. Please include a return address and the name of a contact person in your agency or organization.

Introduction

The California Environmental Quality Act (CEQA) and its implementing regulations (*State CEQA Guidelines* published in 2012) require SJCOG as the Lead Agency to prepare an EIR for any discretionary government action, including programs and plans that may cause significant environmental effects. Specifically, the 2014 RTP necessitates preparation of a Program EIR, which is a "first-tier" CEQA document designed to consider "broad policy alternatives and programwide mitigation measures" (*State CEQA Guidelines* Sec. 15168). The programmatic environmental analysis for the Program EIR will evaluate environmental effects, such as direct and indirect effects, growth-inducing impacts, and cumulative impacts, and will include mitigation measures to offset any identified potentially significant adverse environmental effects. In addition to fulfilling legal requirements, the RTP Program EIR will provide an opportunity to inform decision makers and the public about potential environmental effects associated with the implementation of the RTP and alternatives.

The Program EIR will supply the foundation for subsequent, site-specific environmental reviews that will be conducted by implementation agencies, as projects in the RTP are developed. This first-tier regional-scale environmental analysis will help local agencies evaluate and reduce direct and indirect impacts, growth-inducing impacts, and cumulative environmental effects with respect to local projects.

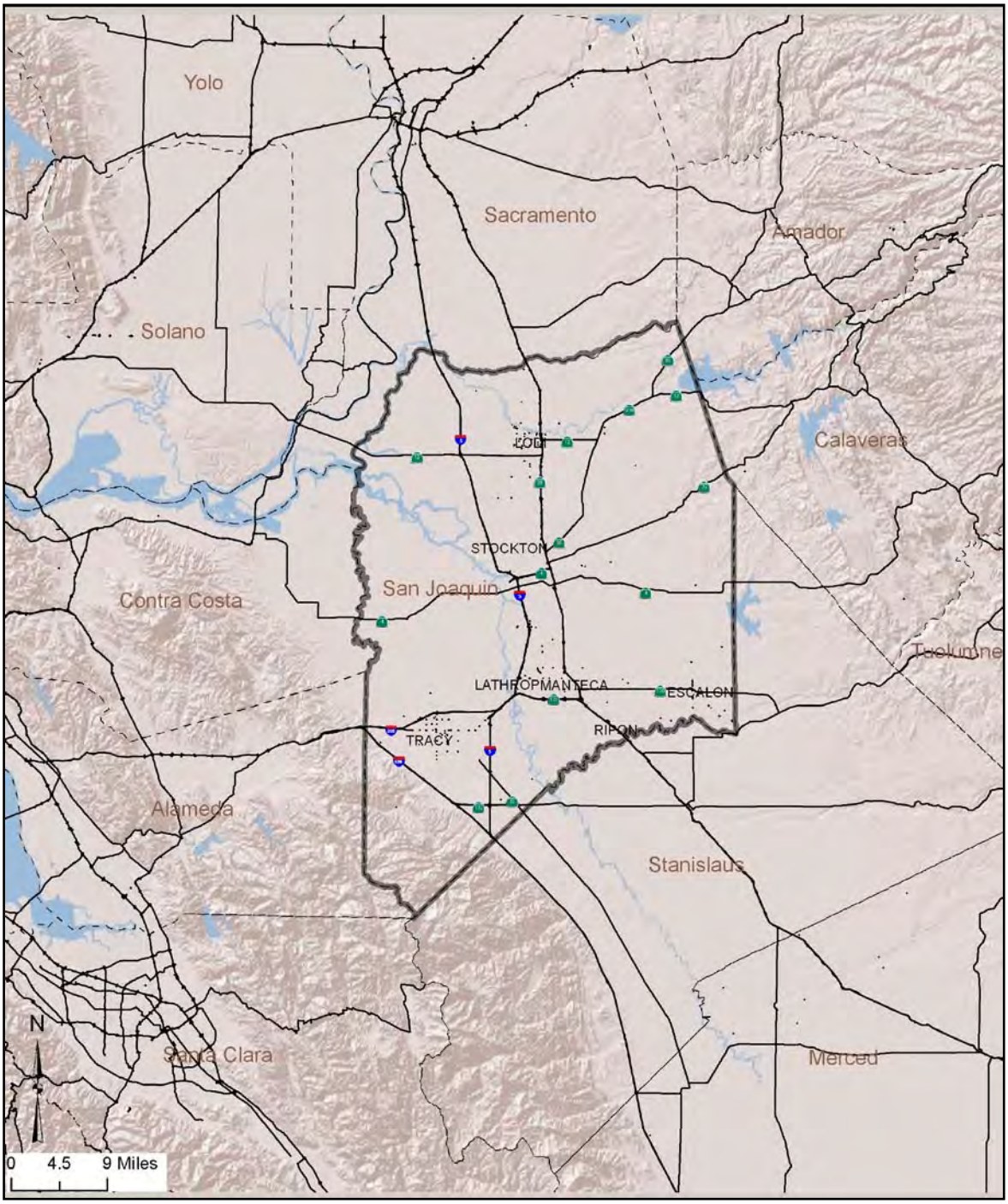
This Notice of Preparation is intended to alert responsible agencies, interested agencies, organizations, and individuals of the preparation of the 2014 RTP Program EIR (*State CEQA Guidelines* Sec. 15082). Comments regarding the scope of the Program EIR received during the 30-day NOP review period will be used to refine the scope and content of the Program EIR, as appropriate. Pursuant to *State CEQA Guidelines* Sec. 15082(a) SJCOG has determined that an EIR will clearly be required for the project, and therefore an Initial Study need not be prepared.

Project Location and Background

San Joaquin County is located in the northern portion of the San Joaquin Valley and covers approximately 1,440 square miles. The geographical extent of the proposed 2014 RTP includes the corporate limits of San Joaquin County including the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. The County contains a combination of metropolitan and rural areas with a population of approximately 685,306 (US Census Bureau, 2010).

Figure 1 illustrates the SJCOG region.

Figure 1, SJCOG Region Map



SJCOG is a Joint Powers Authority comprised of city and county governments created to address regional transportation issues. The Board of Directors is composed of one council member from each of the six cities, three members of the Stockton City Council, and three members from the San Joaquin County Board of Supervisors. Supplementing these voting members are advisory representatives from Caltrans District 10, San Joaquin Regional Transit District, and the Port of Stockton. SJCOG's planning and programming efforts secure transportation funding for the region's highways, transit, streets and roads, pedestrian, and other transportation system improvements throughout the region.

SJCOG is officially designated by federal law as the Metropolitan Planning Organization (MPO) for San Joaquin County. Additionally, under Section 29532 of the California Government Code, SJCOG is designated as a Regional Transportation Planning Agency (RTPA). As such, SJCOG has a number of formal authorities and responsibilities, including:

- Conducting continued, comprehensive, and coordinated transportation planning and programming processes that result in a Regional Transportation Plan and a Federal Transportation Improvement Program (FTIP) for the region. Together these documents serve as the legal basis for transportation decision-making in the region.

- Preparing a Sustainable Communities Strategy (SCS) in accordance with the Sustainable Communities and Climate Protection Act of 2008 (SB 375), as part of the RTP. If the SCS does not meet greenhouse gas (GHG) emission reduction targets, SJCOG would prepare an Alternative Planning Strategy (APS) which would show how the greenhouse gas emission targets would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. It is SJCOG's intent to achieve the targets with the SCS and an APS is not anticipated.

- Conducting a comprehensive environmental planning process, including a Program Environmental Impact Report for the RTP and conducting inter-governmental review for all projects of regional significance.

- Determining, pursuant to the Federal Clean Air Act (Section 176 (c)(4)), the conformity of SJCOG RTPs and FTIPs to air quality planning requirements.

Project Description

Pursuant to the federal Moving Ahead for Progress in the 21st Century (MAP-21) authorization and California Government Code Section 65080, SJCOG must prepare and update a transportation plan for its metropolitan planning area every four years to ensure that the plan adequately addresses future travel needs and is consistent with the federal Clean Air Act. SJCOG's last RTP was adopted in 2011.

The 2014 RTP is the culmination of a multi-year effort with the intent to improve the mobility of people, goods, and services efficiently and coordinate the transportation investments with the projected land use

patterns. SJCOG is required by federal law to develop an RTP that determines the needs of the transportation system and prioritizes proposed transportation projects. The RTP is also necessary to obtain and allocate federal funding for regional transportation projects. SJCOG does not implement individual projects in the RTP; these projects will be implemented by local jurisdictions and other agencies. Consultation activities are a part of the 2014 RTP and Program EIR development processes.

MAP-21 modifies existing state and MPO transportation planning processes and requires within an RTP a discussion of the types of potential environmental mitigation activities. Federal and state transportation and land use planning regulations also include requirements to address environmental issues and mitigation. SJCOG is coordinating these efforts with the CEQA process.

Regional Transportation Plan

The RTP defines the region's mobility needs and issues through 2040, sets forth an action plan of projects and programs to address the needs consistent with the adopted policies, and documents the financial resources needed to implement the plan. The 2014 RTP will address all transportation modes including motor vehicles, transit (commuter and local), rail (commuter and interregional), goods movement (rail freight and trucking), bicycle and pedestrian facilities, aviation systems, transportation systems management (TSM) and transportation demand management (TDM) programs and projects considered over the planning horizon of 2040. Regional transportation improvement projects proposed to be funded, in whole or in part, in the state transportation improvement program must be included in the adopted RTP.

The RTP is anticipated to include the following sections, which may be reorganized or modified as a result of staff review or public input:

- Policy Element
- Action Element
- Financial Element

The Policy Element presents guidance to decision makers of the implications, impacts, opportunities, and options that will result from implementation of the RTP. California law (Government Code Section 65080 (b)) states that each RTP shall include a Policy Element that:

1. describes the transportation issues in the region;
2. identifies and quantifies regional needs expressed within both short and long range planning horizons; and
3. maintains internal consistency with the Financial Element and fund estimates.

The Action Element identifies programs and actions to implement the RTP in accordance with the goals, objectives, and policies set forth in the Policy Element. It includes regionally significant multimodal projects that currently have funding in place or that are projected to have funding in the future (i.e., financially constrained), while it also identifies other improvement projects that are needed but do not have funding (i.e., financially unconstrained).

The Financial Element identifies the current and anticipated revenue sources and financing techniques available to fund the fiscally constrained transportation investments described in the Action Element. It also identifies potential funding shortfalls and sources for the unconstrained project list. The Program EIR will evaluate the potential environmental effects associated with the policies, projects, and actions included in the RTP. Two of the chapters that will be included in the 2014 RTP are described in further detail below.

Sustainable Communities Strategy

The 2014 RTP will include a newly required element called the Sustainable Communities Strategy (SCS) pursuant to the requirements of SB 375. Under SB 375, metropolitan planning organizations such as SJCOG are required to develop an SCS as part of the RTP to reduce, as feasible, greenhouse gas (GHG) emissions to meet a specified target for 2020 and 2035. The SCS will demonstrate how SJCOG proposes to reduce greenhouse gas emissions from cars and light duty trucks to meet a specified reduction target for 2020 and 2035. The California Air Resources Board (ARB) issued SJCOG a regional GHG target of a 5 percent reduction in per capita GHG emissions in 2020 and a 10 percent reduction in per capita GHG emissions in 2025 as compared to baseline per capita emission levels in 2005. SJCOG's intent is to achieve these targets with the SCS. The GHG reductions are to be derived from fewer (and/or shorter) automobile and light truck trips resulting from integrated transportation, land use, housing, and environmental planning. The transportation component of the SCS will include the network of road and transit networks, non-motorized transportation, and transportation policies, as discussed in the 2014 RTP. Furthermore, SB 375 requires that the SCS shall identify general land uses, residential densities, and building intensities as well as areas to house future residents (California Government Code Section 65080(b)(2)(B)).

The SCS will coordinate planning for land use and transportation at a regional scale, with the goal of reducing the amount that people have to drive and associated GHGs. The SCS is required to:

- Use the most recent planning assumptions considering local general plans and other factors
- Identify the general location of uses, residential densities, and building intensities within the region

- Identify areas within the region sufficient to house all the population of the region
- Identify areas within the region sufficient to house an eight-year projection of the regional housing need
- Identify a transportation network to service the transportation needs for the region
- Gather and consider the best practically available scientific information regarding resource areas and farmland in the region
- Consider the state housing goals
- Set forth a forecasted development pattern for the region
- Comply with Section 176 of the federal Clean Air Act
- Consider spheres of influence that have been adopted by the Local Agency Formation Commission (LAFCO) within the region
- Quantify the reduction in GHG projected to be achieved by the SCS
- Consider any adopted multiregional goals and policies

Environmental Justice

The 2014 RTP will include an environmental justice analysis pursuant to Title VI of the Civil Rights Act of 1964 and Presidential Order 12898. The RTP will analyze how the benefits and burdens of transportation investments are distributed among minority and low-income populations in the region. Outreach efforts are underway to reach environmental justice communities during development of the 2014 RTP and SCS.

Preliminary 2014 RTP Alternatives and Preferred Plan

It is anticipated that the 2014 RTP Program EIR will evaluate three alternatives to the no project and preferred plan (or proposed project). The No Project will consist of all major transportation projects that are reasonably foreseeable and reasonably expected to go forward without the 2014 RTP, including all projects that have already received funding, are scheduled to receive funding, and/or have received environmental clearance by December 2014. The No Project Alternative will assume that no safety-related maintenance would be deferred, but the overall appearance and function of the transportation system would be expected to deteriorate. This alternative would also assume conditions without the SCS.

Both the alternatives and the preferred plan will be developed through the RTP/SCS Advisory Committee and vetted through a public outreach process. Each alternative will consist of some combination of a land use pattern, a growth distribution, and a transportation network. Alternatives are anticipated to include,

but not be limited to, variations in land use density, intensity, and location; bus routes; rail; and highway/roadway construction and widening.

The SJCOG Board has the discretion to select an alternative in its entirety or to combine elements of various alternatives to develop the plan selected for the RTP. Alternatives analysis in a Program EIR is focused on reducing the significant or potentially significant impacts of the project. Therefore detailed alternative descriptions are developed as the impacts of the project are identified through the Program EIR process.

CEQA Streamlining

SB 375 and the recently enacted SB 226 contain CEQA incentives, or streamlining provisions, to encourage coordinated land use and transportation planning. Certain types of development projects (i.e., transit priority projects or residential/mixed use residential projects, as defined by the statute) may qualify for CEQA streamlining as long as the requisite criteria are met. Generally, this means that the proposed project seeking to utilize the CEQA incentives is determined to be consistent with an approved SCS. Consistency will be determined by the local jurisdiction that is the lead agency for each project to be streamlined. SJCOG's primary role is to include appropriate information in the SCS, such as land use information as required by SB 375 and/or guidance to aid in interpreting land use information that will allow a jurisdiction to make a consistency determination with respect to appropriate streamlining options on a project by project basis.

Public Outreach

Community engagement and outreach are fundamental to the development of the 2014 RTP. By nature, this plan represents the region's mutual vision for its future and was developed using a grassroots, bottom-up approach. The development of the 2014 RTP and SCS will be guided by a SJCOG Board appointed RTP/SCS Advisory Committee. The RTP/SCS Advisory Committee will function as the principal advisory group providing direction and recommendations to SJCOG staff, SJCOG standing committees, and the SJCOG policy board in its development and ultimate adoption of the 2014 RTP. The RTP/SCS Advisory committee represents a broad range of interests of affordable housing advocates, community development departments, transportation advocates, environmental groups, homebuilder representatives, and business organizations. In the coming months, SJCOG will expand the outreach efforts to seek active participation in the review of the goals, performance measures, and SCS scenario developed through the RTP/SCS Advisory Committee. SJCOG will seek input from a wide range of public advocates and residents, paying special attention to engagement efforts to solicit input on under-represented communities who do not typically participate in regional and local planning. The input

received through workshops, presentations to standing community based organization, and written correspondence will be considered for incorporation into the work products to be recommended to the SJCOG Board by the RTP/SCS Advisory Committee.

Scope of Environmental Analysis

The impact categories listed below have been preliminarily identified for analysis in the 2014 RTP Program EIR.

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services and Utilities (including Recreation and Energy)
- Transportation (including Security)

In addition, the EIR will address cumulative impacts, growth-inducing impacts, and other issues required by CEQA.

Comments on Notice of Preparation

DELTA PROTECTION COMMISSION
2101 Stone Blvd., Suite 210
West Sacramento, CA 95691
Phone (916) 375-4800 / FAX (916) 376-3962
Home Page: www.delta.ca.gov

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Contra Costa County Board of Supervisors

Sacramento County Board of Supervisors

San Joaquin County Board of Supervisors

Solano County Board of Supervisors

Yolo County Board of Supervisors

Cities of Contra Costa and Solano Counties

Cities of Sacramento and Yolo Counties

Cities of San Joaquin County

Central Delta Reclamation Districts

North Delta Reclamation Districts

South Delta Reclamation Districts

Business, Transportation and Housing

Department of Food and Agriculture

Natural Resources Agency

State Lands Commission

March 5, 2013

Aaron Hoyt
San Joaquin County Council of Governments
555 E. Weber Avenue
Stockton, CA 95202

Subject: 2014 Regional Transportation Plan – Program EIR (SCH# 2013022012)

Dear Mr. Hoyt:

Delta Protection Commission (Commission) staff have reviewed the *Notice of Preparation for the 2014 Regional Transportation Plan – Program Draft Environmental Impact Report (EIR)*. The portion of the County's land area which lies within the Delta's Primary Zone is subject to consistency requirements with the Commission's *Land Use and Resource Management Plan for the Primary Zone of the Delta* (*Management Plan*), which contains policies to protect the Delta environment, including its agricultural, ecological and recreational resources. The EIR therefore needs to consider the policies outlined in the *Management Plan* for any potential effects to the environment of the Delta's Primary Zone. While land in the Secondary Zone of the Delta is not subject to consistency requirements, mitigation efforts should still be considered in cases of potential negative impacts on the resources of the Primary Zone.

Additionally, Senate Bill 1556 (Torlakson) directed the Commission to develop and adopt a plan and implementation program for a continuous regional recreational corridor, the Great California Delta Trail, that will extend throughout the five Delta Counties, including San Joaquin County, and link to the San Francisco Bay Trail and Sacramento River Trails. Currently, the Commission is working on the *Blueprint Report for the Great California Delta Trail in Sacramento, San Joaquin, and Yolo Counties.* Coordination with the Commission's Delta Trail planning process should be made to ensure that pedestrian and bicycle lanes/routes/trails in San Joaquin County's Regional Transportation Plan are linked or incorporated into this regional trail network, thus increasing connectivity for commuters and recreationists.

Thank you for this opportunity to provide input. Please contact the Commission office at (916) 375-4800, if you have any questions about the comments provided herein.

Sincerely,

Michael Machado
Executive Director

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CALIFORNIA
Water Boards

Edmund G. Brown Jr.
GOVERNOR

Matthew Rodriquez
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

1 March 2013

Aaron Hoyt
San Joaquin County
Council of Governments
555 East Weber Avenue
Stockton, CA 95202

CERTIFIED MAIL
7012 0470 0000 9904 4823

COMMENTS TO NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, 2014 REGIONAL TRANSPORTATION PLAN-PROGRAM EIR PROJECT, SCH NO. 2013022012, SAN JOAQUIN COUNTY

Pursuant to the State Clearinghouse's 5 February 2013 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Notice of Preparation for the Draft Environmental Impact Report* for the 2014 Regional Transportation Plan-Program EIR Project, located in San Joaquin County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit, or any other federal permit, is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

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[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Waste Discharge Requirements

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.

for Trevor Cleak
Environmental Scientist

cc: State Clearinghouse Unit, Governor's Office of Planning and Research, Sacramento

DEPARTMENT OF TRANSPORTATION
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March 6, 2013

10-SJ-Various
2014 Regional Transportation Plan
SCH#2013022012

Mr. Aaron Hoyt
San Joaquin County Council of Governments
555 E. Weber Avenue
Stockton, CA 95202

Dear Mr. Hoyt:

The California Department of Transportation (Department) appreciates the opportunity to comment on the Notice of Preparation (NOP) for the 2014 Regional Transportation Plan – Program EIR draft Environmental Impact Report (EIR).

Upon review of this project, the Department has the following comments:

Traffic Operations

1. Please be sure to include projects listed in the Corridor Systems Management Plan (CSMP), Congestion Management Plan (CMP) and the SR-99 Business Plan.
2. As this project progresses please consult with Caltrans staff for input concerning the Tier 1 and Tier 2 Regional Transportation Plan project list.
3. Please identify funding for design and construction of facility STAA improvement projects.
4. Please be sure to identify Ramp Metering and Park and Ride projects. Ramp Metering projects should include Intelligent Transportation System (ITS) elements.

If you have any questions, please contact Barbara Hempstead at (209) 948-3909 (e-mail: Barbara_Hempstead@dot.ca.gov) or myself at (209) 941-1921.

Sincerely,

Barbara A. Hempstead

TOM DUMAS, CHIEF
OFFICE OF METROPOLITAN PLANNING

DELTA STEWARDSHIP COUNCIL
A California State Agency

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March 6, 2013

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Gloria Gray
Patrick Johnston
Hank Nordhoff
Dori Nottoli

Executive Officer
Christopher M. Knopp

Aaron Hoyt
San Joaquin County Council of Governments
555 E. Weber Avenue
Stockton, CA 95202

Dear Mr. Hoyt:

We have reviewed the San Joaquin County Council of Governments' (SJCOG) Notice of Preparation (NOP) for the 2014 Regional Transportation Plan (RTP) Program Draft Environmental Impact Report (EIR) and we understand that the RTP will include a Sustainable Communities Strategy (SCS). We welcome the opportunity to provide input regarding how to ensure the consistency of the RTP/SCS with the Delta Plan. Because the Delta Plan has not yet been adopted[1], our comments are based on the current draft Delta Plan (November 2012). We appreciate the opportunity to comment on the NOP and look forward to continued coordination between our agencies to further our related efforts. We are particularly interested in working with you to determine how the exemption process (for "covered actions") defined in Water Code 85057.5 should work.

As you may know, in 2009 the California Legislature created the Delta Stewardship Council (DSC) to play a synthesizing and coordinating role among the many agencies and interest groups who have a stake in the Delta's future. The DSC was also tasked with developing, adopting and implementing the Delta Plan. The Delta Plan, once adopted, will be an enforceable plan to further the achievement of the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals are to be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.

The DSC sets state policy for the Delta through the Delta Plan and coordinates state and local agencies to achieve policy objectives. In addition, the Council was granted specific regulatory and appellate authority over certain actions that take place in whole or in part in the Delta. To do this, the Delta Plan contains a set of regulatory policies with which State and local agencies are required to comply. The Delta Reform Act specifically established a certification process for compliance with the Delta Plan. This means that state and local agencies that propose to carry out, approve, or fund a qualifying action in whole or in part in the Delta, called a "covered action," must certify that this covered action is consistent with the Delta Plan and must file a certificate of consistency with the Council that includes detailed findings.

It is important to note that not all actions that occur in whole or in part in the Delta are covered actions. Only certain activities qualify as covered actions, and the Delta Reform Act establishes specific criteria and exclusions. One of these exclusions is for actions within the secondary zone of the Delta that a metropolitan planning organization determines are consistent with its SCS. Such proposed actions are *not* "covered actions" regulated by the DSC. Water Code Section 85057.5(b)(4) states:

[1] The Delta Plan is anticipated to be adopted in May 2013.

areas, which are depicted in Figure 4-6. At the same time, draft Delta Plan Policy DP P2 calls for respecting local land use when siting water or flood facilities or habitat restoration. For this reason, the priority habitat restoration areas are located in areas not currently designated for urban uses, but rather for agriculture, open space or natural preserve in county general plans.

- **Flood risk reduction.** Land use planning for the RTP/SCS should reduce flood risk. The draft Delta Plan contains three policies that are most relevant to SJCOG's consideration of this issue: Policy RR P2 requires flood protection for residential development in rural areas, Policy RR P3 restrict encroachment in floodways, and Policy RR P4 restricts encroachments in floodplains. In addition, the draft Delta Plan contains a recommendation (RR R4) supporting funding and implementation of the San Joaquin River Flood Bypass, and a recommendation (RR R6) encouraging the Central Valley Flood Protection Board to evaluate designating additional floodways . Flood risk reduction should be included as a factor when evaluating various land use scenarios.

In reviewing the NOP we have identified a need for ongoing and close coordination between our agencies due to the timing of updates required of both plans and the planning periods. While the RTP/SCS is updated every four years and the DSC is required to update the Delta Plan at least every five years, the planning horizon for the two plans are quite different. The Delta Plan has a planning period through 2100 in comparison to the current RTP/SCS which plans through 2040.

We have the following additional recommendations regarding ways in which the RTP/SCS could further promote the achievement of the coequal goals.

- **Water supply reliability.** The RTP/SCS should address the Delta Plan's goal of improving water supply reliability. The draft Delta Plan's legally binding policies and most of its recommendations related to water supply reliability are directed primarily at water suppliers and state and federal agencies. However, there is strong evidence that compact growth reduces per capita water demand, as well as water supply infrastructure costs,[2] and we therefore request that these environmental and economic benefits be included as factors in the evaluation of land use scenarios. In addition, we note that water use efficiency is one of several criteria required for "transit priority projects" as defined by SB 375 to obtain an exemption from the requirements of the California Environmental Quality Act (CEQA).[3]
- **Protecting the Delta as Place.** The RTP/SCS should contribute to protecting and enhancing the unique cultural, recreational, natural resource, and agricultural values of the Delta. Several recommendations in the draft Delta Plan provide guidance in this area. DP R5 recommends providing adequate infrastructure to meet development needs, consistent with sustainable communities strategies and other relevant plans. DP R8 and DP R9 call for promoting value-added crop processing and agritourism, respectively. DP R17 calls for enhancing opportunities for visitor-serving businesses. DP R18 calls for the Ports of Stockton and West Sacramento to encourage carefully designed and sited development of port facilities.

We look forward to working with you and your staff to ensure consistency between the RTP/SCS and the Delta Plan, so that the two plans are complementary and serve to protect the Delta while promoting sustainable growth and economic vitality in the broader region.

---

[2] U.S. Environmental Protection Agency. 2006. *Growing Toward More Efficient Water Use: Linking Development, Infrastructure, and Drinking Water Policies*. EPA 230-R-06-001. Downloaded on March 5, 2013 from http://www.epa.gov/smartgrowth/pdf/growing_water_use_efficiency.pdf.

[3] SB 375 provides a total CEQA exemption for transit priority projects that comply with a long list of criteria, including having buildings and landscaping that are 25% more water efficient than average for the community.

> "Covered action" does not include any of the following: ...Any plan, program, project, or activity within the secondary zone of the Delta that the applicable metropolitan planning organization under Section 65080 of the Government Code has determined is consistent with either a sustainable communities strategy or an alternative planning strategy that the State Air Resources Board has determined would, if implemented, achieve the greenhouse gas emission reduction targets established by that board pursuant to subparagraph (A) of paragraph (2) of subdivision (b) of Section 65080 of the Government Code. For purposes of this paragraph, "consistent with" means consistent with the use designation, density, building intensity, transportation plan, and applicable policies specified for the area in the sustainable communities strategy or the alternative planning strategy, as applicable, and any infrastructure necessary to support the plan, program, project, or activity.

The ability to exempt certain actions from the DSC's certification process provides SJCOG with a potentially significant role in shaping how development occurs in the secondary zone of the Delta and the way in which planning for metropolitan areas and the Delta are coordinated.

Pursuant to Water Code Section 85212, the DSC will be required to review the SJCOG RTP/SCS for consistency with Delta Plan. The law states:

> The council shall review and provide timely advice to local and regional planning agencies regarding the consistency of local and regional planning documents, including sustainable communities strategies and alternative planning strategies prepared pursuant to Section 65080 of the Government Code, with the Delta Plan. The council's input shall include, but not be limited to, reviewing the consistency of local and regional planning documents with the ecosystem restoration needs of the Delta and reviewing whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs. A metropolitan planning organization preparing a regional transportation plan under Section 65080 of the Government Code that includes land within the primary or secondary zones of the Delta shall consult with the council early in the planning process regarding the issues and policy choices relating to the council's advice. No later than 60 days prior to the adoption of a final regional transportation plan, the metropolitan planning organization shall provide the council with a draft sustainable communities strategy and an alternative planning strategy, if any. Concurrently, the metropolitan planning organization shall provide notice of its submission to the council in the same manner in which agencies file a certificate of consistency pursuant to Section 85225. If the council concludes that the draft sustainable communities strategy or alternative planning strategy is inconsistent with the Delta Plan, the council shall provide written notice of the claimed inconsistency to the metropolitan planning organization no later than 30 days prior to the adoption of the final regional transportation plan. If the council provides timely notice of a claimed inconsistency, the metropolitan planning organization's adoption of the final regional transportation plan shall include a detailed response to the council's notice.

The DSC staff appreciates this opportunity for review in order to outline some of the issues of concern to the Council. Based on the most recent draft of the Delta Plan (November 2012), our review of the NOP for the RTP/SCS identified the following areas to consider in order to ensure consistency:

- **Urban boundaries.** The urban boundaries identified in the RTP/SCS should be consistent with the Delta Plan. The boundaries are described in draft Delta Plan Policy DP P1 (with reference to maps in Figure 5-2 and Appendix K). These boundaries are intended to strengthen existing Delta communities while protecting farmland and open space, providing land for ecosystem restoration needs, and reducing flood risk. DP P1 is based on city boundaries and spheres of influence effective as of the date of the Delta Plan's adoption.
- **Habitat restoration areas.** Land should be set aside for future habitat restoration needs, including the San Joaquin Multi Species Conservation Plan, consistent with the priority habitat restoration areas in the Delta Plan. Draft Delta Plan Policy ER P3 calls for protecting opportunities to restore habitat in these

If you have any questions, please contact Jessica Davenport at jdavenport@deltacouncil.ca.gov or (916) 445-2168.

Sincerely,

Cindy Messer

Cindy Messer
Deputy Executive Officer, Delta Plan

cc: Phil Isenberg, Chair, DSC
DSC Council Members
Chris Knopp, Executive Officer
Dan Ray, Chief Deputy Executive Officer

APPENDIX 4.7

Greenhouse Gas Emissions

APPENDIX 4.5 – GREENHOUSE GASES

Methodology

The following section summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on GHG emissions.

Cumulative Analysis

The RTP addresses transportation projects and land use distribution patterns. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The San Joaquin Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that, too, is included in the project analysis. Although a similar level of development is anticipated even without the RTP, this Plan would influence growth, including distribution patterns, throughout San Joaquin County. To address this, the analysis in the EIR covers overall impacts of all transportation projects and land development described in the RTP. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the Air Quality Management Plan and RTPs of adjacent jurisdictions), which could result in additional impacts inside and outside San Joaquin County.

Comparison with the No Project Alternative

The analysis of GHG emissions includes a comparison between the expected future conditions with the 2014 RTP/SCS and the expected future conditions if no Plan (No Project Alternative) were adopted. This evaluation is not included in the determination of the significance of impacts (which is based on a comparison of future conditions with the Plan to existing conditions); however, it provides a meaningful perspective on the effects of the Plan.

Determination of Significance

Analysis of the potential GHG impacts of the Plan was conducted based on regional-level modeling of on-road and gross estimates of area sources.

The GHG analysis calculates the mobile emissions associated with the 2014 RTP/SCS using SJCOG's Regional Travel Demand Model outputs and ARB's EMFAC2011 emissions model. Construction-related GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod). In the analysis below, future year emissions are compared to 2005, 2012 and 1990 (using 15% below 2005 emissions as a proxy). Estimates of energy and water use are based on 1) current demand factors and 2) emission rates associated with current power generation operations and water supply.

It is anticipated that future conservation (as a result of increased pressure to conserve and increased prices) will result in reduced demand. As energy providers and water suppliers respond to AB 32 and the Scoping Plan emission rates associated with power and water delivery are anticipated to decrease. However, in order to present a conservative analysis and without specific information on future demand factors, only modest reductions in electricity emission factors for 2020 and 2040 are assumed. It is anticipated that AB 32 will be implemented, but at the present time sector-specific improvement cannot be quantified for this analysis.

Mobile Emissions

SJCOG provided CO2 emissions from mobile sources in San Joaquin County for each scenario and base year, with the exception of 2005. Emissions in 2005 were extrapolated from emissions occurring in the other years. Emissions were provided in units of tons per day, which were converted to metric tons per year by multiplying by 365 days and using standard metric conversion factors. The input and results are shown in **Table 1** below.

Table 1

	CO2 Emissions (tons/day)	CO2 Emissions (metric tons/year)
2005 (Extrapolated)	8,746.76	**2,895,659**
2012	10,599.37	**3,508,974**
2020 Plan	12,891.42	**4,267,768**
2020 No Build	12,776.83	**4,229,833**
2020 A (Old Plan)	12,655.89	**4,189,795**
2020 D (Compact)	12,542.42	**4,152,232**
2040 Plan	18,163.35	**6,013,068**
2040 No Build	19,019.92	**6,296,640**
2040 A (Old Plan)	18,472.11	**6,115,284**
2040 Alt D	17,866.26	**5,914,715**

Emissions from Energy Use

GHG emissions from the use of electricity and natural gas in residential units and commercial space was calculated using data provided by SJCOG. The number of residential units for each year and scenario were provided and multiplied by the appropriate electricity and natural gas consumption rates. Residential energy consumption was based on figures provided by the California Energy Commission's Residential Appliance Saturation Study (CEC RASS). The RASS provides average electricity and natural gas consumption rates for single family homes, multi-family buildings and mobile homes. Again, the

exception was 2005, where no good data existed for commercial space in 2005, so that emissions were simply assumed to be the same between 2005 and 2012. A statewide average GHG emissions factor provided by the USEPA was used to estimate emissions from electricity consumption. This factor was published in 2011, so would be appropriate for use in calculating 2013 emissions. This factor was reduced by 35 percent in 2040 and by 25 percent in 2020 to account for increased use of renewable fuels and other improvements in electricity production. The natural gas emissions factor is also from the USEPA and was assumed to remain constant. Emissions calculations for residential electricity and natural gas use are shown below in **Table 2 and Table 3**.

Table 2 – Residential Electricity Emissions

	Unit Type	Number of units	Electricity Use Rate[1] (kWh/year/unit)	Total Elec Use (MWh/year)	GHG Emissions Factor[2] (lbs/MWh)	GHG Emissions (metric tons/year)
2005	SFH	142,175	7,605	1,081,241	683.54	335,167
	Multi-Family	58,528	3,709	217,080	683.54	67,291
	Mobile	4,794	5,580	26,751	683.54	8,292
					Total	**410,750**
2012	SFH	154,007	7,605	1,171,223	683.54	363,060
	Multi-Family	60,491	3,709	224,361	683.54	69,548
	Mobile	5,072	5,580	18,812	683.54	5,831
					Total	**438,439**
2020 Plan	SFH	170,957	7,605	1,300,128	512.65	302,263
	Multi-Family	73,256	3,709	271,707	512.65	63,168
	Mobile	5,485	5,580	30,606	512.65	7,116
					Total	**372,547**
2020 NB	SFH	178,988	7,605	1,361,204	512.65	316,463
	Multi-Family	65,029	3,709	241,193	512.65	56,074
	Mobile	5,679	5,580	31,689	512.65	7,367
					Total	**379,904**

2040 Plan	SFH	209,013	7,605	1,589,544	444.30	320,276
	Multi-Family	104,815	3,709	388,759	444.30	78,331
	Mobile	5,927	5,580	33,073	444.30	6,664
					Total	**405,270**

2040 NB	SFH	242,316	7,605	1,842,813	444.30	371,307
	Multi-Family	71,526	3,709	265,290	444.30	53,453
	Mobile	5,914	5,580	33,000	444.30	6,649
					Total	**431,409**

[1] KEMA Inc., 2010, *2009 California Residential Appliance Saturation Study.* California Energy Commission

[2] USEPA *Emission Factors for Greenhouse Gas Inventories,* 2040 factors assume a 35% decrease in emissions due to increased use of renewables, and 25% decrease in 2020

Table 3 – Residential Natural Gas Emissions

	Unit Type	Number of units	Nat Gas Use Rate[1] (therms/year/unit)	Total Gas Use (MMBtu/year)	GHG Emissions Factor[2] (kg/MMBtu)	GHG Emissions (metric tons/year)
2005	SFH	142,175	421	5,985,568	53.07	317,666
	Multi-Family	58,528	149	872,067	53.07	46,282
	Mobile	4,794	339	162,517	53.07	8,625
					Total	**372,573**

2012	SFH	154,007	421	6,483,695	53.07	344,103
	Multi-Family	60,491	149	901,316	53.07	47,835
	Mobile	5,072	339	171,941	53.07	9,125
					Total	**401,063**

2020 Plan	SFH	170,957	421	7,197,290	53.07	381,975
	Multi-Family	73,256	149	1,091,514	53.07	57,929
	Mobile	5,485	339	185,942	53.07	9,868
					Total	**449,772**

2020 NB	SFH	178,988	421	7,535,395	53.07	399,918
	Multi-Family	65,029	149	968,932	53.07	51,423
	Mobile	5,679	339	192,518	53.07	10,217
					Total	**461,559**
2040 Plan	SFH	209,013	421	8,799,447	53.07	467,004
	Multi-Family	104,815	149	1,561,744	53.07	82,885
	Mobile	5,927	339	200,925	53.07	10,664
					Total	**560,553**
2040 NB	SFH	242,316	421	10,201,504	53.07	541,414
	Multi-Family	71,526	149	1,065,737	53.07	56,561
	Mobile	5,914	339	200,485	53.07	10,640
					Total	**608,615**

[1] KEMA Inc., 2010, *2009 California Residential Appliance Saturation Study.* California Energy Commission

[2] USEPA *Emission Factors for Greenhouse Gas Inventories*

Commercial space was estimated based on the number of jobs in each base year, with total new commercial space constructed between 2012 and 2040 estimated at roughly 55,000,000 square feet, based on the projected increase in employment during this period reported by SJCOG. This figure was then converted to an annual average amount of growth, and assumed to be generic commercial space, using a rough estimate of 500 square feet of space needed per employee. Electricity and natural gas consumption rates were estimated from data provided in the CEC's Commercial End-Use Survey (CEUS). The calculations for emissions resulting from consumption of electricity and natural gas in commercial space are shown below in **Table 4**.

Table 4 – Emissions from Electricity and Natural Gas Consumption in Commercial Space

	Source	Square Footage	Nat Gas Use Rate[1] (kBtu/year/sqft)	Total Gas Use (MMBtu/year)	GHG Emissions Factor[2] (kg/MMBtu)	GHG Emissions (metric tons/year)
2012	Natural Gas	125,000,000	26	3,248,750	53.07	172,418

	Electricity Use Rate[1] (kWh/year/sqft)	Total Elec Use (MWh/year)	GHG Emissions Factor[2] (lbs/MWh)	GHG Emissions (metric tons/year)
Electricity	125,000,000	14	1,703,750	683.54	528,134
				Total	**700,552**

	Source	Square Footage	Nat Gas Use Rate[1] (kBtu/year/sqft)	Total Gas Use (MMBtu/year)	GHG Emissions Factor[2] (kg/MMBtu)	GHG Emissions (metric tons/year)
2020	Natural Gas	140,000,000	26	3,638,600	53.07	193,108

	Electricity Use Rate[1] (kWh/year/sqft)	Total Elec Use (MWh/year)	GHG Emissions Factor[2] (lbs/MWh)	GHG Emissions (metric tons/year)
Electricity	140,000,000	14	1,908,200	512.65	443,633
				Total	**636,740**

	Source	Square Footage	Nat Gas Use Rate[1] (kBtu/year/sqft)	Total Gas Use (MMBtu/year)	GHG Emissions Factor[2] (kg/MMBtu)	GHG Emissions (metric tons/year)
2040	Natural Gas	180,000,000	26	4,678,200	53.07	248,281

	Electricity Use Rate[1] (kWh/year/sqft)	Total Elec Use (MWh/year)	GHG Emissions Factor[2] (lbs/MWh)	GHG Emissions (metric tons/year)
Electricity	180,000,000	14	2,453,400	444.30	494,333
				Total	**742,615**

[1] Itron Inc., 2006, *California Commercial End-Use Study.* California Energy Commission

[2] USEPA *Emission Factors for Greenhouse Gas Inventories,* 2040 factors for electricity assume a 35% decrease in emissions due to increased use of renewables

Emissions from Water Use

GHG emissions resulting from the use of water were calculated using water use rates and electricity demand for water treatment. Water use rates were obtained from SJCOG for residential units, and from *Waste Not, Want Not: The Potential for Urban Water Conservation in California* published by the Pacific Institute for commercial space. Electricity use for water treatment was taken from data provided by the California Energy Commission. The emissions factor for electricity use in each year was the same as that used for electricity use discussed above. The summary is provided in **Table 5** below.

Table 5 – Emissions from Water Use

	Residential Water Use (metric tons/year)	Commercial Water Use (metric tons/year)	Total (metric tons/year)
2005	116,242	39,219	**155,461**
2012	124,203	39,219	**163,422**
2020C	72,765	33,125	**105,889**
2020NB	105,933	33,125	**139,057**
2040C	71,586	29,704	**101,290**
2040NB	120,703	29,704	**150,408**

Construction Emissions

Construction activities (of both transportation projects and development) throughout implementation of the Plan will result in direct and indirect emissions. Construction activities, including worker vehicle trips, transport of materials to and from the construction site, and operation of construction equipment, result in GHG emissions. Construction of individual projects occurs over a relatively short period of time as compared to the life of a project, and so emissions due to construction activities are often amortized over the life of a project (e.g., 30 years).

Typically, individual project construction characteristics are identified, such as the timing of construction phases and equipment fleet mix. However, due to the scale of construction activity associated with implementation of the Plan, construction would be expected to occur continuously throughout the life of the Plan as individual projects are constructed and, therefore, could result in significant emissions. Annual construction-related GHG emissions would be expected to vary depending on the number and type of projects being constructed in a given year (which would vary according to the economy), but this level of data is unavailable for analysis. Therefore for purposes of this analysis annual construction emissions were estimated based on total forecasted development in the region and assumed to be relatively constant for the region over the period of the project. This rate of construction was assumed to occur for the years 2012 and 2005 as well.

SJCOG estimates that under the RTP 102,397 total new housing units would be built between 2012 and 2040, with 59,395 of these single-family homes, 42,125 multi-family units, and 877 other units (e.g. mobile homes). Under the No Build scenario the total number of units would be the same, but the relative amounts of unit types would be different, with more single-family homes and fewer multi-family units. In both cases the total number of housing units in San Joaquin County would be 319,756 in 2040. Data from SJCOG shows that in 2012 there were 219,570 units, and in 2005 205,497 units.

Construction was modeled using CalEEMod, the accepted model for estimating emissions of air pollutants from construction and operation of land use projects. As no specific information such as schedule, equipment fleet, and material import/export is available, the estimate of construction emissions is a gross estimate for purposes of this regional scale analysis. To estimate annual construction emissions due to development, total development was estimated based on forecasted housing units and jobs. The total number of residential units was estimated based on total projected household growth and assuming each residential project would be 100 units. Emissions from one 100-unit residential project was obtained from CalEEMod and used to determine emissions for total residential development. Each 100 residential units corresponded to the ratios of single family homes, multi-family homes, and townhomes forecast for new development anticipated to occur between 2012 and 2040. Finally, in order to annualize the emissions, they were divided by a standard project lifetime of 30 years.

Commercial space was estimated in a similar fashion, with total new commercial space constructed between 2012 and 2040 estimated at roughly 55,000,000 square feet, based on the projected increase in employment during this period reported by SJCOG. This figure was then converted to an annual average amount of growth, and assumed to be generic commercial space. Emissions from construction of 250,000 square feet of commercial space were obtained from CalEEMod, and used to estimate average annual emissions. Representative CalEEMod outputs for construction of generic residential and commercial space are provided below.

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	18.00	Dwelling Unit	0.47	18,000.00	51
Condo/Townhouse	24.00	Dwelling Unit	1.50	24,000.00	69
Single Family Housing	58.00	Dwelling Unit	18.83	104,400.00	166

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2025
Utility Company	Statewide Average				
CO2 Intensity (lb/MWhr)	1001.57	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Unit residential construction project. Operational 2025, in Kern - SJAB.

Land Use - 100 units - 18 multi-family, 24 townhome, 58 single family home

Construction Phase - Assume all emissions averaged out over 2024.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	370.00	262.00
tblConstructionPhase	NumDays	35.00	262.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblGrading	AcresOfGrading	655.00	87.50
tblProjectCharacteristics	OperationalYear	2014	2025
tblWoodstoves	NumberCatalytic	0.47	0.00
tblWoodstoves	NumberCatalytic	1.50	0.00
tblWoodstoves	NumberCatalytic	18.83	0.00
tblWoodstoves	NumberNoncatalytic	0.47	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00
tblWoodstoves	NumberNoncatalytic	18.83	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	2.5648	11.0513	12.7095	0.0219	3.3318	0.5006	3.8324	1.7743	0.4629	2.2371	0.0000	1,876.2664	1,876.2664	0.5361	0.0000	1,887.5245
Total	**2.5648**	**11.0513**	**12.7095**	**0.0219**	**3.3318**	**0.5006**	**3.8324**	**1.7743**	**0.4629**	**2.2371**	**0.0000**	**1,876.2664**	**1,876.2664**	**0.5361**	**0.0000**	**1,887.5245**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	2.5648	11.0513	12.7094	0.0219	3.3318	0.5006	3.8324	1.7743	0.4629	2.2371	0.0000	1,876.2643	1,876.2643	0.5361	0.0000	1,887.5224
Total	**2.5648**	**11.0513**	**12.7094**	**0.0219**	**3.3318**	**0.5006**	**3.8324**	**1.7743**	**0.4629**	**2.2371**	**0.0000**	**1,876.2643**	**1,876.2643**	**0.5361**	**0.0000**	**1,887.5224**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7358	8.5400e-003	0.7421	4.0000e-005		7.1400e-003	7.1400e-003		7.1100e-003	7.1100e-003	0.0000	44.5336	44.5336	1.9900e-003	7.9000e-004	44.8217
Energy	0.0133	0.1134	0.0482	7.2000e-004		9.1700e-003	9.1700e-003		9.1700e-003	9.1700e-003	0.0000	414.5429	414.5429	0.0107	4.1000e-003	416.0402
Mobile	0.5466	1.8890	7.0805	0.0195	0.9363	0.0439	0.9802	0.2523	0.0404	0.2927	0.0000	1,433.6691	1,433.6691	0.0294	0.0000	1,434.2858
Waste						0.0000	0.0000		0.0000	0.0000	17.7374	0.0000	17.7374	1.0483	0.0000	39.7506
Water						0.0000	0.0000		0.0000	0.0000	2.0670	22.5477	24.6147	0.2130	5.1500e-003	30.6827
Total	**1.2956**	**2.0109**	**7.8708**	**0.0202**	**0.9363**	**0.0602**	**0.9966**	**0.2523**	**0.0567**	**0.3090**	**19.8044**	**1,915.2933**	**1,935.0977**	**1.3033**	**0.0100**	**1,965.5809**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7358	8.5400e-003	0.7421	4.0000e-005		7.1400e-003	7.1400e-003		7.1100e-003	7.1100e-003	0.0000	44.5336	44.5336	1.9900e-003	7.9000e-004	44.8217
Energy	0.0133	0.1134	0.0482	7.2000e-004		9.1700e-003	9.1700e-003		9.1700e-003	9.1700e-003	0.0000	414.5429	414.5429	0.0107	4.1000e-003	416.0402
Mobile	0.5466	1.8890	7.0805	0.0195	0.9363	0.0439	0.9802	0.2523	0.0404	0.2927	0.0000	1,433.6691	1,433.6691	0.0294	0.0000	1,434.2858
Waste						0.0000	0.0000		0.0000	0.0000	17.7374	0.0000	17.7374	1.0483	0.0000	39.7506
Water						0.0000	0.0000		0.0000	0.0000	2.0670	22.5477	24.6147	0.2129	5.1400e-003	30.6794
Total	**1.2956**	**2.0109**	**7.8708**	**0.0202**	**0.9363**	**0.0602**	**0.9966**	**0.2523**	**0.0567**	**0.3090**	**19.8044**	**1,915.2933**	**1,935.0977**	**1.3033**	**0.0100**	**1,965.5776**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.10**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	12/31/2024	5	262	
2	Grading	Grading	1/1/2024	12/31/2024	5	262	
3	Building Construction	Building Construction	1/1/2024	12/31/2024	5	262	
4	Paving	Paving	1/1/2024	12/31/2024	5	262	
5	Architectural Coating	Architectural Coating	1/1/2024	12/31/2024	5	262	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 296,460; Residential Outdoor: 98,820; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	51.00	11.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3667	0.0000	2.3667	1.3009	0.0000	1.3009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3699	3.6084	3.6159	5.1300e-003		0.1637	0.1637		0.1506	0.1506	0.0000	450.9209	450.9209	0.1458	0.0000	453.9835
Total	**0.3699**	**3.6084**	**3.6159**	**5.1300e-003**	**2.3667**	**0.1637**	**2.5304**	**1.3009**	**0.1506**	**1.4516**	**0.0000**	**450.9209**	**450.9209**	**0.1458**	**0.0000**	**453.9835**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4800e-003	5.5700e-003	0.0539	2.4000e-004	0.0190	1.4000e-004	0.0191	5.0500e-003	1.3000e-004	5.1800e-003	0.0000	14.6621	14.6621	5.9000e-004	0.0000	14.6744
Total	**4.4800e-003**	**5.5700e-003**	**0.0539**	**2.4000e-004**	**0.0190**	**1.4000e-004**	**0.0191**	**5.0500e-003**	**1.3000e-004**	**5.1800e-003**	**0.0000**	**14.6621**	**14.6621**	**5.9000e-004**	**0.0000**	**14.6744**

3.2 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3667	0.0000	2.3667	1.3009	0.0000	1.3009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3699	3.6084	3.6159	5.1300e-003		0.1637	0.1637		0.1506	0.1506	0.0000	450.9204	450.9204	0.1458	0.0000	453.9830
Total	**0.3699**	**3.6084**	**3.6159**	**5.1300e-003**	**2.3667**	**0.1637**	**2.5304**	**1.3009**	**0.1506**	**1.4516**	**0.0000**	**450.9204**	**450.9204**	**0.1458**	**0.0000**	**453.9830**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4800e-003	5.5700e-003	0.0539	2.4000e-004	0.0190	1.4000e-004	0.0191	5.0500e-003	1.3000e-004	5.1800e-003	0.0000	14.6621	14.6621	5.9000e-004	0.0000	14.6744
Total	**4.4800e-003**	**5.5700e-003**	**0.0539**	**2.4000e-004**	**0.0190**	**1.4000e-004**	**0.0191**	**5.0500e-003**	**1.3000e-004**	**5.1800e-003**	**0.0000**	**14.6621**	**14.6621**	**5.9000e-004**	**0.0000**	**14.6744**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8353	0.0000	0.8353	0.4387	0.0000	0.4387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4402	4.2173	4.3812	8.1000e-003		0.1865	0.1865		0.1716	0.1716	0.0000	711.1487	711.1487	0.2300	0.0000	715.9787
Total	**0.4402**	**4.2173**	**4.3812**	**8.1000e-003**	**0.8353**	**0.1865**	**1.0218**	**0.4387**	**0.1716**	**0.6102**	**0.0000**	**711.1487**	**711.1487**	**0.2300**	**0.0000**	**715.9787**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9800e-003	6.1900e-003	0.0598	2.7000e-004	0.0211	1.6000e-004	0.0213	5.6100e-003	1.5000e-004	5.7600e-003	0.0000	16.2912	16.2912	6.5000e-004	0.0000	16.3049
Total	**4.9800e-003**	**6.1900e-003**	**0.0598**	**2.7000e-004**	**0.0211**	**1.6000e-004**	**0.0213**	**5.6100e-003**	**1.5000e-004**	**5.7600e-003**	**0.0000**	**16.2912**	**16.2912**	**6.5000e-004**	**0.0000**	**16.3049**

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8353	0.0000	0.8353	0.4387	0.0000	0.4387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4402	4.2172	4.3812	8.1000e-003		0.1865	0.1865		0.1716	0.1716	0.0000	711.1479	711.1479	0.2300	0.0000	715.9779
Total	**0.4402**	**4.2172**	**4.3812**	**8.1000e-003**	**0.8353**	**0.1865**	**1.0218**	**0.4387**	**0.1716**	**0.6102**	**0.0000**	**711.1479**	**711.1479**	**0.2300**	**0.0000**	**715.9779**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9800e-003	6.1900e-003	0.0598	2.7000e-004	0.0211	1.6000e-004	0.0213	5.6100e-003	1.5000e-004	5.7600e-003	0.0000	16.2912	16.2912	6.5000e-004	0.0000	16.3049
Total	**4.9800e-003**	**6.1900e-003**	**0.0598**	**2.7000e-004**	**0.0211**	**1.6000e-004**	**0.0213**	**5.6100e-003**	**1.5000e-004**	**5.7600e-003**	**0.0000**	**16.2912**	**16.2912**	**6.5000e-004**	**0.0000**	**16.3049**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1920	1.7524	2.1135	3.5200e-003		0.0800	0.0800		0.0752	0.0752	0.0000	302.4646	302.4646	0.0714	0.0000	303.9643
Total	**0.1920**	**1.7524**	**2.1135**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0752**	**0.0752**	**0.0000**	**302.4646**	**302.4646**	**0.0714**	**0.0000**	**303.9643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7200e-003	0.0540	0.1441	3.4000e-004	9.4600e-003	1.2800e-003	0.0107	2.7100e-003	1.1700e-003	3.8800e-003	0.0000	28.6588	28.6588	2.1000e-004	0.0000	28.6631
Worker	0.0127	0.0158	0.1526	6.9000e-004	0.0538	4.1000e-004	0.0542	0.0143	3.8000e-004	0.0147	0.0000	41.5425	41.5425	1.6600e-003	0.0000	41.5774
Total	**0.0224**	**0.0698**	**0.2967**	**1.0300e-003**	**0.0633**	**1.6900e-003**	**0.0650**	**0.0170**	**1.5500e-003**	**0.0186**	**0.0000**	**70.2012**	**70.2012**	**1.8700e-003**	**0.0000**	**70.2405**

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1920	1.7524	2.1135	3.5200e-003		0.0800	0.0800		0.0752	0.0752	0.0000	302.4642	302.4642	0.0714	0.0000	303.9639
Total	**0.1920**	**1.7524**	**2.1135**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0752**	**0.0752**	**0.0000**	**302.4642**	**302.4642**	**0.0714**	**0.0000**	**303.9639**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7200e-003	0.0540	0.1441	3.4000e-004	9.4600e-003	1.2800e-003	0.0107	2.7100e-003	1.1700e-003	3.8800e-003	0.0000	28.6588	28.6588	2.1000e-004	0.0000	28.6631
Worker	0.0127	0.0158	0.1526	6.9000e-004	0.0538	4.1000e-004	0.0542	0.0143	3.8000e-004	0.0147	0.0000	41.5425	41.5425	1.6600e-003	0.0000	41.5774
Total	**0.0224**	**0.0698**	**0.2967**	**1.0300e-003**	**0.0633**	**1.6900e-003**	**0.0650**	**0.0170**	**1.5500e-003**	**0.0186**	**0.0000**	**70.2012**	**70.2012**	**1.8700e-003**	**0.0000**	**70.2405**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1269	1.2242	1.8766	2.9200e-003		0.0603	0.0603		0.0555	0.0555	0.0000	256.7661	256.7661	0.0830	0.0000	258.5100
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1269**	**1.2242**	**1.8766**	**2.9200e-003**		**0.0603**	**0.0603**		**0.0555**	**0.0555**	**0.0000**	**256.7661**	**256.7661**	**0.0830**	**0.0000**	**258.5100**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e-003	4.6400e-003	0.0449	2.0000e-004	0.0158	1.2000e-004	0.0160	4.2100e-003	1.1000e-004	4.3200e-003	0.0000	12.2184	12.2184	4.9000e-004	0.0000	12.2286
Total	**3.7400e-003**	**4.6400e-003**	**0.0449**	**2.0000e-004**	**0.0158**	**1.2000e-004**	**0.0160**	**4.2100e-003**	**1.1000e-004**	**4.3200e-003**	**0.0000**	**12.2184**	**12.2184**	**4.9000e-004**	**0.0000**	**12.2286**

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1269	1.2242	1.8766	2.9200e-003		0.0603	0.0603		0.0555	0.0555	0.0000	256.7658	256.7658	0.0830	0.0000	258.5097
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1269**	**1.2242**	**1.8766**	**2.9200e-003**		**0.0603**	**0.0603**		**0.0555**	**0.0555**	**0.0000**	**256.7658**	**256.7658**	**0.0830**	**0.0000**	**258.5097**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e-003	4.6400e-003	0.0449	2.0000e-004	0.0158	1.2000e-004	0.0160	4.2100e-003	1.1000e-004	4.3200e-003	0.0000	12.2184	12.2184	4.9000e-004	0.0000	12.2286
Total	**3.7400e-003**	**4.6400e-003**	**0.0449**	**2.0000e-004**	**0.0158**	**1.2000e-004**	**0.0160**	**4.2100e-003**	**1.1000e-004**	**4.3200e-003**	**0.0000**	**12.2184**	**12.2184**	**4.9000e-004**	**0.0000**	**12.2286**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3741					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4872
Total	**1.3978**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4872**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4900e-003	3.1000e-003	0.0299	1.4000e-004	0.0106	8.0000e-005	0.0106	2.8000e-003	7.0000e-005	2.8800e-003	0.0000	8.1456	8.1456	3.3000e-004	0.0000	8.1524
Total	**2.4900e-003**	**3.1000e-003**	**0.0299**	**1.4000e-004**	**0.0106**	**8.0000e-005**	**0.0106**	**2.8000e-003**	**7.0000e-005**	**2.8800e-003**	**0.0000**	**8.1456**	**8.1456**	**3.3000e-004**	**0.0000**	**8.1524**

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3741					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4871
Total	**1.3978**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4871**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4900e-003	3.1000e-003	0.0299	1.4000e-004	0.0106	8.0000e-005	0.0106	2.8000e-003	7.0000e-005	2.8800e-003	0.0000	8.1456	8.1456	3.3000e-004	0.0000	8.1524
Total	**2.4900e-003**	**3.1000e-003**	**0.0299**	**1.4000e-004**	**0.0106**	**8.0000e-005**	**0.0106**	**2.8000e-003**	**7.0000e-005**	**2.8800e-003**	**0.0000**	**8.1456**	**8.1456**	**3.3000e-004**	**0.0000**	**8.1524**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5466	1.8890	7.0805	0.0195	0.9363	0.0439	0.9802	0.2523	0.0404	0.2927	0.0000	1,433.6691	1,433.6691	0.0294	0.0000	1,434.2858
Unmitigated	0.5466	1.8890	7.0805	0.0195	0.9363	0.0439	0.9802	0.2523	0.0404	0.2927	0.0000	1,433.6691	1,433.6691	0.0294	0.0000	1,434.2858

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	118.62	128.88	109.26	345,324	345,324
Condo/Townhouse	158.16	171.84	145.68	460,432	460,432
Single Family Housing	555.06	584.64	508.66	1,607,141	1,607,141
Total	831.84	885.36	763.60	2,412,896	2,412,896

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	46.40	16.40	37.20	86	11	3
Condo/Townhouse	10.80	7.30	7.50	46.40	16.40	37.20	86	11	3
Single Family Housing	10.80	7.30	7.50	46.40	16.40	37.20	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	283.2600	283.2600	8.2000e-003	1.7000e-003	283.9583
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	283.2600	283.2600	8.2000e-003	1.7000e-003	283.9583
NaturalGas Mitigated	0.0133	0.1134	0.0482	7.2000e-004		9.1700e-003	9.1700e-003		9.1700e-003	9.1700e-003	0.0000	131.2829	131.2829	2.5200e-003	2.4100e-003	132.0819
NaturalGas Unmitigated	0.0133	0.1134	0.0482	7.2000e-004		9.1700e-003	9.1700e-003		9.1700e-003	9.1700e-003	0.0000	131.2829	131.2829	2.5200e-003	2.4100e-003	132.0819

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	208886	1.1300e-003	9.6300e-003	4.1000e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	11.1470	11.1470	2.1000e-004	2.0000e-004	11.2148
Condo/Townhouse	433628	2.3400e-003	0.0200	8.5000e-003	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.1400	23.1400	4.4000e-004	4.2000e-004	23.2809
Single Family Housing	1.81763e+006	9.8000e-003	0.0838	0.0356	5.3000e-004		6.7700e-003	6.7700e-003		6.7700e-003	6.7700e-003	0.0000	96.9959	96.9959	1.8600e-003	1.7800e-003	97.5862
Total		**0.0133**	**0.1134**	**0.0482**	**7.2000e-004**		**9.1700e-003**	**9.1700e-003**		**9.1700e-003**	**9.1700e-003**	**0.0000**	**131.2829**	**131.2829**	**2.5100e-003**	**2.4000e-003**	**132.0819**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	208886	1.1300e-003	9.6300e-003	4.1000e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	11.1470	11.1470	2.1000e-004	2.0000e-004	11.2148
Condo/Townhouse	433628	2.3400e-003	0.0200	8.5000e-003	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.1400	23.1400	4.4000e-004	4.2000e-004	23.2809
Single Family Housing	1.81763e+006	9.8000e-003	0.0838	0.0356	5.3000e-004		6.7700e-003	6.7700e-003		6.7700e-003	6.7700e-003	0.0000	96.9959	96.9959	1.8600e-003	1.7800e-003	97.5862
Total		**0.0133**	**0.1134**	**0.0482**	**7.2000e-004**		**9.1700e-003**	**9.1700e-003**		**9.1700e-003**	**9.1700e-003**	**0.0000**	**131.2829**	**131.2829**	**2.5100e-003**	**2.4000e-003**	**132.0819**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	67013.3	30.4444	8.8000e-004	1.8000e-004	30.5195
Condo/Townhouse	111994	50.8794	1.4700e-003	3.0000e-004	51.0048
Single Family Housing	444495	201.9362	5.8500e-003	1.2100e-003	202.4340
Total		**283.2600**	**8.2000e-003**	**1.6900e-003**	**283.9583**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	67013.3	30.4444	8.8000e-004	1.8000e-004	30.5195
Condo/Townhouse	111994	50.8794	1.4700e-003	3.0000e-004	51.0048
Single Family Housing	444495	201.9362	5.8500e-003	1.2100e-003	202.4340
Total		**283.2600**	**8.2000e-003**	**1.6900e-003**	**283.9583**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7358	8.5400e-003	0.7421	4.0000e-005		7.1400e-003	7.1400e-003		7.1100e-003	7.1100e-003	0.0000	44.5336	44.5336	1.9900e-003	7.9000e-004	44.8217
Unmitigated	0.7358	8.5400e-003	0.7421	4.0000e-005		7.1400e-003	7.1400e-003		7.1100e-003	7.1100e-003	0.0000	44.5336	44.5336	1.9900e-003	7.9000e-004	44.8217

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1374					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5718					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.3800e-003	0.0000	2.4000e-004	0.0000		3.0200e-003	3.0200e-003		2.9900e-003	2.9900e-003	0.0000	43.3207	43.3207	8.3000e-004	7.9000e-004	43.5844
Landscaping	0.0223	8.5400e-003	0.7418	4.0000e-005		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	1.2129	1.2129	1.1600e-003	0.0000	1.2373
Total	**0.7358**	**8.5400e-003**	**0.7421**	**4.0000e-005**		**7.1400e-003**	**7.1400e-003**		**7.1100e-003**	**7.1100e-003**	**0.0000**	**44.5336**	**44.5336**	**1.9900e-003**	**7.9000e-004**	**44.8217**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1374					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5718					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.3800e-003	0.0000	2.4000e-004	0.0000		3.0200e-003	3.0200e-003		2.9900e-003	2.9900e-003	0.0000	43.3207	43.3207	8.3000e-004	7.9000e-004	43.5844
Landscaping	0.0223	8.5400e-003	0.7418	4.0000e-005		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	1.2129	1.2129	1.1600e-003	0.0000	1.2373
Total	**0.7358**	**8.5400e-003**	**0.7421**	**4.0000e-005**		**7.1400e-003**	**7.1400e-003**		**7.1100e-003**	**7.1100e-003**	**0.0000**	**44.5336**	**44.5336**	**1.9900e-003**	**7.9000e-004**	**44.8217**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	24.6147	0.2129	5.1400e-003	30.6794
Unmitigated	24.6147	0.2130	5.1500e-003	30.6827

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.17277 / 0.739357	4.4307	0.0383	9.3000e-004	5.5229
Condo/Townhouse	1.5637 / 0.985809	5.9075	0.0511	1.2400e-003	7.3639
Single Family Housing	3.77893 / 2.38237	14.2765	0.1235	2.9900e-003	17.7960
Total		**24.6147**	**0.2130**	**5.1600e-003**	**30.6827**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.17277 / 0.739357	4.4307	0.0383	9.3000e-004	5.5223
Condo/Townhouse	1.5637 / 0.985809	5.9075	0.0511	1.2300e-003	7.3631
Single Family Housing	3.77893 / 2.38237	14.2765	0.1235	2.9800e-003	17.7941
Total		**24.6147**	**0.2129**	**5.1400e-003**	**30.6794**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.7374	1.0483	0.0000	39.7506
Unmitigated	17.7374	1.0483	0.0000	39.7506

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	8.28	1.6808	0.0993	0.0000	3.7667
Condo/Townhouse	11.04	2.2410	0.1324	0.0000	5.0223
Single Family Housing	68.06	13.8156	0.8165	0.0000	30.9616
Total		**17.7374**	**1.0483**	**0.0000**	**39.7505**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	8.28	1.6808	0.0993	0.0000	3.7667
Condo/Townhouse	11.04	2.2410	0.1324	0.0000	5.0223
Single Family Housing	68.06	13.8156	0.8165	0.0000	30.9616
Total		**17.7374**	**1.0483**	**0.0000**	**39.7505**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Kern unit commercial plan

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	250.00	1000sqft	5.74	250,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2025
Utility Company	Statewide Average				
CO2 Intensity (lb/MWhr)	1001.57	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 250,000 sqft standard commercial unit, operational 2025, Kern SJVAB

Land Use - 250,000 sqft standard office building

Construction Phase - Assume emissions averaged out over 2024 calendar year.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	230.00	262.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseEndDate	1/1/2026	12/31/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2025	1/1/2024
tblGrading	AcresOfGrading	131.00	10.00
tblProjectCharacteristics	OperationalYear	2014	2025

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	2.7616	9.2260	11.5088	0.0191	3.3482	0.4254	3.7735	1.7856	0.3936	2.1793	0.0000	1,610.2983	1,610.2983	0.4184	0.0000	1,619.0855
Total	**2.7616**	**9.2260**	**11.5088**	**0.0191**	**3.3482**	**0.4254**	**3.7735**	**1.7856**	**0.3936**	**2.1793**	**0.0000**	**1,610.2983**	**1,610.2983**	**0.4184**	**0.0000**	**1,619.0855**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	2.7616	9.2260	11.5087	0.0191	3.3482	0.4254	3.7735	1.7856	0.3936	2.1793	0.0000	1,610.2967	1,610.2967	0.4184	0.0000	1,619.0838
Total	**2.7616**	**9.2260**	**11.5087**	**0.0191**	**3.3482**	**0.4254**	**3.7735**	**1.7856**	**0.3936**	**2.1793**	**0.0000**	**1,610.2967**	**1,610.2967**	**0.4184**	**0.0000**	**1,619.0838**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1504	2.0000e-005	2.2900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.4700e-003	4.4700e-003	1.0000e-005	0.0000	4.7100e-003
Energy	0.0185	0.1681	0.1412	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	1,332.4283	1,332.4283	0.0368	0.0102	1,336.3756
Mobile	1.2811	4.1214	16.5581	0.0406	1.9342	0.0914	2.0257	0.5212	0.0842	0.6054	0.0000	2,983.8618	2,983.8618	0.0621	0.0000	2,985.1662
Waste						0.0000	0.0000		0.0000	0.0000	47.1954	0.0000	47.1954	2.7892	0.0000	105.7679
Water						0.0000	0.0000		0.0000	0.0000	14.0967	152.5310	166.6277	1.4523	0.0351	208.0069
Total	**2.4500**	**4.2896**	**16.7016**	**0.0416**	**1.9342**	**0.1042**	**2.0384**	**0.5212**	**0.0970**	**0.6182**	**61.2921**	**4,468.8256**	**4,530.1177**	**4.3404**	**0.0453**	**4,635.3213**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1504	2.0000e-005	2.2900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.4700e-003	4.4700e-003	1.0000e-005	0.0000	4.7100e-003
Energy	0.0185	0.1681	0.1412	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	1,332.4283	1,332.4283	0.0368	0.0102	1,336.3756
Mobile	1.2811	4.1214	16.5581	0.0406	1.9342	0.0914	2.0257	0.5212	0.0842	0.6054	0.0000	2,983.8618	2,983.8618	0.0621	0.0000	2,985.1662
Waste						0.0000	0.0000		0.0000	0.0000	47.1954	0.0000	47.1954	2.7892	0.0000	105.7679
Water						0.0000	0.0000		0.0000	0.0000	14.0967	152.5310	166.6277	1.4520	0.0351	207.9844
Total	**2.4500**	**4.2896**	**16.7016**	**0.0416**	**1.9342**	**0.1042**	**2.0384**	**0.5212**	**0.0970**	**0.6182**	**61.2921**	**4,468.8256**	**4,530.1177**	**4.3401**	**0.0453**	**4,635.2988**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.11**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	12/31/2024	5	262	
2	Grading	Grading	1/1/2024	12/31/2024	5	262	
3	Building Construction	Building Construction	1/1/2024	12/31/2024	5	262	
4	Paving	Paving	1/1/2024	12/31/2024	5	262	
5	Architectural Coating	Architectural Coating	1/1/2024	12/31/2024	5	262	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 375,000; Non-Residential Outdoor: 125,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	1	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	80.00	41.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3667	0.0000	2.3667	1.3009	0.0000	1.3009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3699	3.6084	3.6159	5.1300e-003		0.1637	0.1637		0.1506	0.1506	0.0000	450.9209	450.9209	0.1458	0.0000	453.9835
Total	**0.3699**	**3.6084**	**3.6159**	**5.1300e-003**	**2.3667**	**0.1637**	**2.5304**	**1.3009**	**0.1506**	**1.4516**	**0.0000**	**450.9209**	**450.9209**	**0.1458**	**0.0000**	**453.9835**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4800e-003	5.5700e-003	0.0539	2.4000e-004	0.0190	1.4000e-004	0.0191	5.0500e-003	1.3000e-004	5.1800e-003	0.0000	14.6621	14.6621	5.9000e-004	0.0000	14.6744
Total	**4.4800e-003**	**5.5700e-003**	**0.0539**	**2.4000e-004**	**0.0190**	**1.4000e-004**	**0.0191**	**5.0500e-003**	**1.3000e-004**	**5.1800e-003**	**0.0000**	**14.6621**	**14.6621**	**5.9000e-004**	**0.0000**	**14.6744**

3.2 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3667	0.0000	2.3667	1.3009	0.0000	1.3009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3699	3.6084	3.6159	5.1300e-003		0.1637	0.1637		0.1506	0.1506	0.0000	450.9204	450.9204	0.1458	0.0000	453.9830
Total	**0.3699**	**3.6084**	**3.6159**	**5.1300e-003**	**2.3667**	**0.1637**	**2.5304**	**1.3009**	**0.1506**	**1.4516**	**0.0000**	**450.9204**	**450.9204**	**0.1458**	**0.0000**	**453.9830**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4800e-003	5.5700e-003	0.0539	2.4000e-004	0.0190	1.4000e-004	0.0191	5.0500e-003	1.3000e-004	5.1800e-003	0.0000	14.6621	14.6621	5.9000e-004	0.0000	14.6744
Total	**4.4800e-003**	**5.5700e-003**	**0.0539**	**2.4000e-004**	**0.0190**	**1.4000e-004**	**0.0191**	**5.0500e-003**	**1.3000e-004**	**5.1800e-003**	**0.0000**	**14.6621**	**14.6621**	**5.9000e-004**	**0.0000**	**14.6744**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7942	0.0000	0.7942	0.4342	0.0000	0.4342	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2389	2.2352	2.6977	3.9000e-003		0.1075	0.1075		0.0989	0.0989	0.0000	342.5837	342.5837	0.1108	0.0000	344.9105
Total	**0.2389**	**2.2352**	**2.6977**	**3.9000e-003**	**0.7942**	**0.1075**	**0.9017**	**0.4342**	**0.0989**	**0.5331**	**0.0000**	**342.5837**	**342.5837**	**0.1108**	**0.0000**	**344.9105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e-003	4.6400e-003	0.0449	2.0000e-004	0.0158	1.2000e-004	0.0160	4.2100e-003	1.1000e-004	4.3200e-003	0.0000	12.2184	12.2184	4.9000e-004	0.0000	12.2286
Total	**3.7400e-003**	**4.6400e-003**	**0.0449**	**2.0000e-004**	**0.0158**	**1.2000e-004**	**0.0160**	**4.2100e-003**	**1.1000e-004**	**4.3200e-003**	**0.0000**	**12.2184**	**12.2184**	**4.9000e-004**	**0.0000**	**12.2286**

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7942	0.0000	0.7942	0.4342	0.0000	0.4342	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2389	2.2352	2.6977	3.9000e-003		0.1075	0.1075		0.0989	0.0989	0.0000	342.5833	342.5833	0.1108	0.0000	344.9101
Total	**0.2389**	**2.2352**	**2.6977**	**3.9000e-003**	**0.7942**	**0.1075**	**0.9017**	**0.4342**	**0.0989**	**0.5331**	**0.0000**	**342.5833**	**342.5833**	**0.1108**	**0.0000**	**344.9101**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e-003	4.6400e-003	0.0449	2.0000e-004	0.0158	1.2000e-004	0.0160	4.2100e-003	1.1000e-004	4.3200e-003	0.0000	12.2184	12.2184	4.9000e-004	0.0000	12.2286
Total	**3.7400e-003**	**4.6400e-003**	**0.0449**	**2.0000e-004**	**0.0158**	**1.2000e-004**	**0.0160**	**4.2100e-003**	**1.1000e-004**	**4.3200e-003**	**0.0000**	**12.2184**	**12.2184**	**4.9000e-004**	**0.0000**	**12.2286**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1920	1.7524	2.1135	3.5200e-003		0.0800	0.0800		0.0752	0.0752	0.0000	302.4646	302.4646	0.0714	0.0000	303.9643
Total	**0.1920**	**1.7524**	**2.1135**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0752**	**0.0752**	**0.0000**	**302.4646**	**302.4646**	**0.0714**	**0.0000**	**303.9643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0362	0.2014	0.5371	1.2600e-003	0.0353	4.7500e-003	0.0400	0.0101	4.3700e-003	0.0145	0.0000	106.8190	106.8190	7.7000e-004	0.0000	106.8351
Worker	0.0199	0.0248	0.2394	1.0800e-003	0.0845	6.4000e-004	0.0851	0.0224	5.9000e-004	0.0230	0.0000	65.1647	65.1647	2.6100e-003	0.0000	65.2194
Total	**0.0562**	**0.2262**	**0.7765**	**2.3400e-003**	**0.1197**	**5.3900e-003**	**0.1251**	**0.0325**	**4.9600e-003**	**0.0375**	**0.0000**	**171.9837**	**171.9837**	**3.3800e-003**	**0.0000**	**172.0545**

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1920	1.7524	2.1135	3.5200e-003		0.0800	0.0800		0.0752	0.0752	0.0000	302.4642	302.4642	0.0714	0.0000	303.9639
Total	**0.1920**	**1.7524**	**2.1135**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0752**	**0.0752**	**0.0000**	**302.4642**	**302.4642**	**0.0714**	**0.0000**	**303.9639**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0362	0.2014	0.5371	1.2600e-003	0.0353	4.7500e-003	0.0400	0.0101	4.3700e-003	0.0145	0.0000	106.8190	106.8190	7.7000e-004	0.0000	106.8351
Worker	0.0199	0.0248	0.2394	1.0800e-003	0.0845	6.4000e-004	0.0851	0.0224	5.9000e-004	0.0230	0.0000	65.1647	65.1647	2.6100e-003	0.0000	65.2194
Total	**0.0562**	**0.2262**	**0.7765**	**2.3400e-003**	**0.1197**	**5.3900e-003**	**0.1251**	**0.0325**	**4.9600e-003**	**0.0375**	**0.0000**	**171.9837**	**171.9837**	**3.3800e-003**	**0.0000**	**172.0545**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1269	1.2242	1.8766	2.9200e-003		0.0603	0.0603		0.0555	0.0555	0.0000	256.7661	256.7661	0.0830	0.0000	258.5100
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1269**	**1.2242**	**1.8766**	**2.9200e-003**		**0.0603**	**0.0603**		**0.0555**	**0.0555**	**0.0000**	**256.7661**	**256.7661**	**0.0830**	**0.0000**	**258.5100**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e-003	4.6400e-003	0.0449	2.0000e-004	0.0158	1.2000e-004	0.0160	4.2100e-003	1.1000e-004	4.3200e-003	0.0000	12.2184	12.2184	4.9000e-004	0.0000	12.2286
Total	**3.7400e-003**	**4.6400e-003**	**0.0449**	**2.0000e-004**	**0.0158**	**1.2000e-004**	**0.0160**	**4.2100e-003**	**1.1000e-004**	**4.3200e-003**	**0.0000**	**12.2184**	**12.2184**	**4.9000e-004**	**0.0000**	**12.2286**

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1269	1.2242	1.8766	2.9200e-003		0.0603	0.0603		0.0555	0.0555	0.0000	256.7658	256.7658	0.0830	0.0000	258.5097
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1269**	**1.2242**	**1.8766**	**2.9200e-003**		**0.0603**	**0.0603**		**0.0555**	**0.0555**	**0.0000**	**256.7658**	**256.7658**	**0.0830**	**0.0000**	**258.5097**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e-003	4.6400e-003	0.0449	2.0000e-004	0.0158	1.2000e-004	0.0160	4.2100e-003	1.1000e-004	4.3200e-003	0.0000	12.2184	12.2184	4.9000e-004	0.0000	12.2286
Total	**3.7400e-003**	**4.6400e-003**	**0.0449**	**2.0000e-004**	**0.0158**	**1.2000e-004**	**0.0160**	**4.2100e-003**	**1.1000e-004**	**4.3200e-003**	**0.0000**	**12.2184**	**12.2184**	**4.9000e-004**	**0.0000**	**12.2286**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7381					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4872
Total	**1.7618**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4872**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9900e-003	4.9500e-003	0.0479	2.2000e-004	0.0169	1.3000e-004	0.0170	4.4900e-003	1.2000e-004	4.6000e-003	0.0000	13.0329	13.0329	5.2000e-004	0.0000	13.0439
Total	**3.9900e-003**	**4.9500e-003**	**0.0479**	**2.2000e-004**	**0.0169**	**1.3000e-004**	**0.0170**	**4.4900e-003**	**1.2000e-004**	**4.6000e-003**	**0.0000**	**13.0329**	**13.0329**	**5.2000e-004**	**0.0000**	**13.0439**

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7381					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4871
Total	**1.7618**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4871**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9900e-003	4.9500e-003	0.0479	2.2000e-004	0.0169	1.3000e-004	0.0170	4.4900e-003	1.2000e-004	4.6000e-003	0.0000	13.0329	13.0329	5.2000e-004	0.0000	13.0439
Total	**3.9900e-003**	**4.9500e-003**	**0.0479**	**2.2000e-004**	**0.0169**	**1.3000e-004**	**0.0170**	**4.4900e-003**	**1.2000e-004**	**4.6000e-003**	**0.0000**	**13.0329**	**13.0329**	**5.2000e-004**	**0.0000**	**13.0439**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2811	4.1214	16.5581	0.0406	1.9342	0.0914	2.0257	0.5212	0.0842	0.6054	0.0000	2,983.8618	2,983.8618	0.0621	0.0000	2,985.1662
Unmitigated	1.2811	4.1214	16.5581	0.0406	1.9342	0.0914	2.0257	0.5212	0.0842	0.6054	0.0000	2,983.8618	2,983.8618	0.0621	0.0000	2,985.1662

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	2,752.50	592.50	245.00	4,984,342	4,984,342
Total	2,752.50	592.50	245.00	4,984,342	4,984,342

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,149.3904	1,149.3904	0.0333	6.8900e-003	1,152.2238
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,149.3904	1,149.3904	0.0333	6.8900e-003	1,152.2238
NaturalGas Mitigated	0.0185	0.1681	0.1412	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.0379	183.0379	3.5100e-003	3.3600e-003	184.1518
NaturalGas Unmitigated	0.0185	0.1681	0.1412	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.0379	183.0379	3.5100e-003	3.3600e-003	184.1518

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	3.43e+006	0.0185	0.1681	0.1412	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.0379	183.0379	3.5100e-003	3.3600e-003	184.1518
Total		**0.0185**	**0.1681**	**0.1412**	**1.0100e-003**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**0.0000**	**183.0379**	**183.0379**	**3.5100e-003**	**3.3600e-003**	**184.1518**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	3.43e+006	0.0185	0.1681	0.1412	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.0379	183.0379	3.5100e-003	3.3600e-003	184.1518
Total		**0.0185**	**0.1681**	**0.1412**	**1.0100e-003**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**0.0000**	**183.0379**	**183.0379**	**3.5100e-003**	**3.3600e-003**	**184.1518**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	2.53e+006	1,149.3904	0.0333	6.8900e-003	1,152.2238
Total		**1,149.3904**	**0.0333**	**6.8900e-003**	**1,152.2238**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	2.53e+006	1,149.3904	0.0333	6.8900e-003	1,152.2238
Total		**1,149.3904**	**0.0333**	**6.8900e-003**	**1,152.2238**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1504	2.0000e-005	2.2900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.4700e-003	4.4700e-003	1.0000e-005	0.0000	4.7100e-003
Unmitigated	1.1504	2.0000e-005	2.2900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.4700e-003	4.4700e-003	1.0000e-005	0.0000	4.7100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1738					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9764					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1000e-004	2.0000e-005	2.2900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.4700e-003	4.4700e-003	1.0000e-005	0.0000	4.7100e-003
Total	**1.1504**	**2.0000e-005**	**2.2900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.4700e-003**	**4.4700e-003**	**1.0000e-005**	**0.0000**	**4.7100e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1738					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9764					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1000e-004	2.0000e-005	2.2900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.4700e-003	4.4700e-003	1.0000e-005	0.0000	4.7100e-003
Total	**1.1504**	**2.0000e-005**	**2.2900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.4700e-003**	**4.4700e-003**	**1.0000e-005**	**0.0000**	**4.7100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	166.6277	1.4520	0.0351	207.9844
Unmitigated	166.6277	1.4523	0.0351	208.0069

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	44.4334 / 27.2334	166.6277	1.4523	0.0351	208.0069
Total		**166.6277**	**1.4523**	**0.0351**	**208.0069**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	44.4334 / 27.2334	166.6277	1.4520	0.0351	207.9844
Total		**166.6277**	**1.4520**	**0.0351**	**207.9844**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	47.1954	2.7892	0.0000	105.7679
Unmitigated	47.1954	2.7892	0.0000	105.7679

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	232.5	47.1954	2.7892	0.0000	105.7679
Total		**47.1954**	**2.7892**	**0.0000**	**105.7679**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	232.5	47.1954	2.7892	0.0000	105.7679
Total		**47.1954**	**2.7892**	**0.0000**	**105.7679**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX 3.0

Detailed RTP Project List

Table 6-1: 2014 Regional Transportation Plan Project List - Mainline Highway Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Years				
2014 RTP MPO ID	CTIPS ID #	PPNO		Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total	FTIP Programming	NEPA Approval	Open to Traffic	MK Renewal Project	RTIF Project
SJ11-1003	212-0000-0578	7634D		Caltrans	SR-99 Widening in Manteca and San Joaquin Phase IV	Mitigation Planting	In Manteca on SR-99 from 0.7 miles north of Louise Avenue to 0.5 miles north of French Camp Road		$2,559,000	2009	2010	N/A	X	X
SJ07-1016				Caltrans	SR-4	Operational and Intersection Improvements	Daggett Road to I-5 (PM 12.6/15.9)		$600,000	2007	2010	2014		
SJ07-1015				Caltrans	SR-4 Extension	New alignment from Fresno Ave. to Navy Drive	Fresno Avenue to Navy Drive		$90,000,000	2009	2012	2017	X	X
SJ07-1005				Caltrans	I-5 HOV	Widen 6 to 8 lanes (inside)	French Camp Road to Charter Way		$97,880,000		2022	2030	X	X
SJ11-1001				Caltrans	I-5 HOV	Widen from 6 to 8 lanes (inside median) including auxiliary lanes	Hammer Lane to North of Eight Mile Road		$124,620,000		2009	2031	X	X
SJ07-1003				Caltrans	I-205 HOV	Widen from 6 to 8 lanes (inside/outside)	I-580 to Eleventh Street		$103,689,000		2024	2032	X	X
SJ07-1006				Caltrans	I-5 HOV	Widen 6 to 8 lanes (inside)	SR 120 to French Camp Road		$193,880,000		2026	2034	X	X
SJ14-1001				Caltrans	I-205 HOV	Widen from 6 to 8 lanes (inside/outside)	Eleventh Street to MacArthur Drive		$143,450,000		2027	2035	X	X
SJ14-1002				Caltrans	I-205 HOV	Widen from 6 to 8 lanes (inside/outside)	MacArthur Drive to I-5		$143,184,000		2029	2037	X	X
SJ07-1008	212-0000-0123			Caltrans	I-5 HOV Mossdale	Widen 9 to 12 through lanes	SR-120 to I-205 (P.M. R13.9/R15.6)		$207,970,000		2030	2038	X	X
SJ14-1003				Caltrans	SR-99 Widening	Widen 4 to 6 lanes (inside) - **ENVIRONMENTAL ONLY**	Harney Lane to Turner Road		$3,000,000					
SJ07-1014				Caltrans	SR-120	Widen 4 to 6 lanes (inside)	I-5 to SR-99		$115,191,000		2032	2040	X	X
									$1,226,023,000					

also be a focus. Finding ways to provide transit service in a cost-efficient manner that meets public

Table 6-2: 2014 Regional Transportation Plan Amendment Project List - Interchange Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Years			
2014 RTP MPO ID	CTIPS ID #	PPNO		Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total		FTIP Programming	NEPA Approval	Open to Traffic
SJ07-2004	212-0000-0525			Lathrop	I-5 at Lathrop Road	Reconstruct interchange (P.M. 17.3/17.8)	I-5 at Lathrop Road		$33,000,000		2013		2018
SJ07-2005				Lathrop	I-5 at Louise Avenue	Reconstruct interchange (PM 16.4-16.8)	I-5 at Louise Avenue		$33,000,000		2011		2015
SJ11-3066				Lathrop	I-5 at Roth Road	Relocation of intersection at Roth/Harlan Road inclusive of signalization; relocation of intersection at Roth/Manthey Road inclusive of signalization. Widen from 2 to 5 lanes from Roth/Harlan road intersection to Roth/Manthey Road Intersection	I-5 at Roth Road		$16,800,000				2018
SJ11-2015	212-0000-0398			Lodi	SR-99 at SR-12 West (Kettleman Lane)	Reconstruct interchange and widen to free flowing interchange	SR-99 at SR-12 West (Kettleman Lane)		$16,164,463		2024		2030
SJ07-2006	212-0000-0397			Lodi	SR-99 at Harney Lane	Reconstruct interchange to provide 6 through lanes on SR 99, 4 lanes on Harney and modify on-ramps and off-ramps	SR-99 at Harney Lane		$39,183,247		2009	2028	2036
SJ07-2012				Manteca	SR-120 at Union Road	Reconstruct interchange (P.M. 4.1/4.1)	SR-120 at Union Road		$22,000,000			2011	2015
SJ11-2023				Manteca	SR-99 at Austin Road	Modify Existing Interchange	SR-99 at Austin Road		$3,000,000			2014	2015
SJ 14-2001				Manteca	SR-99 at Raymus Expressway	Construction of new interchange - **ENVIRONMENTAL ONLY**	SR-99 at Raymus Expressway		$3,000,000			2016	
SJ07-2009	212-0000-0231			Manteca	SR-120 at McKinley Avenue	Construct new interchange	SR-120 at McKinley Avenue		$27,850,000		2009	2014	2021
SJ07-2015				Ripon	SR-99 at Main Street/UPRR Interchange (Ripon)	Reconstruct interchange of SR-99 and Main Street including reconstruction of Main Street overcrossing of UPRR and intersection improvements	SR-99 at Main Street/UPRR Interchange (Ripon)		$10,000,000			2015	2018
SJ11-2002	212-0000-0562			Stockton	SR-99 at Eight Mile Road	Reconstruct Interchange (PM 35.1-35.5)	SR-99 at Eight Mile Road		$65,900,000			2013	2020
SJ11-2001	212-0000-0561			Stockton	SR-99 at Morada	Reconstruct interchange (PM 23.5-24.5)	SR-99 at Morada		$69,800,000			2013	2021
SJ11-2004	212-0000-0309			Stockton	I-5 at Hammer Lane	Interchange Modification and auxiliary lanes (PM 32.6)	I-5 at Hammer Lane		$37,200,000		2007	2009	2025
SJ11-2006	212-0000-0309			Stockton	I-5 at Otto Drive	Construction of a new interchange and auxiliary lanes (PM 33.3/34.2)	I-5 at Otto Drive		$92,800,000		2007	2009	2031
SJ07-2020	212-0000-0309			Stockton	I-5 at Eight Mile Road	Modification of interchange (P.M. 34.7/35.9)	I-5 at Eight Mile Road		$51,400,000		2007	2009	2031
SJ11-2008				Stockton	SR-99 at Gateway Boulevard	Construction of new interchange - **ENVIRONMENTAL ONLY**	SR-99 at Gateway Boulevard		$9,930,000			2014	
SJ11-2010	212-0000-0227			Tracy	I-205/Lammers Rd/Eleventh St	Construct Interchange I-205 at Eleventh street realign and widen Eleventh Street to 6-lanes north of Grant Line to Byron Road. Construct Aux lane Hansen to Eleventh; in WB I-205 Eleventh Street to Grant Line Road	Construct Interchange I-205 at Eleventh street realign and widen Eleventh Street to 6-lanes north of Grant Line to Byron Road. Construct Aux lane Hansen to Eleventh; in WB I-205 Eleventh Street to Grant Line Road		$82,580,063		2007	2012	2018
SJ11-2011				Tracy	I-205 at Grant Line Road	Modification of existing interchange	I-205 at Grant Line Road		$32,574,820			2018	2024
SJ11-2012	212-0000-0228			Tracy & Lathrop	I-205 at Paradise Road/Chrisman	Phase 1: Construct new interchange east-west ramps	I-205 at Paradise Road/Chrisman		$36,056,267		2009	2020	2026
SJ11-2031				Tracy	I-580 at Corral Hollow Road	Modification of existing interchange - **ENVIRONMENTAL ONLY**	I-580 at Coral Hollow Road		$5,500,000			2018	
SJ11-2032				Tracy	I-580 at Lammers Road	Construction of new interchange - **ENVIRONMENTAL ONLY**	I-580 at Lammers Road		$5,500,000			2018	
									$693,238,860				

Table 6-3: 2014 Regional Transportation Plan Project List - Regional Roadway Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Year's					
2014 RTP MPO ID	CTIPS ID #	PPNO		Jurisdiction	Facility Name/Route	Project Description	Project Limits	Total		FTIP Programming	NEPA Approval	Open to Traffic	MK Renewal Project	RTIF Project
SJ07-3011	212-0000-0228			Escalon	SR 120/Brennan Ave Intersection	Intersection improvements	SR-120 at Brennan Avenue	$446,066			2020	2026		
SJ07-3013				Escalon	Ullrey Avenue/McHenry Avenue Intersection	Reconstruct intersection, including addition of turn pockets, improvement of traffic signal and installation of train pre-emption system for UPRR railroad crossing.	Intersection of Ullrey Avenue and McHenry Avenue including UPRR railroad crossing.	$1,495,805			2028	2031	X	
SJ07-3010				Escalon	McHenry Avenue	Widen and reconstruct to include center turn lane, bike lane, and graded shoulders.	Narcissus to Jones Road	$2,822,795			2030	2036		
SJ07-3016	112-0000-0158	3K44		Lathrop	Louise Avenue	Widen 2 lane to 4 lane	Lathrop SPRR to east side UPRR	$2,074,680		2008	2008	2016		
SJ07-3015				Lathrop	Lathrop Road	Widen from 2 to 4 lanes	I-5 to east of UPRR	$2,771,026			2014	2018		X
SJ07-3014				Lathrop	Golden Valley Parkway	Construct new roadway parallel to I-5, 4 lanes from Brookhurst Blvd to Stewart Road	Along Northwest side of I-5 from Brookhurst Blvd to Stewart Road	$15,000,000			2018	2020		X
SJ14-3001				Lathrop	Golden Valley Parkway	Construct new roadway parallel to I-5, 4 lanes from Stewart Road to Paradise Road	Along Northwest side of I-5 from Stewart Road to Paradise Road	$45,000,000			2018	2026		X
SJ07-3019	212-0000-0552			Lodi	Lockeford Street	Widen 2 to 4 lanes	Stockton Street to Cherokee Lane	$3,600,000			2017	2018		
SJ14-3002				Lodi	Century Boulevard Gap Closure	Construct new 2-lane roadway and at-grade crossing of UPRR	Church Street and Stockton Street	$6,000,000			2018	2020		
SJ07-3017				Lodi	Ham Lane	Widen 2/3 lanes to 4 lanes	From Lodi Avenue to Elm Street	$2,990,959				2025	X	
SJ07-3018				Lodi	Harney Lane	Widen from 2/3 lane collector to 4 lane divided arterial	SR-99 to Lower Sacramento Road (2.6 Miles)	$22,008,760		2009	2016	2024	X	X
SJ07-3022				Lodi	Victor Road (SR-12)	Widen from 2 to 4 lanes. Add center dual left turn lane, turn pockets at intersections and median seperation with landscape	Between SR 99 to Central California Traction railroad tracks.	$6,000,000			2030	2035	X	
SJ07-3027				Manteca	Louise Avenue	Widen from 2 to 4 lanes	Manteca SPRR to East of SR-99	$1,301,068			2009	2014		
SJ11-3010				Manteca	Atheron Drive	Construct new 4 lane roadway (gap closure)	East of Airport Way to Union Road	$2,481,200			2010	2014		
SJ07-3023				Manteca	Airport Way	Widen from 2 to 4 lanes	SR-120 to Yosemite Ave.	$9,039,644			2010	2016	X	X
SJ11-3008				Manteca	Airport Way	Widen from 2 to 4 lanes	Lathrop Road to Roth Road	$6,563,978			2012	2022		
SJ11-3011				Manteca	Atheron Drive	Construct new 4 lane roadway	McKinley Ave to West of Airport Way	$1,095,144			2012	2023		
SJ07-3024				Manteca	Lathrop Road	Widen from 2 to 4 lanes	From East of UPRR to SR-99	$3,079,636			2016	2024		X
SJ11-3014				Manteca	Raymus Expressway	Construct new 4-lane expressway	Main Street to SR-99	$9,343,608			2017	2026		
SJ14-3003				Manteca	Airport Way	Widen from 2 to 4 lanes	Yosemite Ave. to Lathrop Road	$6,327,751			2010	2027	X	X
SJ11-3013				Manteca	Raymus Expressway	Construct new 2 lane expressway	SR-120 to Woodward Ave	$2,801,188			2017	2028		
SJ11-3012				Manteca	Atheron Drive	Construct new 4 lane roadway	Woodward Ave to McKinley Ave	$4,321,170			2019	2029		
SJ11-3015				Manteca	Raymus Expressway	Construct new 2 lane expressway	Woodward Ave to Main Street	$11,115,162			2019	2031		
SJ14-3004				Manteca	Airport Way	Widen from 4 to 6 lanes	SR 120 to Lathrop Road	$12,351,768			2010	2036	X	X
SJ11-3065				Port of Stockton	Navy Drive	Widen Navy Drive from 2- to 4 lanes, include signal and intersection improvements at Navy Drive/Washington street	Just east of BNSF RR (conforms to crosstown extension limits) just north of Washington Street (conforms to Navy Drive Bridge limits)	$4,633				2024		
SJ07-3034	212-0000-0261			Port of Stockton	Rough and Ready Island Bridge (Navy Dr Bridge)	Replacement of existing bridge (2 to 4 lanes) at Navy Drive to provide secondary access point	Bridge at Navy Drive	$12,247,222			2007	2015		
SJ11-3017				Ripon	Jack Tone Road, Phase 1	Widen from 2 to 6 lanes	Santos Road to South Clinton Avenue	$9,500,000			2013	2015		
SJ11-3019				Ripon	Garrison Road Gap Closure	Construct 2-lane extension of Garrison Road.	Maple Avenue to 500 ft east of Acacia Avenue	$3,000,000			2014	2016		
SJ11-3016	212-0000-0586			Ripon	Stockton Avenue	Rehabilitate and widen roadway from 2 to 4 lanes	Second Street to Doak Boulevard	$3,000,000			2011	2017	X	
SJ11-3020				Ripon	River Road, Phase 1	Widen from 2 to 4 lanes	North Ripon Road to Jack Tone Road	$5,000,000			2017	2019		
				Ripon	Canal Boulevard Extension	Construct 4-lane extension of Canal Boulevard	Jack Tone Road to Olive Expressway	$4,600,000			2013	2026		
SJ07-3137				Ripon	Olive Expressway	Construct 6-lane Olive Expressway - **ENVIRONMENTAL ONLY**	Canal Boulevard to Raymus Expressway	$3,000,000						
SJ11-3026				San Joaquin County	Lower Sacramento Road	Widen from 2 to 4 lanes; installing concrete median barrier, and installing shoulder wide to accommodate bicyclists	Pixley Slough Bridge to Harney Curve	$12,600,000			2012	2015	X	
SJ11-3024				San Joaquin County	Benjamin Holt Drive	Widen to include center left turn lane, add access controls	Gettysburg Lane to Pacific Avenue	$2,624,000			2010	2015		
SJ11-3023				San Joaquin County	Pershing Avenue	Operational Improvements	Meadow Avenue to Thorton Road	$2,460,000			2009	2016	X	X

Table 6-3: 2014 Regional Transportation Plan Project List - Regional Roadway Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Year's						
	2014 RTP MPO ID	CTIPS ID #	PPNO	Jurisdiction	Facility Name/Route	Project Description	Project Limits	Total		FTIP Programming	NEPA Approval	Open to Traffic	MK Renewal Project	RTIF Project	
SJ11-3025	112-0000-0142			San Joaquin County	McHenry Avenue Improvements & Bridge Replacement	Widening McHenry Avenue to install a two-way left turn lane and replacing two bridge structures	Stanislaus River Bridge to Jones Avenue	$28,309,200			2011	2017			
SJ11-3027				San Joaquin County	Eleventh Street	Improve roadway and intersections	Tracy City Limits to I-5	$19,347,000			2013	2018	X		
SJ11-3028				San Joaquin County	Cherokee Road	Widen from 2 to 3 lanes, add paved shoulders	SR-99 to Ashley Road	$3,816,000			2016	2018	X		
SJ11-3029				San Joaquin County	Howard Road	Passing lanes and channelization	Howard Road	$15,000,000			2021	2023			
SJ11-3030				San Joaquin County	Mariposa Road	Widen from 2 to 4 lanes	Austin Road to Jack Tone Road	$26,255,000			2023	2025			
SJ11-3031				San Joaquin County	Tracy Boulevard	Passing lanes and channelization	I-205 to Howard Road	$5,000,000			2023	2025			
SJ07-3608	212-0000-0425			San Joaquin County	Bacon Island Bridge	HBRR Bason Island Road over Middle River Woodward Island Ferry replacement with 2 lane bridge	Bacon Island over Middle River - Woodward Island Bridge	$13,015,200				2016			
SJ11-3007				San Joaquin County	Escalon Bellota Road	Widen 2 to 4 lanes with shoulders	Escalon City limits to Mariposa Road	$10,725,000				2025	X		
SJ14-3005				San Joaquin County	Grantline Road	Widen from 2 to 4 lanes	Tracy City Limits to 11th Street	$9,000,000				2028			
SJ07-3154				San Joaquin County	Roth Road	Widen from 2 to 4 lanes with shoulders)	UPRR to Airport Way	$4,385,682				2028			
SJ11-3008				San Joaquin County	Airport Way	Widen from 2 to 4 lanes	Lathrop Road to Roth Road	$16,977,000				2028	X		
SJ11-3032				Stockton	Holman Rd	Construction of new 6 lane road	Gary Galli Dr to Eight Mile Rd	$13,600,000				2018			
SJ11-3006	212-0000-0565			Stockton	Hammer Lane (Phase III)	Widen from 2 to 4 lanes	Alexander Rd to Thornton Rd including Pershing Ave intersection	$12,700,000				2018	X		
SJ07-3075	212-0000-0563			Stockton	Thornton Road	Widen 1.5 mile section of roadway from 2 lanes both directions to 6 lanes with a center dual turn lane	Pershing Avenue to Bear Creek Bridge	$15,000,000				2018	X		
SJ07-3076				Stockton	Trinity Parkway Extension	Construction of new 4 lane road	Bear Creek to Otto Dr	$1,500,000				2018			
SJ11-3057				Stockton	Arch-Airport Rd	Widen from 4 to 6 lanes	SR-99 to Pock Lane	$4,000,000				2019			
SJ11-3060				Stockton	Arch-Airport Rd	Widen from 3 to 6 lanes	Alitalia Ave to Airport Way	$1,800,000				2019			
SJ11-3034				Stockton	Davis Rd	Widen from 3 to 4 lanes	Eight Mile to Bear Creek	$2,400,000				2020			
SJ11-3054				Stockton	French Camp Road	Widen from 4 to 8 lanes	Manthey Rd to I-5	$1,700,000				2020			
SJ11-3037				Stockton	Hammer Ln Extension	New Street	Mariners Dr to Trinity Parkway	$3,600,000				2021			
SJ11-3033				Stockton	Lower Sacramento Rd	Widen from 2 to 6 lanes	Grider Way to Armor Dr	$7,000,000				2021			
SJ07-3087				Stockton	Trinity Parkway Extension	Construct 4 lane extension	Otto Drive to Hammer Lane	$8,000,000				2021			
SJ07-3093				Stockton	Alpine Avenue	Widen from 2 to 4 lanes with a middle turn lane. Construct curb, gutter, sidewalks and driveways.	UPRR (SPRR) to Wilson Way	$16,500,000				2026			
SJ11-3044				Stockton	Arch Road	Widen from 4 to 6 lanes	Fite Court to Frontier Way	$1,400,000				2026			
SJ11-3045				Stockton	Arch Road	Widen from 3 to 6 lanes	Frontier Way to SR-99	$4,400,000				2026			
SJ11-3061				Stockton	Eigth Mile Rd	Widen from 2 to 6 lanes	Lower Sacramento Rd to West Lane	$6,800,000				2026			
SJ11-3047				Stockton	Eight Mile Rd	Widen from 2 to 4 lanes	New Road D to New Road F	$2,400,000				2026			
SJ11-3048				Stockton	Eight Mile Rd	Widen from 3 to 4 lanes	New Road F to New Road E	$4,600,000				2026			
SJ11-3050				Stockton	Eight Mile Rd	Widen from 5 to 6 lanes	I-5 to Thornton Rd	$8,100,000				2026	X		
SJ11-3056				Stockton	Lower Sacramento Rd	Widen from 4 to 6 lanes	Armor Dr to Morada Ln	$4,100,000				2026			
SJ11-3039				Stockton	Lower Sacramento Rd	Widen from 2 to 6 lanes	Marlette Rd to Pixley Slough	$23,200,000				2026			
SJ07-3078				Stockton	Maranatha Dr	Construction of new 4 lane road	March Ln to Hammer Ln	$5,900,000				2026			
SJ07-3084				Stockton	Morada Lane	Widen from 3 to 6 lanes	West Ln to UPRR	$7,800,000				2026			
SJ07-3088				Stockton	Airport Way	Intersection Modifications	Harding Way to Industrial Rd	$9,600,000				2026	X		
SJ11-3062				Stockton	Maranatha Dr	Construction of new 4 lane road	Wilson Way to March Ln	$10,400,000				2026			
SJ11-3055				Stockton	Lower Sacramento Rd	Widen from 4 to 6 lanes	Morada Ln to Hammer Ln	$14,300,000				2031			
SJ07-3095				Stockton	Eight Mile Rd	Widen from 2 to 6 lanes	West Ln to Holman Rd	$10,900,000				2031			
SJ11-3051				Stockton	Eight Mile Rd	Widen from 2 to 6 lanes	Holman Rd to SR 99	$14,700,000				2031	X		
SJ11-3068				Stockon	Gateway Boulevard	Construct new 4 lane roadway - **ENVIRONMENTAL ONLY**	South of Live Oak Blvd, SR-99 to Micke Grove Road	$9,900,000				2035			
SJ11-3069				Stockton	Micke Grove Road	Widen from 2 to 4 lanes - **ENVIRONMENTAL ONLY**	Eight Mile Road to New Gateway Blvd	$5,900,000				2035			
SJ07-3089				Stockton	Arch Road	Widen from 2 to 6 lanes	Newcastle Rd to Fite Court	$6,600,000				2036			
SJ11-3053				Stockton	French Camp Road	Widen from 2 to 6 lanes	Wolfe Rd to Manthey Rd	$8,300,000				2036			
SJ11-3063				Stockton	March Ln Extension	Construction of new 8 lane road	Holman Rd to SR 99	$22,400,000				2036			
SJ07-3094				Stockton	Eight Mile Rd	Widen from 2 to 4 lanes	Thornton Road to Lower Sacramento Rd	$22,400,000				2036			
SJ07-3097				Stockton	Navy Drive	Widen from 2 to 4 lanes	BNSF RR to SR 4	$6,600,000				2036			
SJ11-3042				Stockton	Stanislaus Street	Widen from 2 to 4 lanes	Crosstown Freeway to Park Street	$3,900,000				2014			
SJ07-3111				Tracy	Eleventh Street Bridge	Replacement of existing Tracy East Overhead Bridge at UPRR	East Eleventh Street Bridge at UPRR	$40,285,000				2016		X	

Table 6-3: 2014 Regional Transportation Plan Project List - Regional Roadway Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Years					
2014 RTP MPO ID	CTIPS ID #	PPNO		Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total	FTIP Programming	NEPA Approval	Open to Traffic	MK Renewal Project	RTIF Project	
SJ07-3108	212-0000-0427			Tracy	MacArthur Drive	Widen 2 to 4 lanes (Valpico Road to Schulte Road)	MacArthur Drive from Valpico Road to Schulte Road;		$10,973,987			2017	X		
SJ11-CM12	212-0000-0542			Tracy	Eleventh Street Improvements and MacArthur Dr. Intersection	Installation of traffic signal and/or roundabout improvements at intersections, center median, and an eastbound auxiliary lane at selected areas of Eleventh Street corridor	Eleventh Street Improvements and MacArthur Dr. Intersection		$9,596,333			2017			
SJ07-3110				Tracy	Corral Hollow Road	Widen from 2 to 4 lanes	Parkside Drive to Linne Road		$22,906,820			2022			X
SJ07-3109				Tracy	Schulte Road	Extend 4 lane roadway	Faith Lane (San Marco Subdivision limits) to Lammers Road		$21,890,940			2022			
SJ07-3107				Tracy	Grant Line Road	Widen from 5 to 6 lanes	Naglee Road to Lammers Road		$6,392,443			2026	X		
SJ07-3181				Tracy	Corral Hollow Road Widening	Widen 2 to 4 lanes including ROW and construction of two bridges	Linne Road to I-580		$49,286,333			2026			
SJ11-3067				Tracy	MacArthur Drive	Extend 4 lane roadway (Mt. Diablo Road to Eleventh Street)	Mt. Diablo Road to Eleventh Street		$6,233,987			2028			
SJ07-3183				Tracy	Tracy Blvd.	Widen from 4 lane minor arterial to 4 lane major arterial	I-205 to Eleventh Street		$17,401,433			2030			
									$877,264,621						

Table 6-4: 2014 Regional Transportation Plan Project List - Railroad Crossing Safety Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Years					
2014 RTP MPO ID	CTIPS ID #	PPNO		Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total	RTP/FTIP Programming		NEPA Approval	Open to Traffic	MK Renewal Project	RTIF Project
SJ11-4002				Lathrop	Roth Road Grade Separation (Easterly)	Construct 4 lane grade separation between Roth Road and Railroad	On Roth Road East of the Army Depot and West of the UPRR Intermodal Terminal		$29,100,000			2018			
SJ07-4006				Lodi	Harney Lane at UPRR	Construct the Harney Lane/Union Pacific Railroad Grade Separation and widen Harney Lane from two lanes to four lanes	Harney Lane at UPRR Between West Lane/Hutchins Street on west and Stockton Street on the east.		$18,502,089		2013	2017	X		
SJ07-4008				Manteca	Airport Way/UPRR	Construct five lane grade separation over the UPRR	Airport Way/UPRR between Louise Avenue and Lathrop Road		$21,492,318		2030	2035	X		
SJ11-3070				Port of Stockton	Navy Drive/BNSF Underpass	Replace existing underpass with a new underpass sufficient to accommodate two BNSF mainline tracks and a future four lane roadway.	Navy Drive at BNSF		$9,200,000			2015			
SJ11-4001				San Joaquin County	Lower Sacramento Road/UPRR (near Woodson Road)	Replace grade separation of roadway and railway	Lower Sacramento Road/UPRR (near Woodson Road)		$40,000,000		2028	2035			
SJ07-4014				Stockton	Alpine Road/UPRR (West)	Construct at-grade quiet zone improvements at railway	Alpine Ave/UPRR (west)		$3,000,000			2030	X		
SJ07-4017				Stockton	Alpine Ave/UPRR (east)	Grade Separation	Alpine Ave/UPRR (east)		$35,100,000			2030			
SJ07-4027				Stockton	West Lane at UPRR	Construct a 6 lane overpass.	On West Lane between Alpine Avenue & El Pinal Drive/Klinger Road		$35,100,000			2036	X		
									$191,494,407						

Table 6-5: 2014 Regional Transportation Plan Project List - Bus Transit Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Years		
2014 RTP MPO ID	CTIPS ID #	PPNO	Jurisdiction	Facility Name/Route	Project Description	Project Limits	Total	FTIP Programming	NEPA Approval	Completion
SJ11-5002			Escalon	eTrans Transit Operations	Costs associated with eTrans demand responsive & fixed route transit system	Cities of Escalon and Modesto	$4,963,162			
SJ14-5001			Escalon	eTrans Capital Improvements	Bus Replacements	City of Escalon	$864,370			
SJ14-5002			Escalon	eTrans Capital Improvements	Passenger Facilities Amenties	City of Escalon	$15,000			
SJ14-5003			Escalon	eTrans Capital Improvements	Next Bus Equipment	City of Escalon	$25,000			
SJ14-5004			Escalon	eTrans Capital Improvements	Electronic Fareboxes	City of Escalon	$125,000			
SJ07-5001			Lodi	Grapeline Capital	13 cutaways	City of Lodi	$9,750,000	2007		
SJ07-5002	212-0000-0155		Lodi	Grapeline Capital	Bus stop shelters/improvements	City of Lodi	$1,680,000	2007		
SJ07-5004	212-0000-0299		Lodi	Grapeline Capital	Facility upgrade	City of Lodi	$1,680,000			
SJ07-5005			Lodi	Grapeline Capital	Facility Expansion	City of Lodi	$2,500,000			
SJ07-5011			Lodi	Grapeline Operations	Grapeline Operations	City of Lodi	$87,923,565			
SJ14-5005			Lodi	Grapeline Capital	6 large buses	City of Lodi	$6,000,000			
SJ14-5006			Lodi	Grapeline Capital	1 trolley	City of Lodi	$1,000,000			
SJ14-5007			Lodi	Grapeline Capital	4 cutaways	City of Lodi	$3,600,000			
SJ14-5008			Lodi	Grapeline Capital	2 cutaways	City of Lodi	$1,500,000			
SJ14-5009			Lodi	Grapeline Capital	Bicycle Support Program	City of Lodi	$200,000			
SJ14-5010			Lodi	Grapeline Capital	Tech Upgrade	City of Lodi	$300,000			
SJ14-5011			Lodi	Grapeline Capital	Security/Safety	City of Lodi	$900,000			
SJ14-5012			Lodi	Grapeline Capital	Bus Wash/Fuel upgrades	City of Lodi	$900,000			
SJ07-5015	212-0000-0358		Manteca	Manteca Passenger Amenities	Bus shelters/pedestrian facilities, bike facilities, lighting and multifunctional landscaped area.	City of Manteca	$100,000	2007		
SJ07-5016	212-0000-0300		Manteca	Manteca Transit System	Costs associated with Safety/Security/ITS	City of Manteca	$25,000	2007		
SJ07-5017	212-0000-0235		Manteca	Manteca Transit System Capital	Purchase of 8 vehicles over the next three years, 4 Vehicles the first year and	City of Manteca	$1,348,000	2007		
SJ07-5018	212-0000-0282/ 212-0000-0213		Manteca	Manteca Transit System Operations	Costs associated with the Operations and administration of DAR and fixed route	City of Manteca	$60,000,000	2007		
SJ07-5019	212-0000-0359		Ripon	City of Ripon Fixed Route Transit System Operations	Costs associated with the delivery of a fixed route transit system in the City of Ripon ($50,000 annually)	City of Ripon	$7,200,000	2007		
SJ07-5026			SJRTD	Bus Rapid Transit (RTD)	SMA/Inter-City BRT-Operations	SMA/Inter-City BRT-Operations	$646,472,518	2007		
SJ07-5027	212-0000-0279		SJRTD	Bus Rapid Transit (BRT) Vehicles	Purchase of buses for service expansion	San Joaquin County-Capital	$44,800,000	2007		
SJ07-5028	212-0000-0304		SJRTD	Camera and Security Equipment	Purchase and installation of camera and security equipment for surveillance on buses and bus facilities	SJRTD Capital	$2,000,000	2007		
SJ07-5029			SJRTD	Coordinated Transportation Vehicles	Includes new replacement buses or vans	San Joaquin County-Capital	$5,200,000	2007		
SJ07-5030	212-0000-0266		SJRTD	County Operations	FTA Section 5311 funding for services to rural areas of San Joaquin County	San Joaquin County-Operations	$23,771,658	2007		
SJ07-5031			SJRTD	County Wide DAR	Expansion and replacement buses	San Joaquin County-Capital	$2,000,000	2007		
SJ07-5032	212-0000-0161/ 212-0000-0246/ 212-0000-0159/ 212-0000-0245/ 212-0000-0167		SJRTD	Countywide DAR-Operations	Countywide GPDAR-Operations	San Joaquin County-Operations	$64,050,258	2007		
SJ07-5033	212-0000-360		SJRTD	Deviated Fixed Route Service: Replacement and Expansion (Ultra Low Sulfur Diesel or Hybrid) Buses	Cost associated with the purchase of replacement and expansion buses	San Joaquin County-Capital	$4,320,000	2007		
SJ07-5034	212-0000-0236		SJRTD	Downtown Transit Center	Construction, continuing development and improvements to the Downtown Transit Center	SJRTD Capital	$1,814,000	2007		
SJ07-5036	212-0000-0304		SJRTD	Intercity/Interregional Replacement and Expansion (Diesel or Hybrid) Buses	Expansion and replacement buses	San Joaquin County-Capital	$50,000,000	2007		

Table 6-5: 2014 Regional Transportation Plan Project List - Bus Transit Improvements Category

Identifiers				Project Information					Cost to Deliver	Milestone Years		
	2014 RTP MPO ID	CTIPS ID #	PPNO	Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total	FTIP Programming	NEPA Approval	Completion
SJ07-5037	212-0000-0161/ 212-0000-0246/ 212-0000-0159/ 212-0000-0245/ 212-0000-0167			SJRTD	Intercity Hopper and Interregional Commuter-Operations	Intercity Hopper and Interregional Commuter-Operations	San Joaquin County-Operations		$337,710,510	2007		
SJ07-5039	212-0000-0367			SJRTD	Non-Revenue Fleet-Replacement Vehicles	Costs associated with the purchase of hybrid or electric replacement vehicles	San Joaquin County-Capital		$2,000,000	2007		
SJ07-5040	212-0000-0332/ 212-0000-0165			SJRTD	Operational Facilities	Expansion/Modernization	San Joaquin County-Capital		$7,500,000	2007		
SJ07-5042	212-0000-0352			SJRTD	Regional Transportation Center	Expansion/Modernization	San Joaquin County-Capital		$70,000,000	2007		2025
SJ07-5043	212-0000-0244			SJRTD	Miscellaneous Capital Improvement Projects	Facility Upgrades, Passenger Amenities, Operating Equipment	San Joaquin County-Capital		$56,000,000	2007		
SJ07-5044				SJRTD	SMA Fleet Management	Expansion and replacement of hybrid buses including replacement/upgrades of bus operations technologies (i.e. fareboxes, AVLs, APC, etc.)	Stockton Metropolitan Area-Capital		$139,000,000	2007		
SJ07-5045	212-0000-0161/ 212-0000-0246/ 212-0000-0159/ 212-0000-0245/ 212-0000-0167			SJRTD	Stockton Metropolitan Area (SMA) Operations	SMA Fixed Route and SMA DAR; including replacement/upgrades of administrative technologies (i.e. computers, servers, phone systems, etc.)	Stockton Metropolitan Area-Operations		$437,785,254	2007		
SJ14-5013				SJRTD	Equipment Upgrades/Replacements	Upgrade and replacement of maintenance, operations, and administrative equipment	San Joaquin County-Capital		$20,000,000			
SJ11-CM03	212-0000-0533			San Joaquin RTD	Purchase 6 BRT Buses and Corridor Enhancement	Puchase of 6 BRT Buses that will operate on BRT Corridors	Stockton Metropolitan Area-Capital		$12,425,087	2011		
SJ11-CM17	212-0000-0547			San Joaquin RTD	Operating Assistance for BRT III along Hammer Lane	Metro Express: Two Years of Operating Assitance	Stockton Metropolitan Area-Operations		$3,423,582	2011		
SJ11-CM04	212-0000-0534			San Joaquin RTD	Operating Assistance for BRT II along Airport Way	Metro Express: Two Years of Operating Assitance	Stockton Metropolitan Area-Operations		$3,423,582	2011		
SJ14-5014				SJRTD	BRT Project: Martin Luther King Jr. Corridor	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancments	Stockton Metropolitan Area-Capital		$14,000,000			2018
SJ14-5015				SJRTD	BRT Project: West Lane Corridor	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancments	Stockton Metropolitan Area to Lodi-Capital		$29,000,000			2020
SJ14-5016				SJRTD	BRT Project: March Lane Corridor	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancments	Stockton Metropolitan Area-Capital		$14,500,000			2025
SJ14-5017				SJRTD	BRT Project: Freemont Street Corridor	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancments	Stockton Metropolitan Area-Capital		$14,500,000			2030
SJ14-5018				SJRTD	BRT Project: Arch Road/Sperry Corridor	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancments	Stockton Metropolitan Area-Capital		$15,000,000			2035
SJ14-5019				SJRTD	BRT Project: Eight Mile Road Corridor	Costs associated with the implementation of the BRT service along the corridor including traffic signal upgrades, bus stop amenities and access enhancments	Stockton Metropolitan Area-Capital		$15,000,000			2040

Table 6-5: 2014 Regional Transportation Plan Project List - Bus Transit Improvements Category

Identifiers			Project Information					Cost to Deliver	Milestone Years		
2014 RTP MPO ID	CTIPS ID #	PPNO	Jurisdiction	Facility Name/Route	Project Description	Project Limits	Total	FTIP Programming	NEPA Approval	Completion
SJ14-5020			SJRTD	Transfer Facilities	Expansion of BRT and/or intercity connection facilities	San Joaquin County-Capital	$25,000,000			
SJ14-5021			SJRTD	Hammer Triangle Transfer Station	Hammer Triangle Transfer Station	Stockton Metropolitan Area-Capital	$34,200,000			2040
SJ07-5049	212-0000-0350		Tracy	TRACER Capital	Capital	Purchase 3 buses every 5 year period; Purchase 2 buses every 10 year period	$3,000,000	2007		
SJ07-5050	212-0000-0206		Tracy	TRACER Capital	Construction of turnouts and 18 shelters	various locations including multi-modal station	$1,370,000	2007		
SJ07-5051	212-0000-0206		Tracy	TRACER Capital	Phase I Bus Turnouts - Street Facility improvements for bus turnouts to improve traffic flow, decrease emissions, and operations/passenger safety	TRACER Capital	$1,760,000	2007		
SJ07-5052	212-0000-0206		Tracy	TRACER Capital	Phase Bus Turnouts II - Passenger Shelters	Costs of passenger shelters and bus turnouts	$1,125,000	2007		
SJ07-5053	212-0000-0347		Tracy	TRACER Capital	Paratransit Minivans	Cost of Paratransit Minivans at $70,000 each	$140,000	2007		
SJ07-5054	212-0000-0348		Tracy	TRACER Capital	Transit Supervisor Vehicle	Cost of a Transit Supervisor Vehicle	$50,000	2007		
SJ07-5055	212-0000-0149		Tracy	TRACER Operations	Costs associated with the delivery of fixed route and paratransit services including salaries, contracting of service, equipments, etc.	City of Tracy	$39,204,089	2007		
SJ07-5056	212-0000-0208		Tracy	TRACER Project Mangement and Planning	Costs to support transit planning efforts to update the City of Tracy Short-Range Transit Analysis and Action Plan and Grant Management	City of Tracy	$2,610,951	2007		
SJ11-2008			Tracy	TRACER Capital	Vehicle Storage and Maintainence Facility	Location within City limits, to support expansion of fleet	$30,000,000			
SJ11-2009			Tracy	TRACER Capital	CNG Station replacement	Cost to replace old equipment	$4,000,000			
SJ11-2010			Tracy	TRACER Capital	Bus shelters replacement	Replacement of existing shelters/benches	$2,500,000			
SJ07-5060	212-0000-0401//212-0000-0355		Various Agencies	FTA New Freedom Funding	Costs associated with the competively selected projects from the Coordinated Human Services Transportation Plan for San Joaquin County, and the costs associated with the implementation of the Coordinated plan.	San Joaquin County	$3,200,000	2007		
SJ11-2017	212-0000-0588		Various Agencies	Valley CAPS Transit Service Capital	Costs Associated with the purchase of two medium duty buses	Valley CAPS Transit Service Capital	$130,000			
							$2,373,255,587			

Table 6-6: 2014 Regional Transportation Plan Project List - Rail Corridor Improvements Category

Identifiers			Project Information					Cost to Deliver	Milestone Years		
2011 RTP MPO ID	CTIPS ID #	PPNO	Jurisdiction	Facility Name/Route	Project Description	Project Limits	Total	FTIP Programming	NEPA Approval	Completion Date
SJ07-6001	112-0000-0139		Caltrans	Caltrans Intercity Rail	Construct double main track, panelized turnouts, relocate/renew siding turnout, and realign existing trackage.	San Joaquin County between Escalon and Stockton	$31,200,000			
SJ11-6001	112-0000-0277		Caltrans	Caltrans Intercity Rail Passenger Facility	In Stockton, Construct track connections and a new intercity passenger rail facility	Intersection of the BNSF and UP railroads.	$18,000,000			
SJ07-6003	212-0000-0281		SJRRC	ACE Capital	Purchase rail cars for ACE service expansion	ACE Capital	$8,800,000			
SJ07-6004	212-0000-0190		SJRRC	ACE Capital	SJRRC shared costs for the overall maintenance of vehicles	ACE Capital	$7,564,000			2030
SJ07-6009			SJRRC	ACE Capital	Realignment of tracking	Near Altamont Pass	$9,000,000			
SJ07-6013	112-0000-0140		SJRRC	ACE Capital	Restoration of abandoned Western Pacific Depot building	Downtown Stockton, between Weber Ave and Miner Ave	$7,000,000	2007		
SJ07-6015	212-0000-0306		SJRRC	Stockton Track Extension Phases II & III (ACE Gap Closure Project)	Allow SJRCC to operate on separate tracks from Union Pacific Railroad between maintenance yard and the station siding.	Between the Stockton ACE Station and the ACE Equipment Maintenance Facility	$19,000,000			
SJ07-6016			SJRRC	ACE Service Extensions	Enhance/extend rail to benefit residents; integrate ACE with the State intercity rail service; extend ACE service	San Joaquin County and San Joaquin Valley; Sacramento, Modesto, and San Francisco	$8,563,000			2030
SJ07-6017			SJRRC	ACE Forward	Acquisition of ACE Corridor between Stockton and Niles Junction	Between Stockton and Niles Junction	$45,000,000			
SJ07-6018			SJRRC	Phase II Implementation Plan for the Central Valley Rail Service	Commuter rail service	Central Valley to Sacramento	$1,000,000			
SJ07-6019			SJRRC	Operations	Shuttle Services in San Joaquin County stations	San Joaquin County	$1,123,000			2030
SJ07-6020			SJRRC	Capital	Maintenance Facility Expansion from 9 train sets to 17 train sets Phase 2	City of Stockton	$17,000,000			2015
SJ07-6021			SJRRC	ACE Operations	ACE operations and Capital Access Fee (5 trains from 2012 to 2016, 6 trains from 2017 to 2021, 7 trains from 2022 to 2029 and 8 trains from 2030 to 2041)	SJRRC/Santa Clara/Alameda contributions shown	$510,589,600			2030
SJ07-6022			SJRRC	Lathrop Transfer Station	Lathrop Transfer Station- Between ACE and Central Valley Service	City of Lathrop	$5,500,000			
SJ07-6023			SJRRC	Rail Information Systems	Rail Information Systems (Ticket vending machines, on-train internet, changeable message signs at stations, trip planner via internet, real time system for train status for ACE and other connecting services)	ACE Operational Corridor and Station Planning Areas	$13,400,000			
SJ07-6025			SJRRC	Central Valley Rail Service	Central Valley Rail Service Operations and Maintenance, Capital Access Fees, ROW purchase)	Central Valley to Sacramento	$85,000,000			
SJ07-6028			SJRRC	ACE Capital	Rolling Stock/Track Improvements/ Station Improvements	ACE Operational Corridor and Station Planning Areas	$32,000,000			2030
SJ07-6029			SJRRC	ACE Capital	Central Valley to Sacramento Commuter Rail Project - Extension of services	Central Valley to Sacramento	$54,000,000			
SJ07-6035			SJRRC	ACE Capital	Altamont Corridor Speed and Safety upgrades (including signal upgrade to automatic train stop increase train speed from 79 to 90 MPH and several track realighment projects)	ACE Operational Corridor and Station Planning Areas	$30,000,000			
SJ14-6001			SJRRC	ACEforward: Capital Phase 1	Extension of Wyche Siding	Lathrop/Manteca: MP 82.7 to MP 80.4, 8,500' clear of McKinley Ave	$9,000,000			2018
SJ14-6002			SJRRC	ACEforward: Capital Phase 1	Connection from UPRR Fresno Sub to UPRR Oakland Sub	Lathrop, Ca: Oakland Sub MP 84.25 to Fresno Sub MP 94.1	$7,000,000			2018
SJ14-6003			SJRRC	ACEforward: Capital Phase 2	Grade crossing improvements/grade seperations	High priority locations between Stockton and San Jose. Chrisman Rd MP 72.8, McKinley Ave MP 82.1	$15,000,000			2018
SJ14-6004			SJRRC	ACEforward: Capital Phase 2	Construct track, signals, stations for service expansion to Modesto	Lathrop/Manteca to Downtown Modesto	$162,000,000			2023
SJ14-6005			SJRRC	Minor Capital	Facilities and information technology maintenance and enhancements, fleet vehicle replacements and expansion	ACE Operational Corridor and Station Planning Areas	$8,870,000			2030
							$1,105,609,600			

Table 6-7: 2014 Regional Transportation Plan Project List - Public Airport-Aviation Projects Category

Identifiers: 2014 RTP MPO ID	Project Information: Jurisdiction	Facility Name/Route	Project Description	Cost to Deliver: Total	Milestone Years: NEPA Approval	Completion
SJ07-7003	San Joaquin County	Stockton Metro Airport	Reconstruct General Aviation Apron	$3,660,000		2018
SJ11-7004	San Joaquin County	Stockton Metro Airport	Upgrade Airfield HomeRun Duct Bank	$1,001,000		2016
SJ14-7001	San Joaquin County	Stockton Metro Airport	ALUCP- Airport Land use Compatibility Plan Update	$150,000		2014
SJ14-7002	San Joaquin County	Stockton Metro Airport	Rehabilitate Taxiway B	$1,220,000		2015
SJ14-7003	San Joaquin County	Stockton Metro Airport	Rehabilitate Runway 11R-29L and TWS B,D,D9,F,G,L,M	$1,220,000		2016
SJ14-7004	San Joaquin County	Stockton Metro Airport	Pavement Maintenance Management Plan	$200,000		2014
SJ14-7005	San Joaquin County	Stockton Metro Airport	Procure ARFF Vehicle	$850,000		2014
SJ14-7006	San Joaquin County	Stockton Metro Airport	Reconstruct Terminal Parking Ramp - Asphalt to Concrete	$1,960,000		2014
SJ14-7007	San Joaquin County	Stockton Metro Airport	Rehabilitate Runway Lighting Signage System	$1,220,000		2014
SJ14-7008	San Joaquin County	Stockton Metro Airport	Replace Security Access Control	$500,000		2014
SJ14-7009	San Joaquin County	Stockton Metro Airport	Runway Improvements	$671,000		2014
SJ14-7010	San Joaquin County	Stockton Metro Airport	Wildlife Management Assessment	$150,000		2014
SJ14-7012	San Joaquin County	Stockton Metro Airport	Rehab Baggage Movement System	$1,830,000		2017
SJ14-7013	Tracy	Tracy Municipal Airport	Reconstruct Runways, Taxiways, and Aprons	$14,008,000		2014
SJ14-7014	Tracy	Tracy Municipal Airport	Runways, Taxiways, and Aprons Engineering Design	$700,000		2014
SJ14-7015	Tracy	Tracy Municipal Airport	Pavement Maintenance Management Plan	$63,000		2014
SJ14-7016	Tracy	Tracy Municipal Airport	Replace AWOS AV	$187,000		2015
SJ14-7017	Tracy	Tracy Municipal Airport	Airport Master Plan and Business Plan	$450,000		2017
SJ14-7018	Tracy	Tracy Municipal Airport	Engineering Design - Projects 8,9,10	$39,000		2017
SJ14-7019	Tracy	Tracy Municipal Airport	Install Helicopter Pad	$126,000		2018
SJ14-7020	Tracy	Tracy Municipal Airport	Aircraft Wash Facility	$98,000		2019
SJ14-7021	Tracy	Tracy Municipal Airport	Perimeter Fencing (1,100LF)	$44,000		2019
SJ14-7022	Tracy	Tracy Municipal Airport	Build Permanent Public Restrooms	$220,500		2020
SJ14-7023	Tracy	Tracy Municipal Airport	FBO Office - Repair FBO Building	$1,016,946		2020
SJ14-7024	Tracy	Tracy Municipal Airport	Land Acquisition Identified in Airport Master Plan, Canal Ar	$21,848,504		2020
				$53,432,950		

Table 6-8: 2014 Regional Transportation Plan Project List - Active Transportation and Community Enhancement Projects Category

Identifiers		Project Information					Cost to Deliver	Milestone Years		
2014 RTP MPO ID	CTIPS ID #	Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total	FTIP Programming	NEPA Approval	Completion
SJ11-STTE	212-0000-0556	Lodi	Sacramento Street Enhancements	Install decorative sidewalk, lighting, and pedestrian amenities.	Between Lodi Avenue and Oak Street.		$835,000	2013		2015
SJ11-STTE	212-0000-0554	Manteca	Louise Avenue Enhancements	Replace existing asphalt median with a new raised landscape median, construct an enhance pedestrian/bicycle crossing and resurface/restripe roadway to inlcude Class 2 bicycle lanes	Airport Way to Main Street		$940,000	2013		2015
S07-3200	212-0000-0446	Ripon	Fulton Avenue	Install crosswalks, LED in-pavement crosswalk lights, speed feedback signs, signs and striping; construct bulb-outs	Fulton Ave. between W. Shasta Ave. and Cindy Dr.; Cindy Dr./ Calhoun Ave.; W. Shasta Ave. between N. Ripon Rd. and Fulton Ave.		$493,000	2013		2015
SJ11-CM23	212-0000-0603	San Joaquin County	South Stockton Sidewalks Phase 2	Excavate existing roadway to install drainage curb, gutter and sidewalks, modify facilities to meet ADA	Ninth Street,Tehth Street and Thirteenth Street between B Street and D Street		$1,825,000	2013		2015
SJ11-CM25	212-0000-0605	San Joaquin County	Cherokee Road Sidewalks Improvements	Install Curb, gutter, and Sidewalks	Sanguinetti Road to Diverting Cana		$963,000	2013		2015
SJ11-STTE	212-0000-0557	Stockton	Eldorado St. Phase 2 (Street Beautification)	Street Beautification	Calaveras River to Mariposa Ave.		$45,000	2011		2015
SJ11-STTE	212-0000-0555	Stockton	Weber Avenue Beautification, Phase 2	Install new sidewalk, corner bulbouts, landscaped medians, and street amenities, including street lights.	Between Stanislaus Street and the UPRR.		$2,610,000	2013		2015
SJ07-8021		Various	Miscellaneous regional bicycle, pedestrian, and safe routes to school facilities and programs	Specific projects are listed in the 2012 Regional Bicycle, Pedestrian, Safe Routes to School Master Plan and local agency bike plans subject to updates and competitive project selection.	Various locations throughout San Joaquin County		$178,057,879			
SJ14-8001		Various	Miscellaneous regional community enhancement projects	Specific streetscape and community enhancement projects are subject to competitive project selection.	Various locations throughout San Joaquin County		$96,051,723			
					TOTAL		**$281,820,602**			

Table 6-9: 2014 Regional Transportation Plan Project List - Transportation Control Measure Category

Identifiers	Project Information			Cost to Deliver	Milestone Years
2014 RTP MPO ID	Jurisdiction	Project Name	Project Description	Total	Completion
SJ11-CM14	Lodi	Lockeford Street and Stockton Street Signalization	Install traffic signal	See Operations and Maintenance Project List	
SJ07-9010	San Joaquin County	Traffic Signal/Ped Crossing	Corral Hollow Road and Valpico Road Traffic Signal	See Operations and Maintenance Project List	
SJ07-9012	San Joaquin County	Intersection Improvements	McHenry Avenue and River Road Traffic Signal	See Operations and Maintenance Project List	
SJ07-9013	San Joaquin County	Intersection Signalization	Byron Road and Grant Line Road	See Operations and Maintenance Project List	
SJ07-9014	San Joaquin County	South Stockton Sidewalks Phase 2	Excavate existing roadway to install drainage curb, gutter and sidewalks, modify facilities to meet ADA	See Regional Active Transportation Project List	
SJ11-3026	San Joaquin County	Lower Sacramento Rd Class III Bikeway in SJ County	Lower Sacramento Rd Class III Bikeway in SJ County	See Regional Roadway Project List	
SJ11-CM03	San Joaquin RTD	Purchase 6 BRT Buses and Corridor Enhancement	Puchase of 6 BRT Buses that will operate on BRT Corridors	See Bus Transit Project List	
SJ11-CM04	San Joaquin RTD	Operating Assistance for BRT II along Airport Way	Metro Express: Two Years of Operating Assitance	See Bus Transit Project List	
SJ11-CM17	San Joaquin RTD	Operating Assistance for BRT III along Hammer Lane	Metro Express: Two Years of Operating Assitance	See Bus Transit Project List	
SJ07-9015	Stockton	Traffic Signal	Tam O'Shanter Drive and Hammertown Drive	See Operations and Maintenance Project List	
SJ11-CM05	Stockton	Wilson Way Signalization	Install adaptive traffic control system including signalized intersections and left turn pockets.	See Operations and Maintenance Project List	
SJ11-CM06	Stockton	Benjamin Holt Drive and Cumberland Place Signalization	Install trafficsignal, fiber optic cabling, Opticom, Upgrade corners to become ADA compliant	See Operations and Maintenance Project List	
SJ11-CM07	Stockton	Benjamin Holt Drive and Ingelwood Signalization	Install trafficsignal, fiber optic cabling, Opticom, Upgrade corners to become ADA compliant	See Operations and Maintenance Project List	
SJ11-CM08	Stockton	Davis Rd and Wagner Signalization	Install trafficsignal, fiber optic cabling, Opticom, Left turn phasing on Davis, midblock Wheelchair ramp, signs and striping	See Operations and Maintenance Project List	
SJ11-CM21	Stockton	Traffic Signal	Miner Avenue and Filbert Street Signalization	See Operations and Maintenance Project List	
SJ11-CM24	Stockton	Intersection Improvements	Swain Road and Montauban Avenue Roundabout	See Operations and Maintenance Project List	

Table 6-9: 2014 Regional Transportation Plan Project List - Transportation Control Measure Category

Identifiers		Project Information			Cost to Deliver	Milestone Years
2014 RTP MPO ID		Jurisdiction	Project Name	Project Description	Total	Completion
SJ07-9009		Tracy	Traffic Signal Coordination	Eleventh Street	See Operations and Maintenance Project List	
SJ07-3114		Tracy	Traffic Signal	Byron Road and Lammers Road	See Operations and Maintenance Project List	
SJ11-CM18		Tracy	Traffic Signal Coordination	Corral Hollow Road Adaptive System	See Operations and Maintenance Project List	
SJ11-CM12		Tracy	Traffic Signal	Eleventh Street and MacArthur Geometric Improvements	See Operations and Maintenance Project List	
SJ07-9001		Various	Ridesharing and Vanpool Programs	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.	See Operations and Maintenance Project List	
SJ07-9002		Various	Park and Ride Lots	Various Locations	See Operations and Maintenance Project List	
SJ07-9003		Various	Traffic Flow Improvements and Systems Managements	Signal System Improvements, Operational and Intersection Improvements to Smooth Traffic Flow, Closed Circuit TV, Freeway Service Patrols	See Operations and Maintenance Project List	
					$0	

Table 6-10: 2014 Regional Transportation Plan Project List - Operations and Maintenance Category

Identifiers				Project Information					Cost to Deliver	Milestone Years			
2014 RTP MPO ID	CTIPS ID #	PPNO	Jurisdiction	Facility Name/Route	Project Description	Project Limits	Total	FTIP Programming	NEPA Approval	Open to Traffic
SJ07-1019	212-0000-0313		Caltrans	Various locations	SHOPP - Collision Reduction Grouped Projects	Various	$282,542,602	various	various	2030
SJ07-1020	212-0000-0314		Caltrans	Various locations	SHOPP - Mobility Grouped Projects	Various	$92,928,777	various	various	2030
SJ07-1021	212-0000-0315		Caltrans	Various locations	SHOPP Roadway Preservation Grouped Projects	Various	$194,525,465	various	various	2030
SJ07-1022	212-0000-0392		Caltrans	Various locations	SHOPP-Other (Emergency Response, Mandates, Bridge Preservation, Roadside Preservation Etc.)	Various	$136,747,973	various	various	2030
SJ07-3002	212-0000-0272		Caltrans	Various locations	Caltrans Highway Bridge Program Lump Sum projects (Safety)	Various	$116,490,513	various	various	2030
SJ07-3003	various		Caltrans	Various locations	Caltrans Highway Bridge Program Line Item projects (Safety)	Various	$197,179,445	various	various	2030
SJ07-3004	212-0000-0307		Caltrans	Various locations	Lump sum for Emergency Repair Program (Safety)	Various	$3,750,000	various	various	2030
SJ07-3005	212-0000-0353/ 212-0000-0567		Caltrans	Various locations	Caltrans Minor Program (Safety)	Various	$12,115,575	various	various	2030
SJ11-3046	212-0000-0001		Escalon	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations	$19,211,707	various		2035
SJ11-3047	212-0000-0001		Lathrop	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations	$45,288,757	various		2035
SJ11-3048	212-0000-0001		Lodi	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations	$166,382,262	various		2035
SJ11-3065	212-0000-0001		Lodi	Harney Lane/UPRR Grade Crossing	Railroad Crossing Safety	Turner Road to Stockton Street	$809,500	2013		2016
SJ11-3066	212-0000-0001		Lodi	Lockeford Street Widening	Operations and Maintence	Lockeford Street	$1,526,018	2013		2016
SJ11-CM14	212-0000-0592		Lodi	Lockeford Street and Stockton Street Signalization	Install traffic	Lockeford Street and Stockton Street	$276,000	2013		
SJ11-3049	212-0000-0001		Manteca	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations	$136,992,599	various		2035
SJ11-3067	212-0000-0001		Manteca	Louise Avenue Improvements	Reconstruct roadway and improve median	Airport Way and Main Street	$780,000	2013		2014
SJ11-3068	212-0000-0001		Manteca	Louise Avenue Rehabilitation	Rehabilitate roadway and surrounding streets	Louise Ave from UPRR to Main St, Northgate Dr from Crestwood Ave to Main St	$333,216	2015		2015
SJ11-3050	212-0000-0001		Ripon	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations	$38,956,146	various		2035
SJ11-3069	212-0000-0001		Ripon	Stockton Avenue Reconst	Reconstruction	Second Street to Doak Avenue	$585,670	2015		2016
SJ07-3044	212-0000-0370		San Joaquin County	Byron Road and Grant Line Road Intersection Signalization	Intersection Signalization	Byron Road and Grant Line Road	$1,643,445	2007		
SJ11-3036	212-0000-0001		San Joaquin County	Lower Sacramento Road Resurfacing	Rehabilitate roadway and surrounding streets	Woodbridge Road to Jahant Road	$924,000	2013		2014
SJ11-3037	212-0000-0001		San Joaquin County	Mariposa Road Resurfacing	Rehabilitate roadway and surrounding streets	Dodds Road to Escalon-Bellota Road	$1,493,000	2013		2014
SJ11-3038	212-0000-0001		San Joaquin County	Mariposa Road Resurfacing	Rehabilitate roadway and surrounding streets	Gawne Road to Dodds Road	$2,185,001	2013		2014
SJ11-3039	212-0000-0001		San Joaquin County	Escalon Bellota Resurfacing	Rehabilitate roadway and surrounding streets	Escalon City Limits to Mariposa Rd	$749,849	2013		2016
SJ11-3040	212-0000-0001		San Joaquin County	Thornton Road Resurfacing	Rehabilitate roadway and surrounding streets	Eight Mile Road to DeVries Road	$531,180	2013		2016
SJ11-3041	212-0000-0001		San Joaquin County	Walnut Grove Road Resurfacing	Rehabilitate roadway and surrounding streets	Sacramento County Line to New Hope Bridge	$750,734	2013		2016
SJ11-3051	212-0000-0001		San Joaquin County	Various Roadway Rehabilitation	Rehabilitation to include: driveways, wheelchair ramps, median islands, pedestrian improvements, and class II bicycle lanes.	Rehabilitate roadway and surrounding streets	$1,208,057,951	various		2035
SJ11-CM26	212-0000-0606		San Joaquin County	Corral Hollow Road and Valpico Road Traffic Signal	Intersection Signalization	Corral Hollow Road and Valpico Road	$751,000	2011		
SJ11-CM11	212-0000-0541		San Joaquin County	McHenry Avenue and River Road Traffic Signal	Intersection Signalization	McHenry Avenue and River Road	$1,065,287	2011		

Table 6-10: 2014 Regional Transportation Plan Project List - Operations and Maintenance Category

Identifiers				Project Information					Cost to Deliver	Milestone Years			
2014 RTP MPO ID	CTIPS ID #	PPNO		Jurisdiction	Facility Name/Route	Project Description	Project Limits		Total	FTIP Programming	NEPA Approval	Open to Traffic	
SJ11-3042	212-0000-0001			SJCOG	Regional Surface Transportation Program (STP) Lump Sum Projects	Various state highway and transit capital projects	San Joaquin County		$3,038,998	various		2016	
SJ07-9015	212-0000-0376			Stockton	Tam O'Shanter Drive and Hammertown Drive	Install traffic signal	Tam O'Shanter Drive and Hammertown Drive		$10,710				
SJ11-3043	212-0000-0001			Stockton	Regional Surface Transportation Program (STP) Lump Sum Projects	Rehabilitation to include: driveways, wheelchair ramps, median islands, pedestrian improvements, and class II bicycle lanes.	City streets, various locations		$5,931,260	various		2016	
SJ11-3044	212-0000-0001			Stockton	Regional Surface Transportation Program (STP) Lump Sum Projects	Operations and Maintence	City streets, various locations		$1,930,715	various		2014	
SJ11-3052	212-0000-0001			Stockton	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations		$762,390,100	various		2035	
SJ11-CM05	212-0000-0535			Stockton	Wilson Way Signalization	Install adaptive traffic control system including signalized intersections and left turn pockets.	Wilson Way		$1,064,213	2011			
SJ11-CM06	212-0000-0536			Stockton	Benjamin Holt Drive and Cumberland Place Signalization	Install trafficsignal, fiber optic cabling, Opticom, Upgrade corners to become ADA compliant	Benjamin Holt Drive and Cumberland Place		$475,378	2011			
SJ11-CM07	212-0000-0537			Stockton	Benjamin Holt Drive and Ingelwood Signalization	Install trafficsignal, fiber optic cabling, Opticom, Upgrade corners to become ADA compliant	Benjamin Holt Drive and Ingelwood		$465,391	2011			
SJ11-CM08	212-0000-0538			Stockton	Davis Rd and Wagner Signalization	Install trafficsignal, fiber optic cabling, Opticom, Left turn phasing on Davis, midblock Wheelchair ramp, signs and striping	Davis Rd and Wagner		$384,975	2011			
SJ11-CM21	212-0000-0601			Stockton	Miner Avenue and Filbert Street Signalization	Install traffic signal	Miner Avenue and Filbert Street		$688,000	2011			
SJ11-CM24	212-0000-0604			Stockton	Swain Road and Montauban Avenue Roundabout	Construct roundabout	Swain Road and Montauban Avenue		$592,266	2011			
SJ11-CM12	212-0000-0542			Tracy	Eleventh Street and MacArthur Geometric Improvements	Traffic Signal Coordination	Eleventh Street and MacArthur Drive		$1,875,000	2011			
SJ11-CM18	212-0000-0616			Tracy	Corral Hollow Road Adaptive System	Traffic Signal Coordination	Corral Hollow Road Adaptive System		$1,121,625	2011			
SJ07-3114	212-0000-0377			Tracy	Byron Road and Lammers Road Traffic Signal	Traffic Signal	Byron Road and Lammers Road		$200,000	2007			
SJ11-3045	212-0000-0001			Tracy	Regional Surface Transportation Program (STP) Lump Sum Projects	Rehabilitation of various streets and roads	City streets, various locations		$1,257,734	various		2016	
SJ11-3053	212-0000-0001			Tracy	Various Street Rehabilitation	Rehabilitation of various streets and roads	City streets, various locations		$212,164,643	various		2035	
SJ07-9001	112-0000-0025			Various	Ridesharing and Vanpool Programs	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.	San Joaquin County		$18,000,000	various			
SJ07-9002				Various	Park and Ride Lots	Various Locations	San Joaquin County		$1,450,000	various			
SJ07-9003				Various	Traffic Flow Improvements and Systems Managements	Signal System Improvements, Operational and Intersection Improvements to Smooth Traffic Flow, Closed Circuit TV, Freeway Service Patrols	San Joaquin County		$5,000,000	various			
									$3,683,614,680				